

# Table of Contents

---

---

Home .....	9
The University of Texas at Arlington .....	10
Academic Calendar .....	11
Degree Programs .....	11
The University of Texas System Administration .....	18
The University of Texas at Arlington Administration .....	19
University Requirements & Policies .....	20
Academic Standing .....	20
Admissions .....	22
Graduate Admissions .....	23
Undergraduate Admissions .....	34
Degree Requirements .....	44
Graduate .....	45
Undergraduate .....	52
Financial Aid .....	57
Grades and Grading Policies .....	61
Graduation .....	69
Registration .....	69
Student Conduct & Academic Integrity .....	78
Student Responsibilities .....	82
Student Rights & Security .....	84
Tuition & Fees .....	86
Degree Requirements .....	93
General Core Requirements .....	93
Undergraduate Education .....	97
Graduate Education .....	98
Office of International Education .....	99
School of Architecture .....	100
Architecture .....	101
Architecture - Undergraduate Programs .....	101
Architecture - Graduate Programs .....	106
Interior Design .....	113
Landscape Architecture .....	118
College of Business .....	123
Accounting .....	133
Accounting - Graduate Programs .....	134
Accounting - Undergraduate Programs .....	137
Business Administration - Graduate Programs .....	144
Economics .....	149

Economics - Graduate Programs .....	149
Economics - Undergraduate Programs .....	152
Finance and Real Estate .....	156
Finance and Real Estate - Graduate Programs .....	157
Finance and Real Estate - Undergraduate Programs .....	160
Health Care Administration - Graduate Programs .....	165
Information Systems and Operations Management .....	168
Information Systems and Operations Management - Graduate Programs .....	168
Information Systems and Operations Management - Undergraduate Programs .....	171
Management .....	178
Management - Graduate Programs .....	178
Management - Undergraduate Programs .....	180
Marketing .....	183
Marketing - Graduate Programs .....	184
Marketing - Undergraduate Programs .....	186
College of Education & Health Professions .....	190
Curriculum and Instruction .....	194
Curriculum and Instruction - Graduate Programs .....	194
Curriculum and Instruction - Undergraduate Programs .....	199
Educational Leadership and Policy Studies .....	206
Educational Leadership and Policy Studies - Graduate Programs .....	206
Educational Leadership and Policy Studies - Undergraduate Programs .....	211
Kinesiology .....	212
Kinesiology - Graduate Programs .....	212
Kinesiology - Undergraduate Programs .....	217
College of Engineering .....	230
Bioengineering .....	238
Bioengineering - Graduate Programs .....	238
Bioengineering - Undergraduate Programs .....	242
Civil Engineering .....	250
Civil Engineering - Graduate Programs .....	250
Civil Engineering - Undergraduate Programs .....	255
Computer Science and Engineering .....	259
Computer Science and Engineering - Graduate Programs .....	260
Computer Science and Engineering - Undergraduate Programs .....	263
Electrical Engineering .....	269
Electrical Engineering - Graduate Programs .....	270
Electrical Engineering - Undergraduate Programs .....	275
Industrial and Manufacturing Systems Engineering .....	278
Industrial and Manufacturing Systems Engineering - Graduate Programs .....	278
Industrial and Manufacturing Systems Engineering - Undergraduate Program .....	284
Materials Science and Engineering .....	288

Materials Science and Engineering - Graduate Programs .....	288
Materials Science and Engineering - Undergraduate Programs .....	293
Mechanical and Aerospace Engineering .....	294
Mechanical and Aerospace Engineering - Graduate Programs .....	294
Mechanical and Aerospace Engineering - Undergraduate Programs .....	307
College of Liberal Arts .....	317
Aerospace Studies .....	321
Art and Art History .....	322
Art + Art History - Graduate Program .....	323
Art and Art History - Undergraduate Programs .....	326
Classical Studies .....	335
Communication .....	337
Communication - Graduate Program .....	337
Communication - Undergraduate Programs .....	339
Criminology and Criminal Justice .....	345
Criminology & Criminal Justice - Graduate Program .....	345
Criminology and Criminal Justice - Undergraduate Programs .....	348
English .....	353
English - Graduate Programs .....	353
English - Undergraduate Programs .....	356
History .....	359
History - Graduate Programs .....	360
History - Undergraduate Programs .....	367
Linguistics .....	376
Linguistics - Graduate Programs .....	377
Linguistics and TESOL - Undergraduate Programs .....	383
Mexican American Studies .....	385
Military Science .....	386
Modern Languages .....	387
Modern Languages - Graduate Program .....	388
Modern Languages - Undergraduate Programs .....	390
Music .....	397
Music - Graduate Programs .....	398
Music - Undergraduate Programs .....	402
Philosophy and Humanities .....	413
Philosophy - Graduate Program .....	413
Philosophy and Classics - Undergraduate and Certificate Programs .....	413
Political Science .....	417
Political Science - Graduate Programs .....	418
Political Science - Undergraduate Programs .....	420
Sociology and Anthropology .....	424
Sociology - Undergraduate Programs .....	424

Sociology - Graduate Programs .....	427
Anthropology - Undergraduate Programs .....	428
Anthropology - Graduate Programs .....	430
Southwestern Studies .....	430
Theatre Arts .....	431
Theatre Arts - Graduate Programs .....	431
Theatre Arts - Undergraduate Programs .....	431
Women's and Gender Studies .....	444
College of Nursing .....	445
Nursing - Graduate Programs .....	447
Nursing - Undergraduate Programs .....	459
College of Science .....	469
Biology .....	477
Biology - Graduate Programs .....	477
Biology - Undergraduate Programs .....	482
Chemistry and Biochemistry .....	515
Chemistry and Biochemistry - Graduate Programs .....	515
Chemistry and Biochemistry - Undergraduate Programs .....	520
Earth and Environmental Sciences .....	533
Earth and Environmental Sciences - Graduate Programs .....	534
Earth and Environmental Sciences - Undergraduate Programs .....	539
Interdisciplinary Science - Graduate Programs .....	562
Mathematics .....	563
Mathematics - Graduate Programs .....	563
Mathematics - Undergraduate Programs .....	570
Physics .....	589
Physics - Graduate Programs .....	589
Physics - Undergraduate Programs .....	591
Psychology .....	608
Psychology - Graduate Programs .....	608
Psychology - Undergraduate Programs .....	616
School of Social Work .....	627
Social Work - Undergraduate Programs .....	628
Social Work - Graduate Programs .....	631
Center for African American Studies .....	636
The Diversity Certificate Program .....	639
School of Urban & Public Affairs .....	641
City and Regional Planning - Graduate Programs .....	642
Interdisciplinary Studies .....	650
Public Administration - Graduate Programs .....	651
Urban and Public Affairs - Graduate Programs .....	661
Honors College .....	664

University College .....	668
University Studies - Undergraduate Program .....	668
Special Programs & Centers .....	671
Other Offices .....	673
Athletics .....	673
Division of Student Affairs .....	673
University Libraries .....	679
Veterans Upward Bound .....	679
Faculty Listing .....	681
Course Descriptions .....	719
Accounting (ACCT) .....	722
Advertising (ADVT) .....	726
Aerospace Engineering (AE) .....	726
Aerospace Studies (AS) .....	731
Affiliated Studies Abroad (ASA) .....	732
African-American Studies (AAST) .....	732
Anthropology (ANTH) .....	735
Arabic (ARAB) .....	740
Architecture (ARCH) .....	741
Art & Art History (ART) .....	748
Astronomy (ASTR) .....	759
Bilingual ESL Early Child Prog (BEEP) .....	759
Bioengineering (BE) .....	760
Biology (BIOL) .....	767
Broadcast Communication (BCMN) .....	777
Business Administration (BSAD) .....	778
Business Administration (BUSA) .....	779
Business Communication (BCOM) .....	780
Business Decisions (BDEC) .....	780
Business Honors (BHNR) .....	780
Business Law (BLAW) .....	780
Business Statistics (BSTAT) .....	781
Chemistry & Biochemistry (CHEM) .....	782
Chinese (CHIN) .....	789
City and Regional Planning (CIRP) .....	790
Civil Engineering (CE) .....	795
Classics (CLAS) .....	807
Communication (COMM) .....	808
Communication Studies (COMS) .....	810
Communications Technology (CTEC) .....	811
Computer Science (CS) .....	812
Computer Science and Engineering (CSE) .....	812

Criminology & Criminal Justice (CRCJ) .....	822
Dance Activity (DNCA) .....	826
Dance Theory (DNCE) .....	827
Early Childhood Education (ECED) .....	827
Economics (ECON) .....	828
Education (EDUC) .....	833
Education (EDUCIR) .....	837
Education Counseling (EDCO) .....	837
Education Middle Level (EDML) .....	838
Educational Administration (EDAD) .....	839
Educational Administration (EDADIR) .....	845
Educational Technology (EDTC) .....	845
Electrical Engineering (EE) .....	846
Elementary Education (ELED) .....	857
Eng for Speakers of Other Lang (ESOL) .....	859
Engineering (ENGR) .....	859
Engineering Mechanics (EM) .....	860
English (ENGL) .....	860
Environmental Science and Engineering (EVSE) .....	869
Environmental and Sustainabili (ESST) .....	871
Exchange Courses (EXCH) .....	871
Executive Master of Business Administration (EMBA) .....	872
Exercise and Sport Activity (EXSA) .....	873
Exercise and Sport Studies (EXSS) .....	874
Finance (FINA) .....	875
First Year Seminar - Art (FS-ART) .....	878
First Year Seminar - Biology (FS-BIOL) .....	878
First Year Seminar - Business (FS-BUSA) .....	878
First Year Seminar - Communications (FS-COMM) .....	878
First Year Seminar - Criminal Justice (FS-CRCJ) .....	878
First Year Seminar - English (FS-ENGL) .....	878
First Year Seminar - History (FS-HIST) .....	879
First Year Seminar - Management (FS-MANA) .....	879
First Year Seminar - Math (FS-MATH) .....	879
First Year Seminar - Modern Languages (FS-MODL) .....	879
First Year Seminar - Nurse (FS-NURS) .....	879
First Year Seminar - Theater (FS-THEA) .....	879
First Year Seminar - University Studies (FS-UNIV) .....	879
First Year Seminar -Philosophy (FS-PHIL) .....	880
French (FREN) .....	880
Geography (GEOG) .....	883
Geology (GEOL) .....	883

German (GERM) .....	889
Global (GLOBAL) .....	892
Greek (GREK) .....	892
Health (HEED) .....	892
Health Care Administration (HCAD) .....	894
History (HIST) .....	895
Honors (HONR) .....	905
Honors-Architecture (HONR-AR) .....	907
Honors-Business (HONR-BU) .....	907
Honors-Education (HONR-ED) .....	908
Honors-Engineering (HONR-EN) .....	908
Honors-Liberal Arts (HONR-LA) .....	908
Honors-Nursing (HONR-NU) .....	909
Honors-Science (HONR-SC) .....	909
Honors-Social Work (HONR-SW) .....	910
Honors-Visual & Performing Arts (HONR-VP) .....	910
Humanities (HUMA) .....	910
Industrial and Manufacturing Systems Engineering (IE) .....	911
Information Systems (INSY) .....	917
Insurance (INSU) .....	921
Interdisciplinary Studies (INTS) .....	921
Interior Design (INTD) .....	922
Introduction to Liberal Arts (COLA) .....	924
Journalism (JOUR) .....	924
Kinesiology (KINE) .....	925
Korean (KORE) .....	934
Landscape Architecture (LARC) .....	935
Latin (LATN) .....	937
Leadership Studies (LSHP) .....	938
Linguistics (LING) .....	938
Literacy Studies (LIST) .....	943
Literacy Studies (LISTIR) .....	945
Management (MANA) .....	946
Management Sciences (MASI) .....	950
Marketing (MARK) .....	950
Materials Science and Engineering (MSE) .....	954
Mathematical Sciences (MSCI) .....	959
Mathematics (MATH) .....	959
Mathematics Education (MAED) .....	970
Mechanical Engineering (ME) .....	970
Mechanical and Aerospace Engineering (MAE) .....	975
Mexican American Studies (MAS) .....	980

Military Science (MILS) .....	982
Modern Languages (MODL) .....	983
Music (MUSI) .....	984
Nuclear Engineering (NE) .....	1003
Nursing (NURS) .....	1003
Nursing - Elective (AP) (NURS-EL) .....	1012
Nursing - Independent Studies (NURS-IS) .....	1012
Nursing - Lower Level (NURS-LL) .....	1012
Nursing - Mexico Study Abroad (NURS-MX) .....	1012
Nursing - Student Success (NURS-SS) .....	1013
Nursing - Upper Level (NURS-UL) .....	1013
Nursing Transferred Course (NRST) .....	1013
Operations Management (OPMA) .....	1013
Philosophy (PHIL) .....	1015
Physical Education (PHED) .....	1018
Physics (PHYS) .....	1018
Political Science (POLS) .....	1023
Portuguese (PORT) .....	1030
Psychology (PSYC) .....	1031
Public Relations (PREL) .....	1039
Public and Urban Administration (PUAD) .....	1039
Real Estate (REAE) .....	1040
Russian (RUSS) .....	1042
SUSTAINABILITY (SUST) .....	1044
School of Urban and Public Affairs (SUPA) .....	1045
Science (General) (SCIE) .....	1045
Science Education (SCED) .....	1048
Social Work (SOCW) .....	1049
Sociology (SOCI) .....	1057
Spanish (SPAN) .....	1061
Special Topics (SPEC) .....	1065
Statistics (STATS) .....	1066
Students Obtain Acad Readiness (SOAR) .....	1067
Theatre Arts (THEA) .....	1067
University College (UNIV) .....	1072
Urban Planning and Public Policy (UPPP) .....	1072
Urban and Public Affairs (URPA) .....	1072
Women's Studies (WOMS) .....	1078
Index .....	1082



# Home

---

The University of Texas at Arlington Online University Catalog is the official catalog of the University, and takes precedence over any previously printed or online catalog. This version of the catalog was published in June of 2014, and supersedes the previously published 2013-2014 catalog. Students are governed by the catalog under which they were enrolled or, at a student's option, the catalog of any subsequent year in which that student was in residence. Please refer to the academic requirements and procedures sections for more information.

**The University Catalog is a general information publication only. The University Catalog is not intended to nor does it contain all regulations that relate to students. The provisions of this catalog do not constitute a contract, express, or implied, between any applicant, student or faculty/staff member and The University of Texas at Arlington or The University of Texas System. The University reserves the right to withdraw courses at any time, change fees, rules, calendar, curriculum, degree programs, degree requirements, graduation procedures and any other requirements affecting students. Changes will become effective whenever the proper authorities so determine and will apply to both prospective students and those already enrolled.**

Students are held individually responsible for complying with all requirements of the rules and regulations of the University and the Board of Regents of The University of Texas System. Failure to read and comply with policies, regulations and procedures will not exempt a student from being governed by and accountable to them. Many departments and programs issue program manuals, procedures and policy manuals, student handbooks and other informational publications for students and faculty in its programs. These publications provide detailed and useful information; however, they are not statements of official policy or binding contracts of The University of Texas at Arlington or of The University of Texas System. In all matters, the Rules and Regulations of the Board of Regents of The University of Texas System, the Handbook of Operating Procedures of The University of Texas at Arlington, and the University Catalog of The University of Texas at Arlington shall supersede departmental, program or college publications.

## Available Formats

The University Catalog is available in an online format only. This is part of the Mavericks Go Green Campus Sustainability program (<http://www.uta.edu/sustainability>). Many of our previous catalogs are still available online. Catalogs that are no longer online are still available through the University Archives (<http://www.uta.edu/library/spco/universityarchives.php>).

# The University of Texas at Arlington

---

## University Profile

The University of Texas at Arlington is a Carnegie Research Institution (High Research Activity) whose mission is the advancement of knowledge and the pursuit of excellence in research, teaching, and service to the community. The mission statement affirms UT Arlington's commitment to expanding academic research; to attracting and retaining high quality faculty scholars who actively engage students; to providing a well-rounded academic experience that promotes student involvement, service learning, and free discourse; to employing alternative access venues to meet students' needs; and to developing public and private partnerships.

Founded in 1895 as a private liberal arts institution, UT Arlington has evolved through a succession of names and missions. The institution achieved senior college status in 1959 and became part of The University of Texas System in 1965. The government of UT Arlington is vested in a nine-member Board of Regents of The University of Texas System, nominated by the governor and approved by the Senate. The Office of the Chancellor is the chief administrative office of The University of Texas System and is located in Austin. The chief administrative officer of UT Arlington is the University president, under the authority of the Office of the Chancellor of the UT System and the Board of Regents. A complete statement of the authority and duties of the Regents and of the several officers, together with an account of the organization of the system, is published in the Rules and Regulations of the Board of Regents of The University of Texas System.

Authorized by the Texas Higher Education Coordinating Board, UT Arlington offers 81 baccalaureate, 70 master's and 31 doctoral degree programs. The University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award these degrees. In addition, many of UT Arlington's academic departments and schools have received national accreditation from specific agencies. These accreditations are detailed under the individual listings for departments and schools in this catalog.

UT Arlington currently serves 33,329 students, including more than 7,600 graduate students. Our student body is drawn from almost every state in the United States and more than 100 countries. The average age of all students in fall 2012 was 27, while the average age of all graduate students was 30. UT Arlington's student population is becoming more traditional and residential. The size of the incoming freshman class for fall 2013 was more than 3,900. Approximately 58 percent of our students are enrolled full-time. Since becoming a degree-granting institution at the baccalaureate, master's, and doctoral levels, UT Arlington has awarded more than 158,400 degrees with 9,221 of those degrees awarded during the 2011-12 academic school year.

UT Arlington is categorized as a "selective" institution by U.S. News & World Report. In fall 2011, 69 percent of first-time freshman applicants were accepted and 77 percent of graduate applicants were accepted. More than 22 percent all fall 2011 first-time undergraduate students ranked in the top 10 percent of their graduating high school class.

UT Arlington is one of the most ethnically diverse campuses in the United States, according to rankings of national universities published by U.S. News & World Report in September 2013. In fall 2012, the student population was 20.9 percent Hispanic, 14.3 percent African American, 10 percent Asian, 8.5 percent international, and 0.2 percent Native American. It is estimated that the Hispanic student population will be UT Arlington's fastest growing student segment in the coming decades.

In response to societal needs, UT Arlington has evolved into a renowned university within the state and one of emerging position nationally and internationally. The University's history of achievement can be attributed to its outstanding faculty; a strong student body; a record of success by graduates in their respective fields; and the growth of the Dallas/Fort Worth area as a nationally and internationally significant metropolis.

The University of Texas at Arlington is a comprehensive research, teaching, and public service institution whose mission is the advancement of knowledge and the pursuit of excellence. It is committed to the promotion of lifelong learning through its academic and continuing education programs and to the formation of good citizenship through its community service learning programs. The diverse student body shares a wide range of cultural values and the University community fosters unity of purpose and cultivates mutual respect.

As a University, we affirm our commitment to the following objectives:

- The University is committed to comprehensive programs of academic research. This research effort requires attracting and retaining scholars who promote a culture of intellectual curiosity, rigorous inquiry, and high academic standards among their fellow faculty and the students they teach.
- The University values intellectual discovery not only as a manifestation of advancing human knowledge for its own sake but also as a vital prerequisite for fostering innovation, developing and transferring new technologies, and supporting the commercialization of products and services that enhance the standard of living and quality of life of the region, the state, the nation and the world.
- The University prepares students for full, productive lives and informed and active citizenship. To that end, we have developed undergraduate and graduate curricula and classroom practices that engage students actively in the learning process. Outside the classroom a wide range of student organizations and activities contribute to the learning environment. Our service learning program offers students the opportunity to supplement their academic study with internships in a variety of community settings, testing their skills and aptitudes and challenging their values. State-of-the-art teaching technologies, distance education, and off-site instruction afford access to off-campus as well as traditional students. Non-degree certificate and continuing education programs offer practical, aesthetic, and intellectually stimulating opportunities for community learners, for individual courses or a sustained program of study.

- The University's mission can be achieved only when its students, faculty, staff, and administrators value and promote free expression in an atmosphere of tolerance, responsibility, and trust. The University regards these attributes as prerequisites for any community of learners and vigilantly strives to maintain them.
- Mindful of its role as a resource to the community, locally, nationally, and internationally, the University continually seeks partnerships with public and private concerns in order to advance the economic, social, and cultural welfare of its constituencies. We serve the needs of the North Texas community by sponsoring public lectures and academic symposia, as well as artistic, musical, and dramatic productions.

## Non-Discrimination Policy and Procedure

It is the policy of The University of Texas at Arlington that no person shall, on the basis of race, color, national origin, religion, age, sex, sexual orientation, disabilities, genetic information, and/or veteran status, be denied employment with or admission to the University; or be excluded from participation in, denied the benefits of, or subject to discrimination under, any program or activity that the University sponsors or conducts. Retaliation against persons who oppose a discriminatory practice, file a charge of discrimination, or testify for, assist in, or participate in an investigative proceeding relating to discrimination is prohibited. Constitutionally-protected expression will not be considered discrimination or harassment under this policy.

The University of Texas at Arlington complies with the Equal Pay Act of 1963, Titles VI and VII of the Civil Rights Act of 1964, Executive Order 11246, the Age Discrimination in Employment Act of 1967, Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, the Uniformed Services Employment and Reemployment Rights Act of 1994, Title II of the Genetic Information Nondiscrimination Act of 2008, the Vietnam Era Veterans' Readjustment Act of 1974, the Texas Commission on Human Rights Act and their subsequent amendments, as well as other applicable federal and state laws and regulations, the Rules and Regulations of the Board of Regents of The University of Texas System, and policies and standards issued by The University of Texas System Administration.

This policy applies to all students and employees of the University, to visitors to the University, and to applicants for admission to or employment with the University. For further details, including definitions, complaint procedures, and contact information, please review the University policy Procedure 14-2 (<https://www.uta.edu/policy/procedure/14-2>).

## Sexual Harassment and Misconduct, and Consensual Relationships Policy

The University of Texas at Arlington is committed to an academic and working environment free from inappropriate conduct of a sexual nature. Sexual harassment and misconduct is prohibited and will be in violation of this policy. Sexual harassment is a prohibited practice for employees under Title VII of the 1964 Civil Rights Act as amended by the Equal Employment Opportunity Act of 1973 and the Texas Commission on Human Rights Act, and under Title IX of the Education Amendments of 1972 for students. The university will take prompt disciplinary action against any individuals on this campus who engage in actions that violate this policy.

This policy and its complaint procedures apply to all administrators, faculty, staff, students, visitors, and applicants for employment or admission. It is also applicable regardless of the gender of the complainant or the alleged harasser. For further details, including definitions, complaint procedures, and contact information, please review the University policy Procedure 14-1 (<https://www.uta.edu/policy/procedure/14-1>).

## Academic Calendar

Fall 2014 (<http://www.uta.edu/uta/acadcal.php?session=20146>)

Winter 2014/2015 (<http://www.uta.edu/uta/acadcal.php?session=20147>)

Spring 2015 (<http://www.uta.edu/uta/acadcal.php?session=20151>)

Summer Intersession 2015 (<http://www.uta.edu/uta/acadcal.php?session=20152>)

Summer 1st Five Weeks 2015 (<http://www.uta.edu/uta/acadcal.php?session=20153>)

Summer 11 Weeks 2015 (<http://www.uta.edu/uta/acadcal.php?session=20154>)

Summer 2nd Five Weeks 2015 (<http://www.uta.edu/uta/acadcal.php?session=20155>)

## Degree Programs

### SCHOOL OF ARCHITECTURE (p. 100)

- Architecture - BS
- Interior Design - BS
- Architecture - M.Arch.
- Landscape Architecture - MLA

## **COLLEGE OF BUSINESS (p. 123)**

### **DEPARTMENT OF ACCOUNTING (P. 133)**

- Accounting - BBA
- Accounting - BS
- Accounting - MS
- Professional Accounting - MPA
- Taxation - MS
- Accounting - PhD

### **BUSINESS ADMINISTRATION, UNDERGRADUATE PROGRAMS (P. 124)**

- International Business Administration - French - BBA
- International Business Administration - German - BBA
- International Business Administration - Russian - BBA
- International Business Administration - Spanish - BBA
- Real Estate - BBA

### **BUSINESS ADMINISTRATION, GRADUATE PROGRAMS (P. 144)**

- Business Administration - MBA (Flexible Format)
- Business Administration - MBA (Professional Cohort)
- Executive Business Administration - MBA
- Online Business Administration - Online MBA
- Business Administration - PhD

### **DEPARTMENT OF ECONOMICS (P. 149)**

- Economics - BBA
- Economics - BS
- Economics - MA

### **DEPARTMENT OF FINANCE AND REAL ESTATE (P. 156)**

- Finance - BBA
- Quantitative Finance - MS
- Finance (Business Administration) - PhD

### **HEALTH CARE ADMINISTRATION PROGRAM (P. 165)**

- Health Care Administration - MS

### **DEPARTMENT OF INFORMATION SYSTEMS & OPERATION M (P. 168)ANAGEMENT (P. 168)**

- Information Systems - BBA
- Information Systems - BS
- Operations Management - BBA
- Information Systems - MS
- Information Systems (Business Administration) - PhD
- Mathematical Sciences, Information Systems - PhD

### **DEPARTMENT OF MANAGEMENT (P. 178)**

- Management - BBA
- Human Resource Management - MS
- Management (Business Administration) - PhD

### **DEPARTMENT OF MARKETING (P. 183)**

- Marketing - BBA
- Marketing Research - MS
- Marketing (Business Administration) - PhD

## **COLLEGE OF EDUCATION AND HEALTH PROFESSIONS (p. 190)**

### **DEPARTMENT OF CURRICULUM AND INSTRUCTION (P. 194)**

- Interdisciplinary Studies - Education - BAIS
- Interdisciplinary Studies - Education - BAIS
- Interdisciplinary Studies Education - BSIS
- Academic Partnership Ed Curriculum & Instruction - MEd Mathematics
- Academic Partnership Ed Curriculum & Instruction - MEd Science
- Academic Partnership Ed Curriculum & Instruction - MEd Triple Literacy
- Ed Curriculum & Instruction - MEd
- Ed Curriculum & Instruction, Mathematics - MEd
- Ed Curriculum & Instruction, Science - MEd
- Ed Curriculum & Instruction, Writing Focus - MEd
- Mind, Brain and Education - MEd
- Reading Specialist - MEd
- Teaching - Early Childhood - MEdT
- Teaching - Middle Level - MEdT
- Teaching - Secondary Level - MEdT

### **DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES (P. 206)**

- Academic Partnership Ed Leadership & Policy Studies - MEd
- Ed Leadership & Policy Studies - MEd
- Ed Leadership & Policy Studies (K-16) - PhD

### **DEPARTMENT OF KINESIOLOGY (P. 212)**

- Exercise Science - BS
- Kinesiology - BA
- Kinesiology All-Level - BA
- Athletic Training - MS
- Exercise Science - MS

## **COLLEGE OF ENGINEERING**

### **DEPARTMENT OF BIOENGINEERING (P. 238)**

- Biomedical Engineering - BS
- Biomedical Engineering - MS
- Biomedical Engineering - BS to PhD
- Biomedical Engineering - PhD

### **DEPARTMENT OF CIVIL ENGINEERING (P. 250)**

- Civil Engineering - BSCE
- Civil Engineering - MEngr
- Civil Engineering - MEngr Fast Track
- Civil Engineering - MS
- Civil Engineering - PhD

### **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (P. 259)**

- Computer Engineering - BSCSE
- Computer Science-BSCS - BSCS
- Software Engineering - BS
- Computer Engineering - MS
- Computer Science - MS
- Software Engineering - MSWEN
- Computer Engineering - BS to PhD

- Computer Engineering - PhD
- Computer Science - BS to PhD
- Computer Science - PhD
- Mathematical Sciences, Computer Science - PhD

#### **DEPARTMENT OF ELECTRICAL ENGINEERING (P. 269)**

- Electrical Engineering - BSEE
- Electrical Engineering Fast Track - BSEE
- Electrical Engineering - MEngr
- Electrical Engineering - MS
- Electrical Engineering - MS Fast Track
- Electrical Engineering - BS to PhD
- Electrical Engineering - PhD

#### **DEPARTMENT OF INDUSTRIAL AND MANUFACTURING SYSTEMS ENGINEERING (P. 278)**

- Industrial Engineering - BSIE
- Engineering Management - MS
- Industrial Engineering - MEngr
- Industrial Engineering - MS
- Logistics - MS
- Systems Engineering - MS
- Industrial Engineering - BS to PhD
- Industrial Engineering - PhD

#### **DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING (P. 288)**

- Materials Science and Engineering - MEngr
- Materials Science and Engineering - MS
- Materials Science and Engineering - BS to PhD
- Materials Science and Engineering - PhD

#### **DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING (P. 294)**

- Aerospace Engineering - BSASE
- Aerospace Engineering Fast Track - BSASE
- Aerospace Engineering - MS
- Aerospace Engineering - MEngr
- Aerospace Engineering - BS to PhD
- Aerospace Engineering - PhD
- Mechanical Engineering - BSME
- Mechanical Engineering - MS
- Mechanical Engineering - MEngr
- Mechanical Engineering - BS to PhD
- Mechanical Engineering - PhD

#### **COLLEGE OF LIBERAL ARTS (p. 317)**

##### **DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY (P. 424)**

- Anthropology - BA
- Sociology - BA
- Anthropology - MA
- Sociology - MA

##### **DEPARTMENT OF ART & ART HISTORY (P. 322)**

- Art - BA
- Art History - BA

- Art (with teacher certification) - BFA
- Art - BFA
- Art - MFA

## **DEPARTMENT OF COMMUNICATION (P. 337)**

- Communication - Advertising - BA
- Communication - Broadcasting - BA
- Communication - Communication Technology - BA
- Communication - Journalism - BA
- Communication - Journalism - Secondary Teaching Certification - BA
- Communication - Public Relations - BA
- Communication Studies - Organizational Communication - BA
- Communication Studies - Speech Communication - BA
- Communication Studies - Speech Communication - Secondary Teaching Certification - BA
- Communications - MA

## **DEPARTMENT OF CRIMINOLOGY & CRIMINAL JUSTICE (P. 345)**

- Criminology & Criminal Justice - Bachelor - BCRCJ
- Criminology and Criminal Justice - BA
- Criminology and Criminal Justice - MA

## **DEPARTMENT OF ENGLISH (P. 353)**

- English - BA
- English Teaching - BA
- English With Creative Writing Minor - BA
- English With Writing Minor - BA
- English - MA
- English - PhD

## **DEPARTMENT OF HISTORY (P. 359)**

- History - BA
- History Pre-Law BA - BA
- History Teaching - BA
- History Teaching with Social Studies - BA
- History - MA
- Transatlantic History - BA to PhD
- Transatlantic History - PhD

## **DEPARTMENT OF LINGUISTICS (P. 376)**

- Linguistics - BA
- Linguistics - MA
- Teaching English to Speakers of Other Languages (TESOL) - MA
- Linguistics - PhD

## **DEPARTMENT OF MODERN LANGUAGES (P. 387)**

- Critical Languages and International Studies - BA
- French - BA
- French Teaching - BA
- Modern Languages - BA
- Spanish - BA
- Spanish Teaching - BA
- Modern Languages (Spanish or French concentration) - MA

## **DEPARTMENT OF MUSIC (P. 397)**

- Music, All Level Band Emphasis - BM
- Music, All Level Choral/Keyboard Concentration - BM
- Music, All Level Choral/Voice Concentration - BM
- Music, All Level Orchestra Emphasis - BM
- Music, Business - BM
- Music, Composition Concentration - BM
- Music, Instrumental Orchestra Performance - BM
- Music, Instrumental Performance Band - BM
- Music, Jazz Studies - BM
- Music, Keyboard Pedagogy - BM
- Music, Keyboard Performance - BM
- Music, Media - BM
- Music, Theatre - BM
- Music, Theory Concentration - BM
- Music, Voice Pedagogy - BM
- Music, Voice Performance - BM
- Music Performance - MM
- Music - MM

## **DEPARTMENT OF PHILOSOPHY AND HUMANITIES (P. 413)**

- Philosophy - BA
- Philosophy General Track - BA
- Philosophy Pre-Professional Track - BA

## **DEPARTMENT OF POLITICAL SCIENCE (P. 417)**

- Political Science - BA
- Political Science - MA

## **DEPARTMENT OF THEATRE ARTS (P. 431)**

- Theatre Arts - BA
- Theatre Arts - BFA
- Theatre Arts Teaching - BA

## **COLLEGE OF NURSING (p. 445)**

- Nursing - BSN
- Nursing RN to BSN - BSN
- Academic Partnership Nurse Educator - MSN
- Academic Partnership Nursing Administration - MSN
- Academic Partnership, Nurse Family Practitioner - MSN
- Nurse Practitioner, Adult / Gerontology Primary Care - MSN
- Nurse Practitioner, MSN
- Nursing Administration, MSN
- Nursing Education, MSN
- Doctor of Nursing Practice - DNP
- Nursing Administration - BSN to PhD
- Nursing Educator - BSN to PhD
- Nursing, Clinical - BSN to PhD
- Nursing - PhD



**COLLEGE OF SCIENCE (p. 469)****DEPARTMENT OF BIOLOGY (P. 477)**

- Biology - BA
- Biology - BS
- Biology Teaching - BA
- Biology Teaching - BS
- Medical Technology - BS
- Microbiology - BS
- Biology - MS
- Quantitative Biology - BS to PhD
- Quantitative Biology - PhD

**DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY (P. 515)**

- Biochemistry - BS
- Biological Chemistry - BS
- Chemistry - BA
- Chemistry - BS
- Chemistry Teaching - BA
- Chemistry Teaching - BS
- Chemistry - MS
- Chemistry - BS to PhD
- Chemistry - PhD

**DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES (P. 533)**

- Environmental and Earth Science - BS
- Geoinformatics - BS
- Geoinformatics - BS
- Geology - BA
- Geology - BS
- Geology Teaching - BA
- Earth and Environmental Science/Geology - MS
- Earth and Environmental Science - BS to PhD
- Earth and Environmental Science - PhD

**INTERDISCIPLINARY SCIENCE (P. 562)**

- Interdisciplinary Science - MA

**DEPARTMENT OF MATHEMATICS (P. 563)**

- Mathematics - BA
- Mathematics - BS
- Mathematics Teaching - BA
- Mathematics-BS Actuarial Science Option - BS
- Mathematics-BS Biology Option - BS
- Mathematics-BS Computer Science Option - BS
- Mathematics-BS Industrial & Applied Mathematics Option - BS
- Mathematics-BS Management Science/Operations Research Option - BS
- Mathematics-BS Pure Math Option - BS
- Mathematics-BS Statistics Option - BS
- Mathematics (General Mathematics) - MS
- Mathematics (General Statistics) - MS
- Mathematics Teaching - MA
- Mathematics - MA
- Mathematical Sciences, Mathematics - PhD

- Mathematics (General Mathematics) - BS to PhD
- Mathematics (General Mathematics) - PhD
- Mathematics (General Statistics) - BS to PhD
- Mathematics (General Statistics) - PhD

### **DEPARTMENT OF PHYSICS (P. 589)**

- Physics - BA
- Physics - BS
- Physics Teaching - BA
- Physics - MS
- Physics and Applied Physics - BS to PhD
- Physics and Applied Physics - PhD

### **DEPARTMENT OF PSYCHOLOGY (P. 608)**

- Psychology - BA
- Psychology - BS
- Psychology, Experimental - MS
- Psychology, Health/Neuroscience - MS
- Psychology, Industrial and Organizational - MS

### **SCHOOL OF SOCIAL WORK (p. 627)**

- Social Work - BSW
- Social Work - MSSW
- Social Work - MSSW Advanced Specialty
- Social Work - PhD

### **SCHOOL OF URBAN & PUBLIC AFFAIRS (p. 641)**

- Interdisciplinary Studies - BAIS
- Interdisciplinary Studies - BSIS
- City & Regional Planning - MCIRP
- Academic Partnership Online Master of Public Administration - MPA
- Public Administration - MPA
- Urban Affairs - MA
- Public & Urban Administration - PhD
- Urban Planning & Public Policy - PhD

## **The University of Texas System Administration**

***<http://www.utsystem.edu/>***

### **BOARD OF REGENTS**

Paul L. Foster, Chairman  
R. Steven Hicks, Vice Chairman  
Wm. Eugene Powell, Vice Chairman  
Ernest Aliseda, Regent  
Alex M. Cranberg, Regent  
Wallace L. Hall, Jr., Regent  
Jeffery D. Hildebrand, Regent  
Brenda Pejovich, Regent  
Robert L. Stillwell, Regent  
Nash M. Horne, Student Regent  
Francie A. Frederick, J.D., General Counsel to the Board

### **EXECUTIVE OFFICERS**

Francisco G. Cigarroa, M.D., Chancellor

Pedro Reyes, Ph.D., Executive Vice Chancellor for Academic Affairs  
Scott C. Kelley, Ed.D., Executive Vice Chancellor for Business Affairs  
Raymond S. Greenberg, M.D., Ph.D., Executive Vice Chancellor for Health Affairs  
Amy Shaw-Thomas, J.D., Vice Chancellor for Health Affairs  
Patricia D. Hurn, Ph.D., Vice Chancellor for Research and Innovation  
Daniel H. Sharphorn, J.D., Vice Chancellor and General Counsel, ad interim  
Barry McBee, J.D., Vice Chancellor and Chief Governmental Relations Officer  
William H. Shute, J.D., Vice Chancellor for Federal Relations  
Randa S. Safady, Ph.D., Vice Chancellor for External Relations  
Stephanie Bond Huie, Ph.D., Vice Chancellor for Strategic Initiatives

## **The University of Texas at Arlington Administration**

### **Executive Officers**

Vistasp M. Karbhari, Ph.D., President  
Ronald L. Elsenbaumer, Ph.D., Provost and Vice President for Academic Affairs  
John D. Hall, B.B.A., Vice President for Administration and Campus Operations  
Kelly Davis, B.B.A., Vice President for Business Affairs and Controller  
Jerry Lewis, B.S., Vice President for Communications  
Salma Adem, M.P.A., Interim Vice President for Development  
Jean M. Hood, B.S., Vice President for Human Resources  
James N. Bradley, Ph.D., Vice President for Information Technology  
Carolyn L. Cason, Ph.D., Vice President for Research and Federal Relations  
Lisa Nagy, M.S., Interim Vice President for Student Affairs

### **Administrative Officers of Academic Units**

Rachel Croson, Ph.D., Dean, College of Business  
Jeanne Gerlach, Ph.D., Ed.D., Dean, College of Education  
Khosrow Behbehani, Ph.D., P.E., Dean, College of Engineering  
Beth S. Wright, Ph.D., Dean, College of Liberal Arts  
Pamela Jansma, Ph.D., Dean, College of Science  
Karl Petruso, Ph.D., Dean, Honors College  
Rebeccal Bichel, M.L.I.S., Dean, Library  
Donald F. Gatzke, M.Arch., Dean, School of Architecture  
Anne Bavier, Ph.D., School of Nursing  
Scott D. Ryan, Ph.D., Dean, School of Social Work  
Barbara Becker, Ph.D., Dean, School of Urban and Public Affairs

# University Requirements & Policies

---

Students are held individually responsible for complying with all requirements of the rules and regulations of the University and the Board of Regents of The University of Texas System. Failure to read and comply with policies, regulations and procedures will not exempt a student from being governed by and accountable to them. Many departments and programs issue program manuals, procedures and policy manuals, student handbooks and other informational publications for students and faculty in its programs. These publications provide detailed and useful information; however, they are not statements of official policy or binding contracts of The University of Texas at Arlington or of The University of Texas System. In all matters, the Rules and Regulations of the Board of Regents of The University of Texas System, the Handbook of Operating Procedures of The University of Texas at Arlington, and the University Catalog of The University of Texas at Arlington shall supersede departmental, program or college publications.

## Academic Standing

Academic standing is determined by students meeting departmental and University standards as described in the following sections.

- Undergraduate Academic Standing
- Graduate Academic Standing

Good Academic Standing is defined differently for graduate and undergraduate students and may affect a student's ability to register for a subsequent term, ability to receive scholarships, fellowships or assistantships, and eligibility for graduation.

## Classification

Students at UT Arlington are classified in accordance with the number of hours earned. Hours earned are interpreted as hours passed at UT Arlington plus hours accepted in transfer from other institutions and/or credit by examination.

- Freshman: One who has earned fewer than 30 hours.
- Sophomore: One who has earned 30 hours but fewer than 60 hours.
- Junior: One who has earned 60 hours but fewer than 90 hours.
- Senior: One who has earned 90 hours or more.
- Degreed: One who has earned a bachelor's degree or higher and is enrolled as an undergraduate.
- Masters Student: One who is enrolled in a master's degree program.
- Doctoral Student: One who is enrolled in Doctor of Philosophy (Ph.D.) degree program.

Academic standing regulations apply to all undergraduate students. Additional regulations may apply to provisionally- and conditionally-admitted students until they have met the requirements for regular admission.

Academic standing is determined when grades are reported at the end of each fall and spring term and at the end of the entire summer session. A student's cumulative grade point average may change between these grade-reporting periods (e.g., by recording a final grade in place of an incomplete, or another grade change), and the student's academic standing status may change when the grade change is processed.

Academic standing is differentiated from Satisfactory Academic Progress (p. 21), and from Scholastic Dishonesty (p. 79) which are discussed elsewhere in this catalog.

## Good Standing

Academic good standing for undergraduates studying at UT Arlington is defined as a cumulative University grade point average of 2.00 or higher. A University GPA of at least 2.00 is necessary for satisfactory progress toward a degree.

## Table of Academic Standards for Continuance

An undergraduate student must maintain a minimum cumulative grade point average (GPA) at UT Arlington to remain academically eligible to register for the subsequent term or session. The minimum average required varies with the total number of college credit hours attempted at UT Arlington and is shown in the Table of Academic Standards.

### TABLE OF ACADEMIC STANDARDS

Total College Hours Undertaken	UTA GPA for Academic Probation	UTA GPA for Academic Warning and Dismissal
0-29	less than 2.00	less than 1.60
30-59	less than 2.00	less than 1.80
60 or more	less than 2.00	less than 2.00

## Academic Probation

See the Table of Academic Standards column “UTA GPA for Academic Probation” above. Undergraduate students on academic probation may not take more than 14 semester hours without permission of their college/school dean, or if they are an undeclared or freshman student, the Director of the University Advising Center. Academic advisors may further limit the number of hours and overall difficulty of the students’ schedules, require students to take specific courses deemed necessary to their education, prevent students from taking unsuitable courses, require students to attend advising sessions, and take other actions approved by the dean of their college/school or the Director of the University Advising Center to assure the students’ attention to their academic deficiencies. Students on academic probation cannot hold office in any club or organization, represent UT Arlington at any official or social event, or make any University trip without the permission of the appropriate dean or the University Advising Center.

## Removal from Academic Probation

Students on academic probation who achieve a 2.0 or higher cumulative GPA at the end of a grade-reporting period during which they are registered at the University will be removed from academic probation. Removal from probation will be reflected on the student’s permanent academic record.

## Academic Warning

See the Table of Academic Standards column “UTA GPA for Academic Warning and Dismissal” above. Before an undergraduate student is dismissed from the University, the student is on academic warning. At the end of the warning term, the student must earn a cumulative GPA that meets or exceeds the appropriate values in the Table of Academic Standards or a term GPA of at least 2.5 to avoid dismissal. Students on academic warning may not take more than 14 semester hours without permission of their college/school dean, or if they are an undeclared or freshman student, the Director of the University Advising Center. Academic advisors may further limit the number of hours and overall difficulty of the students’ schedules, require students to take specific courses deemed necessary to their education, prevent students from taking unsuitable courses, require students to attend advising sessions, and take other actions approved by the dean of their college/school or the Director of the University Advising Center to assure the students’ attention to their academic deficiencies. Students on academic warning cannot hold office in any club or organization, represent UT Arlington at any official or social event, or make any University trip without the permission of the appropriate dean or the University Advising Center.

## Academic Continuance

After receiving an academic warning, undergraduate students who earn a GPA of 2.5 or higher on a minimum of three semester credit hours each subsequent term are given a one-semester continuance.

## Academic Dismissal

See the Table of Academic Standards column “UTA GPA for Academic Warning and Dismissal” above. Any student who registers to attend classes at UT Arlington and is ineligible to attend for academic or disciplinary reasons will be dropped automatically from the rolls of the University. Undergraduate students placed on academic dismissal for the first time are eligible to continue enrollment after not having attended UT Arlington for one regular term (fall or spring). Students placed on academic dismissal for a second or subsequent time are eligible to apply for readmission after having not attended UT Arlington for a minimum 12-month period. After this time period, students may be required to petition for reinstatement from the University College Readmission Committee administered through the University Advising Center. If the petition for reinstatement is disapproved, a student may not file another petition until the following term. Appeal of a denial for reinstatement may be made to the Office of the Vice Provost for Academic Analytics and Operations within two weeks after the notice of the denial is mailed. The decision of the Office of the Vice Provost is final. After returning from a one- or a two-semester dismissal, students who fail to continuously earn a semester GPA of 2.5 or higher and/or reach appropriate Table of Standards values are dismissed for a 12-month period. Appeals for academic continuance and financial aid continuance are handled separately, and one appeal being approved does not insure that the other will, or that enrollment is guaranteed in the event the student has been dismissed. Refer to the University College website (<http://www.uta.edu/universitycollege/current/academic-planning/uac/policies/probation-dismissal.php>) for additional information. Academic dismissal is reflected on the student’s permanent academic record.

## Students in Degree Programs

Students on academic probation, continuance or warning who have been accepted into a degree program are subject to all additional rules governing the definition and terms of admission and enrollment established by the program in which they are enrolled. Students dismissed from a degree program or leaving a degree program voluntarily may transfer to another major or pre-major with the permission of the dean of the receiving college/school, or to undeclared status or the University Studies degree program with the approval of the Executive Director of University College.

## Satisfactory Academic Progress (SAP)

Federal regulations require that the University of Texas at Arlington establish policies to monitor the academic progress of students who apply for and/or receive financial aid. To retain eligibility, undergraduate recipients must show satisfactory progress toward a degree based on the following requirements. There are two areas specifically addressed in these requirements. The first is cumulative grade point average (qualitative standard) and the other is a comparison of the number of credit hours annually and a review of the maximum number of hours attempted (quantitative standard). The cumulative grade point average required to meet this portion of the SAP standards mirrors the grade point average required to remain in good academic standing at the University. Information regarding the calculation of the quantitative standard as well as the notification and appeal process may be found on the Financial Aid website (<http://www.uta.edu/fao>). Click on the Satisfactory Academic Progress tab.

## Good Standing and Satisfactory Scholastic Progress

Graduate students are considered to be in good academic standing and making satisfactory progress in a degree or certificate program if they 1) meet all admission conditions within the time required 2) have a B (3.0) or better grade point average on all coursework undertaken while enrolled as a graduate student at UT Arlington and 3) have a B (3.0) or better grade point average in courses needed to satisfy degree requirements by the end of the semester in which they intend to graduate. Departments may specify additional requirements that students must meet in order to be in good standing or to be considered to be making satisfactory progress. Students should understand and follow those requirements because failure to meet them may lead to dismissal (see Dismissal, below). Students must be in good academic standing by the end of their final semester in order to receive an advanced degree or certificate from UT Arlington. Refer to the section **Courses That Do Not Provide Graduate Credit** for an explanation of courses that do not provide graduate credit and will not be used to determine academic standing or to satisfy degree requirements.

## Academic Probation

A graduate student whose cumulative grade point average falls below a 3.00 in all graduate courses, be they graduate or undergraduate level taken while enrolled as a UT Arlington graduate student, will be placed on academic probation. The student must attain a grade point average of at least 3.00 in the next semester he or she is enrolled or be subject to dismissal. Undergraduate courses or graduate courses graded P, R, I or W or courses that do not provide graduate credit (see **Courses That Do Not Provide Graduate Credit**) cannot be used to remove the condition of academic probation.

## Dismissal

Students have the initial responsibility to recognize when they are having academic difficulties and are expected to initiate steps to resolve the problem. When a student is in academic difficulty, and dependent upon the severity of the problem, the student may receive an oral warning and/or written statement of the problem and required corrective actions from his or her program. Failure to take these corrective actions can result in termination from the degree program.

Graduate courses or undergraduate graduate courses graded P, R, I or W or courses that do not provide graduate credit (see **Courses That Do Not Provide Graduate Credit**) cannot be used to remove the condition of academic probation. If a student is on academic probation and earns only grades that do not provide graduate credit, he or she will be dismissed.

A student who has been dismissed from their program for failure to remove the condition of academic probation by meeting the 3.0 grade-point average requirement may be readmitted for further graduate study in the same or in a different program only if a petition has been approved by the appropriate Committee on Graduate Studies and the academic dean of the college or school in which the student was enrolled.

A student can be dismissed from a degree program not only for failure to maintain an adequate grade point average, but also for such reasons as unsatisfactory progress toward a degree as defined by the department or program, inability to pass a comprehensive examination, failure to prepare or to defend a thesis or dissertation in a satisfactory manner or complete thesis or dissertation work in an acceptable amount of time. Termination due to inadequate academic progress is a decision made by the program's or department's graduate advisor and Graduate Studies Committee. A student's thesis/dissertation committee may recommend termination for failure to prepare a thesis/dissertation proposal, prospectus or final draft in a satisfactory manner or failure to complete work in an acceptable amount of time to the program's graduate advisor and Graduate Studies Committee. Such decisions to terminate a student must be communicated to the academic dean by the Chairman of the Graduate Studies Committee with required justification. The academic dean will review the case make the final decision. The student may continue enrollment until the dean finalizes the termination decision.

Students failing to pass a comprehensive examination or thesis/dissertation defense may be terminated upon the recommendation of the examining committee. Such decisions are indicated on the Comprehensive Examination Report or Final Defense Report which are returned to the academic dean and the Office of Records and Registration. The academic dean will notify the student formally of the program's or department's decision.

## Satisfactory Academic Progress (SAP)

Federal regulations require that the University of Texas at Arlington establish policies to monitor the academic progress of students who apply for and/or receive financial aid. To retain eligibility, recipients must show satisfactory progress toward a degree based on the following requirements. There are two areas specifically addressed in these requirements. The first is cumulative grade point average (qualitative standard) and the other is a comparison of the number of credit hours annually and a review of the maximum number of hours attempted (quantitative standard). The cumulative grade point average required to meet this portion of the SAP standards mirrors the grade point average required to remain in good academic standing at the University. Information regarding the calculation of the quantitative standard as well as the notification and appeal process may be found on the Financial Aid website (<http://www.uta.edu/fao>). Click on the Satisfactory Academic Progress tab.

## Admissions

The Office of Admissions, Records, and Registration handles over 70,000 applications per year to the university's graduate and undergraduate programs. Admission to the university is open to qualified applicants regardless of race, color, gender, sexual orientation, creed, age, national origin or educationally unrelated handicaps. Once applications are received by the office, the applicant will be notified of the documents which must be submitted in order for an assessment to be made and admissibility determined. Determination of admission is made in the academic department for graduate

applicants while undergraduate student's admissibility is determined by the Office of Admissions, Records & Registration based on approved university admissions requirements. Students are notified of the admissions decision both by email and by a letter to the home address.

The department seeks to encourage life-long learners to become partners in the educational enterprise and provide a seamless transition throughout the application and enrollment process.

Graduate Admissions (p. 23)

Undergraduate Admissions (p. 34)

## Graduate Admissions

### Admission

Basic admission requirements must be met before a student can be accepted. In meeting these requirements, an applicant 1) must have a bachelor's degree from a regionally accredited U.S. college or university or its foreign equivalent, with a satisfactory grade-point average; 2) must have an acceptable and current score on the aptitude tests of the Graduate Record Examination or the Graduate Management Admission Test, as specified by the department or program to which application is being made; 3) demonstrate potential for graduate work in the chosen field through previous academic performance; and 4) be approved for admission by the department in which a degree is sought. Certain programs require students to submit to and satisfactorily complete a background check review as a condition of admission and/or participation in education experiences. Students who refuse to submit to a background check or who do not pass the background check may be dismissed from the program. Applicants should examine departmental requirements with care.

The following sections detail the minimum standards required for admission to a graduate program at the University of Texas at Arlington. Meeting them does not guarantee acceptance into a departmental degree program because most departments have more stringent admission standards. The University may limit the number of students accepted in a program if the number of applicants exceeds the resources needed to support the educational objectives of that program. Admission to graduate programs is competitive. Therefore, students meeting admission requirements who are less well qualified than other applicants may be denied admission.

Members of the UT Arlington faculty holding an appointment at the rank of instructor or above may not pursue a graduate degree at the University.

Applicants must complete the online application for admission (<http://grad.uta.edu/prospective/apply>). Since admission requirements vary and are program specific, go to <http://www.uta.edu/admissions/graduate> and look up current admission requirements in the current Graduate Catalog for the program or department to which admission is sought.

The admission policies of the academic departments of The University of Texas at Arlington comply with standards specified by the Texas Education Code, Section 51.842. Specifically, performance on a standardized test is not the sole criterion for consideration of an applicant for admission or the primary criterion to end consideration of the applicant for admissions. Relevant experience, commitment to the field of planned study, multilingual proficiency, and socioeconomic background (to the extent that it can be identified ) may also enter into these decisions. This law does not apply to standardized tests used to measure the English language proficiency of non-native English speakers without a bachelor's or master's degree from a regionally accredited U.S. institution.

### Basic Admission Requirements

#### Application

Application for admission must be made on official application forms. Students may complete the application online by accessing our Web site <http://www.uta.edu/admissions/graduate>. Please note, you may only submit one application, and be considered for admission to one program at a time.

#### APPLICATION EVALUATION CHARGES

A non-refundable application evaluation charge is required of all applicants. Payment must be received before processing can begin. There are no exceptions to this policy.

A non-refundable evaluation charge of \$40 is required of all U.S. citizens and U.S. Resident Alien applicants who have attempted all of their college or university work at institutions located in the United States. A \$90 evaluation charge is required of all U.S. citizens and U.S. Resident Alien applicants who have attempted some or all undergraduate or graduate coursework at an institution located outside of the United States.

All international students are required to pay a non-refundable \$90 application evaluation charge.

### Required Official Transcripts, Marksheets, and Diplomas

Application processing for admission to a graduate program requires receipt of official U.S. transcripts or foreign country transcripts or marksheets and diplomas. Unattested, notarized or fax copies of U.S. transcripts, foreign country transcripts, marksheets, diplomas, test scores and other academic records are not acceptable for processing purposes. Acceptable transcripts, marksheets and diplomas from U.S. and international institutions are

described below. Documents meeting the indicated criteria will be accepted by Graduate Admissions for admission purposes. Unacceptable documents will prevent or cause delays in admission processing.

## **U.S. TRANSCRIPTS**

Official transcripts from U.S. institutions are those mailed directly to Graduate Admissions by the Registrar or responsible head of the institution at which the work was attempted or completed. An official original "issued to student" transcript on safety paper with the official university seal and signature of the university's Registrar may upon Graduate Admissions review, may be acceptable. Submit one set of transcripts. Currently or previously enrolled UT Arlington students do not have to request UT Arlington transcripts be forwarded by the UT Arlington Registrar to Graduate Admissions.

## **FOREIGN COUNTRY TRANSCRIPTS OR MARKSHEETS AND DIPLOMAS**

Official foreign country transcripts or marksheets and diplomas are those bearing the original seal of the institution and the original signature of the Registrar or responsible head of the institution. Those not issued in English must be accompanied by an exact word for word original English translation bearing the original university or translation agency attestation. Submit one set of transcripts or marksheets and diplomas. They may be sent directly to Graduate Admissions by the institution or by the applicant.

## **Grade Point Average Calculation for Admission**

### **STUDENTS WITH DEGREES FROM U.S. INSTITUTIONS**

The grade-point average for admission to graduate school at The University of Texas at Arlington is calculated according to Texas law and the policies and procedures of Graduate Admissions. For applicants completing work in U.S. institutions of higher learning, calculation of the grade-point average for admission purposes is based on the last two years of courses from the bachelor's degree transcript, on a 4.0 scale. In practice, this grade-point average is based on approximately the last 60 semester hours or the equivalent in quarter hours (90 quarter hours) shown on an applicant's bachelor's degree transcript.

In cases in which an applicant's transcript shows repeated courses, the grade-point calculation includes all grades earned in those courses.

For an applicant who applies before official receipt of the bachelor's degree, the last 60 semester hours grade-point calculation will include senior college and university work completed to date. The grade-point average will not be automatically recalculated upon receipt of the degree.

An applicant wishing to have undergraduate courses completed after their degree has been awarded included in the grade-point calculation may submit a written request to Graduate Admissions at the time the application for admission is submitted.

An additional grade-point average is calculated for an applicant awarded or completing a master's or doctoral degree at the time application to UTA is made. For master's level students, the grade-point calculation will include all graduate level courses taken subsequent to the bachelor's degree at the institution from which the degree has been or will be awarded. For doctoral level students, the grade-point calculation will include all graduate level courses taken subsequent to the bachelor's and master's degree at the institution from which the doctoral degree has been or will be awarded. The grade-point average will be calculated on the basis of information provided at the time application to UTA is made and will not be automatically recalculated upon completion of on-going work or award of a degree.

International applicants and others with degrees earned outside the United States should see the grade-point calculation information under Admission of International Students and Resident Aliens.

The following are not included in grade-point calculations for admission purposes:

1. courses completed at junior or community colleges
2. courses completed by examination or correspondence
3. incomplete grades or withdrawals
4. pluses and minuses
5. personal improvement courses such as activity courses in physical education
6. graduate courses or any courses completed in graduate student status (a graduate grade-point average will be calculated and reported separately)
7. courses in which the grade is a P, pass, credit, satisfactory or other such designation

### **STUDENTS WITH DEGREES FROM INTERNATIONAL INSTITUTIONS**

The calculation of the GPA for international applicants and U.S. resident aliens who have earned degrees from colleges or universities in the United States follows the policies and procedures for U.S. applicants. The diversity of marksheets and transcripts from foreign universities requires flexibility in calculating approximate equivalents of U.S. GPAs. Generally, GPAs for applicants with foreign degrees are calculated using the final grade for courses taken in the last two years of the applicants' undergraduate program. For an applicant who applies pending receipt of the bachelor's degree, the GPA calculation will include final course grades for the last two years of undergraduate work available at the time the application is submitted for processing. All grades are converted to the U.S. 4-point scale. Pluses and minuses, graduate courses, and personal improvement courses such as physical education are not included in these calculations.



## **GPA CALCULATION UNDER ACADEMIC FRESH START STATUTE**

### **Admission to Undergraduate Programs**

Texas residents may seek to enter undergraduate programs at U.T. Arlington under provisions of the "academic fresh start" statute, Section 51.931 of the Texas Education Code. When applicants inform U.T. Arlington admissions officials in writing of their decision, U.T. Arlington will not consider in the admissions decision any academic course credits or grades earned 10 or more years prior to the starting date of the semester in which the applicant seeks to enroll. Applicants who decide to apply under this statute may not receive any course credit for courses taken 10 or more years prior to enrollment under academic fresh start.

### **Admission to Postgraduate/Professional Programs**

Applicants who have earned baccalaureate degrees under the "academic fresh start" statute, Section 51.931 of the Texas Education Code, and who apply for admission to a postgraduate or professional program will be evaluated on only the grade-point average of the course of work completed for that baccalaureate degree and the other criteria stated herein for admission to the postgraduate or professional program.

## **Standardized Test Requirements**

Official test score reports for the Graduate Record Exam (GRE), Test of English as a Foreign Language (TOEFL), TOEFL iBT, and Test of Spoken English (TSE) are issued by the Educational Testing Service (ETS) and sent by ETS directly to Graduate Admissions. Official test score reports for the Graduate Management Admission Test (GMAT) are issued by the Graduate Management Admission Council (GMAC) and sent by GMAC directly to Graduate Admissions. Current information about GRE, GMAT, TOEFL, TOEFL iBT and TSE test dates, locations and registration procedures is published by ETS at [www.ets.org](http://www.ets.org). For current information about the GMAT including test dates, locations, registration procedures, and time frames for test score validity, access [www.mba.com](http://www.mba.com). Official test scores for the International English Language Testing System (IELTS) are reported on an IELTS issued Test Report Form (TRF) and sent directly to Graduate Admissions from IELTS. Current information about IELTS test dates, locations and registration procedures is published by IELTS at [www.ielts.org](http://www.ielts.org).

## **GRE AND GMAT MINIMUM SCORES**

The University of Texas at Arlington does not set minimum GRE or GMAT requirements that apply to all students. Individual programs or departments determine GRE and GMAT requirements for admission to their programs. Individual departments and programs may evaluate GRE or GMAT scores as one of several criteria to determine admissibility. Test scores do not constitute the sole or primary basis for admission or for ending consideration of an applicant. Applicants should refer to individual departmental or program section for test requirements.

## **TOEFL, TSE, TOEFL IBT AND IELTS SCORES MINIMUMS**

The University of Texas at Arlington sets test score minimums for tests that measure English proficiency such as the TOEFL, TOEFL iBT, TSE and IELTS; however, individual departments and programs may impose a more stringent test score requirement. An applicant whose native language is not English must demonstrate a sufficient level of skill with the English language to assure success in graduate studies. Applicants must submit a score of at least 550 on the paper-based TOEFL, a score of at least 213 on the computer-based TOEFL, a minimum score of 40 on the TSE, a minimum score of 6.5 on the IELTS, or a minimum TOEFL iBT total score of 79 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 16 for the listening section to meet this requirement.

An applicant holding either a bachelor's or a master's degree from a regionally accredited U.S. college or university is not required to submit a TOEFL, TOEFL iBT, TSE or IELTS score for admission purposes. Any other waivers of the score requirements must be recommended by the applicant's Graduate Advisor and approved by the college or school dean.

## **TOEFL IBT OR IELTS REQUIREMENTS FOR GRADUATE TEACHING ASSISTANTS**

Before being appointed to an assistantship at UT Arlington, a student whose native language is not English must demonstrate acceptable skill with spoken English. An applicant who is a non-native speaker of English must submit a TOEFL iBT score of at least 23, or a score of at least 7 on the Speaking section of the IELTS, or take and pass the UTA Developmental English course to meet this requirement. Only official scores provided directly to UT Arlington by ETS or IELTS are acceptable. The English proficiency requirement will be waived for non-native speakers of English who possess a bachelor's degree from an accredited U.S. institution.

## **Application Deadlines**

### **UNITED STATES CITIZEN APPLICANTS**

A U.S. citizen student may complete the application online. Since admission requirements vary and are program specific, go to our Web site at <http://www.uta.edu/admissions/graduate> for admission criteria specific to each individual department and program. The application and following required credentials should be submitted preferably 90 days prior to the date of expected enrollment:

1. one set of official transcripts of all undergraduate and graduate college work; currently or previously enrolled UTA students do not have to request UTA transcripts be forwarded by the UTA Office of Records and Registration to Graduate Admissions;
2. official GRE or GMAT test score as required by the intended program;
3. official TOEFL or IELTS test score, if applicable;

4. letters of recommendation as required by the intended program
5. essay or statement of general academic plans as required by the intended program
6. a nonrefundable application evaluation charge of \$40, if no foreign college or university work or \$90, if foreign college or university work.

Some graduate programs may set deadlines for admission or consideration of applicants for graduate assistantships that are earlier than general deadlines established by Graduate Admissions. Such deadlines will be included in descriptions of admission requirements provided by each department. Applicants should read those materials carefully and submit their application materials before a departmental deadline passes. If the department does not specify a deadline, applicants should meet the Graduate Admissions deadlines described above.

## **INTERNATIONAL AND U.S. RESIDENT ALIEN APPLICANTS**

An International or U.S. Resident Alien applicant may complete the application online. Since admission requirements vary and are program specific, use this link <http://www.uta.edu/admissions/graduate> and look up current admission requirements in the current Graduate Catalog for the program or department to which admission is sought. The application and following required credentials should be submitted preferably 120 days prior to the date of expected enrollment: 1) all international students must submit a nonrefundable application evaluation charge of \$90. U.S. Resident Alien applicants WITH foreign college or university work must submit a non-refundable application evaluation charge of \$90. U.S. Resident Alien applicant WITHOUT foreign college or university work must submit a non-refundable application charge of \$40; 2) one set of official marksheets, diplomas or transcripts of all undergraduate and graduate coursework; 3) official GRE or GMAT test score as required by the intended program; 4) official TOEFL or IELTS test score, if applicable; 5) three letters of recommendation; 6) general academic plans; 7) financial and/or immigration documentation as specified in the application instructions.

## **Changes to a Submitted Application**

### **STARTING SEMESTER, DEGREE PROGRAM, OR DEGREE LEVEL**

Current applicants wishing to change the semester in which they plan to start study at UT Arlington, programs in which they wish to be considered for admission, or degree levels (e.g., master's or doctoral) for which they initially applied, may request that their application be reprocessed for possible admission by completing the form "Reactivate an Admissions Application". This form is completed online at our Web site <http://www.uta.edu/admissions/graduate>. Applicants may submit only one "Reactivate an Admissions Application" at a time. The initial admission decision does not automatically apply when an applicant requests these types of changes to their application. When a request is received, the appropriate non-refundable U.S. Citizen, Resident Alien or International Student application evaluation charge must be paid in order to begin processing the request. Once the fee is paid the application is thoroughly re-evaluated to ensure it is complete and current and a new admission decision will be made. This rule does not apply to an applicant who was admitted but did not enroll because of deployment as a member of the armed forces of the United States serving on active duty in a combative operation outside the United States. For an applicant requesting a change in their semester start date because of deployment in a combative operation outside the United States the initial program admit decision and standardized test scores submitted for admission to the initial program automatically apply to the change in semester start date and the application evaluation charge for the change is semester start date is waived (TEC Sec. 51.844).

### **RETENTION OF APPLICATION MATERIALS**

Application materials become property of The University of Texas at Arlington and cannot be returned.

### **NOTIFICATION OF APPLICANTS REGARDING ADMISSION DECISIONS**

While admission related information received from the graduate program to which an individual has applied may be important and useful, such information does not constitute official notice of admission into a graduate program at The University of Texas at Arlington.

Official notification of the admission decision is issued by the Graduate Admissions Office and is sent by Graduate Admissions directly to the applicant. It is very important that applicants read this notice carefully because it describes any conditions or restrictions placed on admission that must be addressed. Many of these conditions must be satisfied before the end of the first semester of enrollment. If they are not, a student may be barred from enrolling in subsequent semesters. Thus applicants should read the notice and keep it for future reference. Admission conditions described in official notification letters are described in the following section.

## **Types of Admission Decisions**

After an applicant's credentials have been evaluated by the Graduate Advisor in the applicant's major area the applicant will be notified by letter and email sent by the Graduate Admissions Office of : 1) acceptance and admission under one of the categories of admission listed below; or 2) denial of application; or 3) deferral of application for reasons listed in the letter. If accepted, the acceptance notification will state conditions for admission, if any, and period of validity of the acceptance. Applicants who have not received an admission notification one week prior to the beginning of classes for the semester for which admission is sought should contact the Graduate Admissions Office for information concerning the status of their application.

### **UNCONDITIONAL ADMISSION**

An applicant who meets all requirements is normally considered for unconditional admission.

## **PROBATIONARY ADMISSION**

An applicant who does not meet all requirements for unconditional admission nevertheless may show promise for successful graduate study and, upon recommendation of the graduate advisor, Committee on Graduate Studies and with approval of the academic dean may be granted probationary admission. Special course requirements or other conditions may be imposed by the advisor, Committee on Graduate Studies and/or dean. .

## **PROVISIONAL ADMISSION**

An applicant unable to supply all required documentation prior to the admission deadline but whom otherwise appears to meet admission requirements may be granted provisional admission upon recommendation of the appropriate graduate advisor and Committee on Graduate Studies.. Complete and satisfactory credentials must be received by the Graduate Admissions Office before the end of the semester in which the student has registered in a provisional status. A student will not be permitted to enroll with a provisional status for more than one semester. Provisional admission does not guarantee subsequent admission on an unconditional basis. International applicants residing outside of the United States at the time of application are not admitted on a provisional basis. A student may not hold an assistantship while in provisional status.

## **DEFERRED ADMISSION**

If an applicant does not present adequate evidence of being able to supply required application materials or must complete additional preparatory work before their admissibility can be determined , the admission decision may be deferred until records are complete. The applicant will be sent an Admission Deferral Notice specifying the data that must be provided or the work that must be completed before the application will be reconsidered. The application may be reactivated for reprocessing by returning the "Request to Update/Reactivate Application" that accompanied the Admission Deferral Notice. An application evaluation charge will be required for each reprocessing request unless the request is made for the original semester and program.

## **DENIED ADMISSION**

Admission is typically denied if an individual fails to meet more than one of the admission standards of the department to which he or she applied and the admission committee feels that there is insufficient basis to justify a probationary, provisional or deferred admission recommendation. As the admission process is competitive, students meeting basic admission requirements who are less well qualified than other applicants may also be denied admission.

Applicants denied admission to a graduate program may not take or reserve graduate courses for graduate credit. Applicants may reapply for admission if the deficiencies in credentials that led to denial are remedied. An application evaluation charge will be required for each reprocessing request. Applicants denied admission may ask the Graduate Advisor in the program to which they applied about the deficiencies that led to the denial.

## **Graduate English Skills Program**

The Graduate English Skills Program (GESP) comprises an intensive English course designed for international students who have been conditionally accepted to graduate school because of marginally acceptable scores on verbal admission tests.

The program focuses on improving English language skills in the areas of academic writing, reading/research skills, note taking from academic lectures, accent reduction and oral presentations. Instruction includes technological support materials.

International students must receive admission from Graduate Admissions at UT Arlington and permission from their graduate departments to enroll in GESP to remove their English deficiencies.

Students who receive permission to enroll in GESP are tested in writing, reading, speaking and listening. Based on the outcome of placement tests, the English Language Institute (ELI) will recommend to the graduate departments the areas where each student needs improvement. A student may be required to take no further English up to a maximum of three skill areas (five hours) per day. Students studying less than five hours of English per day may be allowed by their department to enroll in some graduate courses as well.

At the end of a semester, if the student has attained a minimum average of 85% during the semester, the GESP Coordinator will recommend to the graduate department that the student enroll for all graduate courses or continue studying English. Most students complete their English requirements in a semester.

GESP tuition charges and other information can be found at <http://eli.uta.edu> or contact the GESP Coordinator at the English Language Institute, Box 19560, Arlington, Texas 76019. Phone: 817.272.7576. Fax: 817.272.2731.

## **Special Admissions Programs for UT Arlington Undergraduates**

### **OUTSTANDING UT ARLINGTON UNDERGRADUATES**

Upon the recommendation of the Graduate Advisor, outstanding graduates of The University of Texas at Arlington may be admitted to a master's degree program or B.S. to Ph.D. track by facilitated admission. To qualify, the student must meet the following minimum requirements:

1. The student must have graduated from a commensurate bachelor's degree program at UT Arlington no more than one academic year prior to the semester for which admission to a graduate program is sought. A commensurate bachelor's degree program is one that is a normal feeder program

for the master's degree program to which the student seeks admission. Undergraduate students in their final year of study are also eligible; in such cases, facilitated admission is conditional upon successful completion of the bachelor's degree.

2. The student's grade-point average must equal or exceed 3.5 in each of two calculations:
  - a. the grade-point average in the last 60 hours of study as calculated in Graduate Admissions for admission purposes;
  - b. all work completed at UT Arlington to date.

Students who qualify for facilitated admission will be admitted directly to graduate school without completing the application for admission, submitting an application evaluation charge or taking the GRE or GMAT. Students who believe they may qualify for this program should contact the appropriate Graduate Advisor. Some programs may require a higher grade-point average to qualify. Not all graduate programs participate in Facilitated Admission of Outstanding Undergraduates.

## **ADMISSION WITH GRADUATE RECORD EXAMINATION WAIVED**

Upon recommendation of the Graduate Advisor, outstanding UT Arlington graduates may qualify for waiver of the requirements for the Graduate Record Examination (GRE). To qualify, the applicant must meet the following minimum requirements:

1. The student must have graduated from a commensurate bachelor's degree program at UT Arlington no more than three academic years prior to admission to the graduate program (as measured from the start of the semester for which admission is sought). A commensurate bachelor's degree program is one that is a normal feeder program for the master's degree program to which the student seeks admission. Undergraduate students in their final year of study are also eligible; in such cases, admission with the GRE waiver is contingent upon successful completion of the bachelor's degree.
2. The student's UT Arlington grade-point average must equal or exceed 3.0 in each of two calculations: (a) in the last 60 hours of study as calculated for admission by Graduate Admissions; (b) in all undergraduate coursework completed at UT Arlington.

Applicants qualifying for waiver of the GRE who do not qualify for facilitated admission, must comply with all other requirements for admission, i.e., submitting the application for admission, paying fees, providing official transcripts from other institutions, and meeting any requirements established by the admitting graduate program. The GRE waiver must be recommended by the Graduate Advisor at the time of admission. The waiver of GRE program applies to applicants for master's degree programs only. Some programs may require higher grade-point averages to qualify. Not all graduate programs participate in the GRE waiver program.

## **FAST TRACK TO MASTER'S DEGREE**

The Fast Track program is designed to encourage gifted UT Arlington undergraduate students to complete a master's degree at UT Arlington, by enabling them to complete their undergraduate studies without delay and reducing the time and the number of additional courses needed to complete a master's degree. It is available in some graduate programs to outstanding UT Arlington undergraduate students and admission to these programs is highly selective. Participating undergraduate students use a set of courses specified by their graduate program to satisfy both undergraduate bachelor degree and graduate master's degree requirements. Students must formally apply to and be accepted as a Fast Track student by a participating graduate program to receive the full benefits of the program. Admitted students going on to complete all program requirements successfully will be automatically admissible to the associated master's program when they receive their bachelor's degree. They will not have to submit the formal application for admission to Graduate Admissions, pay an application evaluation fee, or take the GRE. Students who do not complete the Fast Track program may apply for admission per regular means but must take all required tests and pay all required fees. Admission in such cases is not automatic and will be based on the published admission requirements of the program applied to all regular applicants. Not all programs offer a Fast Track option. Interested students should consult with their intended program's graduate advisor prior to their senior year for detailed information regarding requirements and application procedures.

## **Non-Degree Seeking (Special) and Graduate Certificate Applicants**

A person holding a bachelor's degree from a regionally accredited U.S. institution or its foreign equivalent wishing to take graduate courses at The University of Texas at Arlington but not planning to pursue a graduate degree may be apply for admission as a special non-degree seeking student or graduate certificate student. In most cases, admission as a special non-degree seeking student is granted only for the purpose of participating in special graduate course offerings, or for taking courses to be transferred to another institution. A student who has been denied admission to or been dismissed from graduate studies may not be permitted to enroll as a special non-degree seeking or graduate certificate student.

Before submitting an application for admission, an applicant for special non-degree seeking student or graduate certificate should consult with the Graduate Advisor in the department or program in which the graduate course or graduate certificate is offered. Applicants may complete our application online. In addition to the application form applicants must submit an official transcript of previous college work showing evidence of an undergraduate degree and, if applicable, a graduate degree. Special non-degree seeking student admission status is granted for the semester for which the application is submitted. Further enrollment as a special non-degree seeking student must be approved on a semester-by-semester basis. Graduate certificate enrollment is limited to the courses and length of time required to complete the graduate certificate program. Special non-degree students and graduate certificates may not hold graduate assistantships or enroll in research, thesis, internship or dissertation courses.

Up to 12 graduate level (5000 and above) semester credit hours earned as a special non-degree seeking student may be applied to a graduate degree program, subject to the policies on grades and graduate credit described in the General Information and Regulations section of this catalog. Review and

approval of the appropriate Committee on Graduate Studies and the approval of Graduate Admissions are required. All grades in courses taken as a special non-degree seeking student and graduate certificate status will be considered in computing a student's graduate grade-point average.

A former or currently enrolled special student or graduate certificate student wishing to apply for admission to a graduate degree program must submit a graduate admissions application online, all supporting documents listed in the Admission section of this catalog, and the appropriate non-refundable application evaluation charge. Admission as a special student or graduate certificate student in no way guarantees subsequent admission into a graduate program in graduate school.

NOTE: Immigration regulations do not generally permit international students to study as special non-degree seeking or certificate students. If you are an international student, please contact Graduate Admissions before submitting an application so that eligibility to apply as a special non-degree seeking or graduate certificate student can be determined.

## Readmission

A student previously enrolled in graduate school at The University of Texas at Arlington, wishing to resume graduate work after an absence of a fall or spring term or longer (summer excluded) must submit an "Application for Readmission" form online and pay the required non-refundable application evaluation charge. This rule does not apply to a student who withdraws with an Approved Leave of Absence or to a student who withdraws from the university because of deployment as a member of the armed forces of the United States serving on active duty in a combative operation outside the United States. A student returning from an Approved Leave of Absence as scheduled will be automatically readmitted and will not be required to submit an application or pay an application fee. For a student withdrawing due to deployment in a combative operation outside the United States readmission will be granted upon request, the readmission fee waived, previously submitted standardized test scores will remain acceptable and credit toward for any work previously completed applied. (TEC Sec. 51.844). In addition, the student may be eligible for the same financial assistance provided before the student's withdrawal (TEC, Section 51.9242).

The "Application for Readmission" is completed online at our Web site <http://www.uta.edu/admissions/graduate>. Students may submit only one "Application for Readmission" at a time. A \$30.00 application charge is required of all U.S. Citizen and U.S. Resident Alien applicants who have attempted or completed all of their college or university work at institutions located in the United States. A \$60 evaluation charge is required of all U.S. Citizen and U.S. Resident Alien applicants who have attempted or completed some or all of their coursework at an institution located outside of the United States. A \$60 evaluation charge is required of all International students. Payment must be received before processing can begin. An application evaluation charge is required with each readmission application form submitted. International students and U.S. Resident Alien students should submit this form and pay the required non-refundable evaluation charge 120 days prior to their expected semester of enrollment, and U.S. Citizen students 90 days prior to their expected date of enrollment.

A former student wishing to apply for a dual degree program must complete the "Application for Readmission" form online.

An applicant for readmission should consult with the Graduate Advisor of the program, or the Graduate Advisors of the dual degree programs, before submitting the readmission form and fee to Graduate Admissions. This is particularly important when requesting readmission to a new program or requesting readmission to a dual degree program.

An applicant for readmission who has enrolled at other institutions during their absence from UT Arlington (including those in UT Arlington concurrent enrollment) must submit official transcripts showing such coursework to Graduate Admissions.

## Change of Graduate Major, Program, or Degree Level for Current Students

Students wishing to change graduate major, program or degree level (master's or doctoral classification) from the one in which they are enrolled currently or in which they were enrolled during the most recent semester at UT Arlington, must initiate the change by completing the "Change of Program or Degree Level" form online. Students may submit only one "Change of Program or Degree Level" form at a time. Additional forms will not be processed until a final decision on any prior request has been made. Students intending to change majors should consult the Graduate Advisor of the new program regarding program admission and degree requirements before completing this form. Similarly, students wishing to change degree level should submit the request after discussing the matter with the appropriate Graduate Advisor.

Students wishing to change from one program to a dual degree program must complete the "Change of Program or Degree Level" form online.

The "Change of Program or Degree Level" form is completed online at our Web site <http://www.uta.edu/admissions/graduate>.

## Master's, Doctoral and Certificate Programs

The University of Texas at Arlington offers approximately 100 different master's and doctoral degrees across a wide spectrum of academic and professional programs. In addition to typical classroom instruction suited to either full or part-time students, a number of degrees can be pursued through distance educational formats. Numerous certificate programs not requiring admission in a particular master's or doctoral degree program are also available for persons seeking to enhance their professional skills and careers.

### MASTER'S PROGRAMS

- Accounting
- Aerospace Engineering

- Anthropology
- Architecture
- Art
- Biology
- Biomedical Engineering
- Business Administration
- Chemistry
- City and Regional Planning
- Civil Engineering
- Cohort Masters of Business Administration
- Communication
- Computer Science
- Computer Science and Engineering
- Criminal Justice
- Criminology and Criminal Justice
- Economics
- Education Administration
- Education Curriculum and Instruction
- Education Leadership and Policy Studies
- Education Teaching
- Electrical Engineering
- Engineering Management
- Engineering Mechanics
- English
- Environmental and Earth Science
- Environmental Design
- Environmental Science and Engineering
- Executive Masters of Business Administration
- Exercise Physiology
- Foreign Language
- French
- Geology
- German
- Government
- Health Care Administration
- History
- Humanities
- Humanities MAT
- Human Resource Management
- Industrial Engineering
- Information Systems
- Interdisciplinary Science
- Interdisciplinary Studies
- International MBA
- International Business Administration
- Landscape Architecture
- Linguistics
- Logistics
- Management of Technology
- Marketing Research
- Master of Arts in Foreign Language
- Materials Science

- Materials Science and Engineering
- Math Teaching
- Mathematics – General Mathematics
- Mathematics – General Statistics
- Mechanical Engineering
- Modern Languages
- Music
- Nursing
- Nursing Administration
- Nursing Administration – Joint with UNT
- Nursing Practitioner
- Nursing – Adult Nurse Practitioner
- Nursing – Acute Care Nurse Practitioner
- Nursing – Adult Psychiatric-Mental Health Nurse Practitioner
- Nursing – Emergency Nurse Practitioner
- Nursing – Family Nurse Practitioner
- Nursing – Family Psychiatric-Mental Health Nurse Practitioner
- Nursing – Gerontological Nurse Practitioner
- Nursing – Pediatric Nurse Practitioner
- Nursing – Pediatric Acute Care Nursing Practitioner
- Online Computer Science
- Online Computer Science & Engineering
- Online Electrical Engineering
- Online Business Administration
- Personnel and Human Resource Management
- Physics
- Political Science
- Professional Accounting
- Psychology
- Public Administration
- Public Administration – Online
- Quantitative Finance
- Radiological Physics
- Real Estate
- Social Work
- Sociology
- Software Engineering
- Spanish
- Systems Engineering
- Taxation
- Teaching English to Speakers of Other Languages (TESOL)
- Urban Affairs

## **DOCTORAL PROGRAMS**

- Administration Business
- Administration
- Administration Social Work
- Administration Urban Affairs
- Aerospace Engineering
- Applied Chemistry
- Applied Physics
- Biomedical Engineering

- BSN to PhD in Nursing – Administration
- BSN to PhD in Nursing – Clinical
- Business Administration
- Business Administration – concentration in Accounting
- Business Administration – concentration in Economics
- Business Administration – concentration in Finance
- Business Administration – concentration in Information Systems
- Business Administration – concentration in Management
- Business Administration – concentration in Marketing
- Business Administration – concentration in Taxation
- Chemistry
- Civil Engineering
- Computer Science
- Computer Science – BS to PhD
- Computer Science and Engineering
- Computer Science and Engineering – BS to PhD
- Educational Leadership
- Educational Leadership and Policy Studies (K-16)
- Electrical Engineering
- Engineering Mechanics
- Engineering Interdisciplinary
- Engineering Undifferentiated
- English
- Environmental and Earth Science
- Environmental Science and Engineering
- Experimental Psychology
- General Experimental Psychology
- Humanities
- Industrial Engineering
- Linguistics
- Literature
- Materials Science
- Materials Science and Engineering
- Mathematics – General Mathematics
- Mathematics – General Statistics
- Mathematics – BS to PhD, General Mathematics
- Mathematics BS to PhD, General Statistics
- Math Science – Biology
- Math Science – Chemistry
- Math Science – Computer Science
- Math Science – Geology
- Math Science – Information Systems
- Math Science – Mathematics
- Math Science – Physics
- Math Science – Psychology
- Mathematical Science
- Mechanical Engineering
- Nursing
- Public and Urban Administration
- Quantitative Biology
- Rhetoric
- Social Work



- Transatlantic History
- Urban Planning and Public Policy

## CERTIFICATES

The University of Texas at Arlington offers the following graduate certificates:

- Acute Care Pediatric Nurse Practitioner
- Acute Care Nurse Practitioner
- Adult Nurse Practitioner
- Adult Psychiatric Mental Health Nurse Practitioner
- Advanced Nursing Educator Role
- Archival Administration
- Bilingual
- Budgeting
- Development Review
- Graduate Advanced Studies
- Geographical Information Systems
- Education in Curriculum and Instruction – English Second Language
- Education in Curriculum and Instruction – Master Reading Teacher
- Education in Curriculum and Instruction – Master Technology Teacher
- Education in Curriculum and Instruction – Reading Specialist
- Education in Teaching – All Level
- Education in Teaching – Early Childhood
- Education in Teaching – Middle Level
- Education in Teaching – Secondary Level
- Environmental & Earth Science
- Emergency Nurse Practitioner
- Educational Leadership & Policy Studies – Principal
- Educational Leadership & Policy Studies – Superintendent
- Electronic Packaging
- Family Nurse Practitioner
- Family Psychiatric Mental Health Nurse Practitioner
- Gifted and Talented
- Gerontological Nurse Practitioner
- GIS In Spatial Information Systems
- Hazardous Material & Waste Management
- Law & Public Policy
- Nursing Education
- Nurse Educator Role
- Palliative Care Practitioner
- Pediatric Nurse Practitioner
- Petroleum Geoscience
- Performance
- Real Estate Development
- Registered Nurse First Assistant
- Spanish
- Telecommunications
- TESOL
- Taxation
- Urban Journalism
- Urban Non-Profit Management

# Undergraduate Admissions

## Office of Admissions, Records and Registration

*Undergraduate Admissions is a unit within the Office of Admissions, Records & Registration*

### Application for Admission

New prospective students who wish to enroll at The University of Texas at Arlington must apply for admission. They should apply as early as possible. All application materials—signed application (or certified if online), appropriate application fee or fee waiver documentation, official copies of transcripts of all high school and all college work attempted, and official test scores when appropriate—should be submitted by the priority deadlines. Completed applications will be accepted after the priority deadlines until the ApplyTexas application closes approximately two weeks prior to the start of the term. A late application fee will be assessed. Adherence to the deadlines ensures careful evaluation of credentials resulting in an admission decision and notification of that decision to the student in time for orientation, academic advising, registration, and tuition/fee payment.

All documents, including official transcripts submitted to the Office of Admissions, become the property of the University and will not be returned to the student. Official transcripts must be currently dated with an issue date that closely corresponds to the date the admission application is submitted. An offer of admittance to UT Arlington is only valid for the semester indicated on the admission application. Applicants wishing to be considered for a future semester other than the one identified on their first application must submit a new application. Although a new application must be completed, a second application fee will not be required if the application is being updated for the first time within the same academic year. If the second or subsequent admission application reflects a change in academic history, the student must provide the new official transcripts and test scores reflecting any new work completed since the first application was submitted. Once complete, the student's admission status will be re-evaluated. The application for admission can be found at [www.ApplyTexas.org](http://www.ApplyTexas.org) (<https://www.applytexas.org>).

### PRIORITY DEADLINES

Application Deadline	Fall Semester	Spring Semester & Winter Intersession	Summer Semester & Summer Intersession
Freshman	June 1	December 1	April 1
Transfer students	June 1	December 1	April 1
Former students	June 1	December 1	April 1
International students	May 1	October 1	March 1
Transient students	June 1	December 1	April 1

The above priority deadlines may not apply to some academic programs which are offered exclusively online. Please consult the specific web site of the online program you will be participating in for application deadline information.

### APPLY TEXAS APPLICATION

Pursuant to Section 51.762 and 51.763 of the Texas Education Code, the Texas Higher Education Coordinating Board adopted a uniform undergraduate admission application called the Apply Texas Application. All undergraduate freshmen, transfer, former and transient students applying to a Texas public institution of higher education must use this form. It may be accessed and sent electronically via the Internet at [www.applytexas.org](http://www.applytexas.org) (<https://www.applytexas.org>).

### ADMISSION APPLICATION FEE

All new undergraduate applicants to UT Arlington must pay a \$50 application fee. Any application or application fee received after the priority application deadline will be assessed a \$60 application fee. Beginning with applicants for Spring 2015, the application fee will be \$60 for all applicants. The fee may be paid online using a credit card at the time the application is submitted. The Admissions Office also accepts application fees be paid by check or money order in U.S. dollars. The only fee waivers accepted by the office are those offered from ACT or SAT. Fee waivers are not available for students applying to the Academic Partnership programs. Admission decisions will not be made until after the application, application fee and all official academic credentials are received and reviewed. Applicants who are not admitted or who do not enroll on the basis of their original admission application may receive one free update within the same academic year upon completion of an update application.

### International Students

All prospective students from countries other than the United States who are not immigrants and have not been granted permanent residency must submit:

1. an International Student Application.
2. the application processing fee of \$50 U.S., which is not refundable. Beginning with applicants for Spring 2015, the application fee will be \$60.
3. **Entering freshmen** must present completed official secondary school transcripts, diplomas, certificates and/or national test examination scores as appropriate for the educational systems in their country. In order to be considered for freshman admission you must have completed a secondary school series equivalent to that of United States high school graduation. Transcripts and exam marks should be attested as true copies of the

originals by the school you attended. Notarized copies are not used for admission. If documents are written in a language other than English, complete and official English translations must be provided with the original language transcripts, exam records and diplomas. Official SAT I or ACT scores are required for entering freshmen with less than 24 semester hours of university level course work (equivalent to one year of full time study). The minimum required SAT I score for entering freshmen educated in a country other than the U.S. is 900. The minimum ACT score is 19. International Freshman applicants educated in the U.S. must meet U.S. freshman admission standards regarding high school class rank and SAT I or ACT scores. Scores must be sent directly to UT Arlington from the Testing Service in order to be considered official. Student score reports are not used for admission processing.

**International Transfer Students** must submit official transcripts or mark-sheets of all college or university level course work showing subjects completed and grades (marks) earned. Transcripts and diplomas must be attested as true copies of the originals by the school you attended or UT Arlington. Notarized copies are not used for admission. If documents are written in a language other than English, complete and official English translations must be provided with the original language transcripts, exam records and diplomas.

4. Official TOEFL scores are required from International students (entering freshman and transfer students) from non-native English speaking countries on the following visas: B, C, D, F, H-4 dependents of H-1C, H-2A, and H-2B visa holders, J, M, O-2, O-3, P, Q, S, TN, TD, TWOV. Applicants who have graduated from secondary schools or colleges in the following countries are exempt from the TOEFL: Anguilla, Antigua, Australia, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Canada (except Quebec), Cayman Islands, Dominica, Grenada, Grand Cayman, Guyana, Ireland, Jamaica, Liberia, Montserrat, New Zealand, Sierra Leone, St. Kitts and Nevis, St. Lucia, St. Vincent, Trinidad/Tobago, Turks and Caicos Islands, and United Kingdom.

The TOEFL will be waived for those applicants:

- a. who have an SAT I verbal score of at least 480 or an ACT I English score of 19, or
- b. who have completed English Composition I and II with a grade of C or better, plus 24 additional transferable hours at a college or university located in the U.S.

The minimum acceptable score on the TOEFL is 79 on the Internet-based test, 550 on the paper-based test and 213 on the computer-based test. The IELTS can be substituted for TOEFL scores. The minimum acceptable overall score of 6.5 is required for admission. Scores must be sent directly to UT Arlington from the Testing Service in order to be considered official. Student score reports are not used for admission processing.

5. The applications of prospective students from countries other than the United States are reviewed on an individual basis, and admission decisions are based on the strength of the previous academic work, scores on the SAT if required, and the Test of English as a Foreign Language score. Academic background and curriculum are important considerations in decisions on admissibility.
6. International students who plan to attend UT Arlington on an F-1 (student visa) and who wish to be issued an I-20 must present a copy of their passport, I-94 card and evidence of sufficient financial support while studying in this country. Please see the latest Financial Statement Form at UT Arlington's Web site at [www.uta.edu/admissions](http://www.uta.edu/admissions) for the most current estimate to be documented and types of acceptable documentation.
7. International Students on any visa other than F-1 must present a copy of their passport and I-94 card.
8. Prior to course registration each prospective International student must clear through the Office of International Education. In addition, International students on the following visas are required to attend an International Orientation before registering for classes: A-2, e-2, F-1 (including transfer students) H-4, J-1, J-2, L-2, O-3, R-2, TD.
9. Prior to course registration each prospective International student must have a Tuberculosis screening and/or chest X-ray in order to enroll. For further information please call the Health Services Immunization Clinic at 817-272-7143 or visit their Web site at [www.uta.edu/health\\_services](http://www.uta.edu/health_services).

## Meningitis Requirement

As of Jan. 1, 2012, incoming Texas college students under 30 years old as of the first day of classes for the term in which they intend to enroll must be immunized against bacterial meningitis before they enroll in any Texas institution of higher education per SB 1107 (<http://www.capitol.state.tx.us/BillLookup/History.aspx?LegSess=82R&Bill=SB1107>). The law was subsequently updated for students entering the Spring 2014 to be under the age of 22 years old instead of 30. Students transferring from another institution and students who are re-enrolling following a break of at least one fall or spring semester must be inoculated against the illness. Students who plan to audit a course also must comply with the law. Students enrolling in only online classes are exempt from the legislation.

It is imperative that students who plan to enroll at UT Arlington be vaccinated as soon as possible. Under the law, new college students must have received the vaccine within the past five years. Proof of inoculation is required 10 days before the start of the semester as the vaccine is considered effective several days after it is administered. Additionally, the vaccine must have been administered within the past five years. Limited exemptions are specified in state law. Upon acceptance to the university, the student will receive detailed information sent to their UT Arlington email address concerning compliance with the law. UT Arlington uses a third-party service, Magnus Health SMR, to collect student vaccination records, verify the documents and maintain the records in compliance with federal privacy laws. Magnus will create an account for incoming students, who will be sent instructions via email to their UT Arlington email address detailing how to submit vaccination documentation. Students enrolled in classes who must meet the requirement will be dropped from their classes the day prior to the first day of class if they have not completed the requirements as defined by the law.

Frequently asked questions (<http://www.uta.edu/news/info/meningitis.php>) regarding this requirement are available online at UT Arlington's web site.

## Major Classifications

All entering students will be classified either as undeclared majors, intended-majors or majors. All entering students who are not ready to declare a major will be admitted as undeclared majors. **Note:** Applications for students interested in the Architecture or Interior Design programs will only be accepted for the Fall semester.

All first-time freshman students and freshman transfer students will be advised by the University Advising Center in University College for their first year and then advised by departmental advisors thereafter. Undeclared majors beyond the first year will continue be advised in the University Advising Center until they are ready to move into an intended major or major.

Transfer students will be advised by a departmental advisor for the intended major or major, unless admitted as an undeclared major and be advised by the University Advising Center.

## Enrollment as a Non-Degree Student

A student who holds a bachelor's degree from an accredited institution, including The University of Texas at Arlington, may choose to apply for admission as a non-degree student in one of the undergraduate colleges or schools and is subject to the rules that apply to other undergraduates. Students may, with the approval of the director of admissions and the academic dean, change to degree-seeking status in an undergraduate college.

Consideration for the non-degree option is made by submitting an admission application, application fee and an official transcript showing the awarding of at least a bachelor's degree. Materials must be submitted by the deadline for undergraduate admission.

## Admission to a Degree Program

Admission to the University's degree programs is determined by application to the academic unit offering the degree. Before being admitted to a degree program, students must fulfill all departmental and college requirements. Degree programs may require students to complete additional courses or hours in residence prior to applying for admission to the degree program. Until students are admitted into a degree program, students will remain on pre-major status.

## Criminal Background Check

Some programs require a criminal background check as a condition of admission or program completion or licensure expectations concerning acceptable qualifications. Applicants should examine departmental requirements with care.

## Academic Fresh Start

Section 51.931 of the Texas Education Code provides that a resident of Texas may apply for admission to the University as an undergraduate student without consideration of course credit or grades earned 10 or more years prior to the semester the applicant plans to enroll. To be admitted, the applicant must meet the admissions standards in effect at the time of application. Students admitted under the "fresh start" option may not receive credit for any course work taken 10 or more years prior to enrollment. The Academic Fresh Start provision does not affect Texas Success Initiative exemptions claimed on the basis of college credit earned prior to September 1989.

After enrollment, a message will be posted to the student's academic record at UT Arlington indicating admission has been granted through the Academic Fresh Start provision. Once this option has been claimed and the student has enrolled at any state institution, the provision cannot be reversed. An applicant may use the Academic Fresh Start provision only once at UT Arlington.

Academic Fresh Start may be claimed only upon application to the University and will not be applicable to currently enrolled UT Arlington students. Once a student has enrolled, Academic Fresh Start may only be requested upon application for readmission to the University. Students apply for readmission after resigning for one calendar year. All requests for Academic Fresh Start should be made to the Office of Admissions by completing an Academic Fresh Start form ([http://www.uta.edu/admissions/fresh\\_start.php](http://www.uta.edu/admissions/fresh_start.php)).

## Orientation and Early Registration

Orientation and Early Registration is a program which includes placement testing, group sessions to prepare for the transition to UT Arlington, resources for academic success, and an introduction to social and extracurricular opportunities. A highlight of the program is early advising and registration.

Upon completion of the admission requirements and admittance to the University, students are sent information regarding orientation from the UT Arlington Division of Student Affairs. The orientation program is required for all first-time freshmen students.

For students starting UT Arlington in the fall semester, several orientation options are available. New freshman students may attend one of several one-and-a-half-day sessions offered in June, July and August. Students have the option to stay overnight in the residence halls. Parents of freshman students are invited to attend a separate but concurrent program. There are limited accommodations for parents or guests on campus. Transfer students are also required to attend a one-day program in July or August. All Orientation programs conducted during the summer include Academic Advising and Early Registration. For students starting in the other semesters, Orientation and Early Registration is offered prior to the start of the semester. Please contact the UTA Division of Student Affairs for additional information regarding the orientation programs.

## International Student Orientation

The New International Student Orientation provides new international students with information about immigration matters, health services and health insurance, registration procedures, academic rules and regulations, cultural adjustment, and Office of International Education programs and activities. Attendance at this orientation program is required for all non-immigrants who are new to UT Arlington, including transfer students. Orientations are offered on various days in the two weeks preceding each semester. Students are notified by letter of this New International Student Orientation at the time of notification of admission. The dates and details of orientation are included in this letter. Attendance at any other UT Arlington orientation does not substitute for attendance at the New International Student Orientation. Those who do not attend will not be allowed to register during regular registration and must attend a makeup orientation program before being allowed to register in late registration.

## College Credit by Examination

The University of Texas at Arlington recognizes that many excellent students have gained academic achievement in certain subject areas prior to entering an institution of higher education. UT Arlington strongly encourages such superior attainment, recognizes it for academic purposes and permits students who have done such work to obtain course credit through examination. Students will be given the opportunity to receive credit by examination in courses within the regular curricular offerings of the University where proficiency may be practically and validly determined by examination.

UT Arlington uses several examination programs to assess the prior academic achievement of undergraduate students. The University awards credit for scores on certain tests from the College Board Advanced Placement Program (AP), the College Board College Level Examination Program (CLEP), the College Board SAT II: Subject Tests, the DANTES Subject Standardized Test (DSST), and the International Baccalaureate Program (IB). UT Arlington also offers advanced standing examinations prepared by departmental faculties.

The following policies govern the awarding of credit by examination by UT Arlington:

- Credit by examination (<http://www.uta.edu/universitycollege/prospective/testing-services/credit-by-examination>) is available to undergraduate students with a completed application on file, currently enrolled students, and formerly enrolled students who meet eligibility requirements. Provided the student has neither passed nor failed that course at the University of Texas at Arlington (including a Z in English). Credit by examination will not be given for a course the student previously passed or failed, or received transfer credit at UT Arlington. Additional eligibility requirements for certain courses are listed in Assessment Services Credit by Examination brochure or on their Web site.
- Although prospective students may take examinations to establish their eligibility to receive credit, credit is awarded only to currently enrolled students or to former students who meet eligibility requirements.
- Credit by examination may not be used for graduate credit and no such credit, graduate or undergraduate, may appear on graduate student transcripts.
- Credit earned by examination satisfies degree requirements in the same way as credit earned by passing courses except it does not count as credit earned in residence. Credit by examination cannot be used to satisfy general degree requirements for: (a) 30 semester hours in residence, (b) at least 18 semester hours in residence of advanced course work (courses numbered 3000 and 4000), to include 12 hours of advanced course work in the major field. Credit by examination can be used to meet prerequisites for higher-level courses.
- After the official Census Date, students may earn credit by examination for a course they are enrolled in only if the student drops the course with a W or upon written approval of the chair of the appropriate academic department. Once a grade is posted for the course the student may not petition for credit earned by exam.
- Most academic departments award semester hours of credit, but no letter grades. In a few subjects, credit may be awarded with grades of A, B or C, depending on the level of test performance. For each course in which grades are assigned, students may choose to accept credit hours recorded either with the letter grade or as credit only. Accepting credit only will not affect a student's cumulative grade point average. After credit has been posted to the academic record, a student's choice, letter grade or credit only, cannot be changed.
- To have credit reported to the registrar, official test scores must be sent to Assessment Services for credit by examination to be awarded. Students must complete a Petition to Record Credit by Examination at the Assessment Services office. Credit by examination will be posted to a student's official record after the student has enrolled and completed one semester at UT Arlington. Unsuccessful attempts to earn credit by examination are not recorded on students' academic records.
- Credit by examination on a transcript from another institution of higher education is considered transfer work and will transfer to UT Arlington, subject to the same conditions as corresponding resident course work from that institution. The Office of Admissions, Records and Registration is responsible for evaluating all transfer work.

Further information regarding test dates, registration procedures and deadlines, fees, current eligibility criteria and petitioning to record credit may be obtained from the Testing Services Office (<http://www.uta.edu/universitycollege/prospective/testing-services>).

## Placement Examinations

Certain departments offer (or require of) the student an exemption from taking courses based on departmental placement examinations. Such exemption does not grant credit for the course but permits the student to enroll in the next course in the subject area.

## Modern Language Placement Examination

The Modern Language Department recommends that students who are native speakers, have high school credit, or equivalent knowledge of French, German or Spanish language take a placement exam prior to enrolling in certain lower-division language courses. Modern Language placements tests are the CLEP (<http://www.uta.edu/universitycollege/prospective/testing-services/credit-by-examination/clep.php>) French, German, or Spanish Language exams and may be taken in an attempt to earn credit by examination. Students have the option to choose credit with letter grade or credit without letter grade for credit earned depending on level of test performance.

## Texas Residency for Tuition Purposes

The Office of Admissions, Records and Registration determines Texas residency (<http://www.uta.edu/admissions/residency.php>) status for all new and continuing UT Arlington undergraduate students. Graduate students should contact the UT Arlington Office of Graduate Studies (<http://grad.uta.edu/prospective/apply/before>). A review of responses on the admission application is conducted by the residency determination official in accordance with Title 19, Chapter 21, Subchapter B of the Texas Administrative Code ([http://info.sos.state.tx.us/pls/pub/readtac\\$ext.ViewTAC?tac\\_view=5&ti=19&pt=1&ch=21&sch=B&rl=Y](http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=5&ti=19&pt=1&ch=21&sch=B&rl=Y)).

When incomplete, insufficient or conflicting information is presented on the admission application, the student will be sent a Core Residency Questionnaire. This should be completed and returned to the Office of Admissions, Records and Registration (Box 19114, Arlington, TX 76019-0114) with the appropriate supporting documentation prior to registration. After the Core Residency Questionnaire has been reviewed, the student will receive a written response of the residency determination from the Office of Admissions, Records and Registration.

## Report of Medical History

A Report of Medical History form will be sent to students when they are accepted to the university.

**First-time students:** Prior to registration, a first-time student must submit a Report of Medical History to UT Arlington Health Services (<http://www.uta.edu/healthservices>). It is the responsibility of the student to complete the health form and mail it to UT Arlington Health Services at least two weeks prior to registration. A Report of Medical History form will be sent to students when they are accepted for admission.

**Students who are from countries other than the United States and who are not immigrants or have not been granted permanent residency:** All students who are from countries other than the United States and who are not immigrants or have not been granted permanent residency must submit to UT Arlington Health Services an International Health Card issued within the past year. The International Health Card must note that the student has tested negative for tuberculosis. Once the card has been presented, the student will be cleared to register for classes. Students who do not present this card will not be permitted to enroll in classes.

**International students:** In addition to the International Health Card requirement, all international students must be tested by a U.S. medical facility for tuberculosis prior to the 25th class day. Failure to receive clearance from a U.S. medical facility will result in the removal from classes. Testing is available at UT Arlington Health Services.

**First-time Non-U.S. Citizen/Non-Permanent Resident and Intensive English students:** The University of Texas at Arlington requires all entering Non-U.S. Citizen/Non-Permanent Resident and Intensive English students to:

- Have a Tuberculosis screening and/or chest X-ray performed at UT Arlington Health Services upon arrival to the University for classes. TB screening or chest X-ray will be performed even if the student has been vaccinated with BCG (vaccine for TB usually administered to children and effective for 8-10 years-not widely used in the U.S.).
- Ensure that all documentation is complete and submitted to UT Arlington Health Services by the 25th class day or the student will be dropped from classes without reinstatement privileges. Students dropped from classes due to non-compliance will not be eligible for a refund of tuition or fees.

For the complete text of the UT Arlington policy concerning Tuberculosis screening, please visit UT Arlington Health Services (<http://www.uta.edu/healthservices>).

## Freshman Admission Overview

A freshman applicant to The University of Texas at Arlington must have graduated from an accredited high school or is on track to graduate from high school prior to enrollment at UT Arlington. Applicants must submit an application for admission, an application fee, an official high school transcript indicating rank-in-class and official scores on the Scholastic Assessment Test (SAT) or the American College Test (ACT). Students enrolled in dual credit courses at a college while in high school are encouraged to submit an official college transcript. If an admission offer is made prior to high school graduation, a second official transcript that identifies the graduation date and final class rank will be required prior to the first day of classes.

All applications for admission from prospective freshmen are reviewed individually. Decisions are based on factors that predict academic success: rank-in-class; and scores on standardized admission tests at the freshman level.

Applicants who meet the minimum SAT/ACT requirements listed in this section or who graduated in the top 25 percent of their class from an accredited high school are guaranteed admission. Those who have a different pattern of rank and test scores will be considered on an individual basis and may be

asked to submit additional information such as recommendations from teachers and counselors and/or a writing sample or an interview. Applicants who do not meet unconditional criteria will also be evaluated on the following factors:

- the socioeconomic background of the applicant
- whether the applicant would be the first generation of the applicant's family to attend or graduate from an institution of higher education
- whether the applicant has bilingual proficiency
- the applicant's responsibilities while attending school, including whether the applicant has been employed, whether the applicant has helped to raise children, or other similar factors
- the applicant's region of residence
- whether the applicant is a resident of a rural or urban area or a resident of a central city or suburban area in the state
- the applicant's involvement in community activities
- the applicant's extracurricular activities
- the applicant's commitment to a particular field of study

In addition to current university requirements for admission, Texas Education Code, Sections 51.803, 51.804, 51.804(2) require applicants to also have either:

1. successfully completed the Texas curriculum requirements for the recommended or advanced high school program or its equivalent; **OR**
2. satisfied ACT's College Readiness Benchmarks on the ACT assessment applicable to the applicant (minimum 18 on the English, 22 on Math, 21 on Reading, and 24 on Science) **OR** earned on the SAT assessment a score of at least 1,500 (Critical Reading + Math + Writing) out of 2,400 or the equivalent.

If the applicant does not meet admission requirements after individual review, admission may be deferred pending completion of a minimum of 24 transferable credit hours at another college with a grade point average of at least a 2.25. Students with at least a 2.0 but less than a 2.25 overall GPA are encouraged to apply and may be considered on a space available basis.

Current minimum freshman admissions requirements:

Rank in High School Graduating Class	Minimum Acceptable SAT Score	Minimum Acceptable ACT Score
Top 25%	No minimum score but students must submit scores.	No minimum score, but students must submit scores.
Second quarter	1050	22
Third quarter	Individual review	Individual review
Fourth quarter	Individual review	Individual review
No class rank	Individual review	Individual review

Minimum SAT scores are based on the highest Critical Reading score added to the highest Math score.

Engineering: For full-major status, applicants to the College of Engineering are required to present the following minimum test scores in addition to meeting other criteria specified in the College of Engineering section of this catalog:	1200	28
---	------	----

Prospective engineering majors who meet general university requirements for admission, but not the above listed test scores, will be reviewed and considered on the basis of individual merits by the College of Engineering for admission as pre-majors.

**Meeting the above minimum university admissions requirements does not guarantee admission.**

An applicant is entitled to automatic admission if the applicant meets the minimum requirements and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty.(Section 51.803(e), Texas Education Code.

## ENTRANCE EXAMINATION

Freshman applicants for admission must take the Scholastic Assessment Test (SAT) or the American College Test (ACT). The SAT is given nationally in October, November, December, January, April, May and June. Any student graduating from high school in 2006 or later, must also submit the writing score from the new SAT or the writing score from the ACT. Students taking the ACT should make sure they sign up for the writing exam since it is an optional component of the regular ACT. Test applications and a sample test bulletin can be obtained from the Educational Testing Service, College

Board ATP, CN 6200, Princeton, N.J. 08541-6200 or online at [www.collegeboard.com/student/testing/sat/about.html](http://www.collegeboard.com/student/testing/sat/about.html) (<http://www.collegeboard.com/student/testing/sat/about.html>). The ACT is given nationally in October, December, February, March and June. Test applications and a sample test bulletin can be obtained from American College Testing Program, P.O. Box 414, Iowa City, Iowa 52243 or online at [www.actstudent.org](http://www.actstudent.org) (<http://www.actstudent.org>). Test applications can also be obtained from a local high school or from the Office of Testing Services at UT Arlington. Applications will not be accepted later than one month prior to the test date. The applicant should complete one of the examinations at least three months prior to the start of the semester for which admission is sought. Test scores are only considered official if they are received directly from the testing service or are included on an official transcript and are less than five years old.

Students age 25 or older as of the first day of classes for the term they wish to enroll are not required to submit SAT or ACT scores. Their admission will be determined by individual approval.

## HIGH SCHOOL PREPARATION

It is recommended that students complete the college preparatory program of study offered by their high schools. For purposes of admission as a freshman to the University, passing the General Educational Development Test (GED) is not considered to be the equivalent of graduating from high school. An applicant with a GED certification may be eligible for admission under the Individual Approval clause explained later in this section of the catalog.

In order for majors in architecture, engineering, biology, biochemistry, chemistry, mathematics, and physics, and B.S. candidates in geology and psychology to start their mathematics sequence with analytic geometry, applicants should have at least 3 1/2 units of high school mathematics. Those who made low scores on the mathematics part of the SAT or the ACT examination are required to take, without credit toward a degree, the necessary mathematics courses prerequisite to taking analytic geometry.

## EARLY ADMISSION AND HONORS ACADEMY PROGRAMS

The Early Admission and Honors Academy Programs are designed for high school students who wish to gain college credit at UT Arlington and the Honors College while still attending high school. It is also possible for students in some school districts to earn dual credit for their course work. Students should contact their home school district or the Honors College for further information regarding dual credit.

Early Admission students must submit:

- Applications for both general admission and the Early Admission Program.
- Official high school transcript showing course work through the sophomore year.
- Upon graduation, a final high school transcript showing graduation and final rank-in-class.

Admission to the Early Admission Program requires students to demonstrate college readiness. One way is by demonstrating they are exempt under the provisions of the Texas Success Initiative (TSI) (<http://www.uta.edu/admissions/successinitiative.php>):

- An SAT I score of at least 1070 (Critical Reading + Math only). (SAT math score must be at least 500 with Critical Reading score of at least 500), **or**
- An ACT composite score of at least 23 (ACT math score must be at least 19 with English score of at least 19), **or**
- A TAKS math score of at least 2200, TAKS English/language arts score of at least 2200 and a TAKS essay score of at least 3.
- A STAAR English II Reading Score of 2000+, an English II Writing score of 2000+, and a Geometry or Algebra II score of 4000+.

If a student meets the exemptions for the Reading, Writing, and Math requirements, they will be eligible for the EAP program. If they cannot meet any of the requirements they can also become eligible for the EAP program by achieving the minimum passing standards under the provisions of the Texas Success Initiative (TSI) (<http://www.uta.edu/admissions/successinitiative.php>). This provision requires the student to take the TSI Assessment exam.

The student only needs to take the portion of the test for which they have not met the exemption requirement stated above. If you have taken the TSI Assessment at another institution, please request to have the scores sent to the UT Arlington Office of Admissions, Records & Registration. Information to take the TSI Assessment on the UT-Arlington campus is available at the UT Arlington Testing Services website (<http://www.uta.edu/testing>).

Alternatively, an eleventh grade student is eligible to enroll in dual credit courses under the following conditions:

1. A minimum combined (Critical Reading + Math) PSAT score of 107 with at least a 50 on the Critical Reading and 50 on the Math section.  
OR
2. A PLAN composite score of at least 23 with at least a score of 19 on both the English and Math sections.

Each individual admitted into this program will be enrolled in regular University classes and will receive credit for the course work completed at the end of the semester. A permanent academic record will be established for each person enrolled under the Early Admission Program.

Upon completion of the Early Admission Program, a student who wishes to continue enrolling at UT Arlington must complete a Freshman Application for Admission (<http://www.applytexas.org>) and submit an official final high school transcript. Admission to the Early Admission Program does not guarantee acceptance to the university as a freshman following high school graduation.



## HONORS ACADEMY

The Honors College offers an outstanding program of study for exceptionally motivated high school students. A student may earn credit hours toward the college degree while also receiving credit toward the high school diploma for the course work taken at UT Arlington. Granting of dual credit is subject to the policies of each independent school district under the guidelines of the Texas Education Agency. Students should check with their home districts or the Honors College for more information regarding dual credit.

Honors Academy students must submit:

- Applications for both general admission and the Early Admission Program.
- Official high school transcript showing course work through the junior year. Students must be in the top 10 percent of their class.
- Official minimum SAT scores of 1,200 or minimum PSAT scores of 120, or minimum ACT scores of 27.
- Upon graduation, a final high school transcript showing graduation and final rank-in-class.

Qualified Honors Academy students are eligible to receive scholarships, will be enrolled in Honors College classes and will receive credit for the course work completed at the end of the semester. A permanent academic record will be established for each person enrolled under the Honors Academy Program.

Upon completion of the Honors Academy Program, a student who wishes to continue enrolling at UT Arlington must complete a Freshman Application for Admission and submit an official final high school transcript.

## INDIVIDUAL APPROVAL

Graduation from an accredited high school is a prerequisite for admission to the University for most individuals. However, freshmen with the following educational profiles may be considered for admission under certain circumstances and will be automatically reviewed by Admissions officials:

- Graduates from unaccredited high schools
- Graduates from home schools
- Graduates with a General Educational Development (GED) certificate
- Students who are high school graduates and are age 25 or older. These students are not required to submit ACT or SAT scores.
- Texas residents age 21 or older who did not graduate from high school but scored at least 1010 on the SAT or 22 on the ACT.

Applicants should submit an admission application, application fee or fee waiver (ACT or SAT only) documentation, official transcripts of all high school grades completed from all unaccredited or home schools, official transcripts of all partially completed grades from accredited high schools, GED test scores if applicable, and official SAT or ACT test scores. Admission will be based on the freshman criteria stated in the Freshman Admission section of this catalog with emphasis placed on each individual's academic preparation and readiness to begin a college-level curriculum. Applicants with exceptional circumstances are encouraged to discuss their educational plans with an admission counselor.

Individuals age 25 or older who have graduated from an accredited high school may be considered for admission without taking the SAT or the ACT. Such students may, however, be ineligible for federal student aid under the "Ability to Benefit" rules. An individual admitted under this waiver will be required to enroll as an undeclared major until 30 semester hours have been successfully completed. An application for admission, an official copy of the high school transcript, official transcripts of all attempted college work and the application fee will be required for admission consideration. The testing waiver does not apply to international students who must submit the results of the SAT and TOEFL for admission purposes.

An applicant seeking admission under the Individual Approval provisions who has any course credit from previous college enrollment must meet the University transfer requirements for all college work attempted. Passing the General Educational Development (GED) Test is not recognized by UT Arlington as being equivalent to graduation from an accredited high school.

## ADMISSION APPEAL

Students denied admission may appeal the decision by sending a letter of written appeal addressed to the Admissions Appeal Committee, The University of Texas at Arlington, Box 19111, Arlington, TX 76019. In the letter, students should provide the committee with the reason(s) they feel they should be admitted to the university and provide any additional information not provided at time of application including letters of recommendation, new transcripts, and new test scores. Students can expect a decision from the committee within two weeks from its receipt of the appeal.

## Transfer Admission Overview

Prospective students who have attempted college-level courses beyond 24 hours are considered transfer students. An applicant who is not eligible to continue at another institution for academic or disciplinary reasons is not eligible for admission to The University of Texas at Arlington. Applicants, whether a new or former student, who have attended another collegiate institution may not disregard any part of their academic record except as permitted under the "fresh start" option described in this section. Applicants who fail to list all previously attended institutions on their application for admission are subject to disciplinary action, including expulsion, and possible loss of credit for subsequent work taken at the University.

All college-level courses except those determined to be developmental or pre-college-level courses are used to compute a transfer grade point average. Grades earned in every course attempted are part of this calculation with the exception of 10 hours of repeated courses. In the case of repeated

courses, the second course attempt is counted and the first forgiven even if the second attempt is a withdrawal. Subsequent attempts after the second time a course is taken are counted toward the grade point average calculated for transfer admission. To be considered for admission, transfer applicants must have a minimum 2.25 GPA on all previous college work. Students with at least a 2.0 but less than a 2.25 overall GPA are encouraged to apply and may be considered on a space available basis.

## **FRESHMAN TRANSFERS**

(less than 24 college hours completed)

Applicants who have completed fewer than 24 hours of transferable credit must have a grade point average of at least 2.25 to be admitted. In addition, they must meet the admission requirements for entering freshmen at UT Arlington. Freshman transfer students must submit: 1) an official score report from a national administration of the SAT I or ACT, 2) an official high school transcript showing graduation and rank-in-class, 3) a completed undergraduate application form, 4) official transcripts of all college work attempted, and 5) the application fee or fee waiver documentation. Students taking college classes while still in high school will be considered freshmen instead of transfer students.

## **TRANSFERS WITH SOPHOMORE OR HIGHER CLASSIFICATION**

(24 or more college hours completed)

Applicants who have completed 24 or more hours of transferable credit must have at least a 2.25 grade point average to be admitted. Students taking college classes while still in high school will be considered freshmen instead of transfer students.

Prospective transfer students who have completed 24 or more transferable credit hours must submit: 1) an undergraduate application for admission, 2) an official transcript from each accredited college or community college attended, and 3) the application fee or fee waiver documentation.

## **TRANSFERS WITH DEGREES**

An applicant who has received a degree from another accredited senior college or university will be admitted as a degreed undergraduate. Acceptance into specific academic programs will be subject to the criteria set by each academic department. Applicants seeking a second baccalaureate degree must submit an application for admission, application fee, and an official transcript from each college attended as an undergraduate student to the Office of Admissions. The applicant should submit required credentials for admission by the priority deadline date. Non-degree seeking applicants must submit an application for admission, application fee, and an official transcript from the degree-granting institution. An applicant who wishes to take graduate course work before gaining admission to the Graduate School should contact the Office of Admissions, Records & Registration and the graduate advisor in the appropriate academic department.

## **CREDIT EVALUATION**

The Office of Admissions, Records & Registration completes an evaluation of transfer credit for all admitted degree-seeking students. This evaluation does not constitute approval of the credit for use toward a degree. Decisions on which transferred courses satisfy degree requirements are solely within the jurisdiction of a student's academic department. Policies governing the evaluation of transfer credit include the following:

- Transfer credit is generally awarded for academic course credit earned from regionally accredited institutions or from institutions that are candidates for regional accreditation if the course credit was earned during the candidacy period.
- Occupational or some workforce courses from junior/community colleges, developmental courses, and courses classified as below freshman level by the sending institution are not transferable and will not count toward a degree.
- Workforce Courses that are agreed upon in Articulation Agreements between Texas community colleges and UT Arlington are transferable. The use of these courses is in the jurisdiction of the student's academic department.
- Junior/community college courses transfer as lower-division (freshman or sophomore) credit. Undergraduate courses from senior colleges transfer at the same level, lower- or upper-division, as they were taken. Graduate level course work may be transferred as upper-division credit at the written request of the student. Any graduate courses transferred in as upper-division undergraduate work will not be eligible for use at a later date in the graduate school.
- No limit is placed on the total amount of course credit accepted in transfer from either junior or senior institutions. However, use of transfer credit toward a degree may be limited by the student's academic department.
- Credit-by-examination earned at other institutions is treated as transfer credit only if the sending institution posts such credit on the student's transcript with regular catalog course numbers and with a grade of at least C, with the symbol CR, or with a similar designation representing credit earned without letter grade.
- Evaluation of military transcripts that include ACE, AARTS, DD214, SMART, CCAF and the Defense Language Institute are evaluated for all admitted students.
- Credit in which a grade of D was earned is not transferable and will not count toward a degree.
- Grade Point Averages earned at other institutions are not transferred to UT Arlington.
- Transfer credit evaluations.

1. University course numbers may be modified in transfer credit evaluations to reflect differences in the number of credit hours. For example, if a course has 4 hours from the sending institution such as Mathematics "College Algebra," the course will be brought in as MATHTRAN 1000, since UT Arlington's "College Algebra" is a three-hour course.
2. Courses taught at other institutions often have no direct UT Arlington equivalents, but may be accepted in transfer. If such a course is in a discipline offered at the University, credit without a specific course number is awarded in the appropriate academic department. General elective credit may be awarded if no equivalent department exists at the University; use of elective credit toward a degree may be restricted by the student's academic department.
3. Courses taught at other institutions that are determined to be developmental are not accepted as transfer credit. Transfer credit of English courses taught at institutions in non-native English-speaking countries may be restricted or not accepted.

## TRANSFER OF LOWER DIVISION COURSE CREDIT

UT Arlington operates in accordance with Section 61.821, et seq., of the Texas Education Code. This statute recognizes that all lower division academic courses are fully transferable among public institutions and count toward the same degree at any public college or university in Texas. As such, any Texas Higher Education Coordinating Board approved core or field of study curricula are fully transferable to equivalent UT Arlington academic programs with the following stipulations:

- No institution shall be required to accept in transfer more credit hours in a major than the number set out in the applicable Coordinating Board-approved Transfer Curriculum for that major, as prescribed by the current issue of the Coordinating Board's guide, Transfer of Credit Policies and Curricula.
- In any major for which there is not a Coordinating Board-approved Transfer Curriculum, no institution shall be required to accept in transfer more lower division course credit in the major applicable to a baccalaureate degree than the institution allows their non-transfer students in that major.
- The university will only accept grades of C or higher in transfer credit.
- No university shall be required to accept in transfer or toward a degree more than sixty-six (66) semester credit hours of academic credits earned by a student in a community college. Universities, however, may choose to accept additional credit hours.

## CATALOG ELIGIBILITY FOR TEXAS COMMUNITY COLLEGE TRANSFERS

A student transferring from an accredited public community college in Texas has the same choice of catalog, designating degree requirements, that would have been possible if the student's dates of attendance at the University had been the same as the dates of attendance at the community college. However, the student's choice of major may affect whether or not transferable course work may be counted toward a degree.

## RESOLUTION OF TRANSFER DISPUTES

If the University refuses to accept lower-division credit earned at another Texas public institution of higher education, students and the institution where the credit was earned will be given written notice that the transfer credit was denied. If the denial of transfer credit is contested, the University will attempt to resolve the issue with the student and the sending institution according to applicable rules and guidelines of the Texas Higher Education Coordinating Board. If the dispute is not resolved to the student's satisfaction or to the satisfaction of the sending institution within 45 days of the initial notification, the University will notify the Coordinating Board of the denial of the transfer credit and the reason for the denial. The Coordinating Board will resolve the dispute and notify all involved parties of its findings. For more information contact the Office of Admissions, Records and Registration at 817-272-6287.

## Former and Continuing Students

A student who has attended UT Arlington previously, but has not been enrolled for one calendar year must reapply for admission by submitting an application for admission and application fee to the Office of Admissions, Records and Registration. Continuing students, those who have been officially enrolled at UT Arlington during the calendar year, do not need to reapply for admission.

If a former student has attended another college or university since last enrolling at UT Arlington, the student must submit official transcripts from all institutions attended. Academic performance in such work may be factored into the enrollment/eligibility process. Former students on academic probation or suspension upon resigning from UT Arlington may be required to obtain special permission to re-enroll from the academic dean's office of their intended major or from the University Advising Center.

Any student who withdraws from the University to perform active military service (not including Texas National Guard training exercises) will not have to reapply for admission, but will be readmitted upon a request made within one year of being released from active military services and may be eligible for the same financial assistance provided before the student's withdrawal. This right to readmission is afforded under Section 51.9242, *Texas Education Code*.

Applicants cannot be re-admitted without required credentials. Former international students seeking readmission must refer to the catalog requirements for international students.

## Transient Admission Overview

Undergraduate students who are pursuing degrees at other colleges and universities during the long session (fall and spring semesters) and wish to continue their studies at the University for one semester may be admitted to some undergraduate programs as transient students. Individuals who wish

to enroll as a transient student must submit an admission application, application fee and official transcript from their home campus. Admittance requires good academic standing from the home institution. Transient students will be classified as non-degree seeking students and therefore are not eligible for Financial Aid through UT Arlington. Transient students may not enroll in two consecutive semesters at UT Arlington. A transient student who wishes to be admitted to the University on a regular basis must apply for admission in accordance with the procedures, criteria and deadlines governing transfer admission. All transcripts from previously attended institutions must be submitted. Students who attend the University as transient students and then are admitted on a regular basis are immediately subject to the University's academic regulations as well as the rules of the Texas Success Initiative (see section below). In particular, such students will be placed on scholastic probation upon enrollment if their grade point average for work undertaken as a transient student at the University is below 2.0. All transient students are classified as non-degree seeking and therefore not eligible for Financial Aid.

## Texas Success Initiative Overview

All new entering UT Arlington undergraduate degree-seeking students must meet the requirements of the Texas Success Initiative (TSI). (Texas Education Code, Section 51.3062 and 19 Texas Administrative Code §4.51, et seq.)

The Texas Success Initiative has been developed by the state legislature to ensure student success at institutions of higher education. The two major steps of the program are (1) assessment of each student's academic skills in reading, writing, and math before enrolling and, (2) advisement into appropriate developmental coursework for any academic skills that need improvement. Under the Texas Success Initiative, all new entering students must take the Texas Higher Education Assessment test unless the student is exempt.

You are exempt if you:

- took the SAT I less than 5 years ago and made a qualifying score of 1070 total (does not include essay), with 500 verbal and 500 math.
- took the ACT less than 5 years ago and made a qualifying score of 23 composite, with 19 English and 19 math.
- took the STAAR EOC exams less than 3 years ago and made a qualifying English Reading & Writing score of 2000+ and Math score of 4000+.
- took the TAKS test less than 3 years ago and made a qualifying score of 2200 reading, 2200 math and 3 on the writing.
- have a bachelor's degree or associate's degree from an institution of higher education.
- are serving on active duty as a member of the armed forces of the United States, the Texas National Guard, or as a member of a reserve component of the armed forces of the United States and have been serving for at least three years preceding enrollment.
- were honorably discharged, retired or released from active duty on or after August 1, 1990 as a member of the armed forces of the United States, the Texas National Guard, or as a member of a reserve component of the armed forces of the United States.
- a student who has previously attended any institution and has been determined to have met readiness standards by that institution \* a student who is enrolled in a certificate program of one year or less (Level-One certificates, 42 or fewer semester credit hours or the equivalent) at a public community college, a public technical institute, or a public state college.
- are a non-degree seeking or non-certificate-seeking student.

## TAKING THE TSI ASSESSMENT

UT Arlington requires incoming students who are not exempt to take the TSI Assessment Exam. The UT Arlington Testing Services (<http://www.uta.edu/universitycollege/prospective/testing-services>) office offers the opportunity for students to take this exam.

If you took the TSI Assessment and did not have the scores sent to UT Arlington, please have the scores sent directly to the Office of Admissions, Records and Registration.

If you attended a Texas public college for dual-credit while you were in high school or are transferring from a Texas public college, your test scores should be listed on the transcript you submit to UT Arlington. It is your responsibility to ask your community college to send an official transcript to the UT Arlington Office of Admissions.

We also accept faxed scores if they are sent directly from the college you attended. The fax number for the Office of Admissions, Records and Registration is: 817.272.3435. **Note:** The Office of Admissions, Records and Registration will not accept transcripts for evaluation of transfer courses by fax.

If you do not pass (<http://www.uta.edu/admissions/tsi.php>) a section of the TSI Assessment, you are required to enroll in developmental coursework for the failed areas. You should speak with your advisor to ensure that you are enrolled in the right courses.

## Degree Requirements

Undergraduate Degree Requirements (p. 52)

Graduate Degree Requirements (p. 45)

Students are responsible for requesting the preparation of a degree plan through their departmental academic advisor during the semester following admission to a degree program. No deviation from a degree plan will be allowed except with the written approval of the departmental advisor. Students should follow the graduation procedures described in the Graduation section of this catalog (p. 69) in order to be eligible for degree conferral.

Each student must complete degree requirements in accordance with the Catalog in force at the time the student entered the program in which the degree will be awarded or, at the student's option, the catalog of any subsequent year in which the student was in residence. If a student chooses to complete degree requirements in accordance with the catalog of a year subsequent to that in which he/she entered the degree program.

Please note that changes in University regulations and policies become effective for all enrolled students in the year for which the catalog is in force, regardless of the year of initial enrollment. Thus, students may choose to satisfy degree requirements specified in an earlier catalog, but all must observe University regulations and follow graduation procedures prescribed in the Catalog in force in the intended semester of graduation.

## Graduate

Each graduate student must complete degree requirements in accordance with the catalog in effect at the time the student entered the graduate program in which the degree will be awarded or, at the student's option, the catalog of any subsequent year in which the student was in residence.

Please note that changes in University regulations and policies become effective for all enrolled students in the year for which the catalog is in effect, regardless of the year of initial enrollment. Thus, students may choose to satisfy degree requirements specified in an earlier catalog, but all must observe University regulations and follow graduation procedures prescribed in the catalog in effect in the intended semester of graduation.

## Enrollment Requirements

All students must be enrolled in their graduate program in any term in which they are completing graduate degree requirements including taking the final master's exam, conducting research, or defending a thesis or dissertation. Enrollment in courses outside the major and minor fields will not satisfy enrollment requirements. Enrolled students who do not complete all requirements by the beginning of the next long semester must enroll to complete remaining degree requirements.

### Funded Students

Funded students are normally expected to be enrolled as full time students while holding an assistantship or associateship. Master's students who must enroll in a six-hour thesis course or doctoral students who must enroll in a six or nine-hour dissertation course or three-hour dissertation completion course because they have not received a passing grade in one of these courses must enroll in one of these courses and receive a grade of P in their final semester. However, master's students who need fewer hours to complete their degrees may petition for a waiver of full time enrollment as described in the Assistantship/Associateship Policy (p. 57) section of this catalog.

## Credit Toward Degrees and Certificates

Only courses completed with a grade of A, B, C, or P can satisfy graduate degree or certificate requirements. However, courses in which grades of D or F are earned will affect a student's grade-point average. A student must have a B (3.0) grade-point average in courses included in their degree plan and a B (3.0) average in all work undertaken as a graduate student to have credits applied toward a graduate degree or certificate.

## Credit for Repeated Courses

A student may repeat a course only if that course is specifically designated in this catalog as one that can be repeated for credit. A student who fails to receive credit (earns a grade of D or F) may repeat the course in order to obtain credit, in which case the grades for both attempts will count in computing the student's overall grade-point average. No student will be allowed to repeat a course in order to change a passing grade of C or higher.

## Course Credit Applied to More Than One Degree

No course that has been applied to any degree, at any graduate or undergraduate institution, may be applied to any other degree, either directly or by substitution except in approved dual degree or approved fast track programs. The amount of shared credit between degrees in dual degree programs is limited and varies with the total number of hours needed to complete both degrees. Similarly, the amount of credit that can be shared in fast track programs is also limited. Details may be found in descriptions provided by participating programs elsewhere in this catalog.

## Credit for Advanced Undergraduate Coursework

Up to nine hours of advanced undergraduate credit from UT Arlington or another institution may be applied to a master's degree program if the hours have not been used to earn a previous degree and have the approval of the appropriate Graduate Studies Committee and the Academic Dean. Approved fast track programs may allow dual credit.

## Earning Graduate Course Credit as a UT Arlington Undergraduate Student

Courses taken in undergraduate status may not be applied directly to a doctoral program.

Some departments do not permit students to enroll in graduate courses unless they have been admitted to a graduate program. Others allow students enrolled as undergraduates to take a limited amount of graduate coursework under the conditions described below.

All undergraduate students should consult with the appropriate graduate advisor before attempting to register for graduate courses.

### **Advanced UT Arlington Undergraduates (Current Seniors)**

An undergraduate student at the University of Texas at Arlington may not use graduate courses (numbered 5000 and above) to fulfill undergraduate degree requirements except as part of an approved fast track program. However, an undergraduate needing no more than 12 hours in one term (six semester hours in one summer session) to complete all the requirements for a bachelor's degree may register for graduate courses and apply them toward a master's degree at UT Arlington under the following conditions:

1. In no case may a student previously dismissed from or denied admission to a graduate program enroll in graduate courses or reserve courses for graduate credit.
2. All work for undergraduate credit must be completed during that term in which the student initially enrolls in graduate courses.
3. Total registration for all work may not exceed 15 semester hours in a term (or 12 semester hours in the summer sessions).
4. The student must submit to the graduate advisor a "Reservation of Courses for Graduate Credit by Undergraduate Students" form (available from graduate advisors). The reservation must be approved by the graduate advisor and the Academic Dean. The Office of Admissions, Records and Registration must certify that the reserved credit will not be applied to the student's undergraduate degree requirements.
5. The student must have at least a 3.0 undergraduate GPA to be eligible to enroll in a graduate course and to reserve it for graduate degree credit.
6. Courses taken at UT Arlington and reserved for graduate credit may be applied to a master's degree program only if a grade of A, B, C, or P was earned.
7. Credit is officially accepted for application to a graduate program when a student is unconditionally admitted to UT Arlington.
8. A maximum of 12 semester hours of graduate level courses may be reserved.

### **Students Holding Bachelor or Higher Degrees Enrolled as Degreed Undergraduates**

Students who have completed their undergraduate studies and have been awarded their bachelor's degree may enroll as degreed undergraduates in graduate-level course work and receive graduate credit at UT Arlington under the following conditions:

1. Courses taken at UT Arlington and reserved for graduate credit may be applied to a master's degree program only if a grade of A, B, C, or P was earned.
2. No more than 12 semester hours of credit earned while a degreed undergraduate may be applied for credit toward a master's degree. Students must file a request, approved by the graduate advisor, the Committee on Graduate Studies, and the Academic Dean to apply such credits toward a graduate degree.
3. All courses that are applied to a master's degree must have been completed no more than five years before enrollment in a graduate program at UT Arlington. If the student has completed more than 12 semester hours of graduate courses in undergraduate status, only graduate courses completed within five years of enrollment in a graduate program at UT Arlington will become part of the graduate record and considered in computing the student's grade-point average.
4. A student may elect to apply all graduate courses completed in the last five years toward their degree or to apply none of this work. Selective application of courses is not permitted. If any courses are applied for credit toward a master's degree, all courses completed within the last five years will become part of the graduate record.

### **Credit for courses taken as a non-degree seeking graduate student**

Up to 12 graduate level (5000 and above) semester credit hours earned as a special non-degree seeking student may be applied to a graduate degree program, subject to graduate grading practices (p. 65). Review and approval of the appropriate Committee on Graduate Studies and the approval of Graduate Admissions are required. All grades in courses taken as a special non-degree seeking student and graduate certificate status will be considered in computing a student's graduate grade-point average.

### **Graduate Credit for Extension Classes**

Work done in extension classes may be applied toward an advanced degree under the same conditions that apply to transfer work, except that credit for extension work is limited to six credit hours.

### **Courses That Do Not Provide Graduate Credit**

- Personal Improvement Courses: Personal improvement individual or group music or art lessons and exercise and sports activities courses can not be used for the following: 1) to satisfy graduate degree requirements; 2) meet enrollment requirements; 3) in computation of graduate grade-point averages or determination of academic probation or academic good standing; 4) in calculation of grade-point averages for the purpose of admission to a Graduate Program or for certification for graduation from a Graduate Program.
- Audited Classes: University credit is not granted for audited classes and audited classes will not satisfy enrollment requirements.
- Correspondence Courses: Correspondence courses are not accepted for graduate credit.
- Credit by Examination: Credit by examination may not be used for graduate credit and no such credit, graduate or undergraduate may appear on graduate student transcripts.

## Transfer Credit and Course Waivers

### Transfer Credit Applied to Master's Degrees

Equivalent coursework completed at other institutions of recognized standing may be transferred to a master's degree program after evaluation and approval. Transferred courses do not appear on the UT Arlington Official Transcript and grades earned in transferred courses are not included in calculating a student's UT Arlington graduate grade-point average.

No more than nine hours of transfer credit will be granted except in the professional master's programs that require more than 36 hours of coursework. In such programs, the number of transfer hours is limited to 25 percent of the total program hours. This rule does not invalidate agreements that are stated elsewhere in this catalog. Transfer credit will be accepted only for organized courses in which the student received a letter grade of B or higher and an official transcript showing the course(s) and grade(s) is required.

Courses from other universities taken after a student has been admitted into a master's program at UT Arlington must be approved in advance by the appropriate graduate advisor and Committee on Graduate Studies. All work submitted for transfer credit must have been completed no more than six years before completion of a graduate program at UT Arlington. A list of approved credit must be sent to the Office of Admissions, Records, and Registration to be posted to the student's university record.

### Waiving Courses Required for Doctoral Degrees

Graduate-level coursework completed in the student's major area of doctoral study at institutions of recognized standing that grant doctoral degrees in those subject areas may serve to establish the student's competency in equivalent UT Arlington courses. Competency demonstrated by successful completion of equivalent courses may provide a basis for waiving some UT Arlington course requirements and the credit hours associated with those courses.

Waivers must be recommended by the student's graduate advisor and current supervising professor and their recommendation must be approved by both the Committee on Graduate Studies of the student's major area. Only courses in which the student has earned a B (3.0) or better (or a P if the UTA course is also graded P/F) will be considered for purposes of a waiver. In no case will final semester Dissertation course (6x99 or 7399) requirements be waived. An approved list of waived courses must be sent to the Office of Admissions, Records, and Registration to be posted to the student's university record.

### Transfer Credit Applied to Graduate Certificates

Equivalent coursework completed at other institutions of recognized standing may be transferred to a master's degree program after evaluation and approval. Transferred courses do not appear on the UT Arlington Official Transcript and grades earned in transferred courses are not included in calculating a student's UT Arlington graduate grade-point average.

The number of transfer units is limited to 50% of the total units required for the certificate, except in certificate programs that exceed 15 units, in which case 12 of those units must be taken in residence. This rule does not invalidate written agreements stated elsewhere in this catalog. Transfer credit will be accepted only for organized courses in which the student received a letter grade of B or higher and an official transcript showing the course(s) and grade(s) is required.

Courses from other universities taken after a student has been admitted into a master's program at UT Arlington must be approved in advance by the appropriate graduate advisor and Committee on Graduate Studies. All work submitted for transfer credit must have been completed no more than six years before completion of a graduate program at UT Arlington. A list of approved credit must be sent to the Office of Admissions, Records, and Registration to be posted to the student's university record.

## Departmental, Program and College Program Manuals for Students

Many departments and programs issue program manuals, procedures and policy manuals, graduate student handbooks, and other informational publications for students and faculty in graduate programs. These publications may provide detailed and useful information; however, they are not statements of official policy of the University of Texas at Arlington nor of the University of Texas System. In all matters the *Rules and Regulations* of the Board of Regents of The University of Texas System, the *Handbook of Operating Procedures* of the University of Texas at Arlington and the University of Texas at Arlington Catalog shall supersede departmental, program or college publications.

## Master's Degree Requirements

Degree requirements and academic performance standards given in this section are the minimum required. Satisfying these general requirements and standards, however, does not imply that all degree and program requirements have been met. Many programs set special course requirements and may require higher grade-point averages or other academic standards than those given in this section. Such program requirements and standards are included in individual program descriptions in this catalog and in departmental and college program manuals or policy statements. These special requirements shall not be considered in conflict with this catalog and shall have the same force as this catalog.

## Degree Plans and Required Hours

Three degree plans (thesis, thesis substitute and non-thesis) leading to the master's degree are available. All programs, except those in Education and Public Administration, offer the thesis degree plan. In certain departments and programs, a student may follow a thesis substitute or non-thesis degree

plan upon recommendation of the appropriate graduate advisor. Plans available in each department or program are listed in the department-specific page of the catalog.

The **thesis degree plan** requires a minimum of 30 semester hours, of which at least 24 must be in coursework and 6 in a thesis course. The thesis must be approved by the thesis advisor and by a supervising committee of three or more members appointed by the Academic Dean. Students receiving advice and assistance from a faculty member in the preparation of a thesis must register for the appropriate course even if they are not on campus. Each term, after consulting with their graduate advisor, students must register for the amount of thesis credit commensurate with the efforts to be expended by the student and the thesis advisor in the preparation of the thesis. Once the student is enrolled in the thesis course, continuous enrollment is required. The student must be enrolled in six hours of thesis during the term in which the thesis is defended and the final Master's Examination is unconditionally passed. The degree candidate must defend the thesis in a final oral examination open to all members of the faculty.

The **thesis substitute degree plan** requires a minimum of 33 semester hours, of which at least 27 must be in coursework and 3 in an appropriate project or research course. The thesis substitute may include: 1) internship reports in programs in which the internship has been determined to be an essential component; 2) reports prepared in certain graduate seminar, conference or research courses; or 3) a design thesis in Architecture. The internship substitute requires a minimum of six semester hours in the internship course.

The **non-thesis degree plan** requires a minimum of 36 semester hours of coursework, of which at least 24 must be in the major area(s) of study.

## Time Limit

Programs for the master's degree must be completed within six years (time in military service excluded) from initial registration in a graduate degree program. Students who exceed the published time limits for completing the graduate degree but wish to graduate, must petition the Academic Dean for an exception to the time limit policy.

## Residence

Master's degree candidates are expected to spend the equivalent of two terms of full-time study in residence at The University of Texas at Arlington.

## Foreign Language Requirement

A reading knowledge of at least one foreign language (classical or modern) is required by some departments or programs for master's degree candidates. Specific language requirements, if any, are given in the individual departmental and program degree descriptions.

## Supervising Committees

The Academic Dean will appoint for each master's student a supervising committee upon recommendation by the graduate advisor and the appropriate Committee on Graduate Studies. The committee will normally consist of at least three members of the graduate faculty and will be responsible for the design of the student's program. One qualified external person who is not a member of the graduate faculty may serve as a voting member of a supervising committee if nominated by the appropriate Committee on Graduate Studies and approved by the Dean. The nomination form is available online (<http://grad.pci.uta.edu/faculty/forms>) and must be submitted by the student's department to the Office of Graduate Studies along with the nominee's curriculum vitae. Any external, non-voting members must be in addition to the three voting members and must be approved by the Academic Dean. The supervising committee conducts the final thesis examination for thesis degree plan candidates and determines scope, content and form of the final master's comprehensive examination for thesis substitute and non-thesis degree plan candidates.

## Final Master's Examination

A final program examination is required for all master's degree candidates. The final master's examination can result in: 1) an unconditional pass with a recommendation to the Academic Dean that the candidate be certified to receive the earned degree; 2) a conditional pass with the requirement that additional conditions be met, which may include further work on the thesis or thesis substitute, additional coursework with a minimum specified grade-point average, or both (in all cases, the final master's examination must be repeated within a specified period); 3) failure, with permission to be re-examined after a specified period; or 4) failure, with recommendation to the Academic Dean that the candidate be dismissed from the program. Most programs limit to two the number of repeats of the final master's examination.

For **thesis degree plan** candidates, the examination will be an oral defense of the thesis. The examination will be conducted by all members of the student's supervising committee but will be open to all members of the faculty. The thesis examining committee must have copies of the thesis at least two weeks prior to the thesis defense. Thesis degree plan candidates must submit an electronic copy of the unconditionally passed thesis to the Library following the procedures for electronic submission.

For **thesis substitute or non-thesis degree plan** candidates, the final examination will be a comprehensive examination that is written, oral or both. The scope, content and form of the examination(s) is to be determined and administered by all members of the student's supervising committee. Some programs require successful completion of a specified course in the final term of study to satisfy this requirement.

The Final Master's Examination Report must be filed no later than three weeks before the date on which the candidate expects the degree to be conferred.



## Master's Thesis

All master's students in the thesis option must be aware of requirements, components and deadlines associated with the thesis, final defense, and submission of the thesis to the Library. Thesis format review and approval by the Library are required and must be completed by the published deadlines in order to graduate from UT Arlington.

### Enrollment Requirement

A thesis degree plan student must be enrolled in the appropriate thesis course in the term in which the thesis is defended. Social work students will enroll in SOCW 6393 to conduct thesis research and SOCW 6398 in the term in which the thesis is defended. All other thesis option students must be enrolled in the appropriate 6 hour thesis course in the term in which the thesis is defended.

### Thesis Manuscript Preparation

Students pursuing a thesis option master's degree must have the format of the thesis manuscript approved before the degree can be conferred. The Library specifically checks the document for conformity to UT Arlington formatting requirements. Details regarding thesis formatting requirements can be found on the UT Arlington Library website (<http://www.uta.edu/library/etd>).

### Mechanical Check

The format of all theses must be reviewed and approved by the Library before the theses will be accepted as satisfying the thesis requirement of the Master's degree. Master's thesis students must submit a copy of their thesis electronically to the ETD Coordinator in the UT Arlington Library for a complete review of the format of the entire manuscript. This review is called the mechanical check. Students may be required to resubmit the document for additional checks depending on the nature and number of formatting errors found. The thesis submitted for mechanical check should be complete and as near to being in final format as possible.

### Final Submission

After the thesis has been through the required mechanical check process and has been approved by the student's committee and the Library, the final copy of the thesis must be submitted via the University's electronic submission process. The final thesis is University property and a student may make no private agreements with employers, funding sources, or others that restrict or infringe upon University rights. Thesis copyrights, where applicable, are held by the student author. Thesis fees are explained in the Tuition and Fees section of the Catalog.

### Thesis Defense

The thesis defense will be a public oral examination open to all members of the faculty. Questioning of the candidate will be directed by the student's thesis supervising committee. All members of the student's committee must be present at the defense.

Although the defense is concerned primarily with the thesis research and its interpretation, the examining committee may explore the student's knowledge of areas relevant to the core of the thesis problem. The thesis defense may result in a decision that the candidate has 1) passed unconditionally; 2) passed conditionally with remedial work specified by the committee; 3) failed, with permission to be re-examined after a specified period; or 4) failed and dismissed from the program. The thesis must be approved unanimously by the student's thesis supervising committee and by the Academic Dean. Regardless of the outcome of the defense, the thesis defense results must be submitted to the Office of Admissions, Records, and Registration.

## Dual Degrees

Students may pursue dual degree programs other than those specifically defined in the catalog with prior approval of the appropriate Committees on Graduate Studies and the Academic Dean.

Students in any dual degree program must be admitted to each participating program. Unless otherwise stated under the dual degrees programs specified elsewhere in this catalog, the number of hours that may be used jointly will be determined by the total number of hours required by both degree programs if completed separately. For purposes of dual degree programs, the total number of semester hours required for both degrees if completed separately is defined as the number of semester hours required for a student to complete all advanced degree requirements (excluding deficiency, leveling and prerequisite courses) for both degrees.

1. Six semester hours may be used jointly when the total number of hours required for both degrees is 60;
2. Six to 12 semester hours may be used jointly when the total number of hours required for both degrees is between 60 and 72 hours;
3. Six to 18 semester hours may be used jointly when the total number of hours required for both degrees exceeds 72 hours.

Admission to and enrollment in the programs for a dual degree must be concurrent. Students must be admitted to the second program before completing more than 24 semester hours in the first program, exclusive of leveling, deficiency or foundation courses, and must complete the second degree within three academic years following completion of the first.

All grades earned in dual degree status are used for purposes of determining academic good standing, academic probation and graduate requirements.

Students must be in good standing in both programs to continue in a dual degree program. Students who are dismissed from either program are no longer considered to be in a dual degree program. These students may enroll in and use courses for credit toward the degree program in which they

are in good standing only. Students may not take courses in the program from which they have been dismissed and may not use such courses for dual degree credit.

Dual degree programs are available at the master's level only. Not all graduate programs participate in dual degrees.

## Doctoral Degree Requirements

The Doctor of Philosophy (Ph.D.) is the highest degree offered by The University of Texas at Arlington. The degree is awarded only for academic work of distinction through which the student demonstrates superior scholarship and capacity for original work. Requirements for the doctoral degree listed below are the minimum required. Meeting all of these requirements does not result automatically in the awarding of the doctoral degree. All departments and programs have additional requirements for a high level of scholarly achievement that must be met by successful doctoral candidates. In all doctoral programs, the basic requirements are that a student 1) attain mastery of a field of knowledge as determined by the appropriate Committee on Graduate Studies and demonstrated in a general examination; and 2) present evidence of a capacity to complete a significant program of original research by preparation of a dissertation.

To be admitted to a doctoral program, an applicant must have completed a master's degree or at least 30 semester credit hours of graduate coursework.

## Degree Plans and Required Hours

The doctoral degree cannot be earned solely by passing certain courses and accumulating a specified number of credit hours; however, a department or program may require a core group of courses for all of its doctoral students. Courses are generally concentrated in the student's major field, but some are normally taken in one or more complementary minor fields. In interdepartmental programs, the major work may be divided among two or more primary fields.

The University imposes no specific semester-hour requirements for the doctoral degree except for residence requirements included in individual degree program descriptions.

## Time Limit

All requirements for the doctoral degree must be completed within four years after the student unconditionally passes the comprehensive exam. Students who exceed the published time limits for completing the graduate degree but wish to graduate, must petition the Academic Dean for an exception to the time limit policy.

## Residence

Residence requirements vary widely among doctoral programs. For specific requirements, consult the Degree Requirements section under individual departments and programs offering the doctoral degree.

## Foreign Language Requirement

Prior to scheduling the doctoral comprehensive examination, the University requires evidence that the student has a reading knowledge of one foreign language applicable to the student's field of study or has attained proficiency in a research-tool area such as computer sciences or experimental statistics. The foreign language requirement may be met by 1) successfully passing an examination prepared by an appointee of the Academic Dean; 2) making an acceptable score on the Educational Testing Service Graduate School Foreign Language Test; or 3) earning a grade of B or higher in French, German or Russian 4331 and 4332, or equivalents. The foreign language substitute research tool requirement may be met by a method determined by the appropriate Committee on Graduate Studies and approved by the Academic Dean. Other suitable substitutes may be approved by the Committee on Graduate Studies and Academic Dean.

## Diagnostic Evaluation

During the student's first year of doctoral program work the student must demonstrate potential to successfully complete a degree program. The method of assessing the student's potential will be determined by the appropriate Committee on Graduate Studies and may be in the form of a written or oral examination, personal interviews with faculty members, successful completion of certain courses in the first semester of residence, or by any combination of these methods. Results of the diagnostic evaluation may be 1) approval to continue in the doctoral program; 2) approval to continue with specified remedial work; 3) failure, but with permission for assessment through a second diagnostic evaluation after a specified period; or 4) failure and termination in the program. The student must be enrolled in the graduate program in the term in which he/she completes the diagnostic evaluation.

The results of the diagnostic evaluation must be filed in the Admissions, Records, and Registration Office no later than after completion of 18 semester hours of coursework while enrolled in a doctoral program at UT Arlington .

After the student successfully completes the diagnostic evaluation, the Academic Dean will approve an examining committee. Members for the committee are recommended by the graduate advisor and appropriate Committee on Graduate Studies. The committee will consist of no fewer than 3 voting members, at least two of whom must be from the student's major area. Committees in interdisciplinary programs must include at least four voting members with two members coming from each discipline. Individual programs may require the committee to have more members and students must conform to such requirements. One qualified external person who is not a member of the graduate faculty may serve as a voting member of a supervising committee if nominated by the appropriate Committee on Graduate Studies and approved by the Graduate Studies Office. Any external,

non-voting members must be in addition to the required number of voting members. Students should consult with their program's graduate advisor to make sure their committees have sufficient membership to meet program requirements.

The committee is responsible for design and direction of the student's program.

## Comprehensive Examination

Students are eligible to take the comprehensive examination after giving evidence to their doctoral committee of adequate academic achievement by having completed all or most coursework requirements for a degree. The comprehensive examination usually marks the end of formal coursework and the beginning of concentrated work on dissertation research and preparation. The student must be enrolled in the term in which he/she takes the comprehensive examination.

The comprehensive examination may be written, oral, or both. Its scope, content, and form are determined by the student's examining committee with approval of the appropriate Committee on Graduate Studies. The student must submit a Request for the Comprehensive Examination and the request must indicate the time, place, and form (oral and/or written) of the examination and include signatures of all members of the examining committee.

In some departments and programs comprehensive examinations are given semiannually so students should consult their graduate advisor in that program for appropriate regulations and procedures.

The comprehensive examination may result in 1) unconditional pass and recommendation to proceed to the next phase of the program; 2) approval to remain in the program, but required to meet certain specified additional criteria; 3) failure, but with permission to retake the examination after a period specified by the examining committee; or 4) failure and dismissal from the program.

## Dissertation

The dissertation represents the culmination of the student's academic efforts and so is expected to demonstrate original and independent research activity and be a significant contribution to knowledge.

All doctoral students must be aware of requirements and deadlines associated with the dissertation, final defense, and submission of the final copy of the dissertation.

### Enrollment Requirements

1. Registration in an independent study, research, or similar course implies an expected level of effort on the part of the student that is at least equivalent to that of an organized course of the same credit value.
2. Doctoral students will not be required to register for more than nine credit hours during any term with these exceptions:
  - a. Doctoral students who are enrolled in nine credit hours of organized courses and who are also doing research related to their dissertation may be required to register for up to three hours of research for a total of 12 credit hours.
  - b. Doctoral students supported as a graduate research or teaching assistants may be required to register for 12 credit hours (no more than nine credit hours to be in organized courses), as determined by the students' graduate program.
3. Doctoral students who are required to register solely to satisfy the continuous enrollment requirement may register 3 credit hours during each term.
4. Doctoral students may not register for more than 12 semester hours in a term unless such registration is approved by the student's graduate advisor.
5. A doctoral student working on a dissertation should be enrolled in an appropriate 6X99 or 7399 dissertation course. Once the student is enrolled in a dissertation course, continuous enrollment is required. A student receiving advice and assistance from a faculty member in the preparation of a dissertation must register in the course even if the student is not on campus. Doctoral students must enroll in the appropriate 6699, 6999 or 7399 Dissertation Completion course the semester in which the dissertation is defended. Students typically enroll in these courses defend and apply for graduation in the same term. The Dissertation Completion course (7399) may only be taken once and cannot be repeated.

### Dissertation Committee

After the student has passed the comprehensive examination, the doctoral supervising committee may be altered or expanded to accommodate the dissertation research needs of the student. The committee will consist of no fewer than 3 voting members. Individual programs may require the committee to have more members and students must conform to such requirements. One qualified external person who is not a member of the graduate faculty may serve as a voting member of a supervising committee if nominated by the appropriate Committee on Graduate Studies and approved by the Graduate Studies Office. Any external, non-voting members in addition to the required number of voting members of the committee must be approved by the Office of Graduate Studies. Students should consult with their program's graduate advisor to make sure their committees have sufficient membership to meet program requirements. The dissertation supervising committee is responsible for providing feedback regarding the student's dissertation, attending the defense, and determining the results of the student's defense.

### Dissertation Manuscript Preparation

Students pursuing a doctoral degree must have the format of the dissertation manuscript approved by the Graduate School before the degree can be conferred. Details regarding dissertation formatting requirements can be found on the UT Arlington Library website (<http://www.uta.edu/library/etd>)

.Format must conform to standards described in the UT Arlington *Manual of Style. A Dissertation Template* in which students can paste text is provided to simplify proper dissertation formatting and appearance.

The Office of Graduate Studies offers Thesis and Dissertation Seminars each term and encourages all dissertation students to attend. These seminars provide attendees with detailed explanations of the style guides and hands-on experience with the template that will help students organize their dissertation in accordance to formatting requirements. In addition, dissertation submission procedures, and some graduation procedures and requirements are reviewed in these seminars. Reservations are recommended and can be made online through the Office of Graduate Studies.

### **Mechanical Check**

The format of all dissertations must be reviewed and approved by the Library before the theses will be accepted as satisfying the dissertation requirement of the Ph.D. degree. Doctoral students must submit a copy of their dissertation electronically to the ETD Coordinator in the UT Arlington Library for a complete review of the format of the entire manuscript. This review is called the mechanical check. Students may be required to resubmit the document for additional checks depending on the nature and number of formatting errors found. The document submitted for mechanical check should be complete and as near to being in final format as possible.

### **Final Submission**

After the dissertation has been through the required mechanical check process and has been approved by the student's committee and the Library, the final copy of the dissertation must be submitted via the University's electronic submission process. The final dissertation is University property and a student may make no private agreements with employers, funding sources, or others that restrict or infringe upon University rights. Thesis copyrights, where applicable, are held by the student author. Dissertation fees are explained in the Tuition and Fees section of the catalog.

### **Dissertation Defense**

Doctoral students must be enrolled in the appropriate course in the term in which he/she defends the dissertation (see Enrollment Requirements above).

The dissertation defense will be a public oral examination open to all members (faculty, students and invited guests) of the University community. Questioning of the candidate will be directed by the student's dissertation supervising committee. All members of the student's committee must be present at the defense.

Although the defense is concerned primarily with the dissertation research and its interpretation, the examining committee may explore the student's knowledge of areas relevant to the core of the dissertation problem. The dissertation defense may result in a decision that the candidate has 1) passed unconditionally; 2) passed conditionally with remedial work specified by the committee; 3) failed, with permission to be re-examined after a specified period; or 4) failed and dismissed from the program. The dissertation must be approved unanimously by the student's dissertation supervising committee and by the Academic Dean. Regardless of the outcome of the defense, the thesis defense results must be submitted to the Office of Admissions, Records, and Registration.

## **Credit Toward Certificates**

Only courses completed with a grade of A, B, C, or P can satisfy graduate certificate requirements. However, courses in which grades of D or F are earned will affect a student's grade-point average. A student must have a B (3.0) grade-point average in courses included in their degree plan and a B (3.0) average in all work undertaken as a graduate student to have credits applied toward a graduate certificate.

### **Grade Point Average**

All grades in courses taken as a special non-degree seeking student and graduate certificate status will be considered in computing a student's graduate grade point average.

### **Transfer Credit Applied to Graduate Certificates**

Equivalent coursework completed at other institutions of recognized standing may be transferred to a master's certificate program after evaluation and approval. Transferred courses do not appear on the UT Arlington Official Transcript and grades earned in transferred courses are not included in calculating a student's UT Arlington graduate grade point average.

The number of transfer units is limited to 50% of the total units required for the certificate, except in certificate programs that exceed 15 units, in which case 12 of those units must be taken in residence. This rule does not invalidate written agreements stated elsewhere in this catalog. Transfer credit will be accepted only for organized courses in which the student received a letter grade of B or higher and an official transcript showing the course(s) and grade(s) is required.

## **Undergraduate**

### **Undergraduate Admission to a Degree Program**

Admission to the University's degree programs is determined by application to the academic unit offering the degree.

## Degree Plan

Students are responsible for requesting a degree plan through their major department advisor during the semester following admission to a degree program. No deviation from a degree plan will be allowed except with the written approval of the department advisor, the chair of the major department and the academic dean.

## Multiple Undergraduate Degrees at UT Arlington

While a student should carefully consider with an academic advisor if obtaining multiple undergraduate degrees is necessary for a given career path, it is possible for students to earn more than one undergraduate degree under the certain conditions and limitations.

### DOUBLE MAJOR

A student who fulfills the specified requirements for two different majors under a single degree, simultaneously prior to graduation, completes a double major. For example, a student may complete a Bachelor of Arts in History and a Bachelor of Arts in Political Science – both B.A. degrees - or a Bachelor of Science in Psychology and a Bachelor of Science in Biology – both B.S. degrees. Prerequisite and field of study courses are required to complete both majors.

When applying for graduation, a student should note on the application that he/she will be completing an additional major. One diploma is issued and both majors are recorded on a student's transcript and diploma. Also, upon graduation, a student can attend multiple commencement ceremonies if the majors span across different colleges, though both majors are announced at any ceremony and college-specific policies apply for each ceremony.

### DUAL DEGREE

A student who fulfills the specified requirements for two different majors from different degrees, simultaneously prior to graduation, will complete a dual degree. For example, a student may complete a Bachelor of Science in Biology and a Bachelor of Arts in Public Relations – a B.S. degree and a B.A. degree. The student must complete a minimum additional 30 credit hours beyond the degree plan with the greater required credit hours and also complete all prerequisite and field of study courses for both degrees.

Upon graduation, the student must complete two graduation applications (one application for each degree) and pay the processing fee for each degree. Upon graduation a student can attend multiple commencement ceremonies if the majors span across different colleges, though both degrees are announced at any ceremony and college-specific policies apply for each ceremony.

### SECOND BACCALAUREATE DEGREE

A student who earns a bachelor degree subsequent to receiving the first bachelor degree will complete a second baccalaureate degree. The student must complete at least 30 credit hours in residence, above and beyond the minimum number of hours to complete the first degree. One diploma is issued and the new degree is added to the student's transcript.

#### Academic Advising and Limitations

Students seeking a double major or dual degree must:

- seek regular advising for each degree program from the department offering the major.
- understand the requirements to remain in and graduate from each degree program.
- adhere to proper course sequencing and complete the proper prerequisite and field of study courses for each degree program.

All requirements to enter a major in a given department must be met in order to pursue that major/degree. Students who are not meeting the requirements to remain in a particular degree program can be removed from that major/degree and prohibited from further enrolling in coursework to earn the additional undergraduate degree.

A student can only work on two major/degree programs simultaneously. Some degree programs may limit or not permit the pursuit of a double major or dual degree. Students should discuss possible limitations with both departmental advisors to determine what limitations may apply. Additional major degrees cannot be added to students' degree plans until they have completed at least 30 hours of college coursework. It is also important to note that once a degree has been conferred and applied to a student's transcript the degree cannot be removed from the academic record.

## Minor Field of Study

A minor requires at least 18 semester hours in a given program, including six hours of advanced work. Specific course sequences for a minor are determined by the program offering the minor. Since some undergraduate degree programs do not offer minors, students should consult an advisor in their program of study.

In a case where the student wishes to pursue a minor comprised of courses within the same college as that which offers his/her major program of study, the student and his/her advisor will propose a program of study/list courses for approval by the dean of the college.

In a case where the student wishes to pursue a minor which includes one or more courses offered by a different college from that which offers his/her major program of study, the student and his/her advisor will propose a program of study/list of courses for approval by both (a) the dean of the college which offers his/her major, and (b) the dean of the college which offers the minor courses.

In either case, the approved minor program of study will be forwarded to the Office of Admissions, Records and Registration for verification and notation on the student's transcript.

## The Core Curriculum

Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum must ensure that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in life. Therefore, with the assistance of the Undergraduate Education Advisory Committee, the Texas Higher Education Coordinating Board approved a 42 semester credit hour core curriculum for all undergraduate students in Texas, including a statement of purpose, six core objectives, and common component areas, to be implemented in Fall 2014.

### Statement of Purpose

Through the Texas Core Curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.

### Core Objectives

- **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Communication Skills** - to include effective development, interpretation and expression of ideas through written, oral and visual communication
- **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- **Teamwork** - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
- **Personal Responsibility** - to include the ability to connect choices, actions and consequences to ethical decision-making
- **Social Responsibility**: to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities

The UT Arlington Core Curriculum is comprised of the following component areas:

- Communication
- Mathematics
- Life and Physical Sciences
- Language, Philosophy and Culture
- Creative Arts
- American History
- Government/Political Science
- Social and Behavioral Sciences
- Foundation Area Option

Click here (p. 93) for the requirements and approved courses.

**Core Complete:** Students who transfer from a Texas public community college or public university and are certified as core complete shall have satisfied the core requirements of UT Arlington. Academic departments may, in some instances, require specific courses outside their major as prerequisites for major course work. (See "Credit Evaluation" and "Transfer of Lower Division Course Credit" under Undergraduate Admission section, p.15-16.)

**Transcript Codes:** The Transcript Codes identify specific core requirements on a student's transcript. For further information on core transferability, consult with an academic advisor, or refer to the Texas Administrative Code.

**Field of Study:** Students who complete an approved field of study curriculum in whole or in part will receive academic credit for the equivalent courses within their selected field of study at UT Arlington. View the field of study curriculums approved by the Texas Higher Education Coordinating Board at [www.thecb.state.tx.us](http://www.thecb.state.tx.us) (<http://www.thecb.state.tx.us>).

**Note:** Consult a specific academic department in this catalog regarding further requirements for a degree in your area of interest.

## Competence in Computer Use

Graduating students should be proficient in the use of computers. Proficiency is understood as the ability to use word-processing, database/spreadsheet and representative software of one's major discipline. Each student should be able to tap the communications, analytical and information-retrieval potential of computers to solve research problems and be able to evaluate the results. Students should consult their departmental, school or college advisors to determine the mechanisms by which they can demonstrate proficiency. An examination or completion of a department- or college-designated course may be required.

## Competence in Communication

Students should have proficiency in communication skills including interaction in classroom settings to meet the needs of course work and the use of acceptable grammar and pronunciation in formal presentations. Students should consult their individual department, school or college advisors to determine the mechanisms by which they can demonstrate this competency. A proficiency examination or completion of a department- or college-designated course may be required.

## Tuition for Excessive Undergraduate Hours

Pursuant to state law, students who first enrolled in any college or university in Fall 1999 or a later semester may be required to pay a higher tuition rate if attempted undergraduate credit hours exceed a designated limit. Students who first entered a college or university in Fall semester 1999 through Summer semester 2006 may be required to pay a higher tuition rate when the credit hours attempted at publicly-funded Texas colleges or universities exceed by 45 or more the hours required for the student's declared baccalaureate degree. Students who first entered a college or university in Fall semester 2006 and thereafter may be required to pay higher tuition rates when the credit hours attempted at publicly-funded Texas colleges or universities exceed by 30 or more the hours required for the student's declared baccalaureate degree. This requirement applies only to the first baccalaureate degree earned; students already holding one baccalaureate degree are exempt when enrolled in a second baccalaureate degree program.

This requirement applies to **all credit hours attempted at any publicly-funded Texas institution, including courses with a grade of D, F, or W**, as well as courses serving as a grade replacement and courses that have been grade replaced or grade excluded or grade forgiven. Credit hours earned at a private or an out-of-state institution are not counted toward the limit. Some other exceptions may apply.

For more information about this state law, see [www.statutes.legis.state.tx.us](http://www.statutes.legis.state.tx.us) (<http://www.statutes.legis.state.tx.us/Docs/ED/htm/ED.54.htm#54014>) (Texas Education Code, secs. 54.014 and 61.0595), or UT Arlington's excessive hours website ([http://www.uta.edu/aa/recordsandregistration/content/student\\_services/excessive\\_hours.aspx](http://www.uta.edu/aa/recordsandregistration/content/student_services/excessive_hours.aspx)).

## Residency Requirements

The degree requirements for graduation in specific divisions of the University are explained at the beginning of each division in the catalog. In addition:

- Each candidate for a degree must complete and receive credit in residence\* for:
  - a. 25 percent of the semester credit hours required for a degree (some colleges or schools may have additional residency requirements)
  - b. at least 18 semester hours of advanced (3000/4000 level) course work, to include 12 hours of advanced courses in the major subject
- Successful completion of a course of study prescribed by the major department, including a minimum of 36 advanced hours, is required for a degree at UT Arlington. Courses numbered with a first digit of 3 or 4 are classified as advanced courses.
- A minimum overall grade point average of 2.0 (C average) is required. In addition, a minimum grade point average of 2.0 in the major is required. Individual units will determine the specific courses to be included in the calculation of the GPA in the major, and may have higher overall GPA requirements for graduation than a 2.0. (The College of Business requires a 2.0 overall grade-point average, 2.0 on all course work taken in the college, and 2.0 within the major and concentration area for those majors having a concentration.)
- No more than 30 of the semester hours required for any degree may be completed by correspondence and/or extension, but may include approved online course work.
- Only the first four semester hours of exercise and sport activity (EXSA) and dance activity (DNCA) courses may be counted toward graduation. Additional activity courses taken will not be calculated in the student's grade point average. Each college, school or department will determine if activity courses satisfy degree requirements. Consult department academic advisor.
- Graduate courses (numbered 5000 and above) cannot be used to fulfill undergraduate degree requirements except in programs approved by the Undergraduate Assembly.
- To qualify for a second bachelor's degree, a student must complete all the degree requirements as stated in the catalog for that degree and must complete no fewer than 30 semester hours beyond those of the bachelor's degree program requiring the greater number of hours. The additional hours must be taken in residence at UT Arlington.

\*The term "in residence" is defined as in residence at the (U.T. System) component which ultimately grants the degree. Residence credit does not include courses taken by extension or correspondence or exam, but may include approved online course work.

## Two-Year Transfer Programs

The course offerings of the University are sufficient in the following fields for a student to complete the first two years of study toward a baccalaureate degree. The student must transfer to another institution to complete their studies. Information about the programs may be obtained from the Allied Health Coordinator in Life Sciences.

### TWO-YEAR TRANSFER PROGRAMS

- Gerontology
- Dietetics

- Occupational Therapy
- Pharmacy
- Dental Hygiene
- Rehabilitation Science
- Prosthetics and Orthotics

## Professions

### HEALTH PROFESSIONS

#### MEDICINE AND DENTISTRY

In general, medical and dental school admission committees do not state a preference about an undergraduate major field, leaving the student free to choose a degree program suited to individual abilities and interests. Therefore, the student may choose any major, after conferring with an advisor, if the minimum requirements stated by the professional schools are met.

#### Admission Requirements for The University of Texas Medical and Dental Schools

##### English

6 semester hours of college English.

##### Biology

14 semester hours (12 semester hours of lecture & 2 semester hours of formal lab) of Biological Sciences.

##### Mathematics

Statistics (MATH 1308) is required. Some school may accept Calculus in place of Statistics, however you will need to confirm with the Health Professions Advisor.

##### Physics

8 semester hours, as required for college science majors, including the corresponding laboratory experience are required.

##### Chemistry

8 semester hours of General Chemistry AND 8 semester hours of Organic Chemistry.

### Testing

The Medical College Admission Test (New MCAT) or Dental Aptitude Test (DAT) as required.

It is strongly recommended that students taking the 2015 MCAT complete Biochemistry I, Intro to Psychology, and Intro to Sociology. These courses will be covered on the new MCAT.

These requirements are representative of admission requirements for most other American medical and dental schools.

#### Health Professions Counseling and Advising

The Health Professions Counseling and Advising Center, located in Room 206, Life Science Building, provides counseling for students interested in medicine, dentistry, optometry, pharmacy and veterinary medicine. All pre-professional students should contact the office upon entering the University. The services provided include new student orientation, academic advising, career counseling and assistance in applying to professional school. In addition, numerous career materials including catalogs, applications and testing information are available in Room 206, Life Science Building. The health professions advisor coordinates the Health Professions Advisory Committee's evaluation recommended for each pre-medical and pre-dental student before applying to professional school. Students applying to professional schools should contact the health professions advisor at least one year prior to applying.

The Health Professions Advisory Committee, which is responsible for recommending students for medical and dental schools, bases evaluations on three factors: a student's academic record, resume, and personal qualities. The ideal applicant will demonstrate strength in all three areas. The committee may decline to recommend students who have not completed at least a portion of his/her pre-medical or pre-dental sciences at The University of Texas at Arlington, or may be unable to recommend students because their personal qualities are not known. Therefore, it is important that a student actively participate in health profession programs involving medical schools and the pre-health related student organizations. Also, students should interact with the faculty and pre-medical advisor for at least one year prior to medical school application so the advisors will have an opportunity to become familiar with the students' individual background.

#### THE LEGAL PROFESSION



Students are free to choose the degree program that best suits their interests and abilities; law schools do not require any particular major, degree plan, or courses. Students at UTA who are considering law school may take one of two routes, either: (1) selecting any major and minor, or (2) pursuing a major or minor that is specified as pre-law. Students wishing to focus on law-related courses at the undergraduate level should consider the pre-law degree plans in political science, criminal justice, philosophy, and history. Students who do not follow a pre-law degree track should choose any major and consult the advisor in the major department and/or in the University Advising Center. They also should confer with an advisor in the UTA Pre-Law Center with regard to recommended additional courses, depending on their degree plans. Law schools look favorably on students with diverse academic interests. UTA graduates not only in the liberal arts and business but also in math, biology, and engineering, for example, have been successful in law school and beyond.

## State Law - 45 Hours to Major Requirement

### 45 Hours to Undergraduate Major Policy.

1. Each student enrolled in an a bachelor's degree program at UT Arlington shall file a degree plan no later than the end of the second regular semester immediately following the semester in which the student earned a cumulative total of 45 or more semester credit hours for coursework successfully completed by the student, including transfer courses, international baccalaureate courses, dual credit courses, and any other course for which the institution the student attends has awarded the student college course credit, including course credit awarded by examination.
2. A student transferring to UT Arlington who begins the student's first semester with 45 or more semester credit hours of course credit for courses shall file a degree plan no later than the end of the student's second regular semester (fall or spring term). A student whose first term is summer will have through the end of his/her fall term to file the degree plan. Students who are unable to be admitted to a major of their choosing must see an academic advisor in the University Advising Center for special permission to enroll.
3. At each registration for a semester, a student who is required to have filed a degree plan before that semester shall verify that:
  - (1) the student has filed a degree plan; and
  - (2) the courses for which the student is registering are consistent with that degree plan.
4. If a student does not timely file a degree plan as required, will be notified that the degree plan is required by law under House Bill 3025 and require the student to consult with an academic advisor for that purpose during the semester in which the student receives the notice. The student may not obtain an official transcript from the UT Arlington until the student has filed a degree plan.

**Reverse Articulation Requirement.** Legislation passes as part of House Bill 3025 also establishes a reverse articulation program for the awarding of an Associate degree. Students who transferred from, or previously attended, a lower-division institution of higher education, earned at least 30 semester credit hours for coursework at the lower-division institution, and have completed 90 semester credit hours while enrolled at a general academic institution, will be contacted by their general academic institution to provide permission to send the lower-division institution the student's transcript. The lower-division institution will evaluate the transcript to see if the student is eligible to receive an Associate's degree.

For additional information regarding the UT Arlington's administration of the Texas timely completion policy, please visit [http://www.uta.edu/aa/recordsandregistration/content/student\\_services/timely\\_completion.aspx](http://www.uta.edu/aa/recordsandregistration/content/student_services/timely_completion.aspx).

## Financial Aid

Many sources of student financial aid exist at The University of Texas at Arlington. Any interested student should apply for assistance each year, as eligibility and funding availability can vary from one year to the next. Financial aid is generally limited to U.S. citizens or permanent residents. A minimum of half-time enrollment (6 hours per term for undergraduates and 5 hours per term for graduates) with the intent of obtaining a degree or certificate and the maintenance of satisfactory academic progress are required to participate in most aid programs. Students subject to selective service registration will be required to file a statement that the student has registered or is exempt from selective service registration to be eligible for financial aid.

Unless otherwise noted in this section of the Catalog, financial aid is available through the Office of Financial Aid in Room 252, Davis Hall, 817-272-3561. Information is also available on the financial aid Web site: [www.uta.edu/fao](http://www.uta.edu/fao).

Students subject to selective service registration will be required to file a statement that the student has registered or is exempt from selective service registration to be eligible to apply for state or federal financial aid including tuition waivers and exemptions provided through legislative action by the State of Texas.

## Federal and State Programs

The University participates in most of the federal student financial aid programs offered through the U.S. Department of Education. In addition, several state and institutional programs are available for students with exceptional financial need. Among the programs in which the University participates are Federal Pell Grants, Federal Work-Study, Federal Supplemental Educational Opportunity Grants, Federal TEACH Grants, Federal Perkins Loan, Federal Direct Stafford Loan, Federal Direct PLUS, Texas Public Education Grants and TEXAS Grants. Award amounts are subject to funding levels set by the appropriate federal or state legislature. Information regarding eligibility and application procedures for these programs is available from the

Office of Financial Aid. The Texas Education Coordinating Board administers various tuition assistance programs including programs for teachers and vocational nursing students.

Aid applicants may check the status of their financial aid applications on the Web through their MyMav (<http://www.uta.edu/mymav>) accounts. A list of missing documents may be found in the To Do List in the Student Center. Award information can be viewed on the same page.

Students wishing to participate in the federal and state need-based student financial aid programs should complete a Free Application for Federal Student Aid (FAFSA) as early as possible prior to their actual enrollment at the University. The awarding process requires 2 – 3 weeks for completion once all required documents are received and is governed by the availability of funds. The FAFSA can be obtained online at <http://www.fafsa.ed.gov>. The school code for UT Arlington is 003656.

With the exception of post-baccalaureate students seeking certification in the following areas: early childhood - grade 6, middle level, secondary and all level, non-degree seeking students in stand-alone certificate programs awarded by UT Arlington are not be eligible to receive need-based financial aid.

### **Grant Assistance for International Students**

A limited number of TPEG grants are available to international students. Please contact the Financial Aid Office to complete an International TPEG form during the month of June. This funding is limited to international students paying the non-resident tuition rate.

### **Loan Programs**

The Federal Perkins Loan, Federal Stafford Loan (subsidized and unsubsidized), and College Access Loan (CAL) are the primary sources of long-term loans available at UT Arlington. These programs include deferred repayment provisions that permit students to repay the loan after termination of at least half-time studies at the University. Interest will not accrue on the loans while the borrowers are enrolled on at least a half-time basis. Information regarding loan amounts and terms can be obtained from the Financial Aid Office.

Federal PLUS (Parent Loan for Undergraduate Students) loans are available to parents to finance their dependents' educational costs. Information and an application are available at [www.StudentLoans.gov](http://www.StudentLoans.gov) (<http://www.studentloans.gov>). Students whose parents wish to borrow through the Federal PLUS must complete the FAFSA and have the results sent to UT Arlington prior to loan certification. Grad PLUS loans are available to graduate students. This loan also requires completion of the FAFSA although the loan is not based on financial need.

### **Federal Work-Study Program**

A student who needs a job to help pay for college expenses may be eligible for employment through the Federal Work-Study Program. Eligibility is based on financial need as determined by the FAFSA. Most participants are employed in positions with various University departments, but limited off-campus jobs with certain approved agencies are also available. You may view available on-campus student employment positions at SNAP Job (<https://www.myinterfase.com/utahr/student>) by the Office of Human Resources and off-campus employment positions at Hire A Maverick (<https://www.myinterfase.com/uta/Account/LogOn?ReturnUrl=%2futa%2fstudent>) provided by the Career Center.

### **Financial Counseling**

The Financial Aid Office provides financial aid counseling for any and all students regardless of whether they qualify for other types of financial assistance. Students may also wish to contact the Student Money Management Center at 817 272-2353 for assistance with developing a personal budget or other money management tools.

### **Out-of-State Student Assistance**

Several states offer aid to their students attending schools in other states. Amounts and requirements for this assistance vary greatly. Further information can be obtained from the home-state aid agency.

### **Veterans' Assistance**

Contact the Registrar's Office for information concerning eligibility for and payment of VA benefits and other matters for veterans attending or planning to attend UT Arlington.

## **Fellowships and Scholarships**

**252 Davis Hall | Box 19199 | 817.272.2197 | <http://www.uta.edu/fao>**

The University of Texas at Arlington provides a variety of scholarship programs for students who have demonstrated exceptional academic achievement. UT Arlington also offers a number of endowed scholarships that are administered by a school, department or program. Graduate scholarships are awarded on the basis of scholastic excellence and adequate preparation for graduate study in the student's chosen field, as shown by the student's academic record. Scholarship eligibility criteria include admission into a degree program, enrollment in coursework leading to the degree, reasonable progress in the degree program, good academic standing, GPA, and in some cases, test scores, references and personal statements. Test scores are not used as the sole criterion for awarding scholarships or the primary criterion for denying scholarship to applicants. There are additional specific qualifications for scholarships in various areas of study. Students are encouraged to contact their school dean or department/program office to obtain information about eligibility criteria and scholarships awarded in the student's area of study.

In addition to the specific qualifications required for various competitive scholarships awarded by the University, the committee responsible for selection of a given scholarship may consider such factors as leadership, community involvement and financial need. State law and the Rules and Regulations of the Board of Regents of The University of Texas System require that any scholarship and/or fellowship be approved by the appropriate scholarship, loans and awards committee (graduate or undergraduate). Scholarship funds have been contributed by individual donors, UT Arlington alumni, corporations, government agencies and other entities to recognize and reward academic excellence.

## TOP 10% SCHOLARSHIP

Per *Texas Education Code*, Section 51.933, students who graduated in the top 10% of their graduating class may be eligible for a scholarship provided by the Texas Higher Education Coordinating Board. For eligibility and application information visit College for All Texans (<http://www.collegefortexans.com/apps/financialaid/tofa2.cfm?ID=385>) website.

## ASSISTANTSHIPS

Standard research and teaching assistantships available in most departments can be held only by students admitted unconditionally or on probation to Graduate School. Recipients of the Enhanced GTA and the STEM Fellowship can be admitted unconditionally only. Students admitted provisionally or students who are on academic probation are not eligible for assistantships. Prospective graduate students should contact the appropriate department chairperson for further information. To be continued on a research or teaching assistantship, a student must be in good standing and have performed assigned duties satisfactorily in the preceding semesters as determined by the respective department. Consult the catalog section on General Graduate School Regulations and Information for regulations regarding registration and responsibility of graduate assistants.

Before being appointed to an assistantship at UT Arlington, a student whose native language is not English must demonstrate English proficiency. The preferred method to demonstrate English proficiency is to submit an acceptable score of at least 23 on the TOEFL speaking subtest, or a score of at least 7 on the speaking section of the IELTS, or take and pass the UTA Developmental English course. The TOEFL or IELTS score should be sent directly to UT Arlington by ETS or IELTS. Score reports submitted directly by the student or those marked "Student Copy" or "Applicant's Copy" are not considered official and will not be accepted by the University. The English proficiency requirement will be waived for non-native speakers of English who possess a bachelor's degree from an accredited U.S. institution. The TOEFL and IELTS are administered at test centers around the world.

## GRADUATE ASSISTANTSHIP/ASSOCIATESHIP POLICY

Graduate teaching and research assistantships and associateships are funded through state appropriations and federal, state, local and private grants for at least three principal reasons. First, employment of graduate students in teaching and in research positions during their graduate education encourages and supports their participation in these two major functions of a university and thereby strengthens the quality of the students' educational experience. Second, assistantships and associateships provide direct financial support to outstanding students who are essential to the development of quality graduate programs. Third, graduate students provide valuable and necessary services to the University in their roles as teaching and research assistants and associates. It must be kept in mind, however, that graduate assistants and associates are first and foremost students. As such, their most important task is to complete their degree requirements in a timely fashion; this is the primary expectation of the University as well.

The University of Texas at Arlington supports the "Resolution Regarding Graduate Scholars, Fellows, Trainees, and Assistants" of The Council of Graduate Schools in the United States. A copy of the resolution and list of signatory institutions can be viewed at [www.cgsnet.org/portals/0/pdf/CGSResolutionMarch2009.pdf](http://www.cgsnet.org/portals/0/pdf/CGSResolutionMarch2009.pdf). To assure the appointment of the most highly qualified students available and to best realize the principal objectives for which graduate assistants are employed, The University of Texas at Arlington has adopted the following policies and regulations, all provisions of which apply to both graduate assistantships and graduate associateships.

### Admission Status

A student must be admitted to a degree program to be eligible to hold a graduate assistantship. Students admitted as Provisional students may not be considered for an assistantship until all provisional requirements have been resolved. New students, admitted with probationary conditions, may be considered for an assistantship, subject to the requirement that they earn and maintain a 3.0 grade-point average while enrolled as a graduate student, conform to admission conditions specified by the admitting department or the University and meet assistantship enrollment requirements. See Admissions (p. 22) for more information.

### English Proficiency

Before being appointed to a teaching assistantship at UT Arlington, a student whose native language is not English must demonstrate English proficiency. The preferred method to demonstrate proficiency is to submit an acceptable score of at least 23 on the Speaking Section of the TOEFL, or a score of at least 7 on the Speaking Section of the IELTS, or take and pass the UTA Developmental English course. The TOEFL and IELTS scores should be sent directly to UT Arlington by ETS or IELTS. Score reports submitted directly by the student or those marked "Student Copy" or "Applicant's Copy" are not considered official and will not be accepted by the University. The English proficiency requirement will be waived for non-native speakers of English who possess a bachelor's degree from an accredited U.S. institution. See Graduate Admissions (p. ) for more information.

### Developmental English Program

Students who do not achieve scores on the TOEFL or IELTS high enough to satisfy the English proficiency requirements for graduate teaching assistants must enroll in the Developmental English Program and be certified for English proficiency before becoming eligible to hold a teaching assistantship. This 10-week program, offered by the UT Arlington English Language Institute, emphasizes oral presentation skills and accent reduction.

Registration is in 402 Hammond Hall, and the charge for course is payable at the time of registration. Contact the English Language Institute at 817.272.2730 for details, including the current class schedule and charges.

## Continuation or Renewal of Appointment

Although a student may be appointed initially to a graduate assistantship for a full academic year, continuation of the appointment beyond the first semester is subject to the following conditions:

1. To continue or renew an appointment, the student must be in good standing in the University. A student on academic probation is not in good standing, and therefore, will automatically lose his or her assistantship. However, Graduate Advisors, with the written endorsement of their department's or program's Graduate Studies Committee, may petition the Academic Dean to allow a one-time exception, granting one additional semester of assistantship support in the next semester of enrollment if they judge the student is capable of raising his or her GPA to the required minimum by the end of that semester and believe that the student is making satisfactory progress in all other aspects of their studies. If granted, the student will be considered to be in good academic standing for one semester for purposes of continuing their assistantship. This broadened definition of academic good standing for a student with a GPA below 3.00 applies only in cases where a program wishes to continue or renew a student's teaching or research assistantship during the semester of enrollment following the one in which his or her GPA dropped below 3.00. Programs may not request this exception on behalf of students who will hold any other type of employment.

A student granted one semester of good academic standing for purposes of continuing their assistantship must improve his or her UT Arlington graduate grade-point average to 3.00 and return to good academic standing as normally defined in the next semester of enrollment in order to qualify for assistantship support in subsequent semesters. Requests to extend this form of good standing beyond one semester will not be approved. Further, students who have previously received a one-semester extension of academic good standing for purposes of continuing their assistantship will not be eligible for this exception again.

2. The student must be making satisfactory progress toward an advanced degree.
3. The student must have performed assigned assistantship duties satisfactorily in the preceding semester(s) as determined by the department in which the assistantship is held.

A department may limit the number of semesters during which a graduate student may hold an assistantship.

## Resident Tuition Rates

Graduate teaching and research assistants employed at least 20 hours per week in positions related to their degree programs are entitled to Texas resident tuition rates. Eligibility for the resident rate must be certified prior to registration otherwise, full tuition will be assessed. Non-resident students receiving appointments after a term's published Census date will not be eligible for resident tuition rates in that term.

Non-resident or international students holding less than full assistantships (full meaning 20 hours employment per week) are not eligible for Texas resident rates.

## Course Load

### Full Assistantships

Graduate assistants holding full assistantships (20 hours of employment per week) may register for and must complete no fewer than nine semester hours and no fewer than six semester hours during the three summer semesters.

The nine hour minimum registration limit may be reduced to six semester hours for thesis and dissertation students who 1) have completed all required coursework 2) are registered for thesis or dissertation research only. In such cases, master's students should enroll in 5698 and doctoral students who have passed their Comprehensive Examinations should enroll in 6699 course. International students meeting these requirements must obtain written permission from the Office of International Education to enroll in fewer than nine hours and present it to the appointing department. Students defending their theses typically must enroll in a six-hour thesis course. Doctoral students who have completed or will complete a total of at least nine hours of dissertation research in 6399, 6699, 6999 and/or 7399 courses prior to graduation may meet minimum registration requirements in the term they intend to defend their dissertations and graduate by enrolling in 7399. However, if a student does not graduate after enrolling in 7399, he or she must enroll in 6699 or 6999 until graduation. The 7399 course may not be repeated. Students may not petition for a course load reduction below these requirements.

Non-thesis master's students with only three to six hours of organized coursework left to complete a program in his or her final semester are permitted to hold an assistantship while enrolled in the three to six hour course. International students in these instances must obtain written permission from the OIE for less than nine hours of enrollment and present it to the appointing department.

### Partial Assistantships

Graduate Teaching Assistants or Graduate Research Assistants who have a 25% (10 hours of employment per week) or less appointment must be enrolled for at least six hours during a long semester and three hours during the summer. This enrollment requirement covers both organized courses and dissertation and thesis hours. However, all graduate students, whether funded or unfunded, must follow UT Arlington policy concerning required enrollment in the final semester.

## Assignment of Duties

Graduate assistants are under the direction of the department chair with regard to assistantship responsibilities and assignments.

## ADDITIONAL EMPLOYMENT WHILE AN ASSISTANT OR ASSOCIATE

### All Students

In accepting a graduate assistantship/associateship, students agree to devote their efforts to graduate studies and assistantship/associateship responsibilities. In some circumstances, however, additional employment may be justified. Immigration policies severely restrict the amount that an international student may work.

### U.S. Citizen Students

Full-time (20-hour) graduate assistants wishing to hold additional assistantships/associateships or accept additional on or off-campus positions must obtain the approval of their Graduate Advisor. Approval will only be given if the additional work will not impact the student's academic progress negatively or exceed employment limits allowed by law.

### International Students

During the fall and spring semesters, international students may work on campus only 20 hours per week unless authorized for additional employment through Curricular Practical Training (CPT). During vacation and the summer, international students may work more than 20 hours per week on-campus without additional authorization. At anytime during the year, employment with an off-campus employer must be authorized by either BCIS or by the International Office in the case of CPT. The Office of International Education must grant approval prior to taking on additional employment if that employment is to be authorized by CPT. Students holding a UT Arlington assistantship wishing to work off-campus in addition to the assistantship, must 1) meet and maintain the enrollment requirements for holding an assistantship 2) meet the immigration requirements for CPT 3) work only part-time (20 hours or less) off-campus 4) be employed in off-campus work that is clearly connected to his or her assistantship. If these requirements are not met, a student will be obliged to give up either the assistantship or the off-campus employment.

## Satisfactory Academic Progress

Federal regulations require that the University of Texas at Arlington establish policies to monitor the academic progress of students who apply for and/or receive financial aid. To retain eligibility, undergraduate recipients must show satisfactory progress toward a degree based on the following requirements. There are two areas specifically addressed in these requirements. The first is cumulative grade point average (qualitative standard) and the other is a comparison of the number of credit hours annually and a review of the maximum number of hours attempted (quantitative standard). The cumulative grade point average required to meet this portion of the SAP standards mirrors the grade point average required to remain in good academic standing at the University. Information regarding the calculation of the quantitative standard as well as the notification and appeal process may be found on the Financial Aid website (<http://www.uta.edu/fao>). Click on the Satisfactory Academic Progress tab.

## Grades and Grading Policies

Grades that may be assigned in courses at the University of Texas at Arlington (Valid Grades) for undergraduate courses consist of and A, B, C, D, F, I, P, R, Q, P, Z. Grades assigned in graduate courses are limited to A, B, C, D, F, P, I, R, W. Instructors only assign grades listed on the MyMav grade roster for a given course. Students uncertain about the grading policy in a course should consult their instructor at the beginning of the term for information. Valid grades for independent study, conference, seminar, and readings courses vary widely among departments; therefore, a statement on valid grades and special grading policies, if any, is given at the beginning of the course descriptions for each program in this catalog.

## Computation of the Grade Point Average

**Computation of the Grade Point Average:** The cumulative University grade point average for an undergraduate student is calculated on the basis of all work undertaken at UT Arlington, including credit by examination, correspondence and extension, for which a letter grade is given, unless the course is repeated under the Grade Replacement Policy or Grade Forgiveness Policy, or removed from the calculation under the Grade Exclusion Policy or Grade Forgiveness Policy. Courses in which the symbol I, P, Q, W or Z is recorded are excluded in calculating the grade point average. These grades appear on the student's official transcript.

Grades earned at any institution other than UT Arlington are not used in calculating the University grade point average, but semester hours of transfer credit accepted by UT Arlington are added to hours taken at the University to determine the total college hours undertaken.

The following grades are used at UT Arlington:

Grade	Description	Grade Points Per Semester Hour
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing, Below Average	1
F	Failure	0

I	Incomplete	0
W	Withdrawn	0
Q	Withdrawn - No Penalty (does not count toward Six-Course Drop Policy)	0
P	Pass	0
R	Research	0
Z	Participated – No Credit	0

## Undergraduate Grading Policies

- **D's:** Although a grade of D may be sufficient for an undergraduate to earn credit in a course, a cumulative University grade point average of at least 2.00 is necessary for satisfactory progress toward a degree.
- **I's:** A grade of I (Incomplete) may be assigned for a course if, in the opinion of the instructor, there are extenuating circumstances which prevent the student from completing the required work within the term of enrollment for the course. The Incomplete must be removed by the end of the final examination period of the following term, excluding the summer sessions, for the student to receive credit for the course. If the Incomplete is not removed during the allotted time period, it will convert automatically to an F. As long as the grade is carried as an I, it will not be used in the calculation of the student's grade point average. A student should not re-enroll in a course for which an I is the grade of record.
- **Grades that do not count toward GPA:** A course for which the symbol I, P, Q, W or Z is given does not count as hours undertaken for the purpose of calculating the grade point average, and no grade points are earned. A course taken and passed on the pass/fail basis counts as hours undertaken, but no grade points are earned.
- **Pass/Fail Program (Engineering, Liberal Arts, Science, Nursing):** Students who are majors in the colleges of Engineering, Liberal Arts, Science, or Nursing may take courses on a pass/fail basis subject to differing rules established by these academic units. This policy is intended to offer students an opportunity to take courses that will broaden their education with less immediate emphasis on the need to achieve grade points. However, an F received in a pass/fail course (except developmental courses) will be evaluated the same as an F received on a regular basis, adversely affecting the grade point average. Students must inform the instructor of their intention to take a course on a pass/fail basis by the Census Date of the term. Complete details and requirements of each college are available in the offices of the academic deans and in the departmental offices of the colleges.
- **Developmental Course Grades:** Students assigned to developmental courses, as a result of TSI status will be graded on a pass/fail basis. This policy is intended to offer students an opportunity to take courses that will broaden their education with less immediate emphasis on the need to achieve grade points. Therefore, an F received in a preparatory or developmental course will be not evaluated the same as an F received in a credit-bearing course and will not be factored into the student's GPA.

## Effect of Grades in Repeated Courses

A student may repeat any course except as limited by individual colleges and schools, provided the student's grade earned in an earlier term is below C. Courses transferred for credit to UT Arlington from another college or university may not be repeated for credit. A student may not repeat a course for additional hours toward a degree unless the catalog description specifically states that the course may be repeated for credit.

Courses originally taken or repeated at another college will not affect a student's grade point average at UT Arlington. If a student earned a grade of less than C in a course taken at UT Arlington, the student may take that course or its equivalent at another college or university for transfer to UT Arlington only with the prior written approval of the student's major department chair or academic dean.

## Grade Exclusion Policy

The grade exclusion policy may be utilized by students subject to the policy except as otherwise noted. Grade Exclusion is available to students whose initial enrollment at UT Arlington was Fall 2006 through Summer 2013. Upon receiving a D or F in a course, a student may file a request with the Office of Admissions, Records and Registration for grade exclusion. All Grade Exclusion requests submitted during the term must be submitted by the last day to drop a course to be processed that term. Students have to be enrolled on Census Date for their Grade Exclusion petition to be processed in that term. See the academic calendar (<http://www.uta.edu/uta/acadcal.php>) for Census Date and Last Drop Date information. Students who had already completed a grade replacement for one or more courses at UT Arlington are not eligible to utilize the grade exclusion policy. The following conditions apply:

- Students seeking grade exclusion must receive counseling from the following as appropriate: Academic Advisor to determine effect on completion of degree requirements and probation requirements, Financial Aid Office if receiving a scholarship or financial aid administered by that office, Athletic Department if a student athlete, International Office if an international student
- Grade exclusion requests must be made using a grade exclusion form available from the Office of the Admissions, Records and Registration. The request must be approved by the academic dean from the student's major College/School.
- The course grade will be removed from the academic GPA; although the grade received will remain on the student's transcript.

- This policy will apply to a maximum of three courses at UT Arlington and will not apply to courses taken on a pass/fail basis. Of the three courses, only one course may be at the 3000/4000 level.
- This policy is not applicable to graduate students.
- Individual colleges and schools may limit this policy.
- Students may not apply this policy to grades of D or F which result from disciplinary action.
- Students who are dismissed from the University for academic reasons cannot use a grade exclusion until their dismissal period is completed.
- Excluded grades will be included in the calculation of GPA for determining graduation with Latin Honors.
- Excluded hours will count toward the 30 hour/45 hour policy for Tuition for Excessive Undergraduate Hours.
- Tuition and fee refunds, rebates or other financial consideration will not be given for courses for which grade exclusion is granted.
- Once a course has been excluded, a student may not later have the exclusion removed.
- Excluded courses cannot be used to satisfy degree requirements.
- Students must be enrolled at UT Arlington on Census Day of the term that the grade exclusion, if approved, is processed.

## Grade Forgiveness Policy

The grade forgiveness policy may be utilized by students subject to the policy except as otherwise noted in this policy. Grade Forgiveness is available to incoming freshman students (i.e., first time in college students and/or freshman transfers with 23 or fewer attempted hours in transfer) whose initial enrollment at UT Arlington as a freshman or freshman transfer was Fall 2013 or thereafter. This policy is not available to transfer students (i.e., students who are transferring from one institution of higher education to another with 24 or more semester credit hours and who are not considered first time in college students). For continuing UTA students whose initial enrollment at UT Arlington occurred between Fall 2006 and Summer 2013, the Grade Exclusion policy remains in effect.

Upon receiving a grade of D or F in a 1000 or 2000 course, students subject to the Grade Forgiveness policy may, after filing the intent to do so with their academic advisor, elect to have the grade forgiven. Students subject to this policy must contact their academic advisor, who files the Grade Forgiveness petition on their behalf. All Grade Forgiveness requests submitted during the term must be submitted by the last day to drop a course to be processed that term. Students have to be enrolled on Census Date for their Grade Forgiveness petition to be processed in that term. See the academic calendar (<http://www.uta.edu/uta/acadcal.php>) for Census Date and Last Drop Date information. A student is limited to a total of two Grade Forgiveness opportunities under the following conditions:

- **Grade Omission:** A student may elect the **grade omission option** for one of the two Grade Forgiveness opportunities if the student is changing their major and the course is not required for the new major. In addition, a student electing grade omission may not re-enter that major. Grade omission may only be applied to one course. If electing to use grade omission, the student is not required to retake the course.
- **Grade Substitution:** A student may elect **grade substitution option** for one or both of the Grade Forgiveness opportunities. In this case, the course(s) must be retaken, even if it is not required for the student's current major. The second grade earned, whether higher or lower, will be used in calculating the grade point average unless the second attempt results in a grade of W. This policy applies only the second time a course is completed.
- Students must file their intention to substitute or omit the grade earned in a course with their academic advisor. Students must be enrolled at UT Arlington on Census Day of the term that the Grade Forgiveness, if approved, is processed.
- Students MAY apply for Grade Forgiveness for any term (after final grade posting of the previous term but before the Last Drop Day of the current term) before the final semester PRIOR to graduation. Students may not apply for Grade Forgiveness AFTER graduation.
- Courses transferred for credit to UT Arlington from another college or university may *not* be repeated for credit or excluded.
- For courses in which the topic may change from term to term, this policy may only be used if the topic for the repeated course is the same as the initial course topic.
- This policy does not apply to courses taken on a pass/fail basis.
- Individual colleges and schools may limit this policy.
- Students may not apply this policy to grades of D or F which resulted from disciplinary action.
- Students seeking Grade Forgiveness must receive counseling from the following as appropriate: Academic Advisor, to determine the effect on completion of degree requirements and probation requirements; Financial Aid Office, if receiving a scholarship or financial aid administered by that office; Athletic Department, if a student athlete; and International Office, if an international student.
- The grade(s) for the forgiven course(s) will be removed from the grade point average, although the grade(s) received will remain on the student's transcript.
- A course that has been "grade omitted" or "grade substituted" may not be used to satisfy degree requirements.
- Once Grade Forgiveness has been applied to a course, the student may not have the action reversed.
- Students who are dismissed from the University for academic reasons cannot use Grade Forgiveness until they have completed their dismissal period.
- Forgiven grades will be included in the calculation of the grade point average for determining graduation with Latin Honors.
- The credit hours earned in courses where the grade is forgiven will count toward the 30 hour/45 hour policy for Tuition for Excessive Undergraduate Hours.

- Tuition and fee refunds, rebates or other financial consideration will not be given for courses for which Grade Forgiveness is granted.
- A student may not use credit by exam to receive credit for a course once a student has received a grade for that course even if it has been omitted.
- Students must be enrolled at UT Arlington on Census Day of the term that the forgiven grade, if approved, is processed.

## Progress Reports

**Freshman Progress Reports:** Freshmen will receive early progress report grades in or by the fourth week of the fall and spring terms.

**Midterm Progress Reports:** Freshmen, first term transfers, athletes, undergraduates with a cumulative GPA of 2.25 or lower, and undeclared or freshman students will receive an interim grade report in or by the ninth week of the fall and spring terms.

These progress report grades are not recorded on the student's official record. They are for information purposes only and are intended to benefit the student as an early alert. The grade reported at the end of a term is the official and permanent evaluation of a student's performance in a given course. Notifications are sent to students' UTA email boxes when progress reports are available, and students are urged to frequently review their progress report grades in MyMav (<http://www.uta.edu/mymav>) during the grade collection period. For the purpose of progress reports, a grade of I indicates that no grade data was available at the time. Students are encouraged to consult their instructor for progress report grade data if an I is reported or if no grade is reported.

## Final Grades

Final grades are available in MyMav (<http://www.uta.edu/mymav>). Grades are posted at the end of each regular, summer, and intersession session, and academic standing is posted at the end of each term. The grade reported at the end of a term is the official and permanent evaluation of a student's performance in a given course. Official transcripts are available in the Office of Admissions, Records and Registration for those students who need official verification for tuition reimbursement and other reasons. Students with transcript holds will not be able to access their official transcript.

## Final Examinations

Final examinations are scheduled at the end of each session or term. In some courses, a departmental final examination is given. Final examinations will be given according to the published academic calendar (<http://www.uta.edu/uta/acadcal.php>). Exceptions must be approved in advance by the academic dean.

## Final Review Week

A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabi. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week.

## Official Transcripts

Official transcripts are available in the Office of Records and Registration. Students with transcript holds will not be able to access their official transcript.

## Grievance Procedures Related to Grades

In attempting to resolve any student grievances regarding grades, it is the student's obligation first to make a serious effort to resolve the matter with the individual with whom the grievance originated. Individual course instructors retain primary responsibility for assigning grades. The instructor's judgment is final unless compelling evidence shows preferential treatment or procedural irregularities. If students wish to appeal, their request must be submitted in writing—on an appeal form available in departmental or program offices—to the department chair or program director. The student has one calendar year from the date the grade is assigned to initiate the grievance. The normal academic channels are department chair or program director and then academic dean. However, before considering a grievance, the department chair or program director will refer the issue to a departmental or program committee of faculty. If the student does not find the committee's decision acceptable, the student may appeal to the academic dean. The decision of the dean is final. Information specific to the procedures to be followed in each academic unit is available in the office of the academic dean.

The dean of the college or school in which a student is enrolled, or the Executive Director of University College if the student has not declared a major, has jurisdiction over the student's program of study, degree requirements and all other academic matters including grievances. However, students taking a course in a college or school other than the one in which they are primarily registered are subject to the dean of the college or school in which the course is offered concerning the course and academic grievances regarding the course.

Information regarding grievances for matters other than grades is available in the Student Rights (p. 84) section of the catalog.



## Freshman Honor Roll

First-time, first-year freshman students with less than 30 credit hours with excellent grades will be recognized by being listed on the Freshman Distinction roll. The Freshman Distinction roll will include those students who have both:

- Less than 30 semester credit hours earned in residence at UT Arlington with a GPA of not less than 3.5, and
- 12 semester credit hours earned in the current term, not including pass/fail work, with a GPA for the semester of not less than 3.5

In addition to this official recognition, University College will be recognizing new students with a 3.0 and 3.49 grade point average, as well as those in the Freshman Distinction roll and All A's (4.0 gpa), with special recognition from the Dean of Undergraduate Studies.

## Honor Roll

Students with excellent grades will be recognized by being listed on the Honor Roll. The Honor Roll will include those students who have both:

- 30 semester credit hours earned in residence with a GPA of not less than 3.5, and
- 12 semester credit hours earned in the current term, not including pass/fail work, with a GPA for the semester of not less than 3.5.

## Graduate Grading Policies

### GRADE OF I

The grade of I designates the grade of incomplete. A graduate student unable to complete all assigned work in a class in the term in which it was taken may, at the discretion of the instructor, receive an I grade. *This grade is not given automatically* when a student does not complete all assigned work. It is the responsibility of the student to make arrangements with the instructor to secure a grade of I before the term ends. The grade of I will remain as part of the student's academic record until the work is completed and a final grade awarded. To change a grade of I to another grade, the instructor must submit a change of grade form. A grade of I does not carry credit value. This grade is not awarded in research, internship, thesis or dissertation courses.

### GRADE OF R

The grade of R designates the grade of research in progress and is given only in research, internship, thesis or dissertation courses. A graduate student unable to complete assignments in one of these courses may, at the discretion of the instructor, receive an R grade. The R grade is a permanent grade and does not carry credit value. To receive academic credit in an R-graded course, a student *must re-register for and successfully complete the course* earning a valid passing grade for the course. Grading policy in some courses may change during the period covered by this catalog. Grading policy for each course each term is included in the course syllabus. Students should verify the grading policy with the instructor at the beginning of each term.

### GRADE OF W

A grade of W may be assigned if a student chooses to withdraw from a class after Census date, but prior to the last date to drop posted in the University's Academic Calendar. *However, the grade of W is not automatically awarded.* Graduate students must consult with their graduate advisor before withdrawing from a class. Further, the student must secure the permission of the instructor and be passing the course (have a grade of A, B, C or P) at the time they intend to withdraw to receive a grade of W.

## RESEARCH OR INTERNSHIP COURSE GRADES

The only grades awarded in most research or internship courses are P (pass), R (research in progress), F (fail) or W (withdrawn).

### THESIS (5398) GRADES

Only R (research in progress), F (fail) or W (withdrawn) are awarded in this course.

### THESIS (5698) GRADES

Grades of P (pass) R (research in progress) F (fail) or W (withdrawn) are awarded in this course. The grade of P can only be awarded when the thesis defense is passed unconditionally and the final version of the thesis is accepted by the supervising committee. R, F or W grades are assigned otherwise.

### DISSERTATION (6399) GRADES

Only R (research in progress), F (fail) or W (withdrawn) are awarded in this course.

### DISSERTATION (6699, 6999 AND 7399) GRADES

The grades P (pass), (R) research in progress, F (fail) and W (withdrawn) may be awarded in these courses. The grade of P can be awarded when the dissertation defense is passed unconditionally and the final version of the dissertation is accepted by the supervising committee. R, F, or W grades are assigned otherwise.

## Effect of Grades in Repeated Courses

A student may repeat any course except as limited by individual colleges and schools, provided the student's grade earned in an earlier term is below C. Courses transferred for credit to UT Arlington from another college or university may not be repeated for credit. A student may not repeat a course for additional hours toward a degree unless the catalog description specifically states that the course may be repeated for credit.

Courses originally taken or repeated at another university will not affect a student's grade point average at UT Arlington. If a student earned a grade of less than C in a course taken at UT Arlington, the student may take that course or its equivalent at another university for transfer to UT Arlington only with the prior written approval of the student's major department chair or academic dean.

## Final Grades

Final grades are available in MyMav (<http://www.uta.edu/mymav>). Grades are posted at the end of each regular, summer, and intersession session, and academic standing is posted at the end of each term. The grade reported at the end of a term is the official and permanent evaluation of a student's performance in a given course. Official transcripts are available in the Office of Admissions, Records and Registration for those students who need official verification for tuition reimbursement and other reasons. Students with transcript holds will not be able to access their official transcript.

## Final Examinations

Final examinations are scheduled at the end of each session or term. In some courses, a departmental final examination is given. Final examinations will be given according to the published academic calendar (<http://www.uta.edu/uta/acadcal.php>). Exceptions must be approved in advance by the academic dean.

## Final Review Week

A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabi. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week.

## Official Transcripts

Official transcripts are available in the Office of Records and Registration. Students with transcript holds will not be able to access their official transcript.

## Grievance Procedures Related to Grades

In attempting to resolve any student grievances regarding grades, it is the student's obligation first to make a serious effort to resolve the matter with the individual with whom the grievance originated. Individual course instructors retain primary responsibility for assigning grades. The instructor's judgment is final unless compelling evidence shows preferential treatment or procedural irregularities. If students wish to appeal, their request must be submitted in writing—on an appeal form available in departmental or program offices—to the department chair or program director. The student has one calendar year from the date the grade is assigned to initiate the grievance. The normal academic channels are department chair or program director and then academic Dean. However, before considering a grievance, the department chair or program director will refer the issue to a departmental or program committee of faculty. If the student does not find the committee's decision acceptable, the student may appeal to the academic Dean. The decision of the Dean is final. Information specific to the procedures to be followed in each academic unit is available in the office of the academic Dean.

Information regarding grievances for matters other than grades is available in the Student Rights (p. 84) section of the catalog.

## Course Credit and Degree or Certificate Requirements

### CREDITS COUNTED TOWARD DEGREE OR CERTIFICATE REQUIREMENTS

Only courses completed with a grade of A, B, C, or P can satisfy graduate degree or certificate requirements. However, courses in which grades of D or F are earned will affect a student's grade-point average. A student must have a B (3.0) grade-point average in courses included in their degree plan and a B (3.0) average in all work undertaken as a graduate student to have credits applied toward a graduate degree or certificate.

### COURSE CREDIT APPLIED TO MORE THAN ONE DEGREE

No course that has been applied to any degree, at any graduate or undergraduate institution, may be applied to any other degree, either directly or by substitution except in approved dual degree or approved fast track programs. The amount of shared credit between degrees in dual degree programs is limited and varies with the total number of hours needed to complete both degrees. See Dual Degree Programs in the Advanced Degrees and Requirements section of this catalog for details. Similarly, the amount of credit that can be shared in fast track programs is also limited. Details may be found in descriptions provided by participating programs elsewhere in this catalog.

## CREDIT FOR REPEATED COURSES

A student may repeat a course only if that course is specifically designated in this catalog as one that can be repeated for credit. A student who fails to receive credit (earns a grade of D or F) may repeat the course in order to obtain credit, in which case the grades for both attempts will count in computing the student's overall grade-point average. No student will be allowed to repeat a course in order to change a passing grade of C or higher.

## CREDIT FOR ADVANCED UNDERGRADUATE COURSEWORK

Up to nine hours of advanced undergraduate credit from UT Arlington or another institution may be applied to a master's degree program if the hours have not been used to earn a previous degree and have the approval of the appropriate Graduate Studies Committee and the academic Dean. Approved fast track programs may allow dual credit.

## CREDIT FOR EXTENSION CLASSES

Work done in extension classes may be applied toward an advanced degree under the same conditions that apply to transfer work, except that credit for extension work is limited to six credit hours.

## GRADUATE CREDIT EARNED IN UNDERGRADUATE STATUS

UT Arlington undergraduates may be allowed to take graduate courses and have the credits earned apply to a master's degree.

- An undergraduate student may not use graduate courses (numbered 5000 and above) to fulfill undergraduate degree requirements except as part of an approved fast track program.
- Courses taken in undergraduate status may not be applied directly to a doctoral program.
- Some departments do not permit students to enroll in graduate courses unless they have been admitted as degree seeking graduate students. Others allow students enrolled as undergraduates to take a limited amount of graduate coursework under the conditions described below.
- All undergraduate students should consult with the appropriate graduate advisor before attempting to register for graduate courses.

An undergraduate needing no more than 12 hours in one term (six semester hours in one summer session) to complete all the requirements for a bachelor's degree may register for graduate courses and apply them toward a master's degree at UT Arlington under the following conditions:

1. In no case may a student previously dismissed from their graduate program or denied admission enroll in graduate courses or reserve courses for graduate credit.
2. All work for undergraduate credit must be completed during that term or session in which the student enrolls in graduate courses.
3. Total registration for all work may not exceed 15 semester hours in a term (or 12 semester hours in the summer sessions).
4. The student must submit to the graduate advisor a "Reservation of Courses for Graduate Credit by Undergraduate Students" form (available from graduate advisors). The reservation must be approved by the graduate advisor and the academic Dean of the college in which the course is taken. The Office of Admissions, Records and Registration must certify that the reserved credit will not be applied to the student's undergraduate degree requirements.
5. The student must have at least a 3.0 undergraduate GPA to be eligible to enroll in a graduate course and to reserve it for graduate degree credit.
6. Courses taken at UT Arlington and reserved for graduate credit may be applied to a master's degree program only if a grade of A, B, C, or P was earned.
7. Credit is officially accepted for application to a graduate program when a student is unconditionally admitted as a graduate student.
8. A maximum of 12 semester hours of graduate level courses may be reserved.

## CREDIT EARNED IN DEGREED UNDERGRADUATE STATUS

Students who have completed their undergraduate studies and have been awarded their bachelor's degree may enroll as degreed undergraduates in graduate-level course work and receive graduate credit at UT Arlington under the following conditions:

1. Courses taken at UT Arlington and reserved for graduate credit may be applied to a master's degree program only if a grade of A, B, C, or P was earned.
2. No more than 12 semester hours of credit earned while a degreed undergraduate may be applied for credit toward a master's degree. Students must file a request, approved by the graduate advisor, the Committee on Graduate Studies, and the academic Dean to apply such credits toward a graduate degree. The form is available online (<http://grad.pci.uta.edu/students/forms>).
3. All courses that are applied to a master's degree must have been completed no more than five years before enrollment in a graduate program at UT Arlington. If the student has completed more than 12 semester hours of graduate courses in undergraduate status, only graduate courses completed within five years of enrollment in a graduate program at UT Arlington will become part of the graduate record and considered in computing the student's grade-point average.
4. A student may elect to apply all graduate courses completed in the last five years toward their degree or to apply none of this work. Selective application of courses is not permitted. If any courses are applied for credit toward a master's degree, all courses completed within the last five years will become part of the graduate record.

## TRANSFER CREDIT IN MASTER'S PROGRAMS

Equivalent coursework completed at other institutions of recognized standing may be transferred to a master's degree program after evaluation and approval. Transferred courses do not appear on the UT Arlington Official Transcript and grades earned in transferred courses are not included in calculating a student's UT Arlington graduate grade-point average.

No more than nine hours of transfer credit will be granted except in the professional master's programs that require more than 36 hours of coursework. In such programs, the number of transfer hours is limited to 25 percent of the total program hours. This rule does not invalidate written articulation agreements that have been approved by all appropriate parties, including the Dean, Provost, and/or President. Transfer credit will be accepted only for organized courses in which the student received a letter grade of B (3.0) or higher and an official transcript showing the course(s) and grade(s) is required.

Courses from other universities taken after a student has been admitted into a master's program at UT Arlington must be approved in advance by the appropriate Committee on Graduate Studies and is reviewed by the dean of the college or school in which the student's current graduate degree program is located. . All work submitted for transfer credit must have been completed no more than six years before completion of a graduate program at UT Arlington.

To request transfer credit, students must complete the Transfer of Graduate Credit form and obtain approvals from the appropriate graduate advisor and chair of the Committee on Graduate Studies and final approval from the dean of the student's college or school. The form is available online (<http://grad.pci.uta.edu/students/forms>).

No more than nine hours of transfer credit will be granted except in the professional master's programs that require more than 36 hours of coursework. In such programs, the number of transfer hours is limited to 25 percent of the total program hours. This rule does not invalidate written agreements between graduate programs and the Graduate Office or agreements that are stated elsewhere in this catalog. Transfer credit will be accepted only for organized courses in which the student received a letter grade of B or higher and an official transcript showing the course(s) and grade(s) is required. Grades earned in transferred courses are not included in calculating a student's UT Arlington graduate grade-point average.

Courses from other universities taken after a student has been admitted into a master's program at UT Arlington must be approved in advance by the appropriate Committee on Graduate Studies and academic Dean.. All work submitted for transfer credit must have been completed no more than six years before completion of a graduate program at UT Arlington.

To request transfer credit, students must complete the Transfer of Graduate Credit form and obtain approvals from the appropriate graduate advisor and chair of the Committee on Graduate Studies and final approval from the academic Dean. The form is available online (<http://grad.pci.uta.edu/students/forms>).

## TRANSFER CREDIT IN CERTIFICATE PROGRAMS

Equivalent coursework completed at other institutions of recognized standing may be transferred to a graduate certificate program after evaluation and approval of the graduate advisor, the appropriate Committee on Graduate Studies and the Dean of the College or School in which the student is currently enrolled. The number of transfer units is limited to 50% of the total units required for the certificate, except in certificate programs that exceed 15 units, in which case 12 of those units must be taken in residence. This rule does not invalidate written agreements between graduate certificate programs and the Office of Graduate Studies or agreements that are stated elsewhere in this catalog. Transfer credit will be accepted only for organized courses in which the student received a letter grade of B or higher and an official transcript showing the course(s) and grade(s) is required.

Courses from other universities taken after a student has been admitted into a graduate certificate program at UT Arlington must be approved in advance by the graduate advisor, the appropriate Committee on Graduate Studies and the Dean of the College or School in the student's current graduate degree program is located. The form is available online (<http://grad.pci.uta.edu/students/forms>).

Grades earned in transferred courses are not included in calculating a student's UT Arlington graduate grade-point average.

## WAIVER OF COURSES IN DOCTORAL PROGRAMS

Graduate-level coursework completed in the student's major area of doctoral study at institutions of recognized standing that grant doctoral degrees in those subject areas may serve to establish the student's competency in equivalent UT Arlington courses. Competency demonstrated by successful completion of equivalent courses may provide a basis for waiving some UT Arlington course requirements and the credit hours associated with those courses. Waivers must be recommended by the student's graduate advisor and current supervising professor and their recommendation must be approved by both the Committee on Graduate Studies of the student's major area and the Academic Dean. Only courses in which the student has earned a B (3.0) or better (or a P if the UTA course is also graded P/F) will be considered for purposes of a waiver. In no case will final semester Dissertation course (6x99 or 7399) requirements be waived. Waived courses must be shown on the student's academic plan.

## COURSES THAT DO NOT PROVIDE GRADUATE CREDIT

**Audited Classes:** University credit is not granted for audited classes and audited classes will not satisfy enrollment requirements.

**Personal Improvement Courses:** Personal improvement individual or group music or art lessons and exercise and sports activities courses can not be used for the following: 1) to satisfy graduate degree requirements; 2) meet enrollment requirements; 3) in computation of graduate grade-point averages

or determination of academic probation or academic good standing; 4) in calculation of grade-point averages for the purpose of admission to a Graduate Program or for certification for graduation from a Graduate Program.

**Correspondence Courses:** Correspondence courses are not accepted for graduate credit.

**Credit by Examination:** Credit by examination may not be used for graduate credit and no such credit, graduate or undergraduate may appear on graduate student transcripts.

**Credit Used to Earn Another Degree:** No course that has been applied to any degree, at any graduate or undergraduate institution, may be applied to any other degree, either directly or by substitution except in approved dual degree or approved fast track programs.

## Grade Forgiveness and Grade Exclusion

Students in graduate programs including degree seeking, certificate, and non-degree seeking programs are not eligible for grade forgiveness or grade exclusion.

## Graduation

### Degree Conferral

Degrees are awarded at the end of the fall semester (December), spring semester (May) and summer session (August). Formal commencement ceremonies are held within the college or school in which the degree is earned. Students should contact the Office of the Dean of their department for information concerning the commencement ceremonies.

### Application for Graduation

All graduating students must file an Application for Graduation through their Student Center in MyMav (<http://www.uta.edu/mymav>) by the published deadlines for the semester of graduation. Students are encouraged to meet with their academic advisor to insure that they will meet degree plan requirements in a timely way to allow graduation. Neither the graduation application nor graduation fees are transferable to a subsequent semester; therefore, if a student does not graduate in the semester indicated in the initial application, a new application must be filed for the semester of graduation and the appropriate fees paid again. Additional information on graduation processes is available on the Office of Admissions, Records and Registration's Graduation website ([http://www.uta.edu/aao/recordsandregistration/content/student\\_services/graduation.aspx](http://www.uta.edu/aao/recordsandregistration/content/student_services/graduation.aspx)).

Students who fail to apply for graduation by the specified deadlines may apply late by completing the Application for Graduation and paying a late fee. Applications for graduation will be accepted with a late fee for 30 calendar days after the deadline for applying for graduation. After that date, no applications will be accepted and students must apply for graduation for a subsequent semester. Applicants for graduation will be billed the Graduation Application fee and, as appropriate, the late graduation application fee. Again, graduation charges are non-transferable and non-refundable. See the section titled Tuition, Fees, and Charges in this catalog for information on specific fees.

### Diplomas

Diplomas will be issued approximately 6-8 weeks after commencement ceremonies, and will be sent to graduates via USPS mail. Graduates with account balances or transcript or any diploma holds must clear these before their diploma can be released for mailing. Diplomas are only kept and available for mailing for one (1) year after graduation. After one year, the graduate will need to order a replacement diploma.

### Graduation Rates

As of October 1, 2013, the six-year graduation rate was 42 percent for students who entered The University of Texas at Arlington in Fall 2007 on a full-time basis as first-time, degree-seeking undergraduates.

## Registration

To attend The University of Texas at Arlington any given term, a student must register and pay fees. All registration at UT Arlington may be done online in MyMav (<http://www.uta.edu/mymav>). The current term's Registration Timetable ([http://www.uta.edu/aao/recordsandregistration/content/student\\_services/registration\\_timetable.aspx](http://www.uta.edu/aao/recordsandregistration/content/student_services/registration_timetable.aspx)) gives the exact dates and times for registration. General requirements are below.

Undergraduate Student Registration Requirements (p. 72)

Graduate Student Registration Requirements (p. 75)

### Advising Prior to Registration

Students new to UT Arlington, many continuing students and readmitted former students must be advised by their major department academic advisor prior to registration each term. Undeclared students should meet with their academic advisor in the University Advising Center. Students can check to see if they need to be advised by checking their Student Center using MyMav (<http://www.uta.edu/mymav>), the computerized, high-security student

records system used by UT Arlington. If advising is required, a service indicator (enrollment hold) will appear on the student's record. The service indicator must be released by the academic advisor before the student can register.

Typically, the advising period for the Spring term opens in October, and for the Summer and Fall terms in March. Meeting with an academic advisor is strongly recommended even if the student is exempted from advising.

## Registrant Responsibilities

- The student must know and abide by all University policies and deadlines.
- UT Arlington's **Student Responsibility Statement** includes specific information on registrant responsibilities.
- Students must drop courses prior to the first class day for a given term to avoid financial responsibility.
- A student's registration is not automatically cancelled for non-attendance. A student should either pay tuition and fees in full by the designated deadline or take the appropriate steps to withdraw.
- Students must apply for financial aid using the Free Application for Federal Student Aid (FAFSA).

## Terms and Sessions

There are three terms and seven regularly scheduled sessions in the academic calendar year at UT Arlington. The three terms are Fall, Spring and Summer.

A session called Dynamic Dated Session is associated with all three terms. This session has classes scheduled outside of the normally scheduled time periods and is used for special programs known as Academic Partnership programs. Only students associated with these programs can enroll in the Dynamic Dated Sessions.

### Fall Term

The Fall term has one session, called the regular session. It typically begins the fourth week in August and ends the second week in December. Final grades and academic standing are posted in the third week of December.

Commencement exercises for the Fall term are typically held the second week of December, following the conclusion of the term.

### Spring Term

The Spring term has two sessions. The first session is Intersession Winter (ISW). It begins the week after the Fall term ends and concludes the week before the start of the Spring term regular session. Final grades are posted the following week; however, academic standing is not run until the end of the Spring term.

The Spring term regular session typically begins the Tuesday after the Martin Luther King Memorial Holiday and ends the second week in May. Final grades and academic standing are posted in the third week of May.

Commencement exercises for the Spring term sessions are typically held the second week of May, following the conclusion of the Spring regular session.

### Summer Term

The Summer term has four sessions. The first session is Intersession Summer (ISS). It typically begins the week after the Spring regular session concludes and ends the Friday before the Memorial Day Holiday weekend.

The second session of the Summer term is the First 5-Week Session (5W1). It typically begins the first week of June and ends before the Fourth of July.

The third session of the Summer term is the Summer 11-Week Session (11W). It begins concurrently with the First 5-Week Session and typically ends the second week of August.

The fourth session of the Summer term is the Second 5-Week Session (5W2). It typically begins after the Fourth of July and ends concurrently with the Summer 11-Week Session in the second week of August.

Final grades are posted following each of the sessions. Academic standing for grades earned in all summer sessions is run in the third week of August.

Commencement exercises for all Summer term sessions are typically held the second week of August, following the conclusion of the Summer term.

## Full-Time and Part-Time Enrollment

All full-time status calculations are done at the term level.

### Undergraduate<sup>1</sup>

Credit Hours Required for Half-Time or Full-Time Status	Less Than Half-Time	Half-Time	Full-Time
Long Semester (fall or spring)	5 or less	6	12
A 5-Week Session	5 or less	6	N/A
11-Week Session	5 or less	6	12
Intersession winter or summer <sup>3</sup>	3	N/A	N/A

## Graduate<sup>2</sup>

Credit Hours Required for Half-Time or Full-Time Status	Less Than Half-Time	Half-Time	Full-Time
Long Semester (fall or spring)	4 or less	5	9
A 5-Week Session	4 or less	5	9
11-Week Session	4 or less	5	9
Intersession winter or summer <sup>3</sup>	3	N/A	N/A

- For undergraduate students, 12 semester credit hours equal full-time status for any term and can be achieved by adding the total hours for each session within a term.
- For graduate students, 9 semester credit hours equal full-time status for any term and can be achieved by adding the total hours for each session within a term.
- For all students, Winter intersession hours are combined with the Spring session, and Summer intersession hours are combined with any of summer sessions I, II and 11 weeks.

## Class Meeting Times

On-campus class meeting times are typically scheduled Monday through Friday, 8 a.m. to 10 p.m. Class meeting times can vary; consult the Schedule of Classes ([https://sis-portal-prod.uta.edu/psp/AEPPRD/EMPLOYEE/PSFT\\_ACS/c/COMMUNITY\\_ACCESS.CLASS\\_SEARCH.GBL?pslnkid=UTA\\_PS\\_CLASS\\_SCHEDULE\\_LINK&PORTALPARAM\\_PTCNAV=UTA\\_PS\\_CLASS\\_SCHEDULE&EOPP.SCNODE=EMPL&EOPP.SCPortal=EMPLOYEE%20and%20Classes&EOPP.SCPTcname=&FolderPath=PORTAL\\_ROOT\\_OBJECT.PORTAL\\_BASE\\_DATA.CO\\_NAVIGATION\\_COLLECTIONS.ADMN\\_CATALOGS\\_AND](https://sis-portal-prod.uta.edu/psp/AEPPRD/EMPLOYEE/PSFT_ACS/c/COMMUNITY_ACCESS.CLASS_SEARCH.GBL?pslnkid=UTA_PS_CLASS_SCHEDULE_LINK&PORTALPARAM_PTCNAV=UTA_PS_CLASS_SCHEDULE&EOPP.SCNODE=EMPL&EOPP.SCPortal=EMPLOYEE%20and%20Classes&EOPP.SCPTcname=&FolderPath=PORTAL_ROOT_OBJECT.PORTAL_BASE_DATA.CO_NAVIGATION_COLLECTIONS.ADMN_CATALOGS_AND)) for specific days and times.

## Course Descriptions & Syllabi

Course information, including the course syllabus when available, can be found online at Instructor and Course Syllabus Information (<http://www.uta.edu/uta/academics/courses/syllabus.php>).

## Enrollment

To attend UT Arlington in any given term, a student must accept financial responsibility for any enrollment transactions, register and pay tuition and fees. Registration at UT Arlington is done online using MyMav (<http://www.uta.edu/mymav>). The current term's Registration Timetable gives the exact dates and times for registration. The Schedule of Classes (<https://tinyurl.com/k5ow2ds>) is updated for the Spring term in mid-October, and in mid-March for the Summer and Fall terms. Students log in to MyMav (<http://www.uta.edu/mymav>) to register.

For payment of tuition and fees information, refer to Tuition, Fees, and Charges (p. 86) section of this catalog for registration billing and payment.

Students who are no longer eligible for enrollment at the start of the term will have their registration canceled and their tuition and fees refunded.

## Late Registration

Late registration is held each term for students who are unable to register during the regular registration period. Late registration at UT Arlington is done online using MyMav (<http://www.uta.edu/mymav>). Late registration fees are assessed for enrollment transactions made during the late registration period.

## Scheduling Changes

Students can elect to make changes to their course schedules on MyMav (<http://www.uta.edu/mymav>).

- Adding Classes:** Students can add classes through self-service in MyMav or in person in the major academic department (or the University Advising Center for undeclared students) from the beginning of the registration period through the late registration period. A student will not be permitted to add a course for credit or make a section change after the last day of late registration.
- Dropping Classes:** Students can drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. Students dropping their last class on or after the first day of classes must meet with the academic advisor in the department of their major to make the last class drop (withdrawal). After the late registration period, students

must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. In a long (fall or spring) term, this point is through the tenth week of classes.

- No grade or withdrawal is posted if a student drops a course before 5:00 pm Central Standard Time on the Census Date of that term.
- For additional information on withdrawing from classes, see the Withdrawals section on the Undergraduate and Graduate tabs.
- Although unusual, a section may be cancelled due to low enrollment or staffing considerations. The department that cancels the class should notify any students already enrolled and assist with alternate arrangements. At the beginning of the term, students should always check for changes regarding class meeting times or classroom locations.

## Bacterial Meningitis Documentation Requirement

As of January 1, 2012, Texas college students new to the institution or returning after an absence of at least one fall or spring term who are under 22 years old must submit documentation of immunization against bacterial meningitis. Under the law, students must have received the vaccine *within the past five years and no less than 10 days before the start of the first session* of enrollment at UT Arlington. Limited exemptions are specified in the state law (<http://www.thecb.state.tx.us/index.cfm?objectid=A641CD0D-E56A-A36A-1BCB39FF80781178>). Students who fail to meet this requirement will be dropped from courses.

Details for submitting proof of vaccination are emailed to students' UT Arlington email address.

Students planning to move into campus housing (<http://www.uta.edu/housing/applications/meningitis.php>) must comply with the meningitis vaccination requirements at least 10 days from a housing contract offer or 10 days before move in, whichever is earliest. Students will not be allowed to move in to campus housing without submitting timely proof that they have complied with the meningitis vaccination law.

For additional information regarding UT Arlington's administration of the Texas meningitis vaccination law, please visit [www.uta.edu/meningitis](http://www.uta.edu/meningitis).

## Ineligibility to Register

Students who are no longer eligible for enrollment at the start of the term will have their registration canceled and their tuition and fees refunded. Additionally, violation of several academic policies can result in a student's inability to register without permission or action.

## Undergraduate Registration

### Eligibility to Enroll

An undergraduate student must maintain a minimum cumulative grade point average (GPA) at UT Arlington to remain academically eligible to register for the subsequent term or session. The minimum average required varies with the total number of college credit hours attempted at UT Arlington and is shown in the Table of Academic Standards, in the Grades and Grading Policies section of the Catalog.

## Texas Success Initiative (TSI)

Undergraduate students who have not fulfilled testing or exemption requirements of the Texas Success Initiative (TSI) will be barred from registering in MyMav. See requirements listed at Texas Success Initiative. Some students may be exempt from the TSI. For a list of exemptions, go to Texas Success Initiative Exemptions (<http://www.uta.edu/universitycollege/prospective/TSI/TSI-exemptions>).

Before students can take the TSI Assessment, they must complete a Pre-Assessment Activity in order to prepare for the exam, as a State of Texas requirement. To take UT Arlington's Pre-Assessment Activity go to [www.uta.edu/universitycollege/TSI-Pre-Assessment](http://www.uta.edu/universitycollege/TSI-Pre-Assessment). Additional information on TSI testing is available through the Testing Services office.

For additional information regarding TSI status, students can contact the University Advising Center at 817-272-3140 or [uac.uta.edu](http://uac.uta.edu) or email questions to [tsi@uta.edu](mailto:tsi@uta.edu).

## Maximum Course Load

Without permission from the appropriate academic dean, an undergraduate student may not register in a fall or spring term for more than 19 hours at UT Arlington or concurrently at UT Arlington and another institution. Any student who violates this regulation may be required to drop hours to comply with the 19-hour rule or may be denied transfer credit for those hours in excess of 19 taken at another institution. A student may register for a maximum of three hours during the Winter Intersession and Summer Intersession terms. A student who registers in the summer sessions for more than 14 hours without permission from the academic dean may be required to drop sufficient hours to comply with the 14-hour limit. The table below indicates the combinations of course work for which an undergraduate student may enroll in summer sessions, and stay within the maximum load of 14 hours.

## Schedule Changes (Adds, Drops and Swaps)

Adds, drops and swaps (adding and dropping a class concurrently) may be made through late registration by an undergraduate either in MyMav (<http://www.uta.edu/mymav>) or in person by contacting their major academic department (or the University Advising Center for undeclared or freshman



students). Drops may continue in person until a point in time two-thirds of the way through session or term. Students dropping their last class on or after the first day of classes must meet with the academic advisor in the department of their major to make the last class drop (withdrawal).

- A student may not add a course after the end of the late registration period.
- No grade is posted if a student drops a course before 5:00 p.m. on the Census Date of that term.
- Students who enrolled in a Texas public institution of higher education as a first-time freshman in fall 2007 or later are permitted to drop no more than six courses during their entire undergraduate career. This limit includes all transfer work taken at a Texas institution of higher education and to second baccalaureate degrees. This statute was enacted by the State of Texas in spring 2007 (Texas Education Code 51.907, and Texas Administrative Code §4.10). Any course that a student drops is counted toward the six-course limit if: "(1) the student was able to drop the course without receiving a grade or incurring an academic penalty; (2) the student's transcript indicates or will indicate that the student was enrolled in the course; and (3) the student is not dropping the course in order to withdraw from the institution." A UT Arlington student affected by this statute who has attended or plans to attend another institution of higher education should become familiar with that institution's policies on dropping courses. This statute applies across all Texas public institutions, but procedures for implementation may vary between institutions. Students affected by this policy may request an exemption to the policy by submitting a "Petition for Exemption to 6-Course Drop Policy" form. Students who enroll in coursework at more than one institution of higher education may not exceed the six dropped course limit based on all undergraduate enrollment in Texas public colleges and universities.
- A student may drop a course with a grade of "W" until the two-thirds point of the term, session, or course offering period. Students dropping their last class on or after the first day of classes must meet with the academic advisor in the department of their major to make the last class drop (withdrawal).
- A student may drop a course after the two-thirds point of the term, session, or course offering period (Last Drop Date) only with the approval of the dean of his/her college or school.

Exceptions to this policy may be entertained because of extraordinary non-academic circumstances. Under such circumstances, approval must be received from the instructor of the course, the department chair of the student's major, and the dean. Additional information ([http://www.uta.edu/aa/recordsandregistration/content/student\\_services/add\\_drop\\_procedures.aspx#exceptionForm](http://www.uta.edu/aa/recordsandregistration/content/student_services/add_drop_procedures.aspx#exceptionForm)).

Students wanting to drop all courses for which they are enrolled must withdraw from the University for that term. Students dropping their last class on or after the first day of classes must meet with the academic advisor in the department of their major to make the last class drop. Students should follow the procedure in the Withdrawal section below.

## Withdrawals

A student may withdraw from all courses for the current session/term from the first class day until a point two-thirds of the way through the session or term by contacting their major academic department (or the University Advising Center for undeclared students) for appropriate advisement and removal from the coursework. A student who elects to withdraw on the first day of classes or thereafter will incur financial responsibility to the University as regulated by Student Financial Services.

A student may withdraw from the University with grades of "W" until the two-thirds point in the term. A student may be removed from a course after that point only upon approval of the academic dean in the student's college or school.

Students who have enrolled in a Texas public institution of higher education as a first-time freshman in fall 2007 or later are permitted to drop no more than six courses during their entire undergraduate career. When an undergraduate student withdraws from all courses during the term, the withdrawals will not count toward the student's six-drop limit.

## Withdrawal as a Result of Military Service

Students who withdraw from the University to perform active military service (not including Texas National Guard training exercises) will not have to reapply for admission, but will be readmitted upon a request made to the Office of Admissions, Records and Registration within one year of being released from active military service. Students who withdraw as a result of military service may choose to receive a full refund of tuition and fees, an incomplete (if eligible) or final grade at institution discretion. Typically, a final grade is awarded when the student has satisfactorily completed a substantial amount of coursework and has demonstrated sufficient mastery of the course material. (Texas Education Code, Section 54.006.)

## Six Course Drop Limit

Students who have enrolled in a Texas public institution of higher education as a first-time freshman in fall 2007 or later are permitted to drop no more than six courses during their entire undergraduate career. This limit includes all transfer work taken at a Texas institution of higher education and to second baccalaureate degrees. This statute was enacted by the State of Texas in spring 2007 (Texas Education Code 51.907). Any course that a student drops after Census Day is counted toward the six-course limit if "(1) the student was able to drop the course without receiving a grade or incurring an academic penalty; (2) the student's transcript indicates or will indicate that the student was enrolled in the course; and (3) the student is not dropping the course in order to withdraw from the institution."

If an undergraduate student withdraws from all courses during the term, the withdrawals will not count toward the student's six-drop limit.

The limit on dropped courses is subject to the following conditions:

- Students dropping a course for academic reasons will receive a “W.” Students withdrawing from the university or who received an approved non-academic exception will receive a course notation of Q on the transcript. Courses denoted with Q do not count toward the 6-course drop limit.
- Dropped developmental courses do not count toward the limit.
- Dropped dual credit courses earned prior to a student graduating from high school do not count toward the limit.
- If an undergraduate student withdraws from all courses during the term, the withdrawals will not count toward the student’s 6-drop limit. During the course of the same term, if some courses are dropped prior to final full withdrawal, all courses will be converted to ‘withdrawn’ status, regardless of the timing. (Example: Student A is enrolled in four courses and drops two and completes two. The two courses will be counted against the 6-drop limit. Student B is enrolled in four courses and drops two courses following Census Date. These two drops are counted against the 6-drop limit. Prior to the last drop date, Student B withdraws from school (drops final two courses). The final two courses are coded as “withdrawn” and do not count against the 6-drop limit. The two courses previously counted as “dropped” are reclassified as “withdrawn” and the student’s drop limit is readjusted). The University of Texas at Arlington 2013-2014 Undergraduate Catalog
- This drop policy overrides the limit of 15 hours W previously in place at UT Arlington (<http://www.uta.edu/catalog/2006/fall/index.html>, 2006 Undergraduate Catalog, see Schedule Changes, Item C). Students who entered UT Arlington between Fall 2006 and Summer 2007 and were subject to the 15-hour W policy will no longer be held to the limits of that institutional policy.
- Students should be aware that dropping a course or courses may result in reducing them to part-time status which can affect financial aid, scholarships, and insurance coverage.

## Change of Major Program of Study

Undergraduate students who wish to change their major program of study must consult with the proposed major department to process the program change.

An academic unit may require students to change their major program of study if the students do not meet the academic standards or the professional conduct standards of the unit. For information concerning specific standards in a program of study, students should contact the office of the appropriate academic dean's office

## Auditing

Final arrangements to audit an undergraduate course may be made during the late registration period only, although the permission process can begin prior. The required form, obtained from the Office of Admissions, Records and Registration, must be completed and taken to the instructor for approval. This form can be accepted and processed by the Office of Admissions, Records and Registration only during the late registration period only, and approval is based in part on space availability. After obtaining the instructor’s approval and approval from the Office of Admissions, Records and Registration, the applicant pays a fee at Bursar Services of \$20 per course if enrolled for course work at UT Arlington or \$100 per course if not enrolled for course work in residence at UT Arlington. Persons 65 years of age or older may audit courses without paying an audit fee.

The auditor has the privilege of hearing and observing only; no University credit is granted for auditing. An academic department or the Office of Admissions, Records and Registration may place restrictions on the privilege of auditing or may deny permission to audit certain courses. Activity classes, labs, etc., are generally not auditable.

Students auditing a course are required to comply with Texas state legislation that mandates those who have not been continuously enrolled at UT Arlington must have received the bacterial meningitis vaccine ([http://www.uta.edu/aao/recordsandregistration/content/student\\_services/meningitis\\_requirement.aspx](http://www.uta.edu/aao/recordsandregistration/content/student_services/meningitis_requirement.aspx)) within the past five years.

## Cooperative Programs Between University of Texas System Components

A student concurrently enrolling at two or more University of Texas System components may register and pay tuition and fees for all courses through the student’s home institution. Detailed procedures may be obtained from the registrar or records office of the student’s home institution. At UT Arlington, this is the Office of Admissions, Records and Registration. The concurrent enrollment agreement and waiver of specified fees applies only to students following the concurrent enrollment procedures specified by the home institution.

The charges for the following will be assessed and collected at the home institution for the other institution(s):

- Tuition at an appropriate rate
- Applicable laboratory fees and special course charges
- General Use Fee at the appropriate rate
- Any other fees that are required at the host institution that are not charged at the home institution

Student services at the second institution will be made available to concurrently enrolled students paying the appropriate student service fees at the second institution.

Some institutions have a reciprocal agreement for honoring parking permits. Details may be obtained from the police departments on each campus.

Concurrently enrolled students should report any problems concerning registration, payment of fees or other matters related to concurrent enrollment procedures to the registrar or records office of the home institution.

Concurrent students wishing to add or drop courses must do so in compliance with the host institution's policy. On or before the host institution's Census Date, schedule changes may be done through the home institution's records office. After the Census Date, drops must be done at the host institution.

All paperwork must be turned in two weeks prior to the host institution's first class day.

## Students Receiving Financial Aid

To qualify for most forms of financial aid administered through the Office of Financial Aid, students must enroll in and complete a certain number of credit hours each term to meet the Satisfactory Academic Progress requirements to receive future financial aid. Details are available on the Financial Aid website (<http://www.uta.edu/aao/fao>).

## Other Public Institutions of Higher Education

When students register at more than one public institution of higher education in Texas, they shall pay the full tuition charges to the first institution at which they are registered. A student who is first registered at another institution must present a copy of the fee receipt from that institution to Bursar Services when registering at UT Arlington. Any reduction in tuition per the following guidelines will be refunded to the student approximately one month after the beginning of the term.

- If the minimum tuition at the first institution is the same as or greater than the UT Arlington minimum, the amount charged for tuition will be the UT Arlington hourly rate.
- If the minimum tuition at the first institution is lower than the UT Arlington minimum, the amount charged for tuition will include the difference in the minimum charges. In no case will the amount charged be less than the UT Arlington hourly rate.
- All other applicable fees will be charged.

## Graduate Registration

### Eligibility to Enroll

A graduate student must maintain a minimum cumulative grade point average (GPA) of at least 3.0 at UT Arlington to remain academically eligible to register for the subsequent term or session.

### Continuous Enrollment Policy

Graduate students must enroll in at least one credit hour of work related to their degree each long semester (Fall and Spring) in order to remain classified as an enrolled student. Some programs may specify a higher minimum enrollment requirement in their Handbook for Graduate Students or other published documents. Enrollment in Summer Sessions is not required, and students who do not enroll in summer will not be considered in violation of the continuous enrollment policy. However, students are required to register for appropriate courses in every term in which they expect to receive assistance, use the facilities of the university, take diagnostic or comprehensive examinations or defend theses or dissertations. The minimum enrollment requirements for holding graduate assistantships or fellowships or the requirements of the enrollment requirements of other programs, offices and agencies such as the Veterans Administration, U.S. Citizenship and Immigration Services, and federal financial aid and certain loan programs, must be met. It is the student's responsibility to determine the enrollment requirements of such entities. Students who have completed all degree requirements or who will complete degree requirements must submit an application for graduation by the deadline for graduation for the next available graduation date. They must also pay the appropriate graduation fees. Enrolled students who do not complete all requirements by the beginning of the next long semester must enroll to complete remaining requirements.

### Maximum Course Load:

The maximum course load for full-time graduate students is 15 semester hours in a regular term and 12 hours in the summer term. Registration in excess of these limits in exceptional circumstances must be approved by the student's graduate advisor.

### Schedule Changes (Adds, Drops and Swaps)

Graduate students who wish to change a schedule by either dropping or adding a course must first consult with their graduate advisor. Regulations pertaining to adding or dropping courses are described below. A student's registration is not automatically cancelled for non-attendance. A student should either pay fees in full by the designated deadline or take the appropriate steps to withdraw. To avoid financial responsibility to the University, this cancellation of enrollment must be completed as soon as possible, but no later than the day before the first official University class day. Prompt notification also helps to free up class space for other students who are interested in the same classes.

A student wishing to drop all classes will be considered to have withdrawn from the University and must reapply for admission in order to resume studies unless granted a leave of absence. Adds and drops may be made through late registration either on the Web at MyMav or in person through the student's academic department. Drops may occur until a point in time two-thirds of the way through the term. The last day to drop a course is listed in the Academic Calendar (<http://www.uta.edu/uta/acadcal>).

1. A student may not add a course after the end of the late registration period.
2. No grade is posted if a student drops a course before 5:00 p.m. on the Census Date of that term.
3. A student dropping a graduate course after the Census Date but on or before the last drop date may, with the agreement of the instructor, receive a grade of W but only if passing the course with a C or better average. A grade of W will not be given if the student does not have at least a C average. In such instances, the student will receive a grade of F if he or she withdraws from the class.
4. Students dropping their last class on or after the first day of classes must meet with their graduate advisor to make the last class drop (withdraw). A student desiring to drop all courses in which he or she is enrolled is reminded that such action constitutes withdrawal (resignation) from the University unless an approved leave of absence has been obtained.
5. In most cases, a student may not drop a graduate course or withdraw (resign) from the University after the two-thirds point of the course offering period (Last Drop Date). Under extreme circumstances, the academic dean of the student's college or school may consider a petition to withdraw (resign) from the University after the Last Drop Date. Students should use the Petition to Withdraw for this purpose. See the section titled Withdrawal (Resignation) From the University for additional information concerning withdrawal.

## Withdrawals

A student who wishes to withdraw (resign) voluntarily from the University may do so by withdrawing from **all** graduate and undergraduate classes prior to the last day to drop date, a point of time corresponding to two-thirds of the duration of the term. The last day to drop a course is listed in the Academic Calendar (<http://www.uta.edu/uta/acadcal>). After this deadline has passed, a graduate student or undergraduate student enrolled in a graduate course is not permitted to withdraw or to selectively drop courses. In exceptional cases, however, a graduate student may request to withdraw after the deadline by obtaining a Petition to Withdraw form (<http://grad.pci.uta.edu/faculty/resources/advisors/current/#withdraw>) and submitting it to the Dean of the college or school in which they are enrolled. If the petition is not approved, the student remains responsible for all coursework requirements. Therefore, students should not discontinue class attendance or course assignments unless they have been notified in writing that their academic dean has approved the Petition to Withdraw.

## Withdrawal as a Result of Military Service

Students who withdraw as a result of military service may choose to receive a full refund of tuition and fees, an incomplete (if eligible) or final grade at institution discretion. Typically, a final grade is awarded when the student has satisfactorily completed a substantial amount of coursework and has demonstrated sufficient mastery of the course material (see Texas Education Code, Section 54.006).

## Leave of Absence Policy

A student may apply for a Leave of Absence in order to respond to exceptional circumstances that will prevent him or her from meeting the continuous enrollment requirement. A Leave of Absence will be granted only for good cause, such as health-related issues, major financial or employment issues, significant family concerns such as pregnancy, childbirth, child care or elder care or other major personal circumstances that interfere with a student's ability to undertake graduate study. Leaves are granted for up to two long semesters. Students returning from leave as scheduled will be automatically readmitted and will not be required to submit an application or pay an admission fee. Students who do not return at the end of their approved Leave of Absence must reapply for admission by the published application deadlines, pay all relevant evaluation fees, and are not assured of readmission to the University. During the time of the leave of absence, the student may not use University facilities or resources, receive an assistantship or fellowship, continue academic work with faculty, take a diagnostic or comprehensive examination, or defend a thesis or a dissertation. Time taken on an approved Leave of Absence will not count against degree completion time limits.

An approved Leave of Absence does not exempt students from the enrollment requirements of other programs, offices, and agencies such as the Veterans Administration, Immigration and Naturalization Service, and federal financial aid and certain loan programs. It is the student's responsibility to determine what effect a Leave of Absence will have on his or her status with such entities. For example, International students approved for a Leave of Absence must inform the Office of International Education so that requirements of the Immigration and Naturalization Service can be addressed.

A student requesting leave should complete the Leave of Absence Request form and obtain the approval of his or her graduate advisor who will forward the request to the Dean for final review and approval. This form is available online (<http://grad.pci.uta.edu/students/forms>). Requests must be made no later than mid-semester. Leave of Absence will not be granted retroactively for a semester after the mid-semester point has passed. Students who miss this deadline must withdraw from the University and apply for readmission when they wish to return to their studies.

## Change of Graduate Major, Program or Degree Level

Students wishing to change graduate major, program or degree level (master's or doctoral classification) from that in which they are enrolled currently, or in which they were enrolled during their most recent term at UT Arlington, must initiate the change by completing the Request for Change of Graduate Program or Degree Level form. The Request For Change of Graduate Program or Degree Level form can be found online (<http://grad.pci.uta.edu/students/forms>). Students intending to change majors should consult the graduate advisor of the new program regarding program admission and degree requirements before completing this form. Similarly, students wishing to change degree level should submit the request after discussing the matter with the appropriate graduate advisor.

Students wishing to change from one program to a dual degree program must complete the Request for Change of Graduate Program or Degree Level form and mark the box stating Request to Change to Dual Degree Program (master's level only).

Students wishing to change from a dual degree program to single degree program must complete the Request For Change of Graduate Program or Degree Level form and mark the box stating Request to Change to New Graduate Program.

Students wishing to change from Doctoral to Masters degree level for conferral of the masters degree must complete the Request for Change of Graduate Program or Degree Level form and mark the box stating Request to change from PhD to Masters Status (for conferral of the master's degree). Students will remain in masters status until award of the masters degree. Upon award of the masters degree, students will be automatically changed back to doctoral status.

The Dean of the college or school will make the final decision regarding the request(s) for change.

## Auditing Courses

Final arrangements to audit an undergraduate course may be made during the late registration period only, although the permission process can begin prior to it. The required form, obtained from the Office of Admissions, Records and Registration, must be completed and taken to the instructor for approval. This form will only be accepted and processed by the Office of Admissions, Records and Registration during the late registration period and approval is based in part on space availability. After obtaining the instructor's approval and approval from the Office of Admissions, Records and Registration, the applicant will be obliged to pay an audit fee at Bursar Services of \$20 per course if enrolled for course work at UT Arlington or \$100 per course if not enrolled for course work in residence at UT Arlington. Persons 65 years of age or older may audit courses without paying an audit fee.

The auditor has the privilege of hearing and observing only; no University credit is granted for auditing. An academic department or the Office of Admissions, Records and Registration may place restrictions on the privilege of auditing and may deny permission to audit certain courses. Activity classes, labs, etc., are generally not auditable.

Students auditing a course are required to comply with Texas state legislation that mandates those who have not been continuously enrolled at UT Arlington must have received the bacterial meningitis vaccine ([http://www.uta.edu/aao/recordsandregistration/content/student\\_services/meningitis\\_requirement.aspx](http://www.uta.edu/aao/recordsandregistration/content/student_services/meningitis_requirement.aspx)) within the past five years.

Audited courses do not meet enrollment requirements applying to graduate students.

## Funded Student Enrollment Requirements

Students are normally expected to be enrolled as full time students while holding a funded assistantship or associateship. Master's students who must enroll in a six-hour Thesis course or doctoral students who must enroll in a six or nine-hour Dissertation Course or three-hour Dissertation Completion Course because they have not received a passing grade in one of these courses must enroll in one of them and receive a grade of P in their final semester. However, master's students who need fewer hours to complete their degrees may petition for a waiver of full time enrollment as described in the Assistantship/Associateship Policy section (p. 57) of this catalog.

## Teaching and Research Assistants

Students receiving graduate teaching or research assistantships must meet enrollment requirements during the term in which they are supported. Assistants should complete no more than 12 semester hours and no fewer than 9 semester hours per term. They may register for no fewer than 6 semester hours during the summer sessions. See the section titled Graduate Assistantship/Associateship Policy (p. 57) for exceptions to these rules and other requirements that Assistants and Associates must meet.

## Students Receiving Financial Aid

To qualify for most forms of financial aid administered through the Office of Financial Aid, students must enroll in and complete a certain number of credit hours each term to meet the Satisfactory Academic Progress requirements to receive future financial aid. The Satisfactory Academic Progress policy may be found at [www.uta.edu/fao](http://www.uta.edu/fao). Students enrolling in 9 or more credit hours at Census Date must complete at least 6 of these hours whereas students enrolling in 6-8 credits hours at Census Date must complete 4 hours to qualify for financial aid. Students enrolling in 5 hours must complete 3 hours. If a student does not complete the required minimum number of hours, they will lose eligibility for aid in the next academic year of enrollment. Students enrolling in fewer than 5 hours at Census do not meet the enrollment requirements for financial aid. Contact the Office of Financial Aid for additional information and guidance on enrollment and eligibility requirements

## Doctoral Student 99-hr Rule

The "99 hour rule" refers to the implementation of Senate Bill 961, passed by the Seventy-fifth Legislature. Under this policy, graduate students at UT Arlington who are Texas residents and nonresidents who normally would be entitled to pay resident tuition by virtue of residency, work appointments or fellowships who have attempted more than 99 doctoral hours may be subject to the payment of nonresident tuition. This rule does not apply to students enrolled before August 1999. A student who has completed more than 99 hours of doctoral level study at UT Arlington will not be obligated to pay non-resident tuition unless they have also completed a total of 14 long semesters of master's and/or doctoral study. Programmatic or individual exceptions for students exceeding the 99-hour and 14 long semester limit may be considered.

## International Students

International students must be enrolled for a minimum of 9 semester hours during each regular semester (Fall and Spring). International students should refer to the International Student section of this catalog for additional registration information.

## Course Designation System

Courses at UT Arlington are designated by a combination of letters and numbers. The letters indicate the department, or the area within a department, that offers the course. The numbers furnish information such as level, credit and hours of theory or practice. A complete list of course abbreviations is outlined below.

*Examples demonstrating UT Arlington's Course Designation System:*

Undergraduate example: CHEM 1301 (3-0) 3 hours credit

- "CHEM" indicates that the course is offered by the Chemistry Department.
- The first digit (1 in the example above) denotes the level of the course: 1 and 2 indicate lower division (freshman and sophomore) courses; 3 and 4 indicate upper division (junior and senior) courses; and 5 and 6 indicate graduate courses.
- The second digit (3) denotes the semester hour credit the student is attempting to earn by taking the course.
- The third and fourth digits (0 and 1) distinguish the individual course. Course numbers 90 through 99 indicate individual or small group instruction.
- The first figure in parentheses (3) indicates the clock hours per week in the long (spring and fall) terms devoted to theory or lecture. Theory includes recitations and lectures.
- The second figure in parentheses (0) indicates the clock hours per week in the long (spring and fall) terms devoted to practice. Practice includes work done in the laboratory, shop, drawing room or field.
- The final figure is the credit value of the course. The unit of credit is the "semester credit hour," which involves one hour of theory and/or from two to four hours of practice per week for a 16-week term.

Graduate example: GEOL 5313 (2-3) 3 hours credit

1. "GEOL" indicates that the course is offered by the Geology Department
2. The first digit (5) in the above example denotes the level of the course. Graduate courses are designated 5 or 6.
3. The second digit (3) denotes the semester hour credit the student is attempting to earn by taking the course.
4. The third and fourth digits (1 and 3) distinguish the individual course.
5. The first figure in parentheses (2) indicates the clock hours per week in the long (spring and fall) terms devoted to theory or lecture. Theory includes recitations and lectures.
6. The second figure in parentheses (3) indicates the clock hours per week in the long (spring and fall) terms devoted to practice. Practice includes work done in the laboratory, shop, drawing room or field.

List of Course Abbreviations (p. 719)

## Student Conduct & Academic Integrity

All students are expected to obey the civil and penal statutes of the State of Texas and the United States, the Regents' Rules and Regulations of The University of Texas System, the rules and regulations of the University, and the orders or instructions issued by an administrative official of the University or The University of Texas System in the course of his/her duties and to observe standards of conduct that are compatible with the University's functions as an educational institution. Any student who engages in conduct that is prohibited by the Regents' Rules and Regulations or the rules of the University, or by federal, state, local law or regulation is subject to disciplinary action regardless of whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct. Individuals who are not currently enrolled at UT Arlington remain subject to the disciplinary process for conduct that occurred during any period of enrollment and for statements, acts, or omissions related to application for enrollment or the award of a degree.

Information about the rules of conduct and due process procedures can be found in the UT Arlington Handbook of Operations Procedures (<https://www.uta.edu/policy/hop>).

## University Honor Code

All students are expected to live by the University of Texas at Arlington's honor code:

*I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or that I contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

It is the policy of The University of Texas at Arlington to uphold and support standards of personal honesty and integrity for all students consistent with the goals of a community of scholars and students seeking knowledge and responsibility. Furthermore, it is the policy of the University to enforce these standards through fair and objective procedures governing instances of alleged dishonesty, cheating and other academic/non-academic misconduct. Students found responsible for dishonesty in their academic pursuits are subject to sanctions that may range from disciplinary probation, suspension and expulsion from the University.

## Student Travel Policy

Before any student organization travels, it is beneficial to come to the Office of Student Governance and Organizations to receive information about liability and to consider using release forms that are available (Texas Education Code, Section 51.950).

However, if the trip is funded by the University (including Program Assistance Funds), is more than 25 miles from the University, and the vehicle is owned or leased by the University, or if attendance is required by a student organization, then the organization must submit the Student/Group Travel Form and the University Request for Travel Authorization at least 10 days prior to the date of travel. All forms and additional information are available in the Office of Student Governance and Organizations. For additional information, see the UT Arlington Handbook of Operating Procedures, Part II, Subchapter 6-600.

## Academic Integrity

### What Constitutes Scholastic Dishonesty?

Scholastic Dishonesty includes, but is not limited to, cheating, plagiarism, and collusion on an examination or an assignment being offered for credit. Each student is accountable for work submitted for credit, including group projects.

#### Cheating

- Copying another's test or assignment.
- Communication with another during an exam or assignment (i.e., written, oral or otherwise).
- Giving or seeking aid from another when not permitted by the instructor.
- Possessing or using unauthorized materials during the test.
- Buying, using, stealing, transporting, or soliciting a test, draft of a test, or answer key.

#### Plagiarism

- Using someone else's work in your assignment without appropriate acknowledgement.
- Making slight variations in the language and then failing to give credit to the source.

#### Collusion

- Without authorization, collaborating with another when preparing an assignment.

In accordance with the Rules and Regulations of the Board of Regents of The University of Texas System (Rule 50101 (<http://www.utsystem.edu/bor/rules/50000Series/50101.pdf>)), institutional procedures regarding allegations of scholastic dishonesty are outlined in Part Two, Chapter 2, of the UT Arlington Handbook of Operating Procedures (<https://www.uta.edu/policy/hop>). Students found responsible for dishonesty in their academic pursuits are subject to penalties that may range from disciplinary probation to suspension or expulsion from the University.

Any student who registers to attend classes at UT Arlington and is ineligible to attend for disciplinary reasons will be dropped automatically from the rolls of the University. This information may be obtained by accessing the Office of Student Conduct website at <http://www.uta.edu/conduct>.

## Responsibility for Academic Misconduct

There are two ways in which students are held responsible for their academic behavior. First, students are responsible for their own actions. Those that violate the principles of academic integrity, scholastic honesty, or engage in activities prohibited by the Code of Student Conduct must assume responsibility for their behavior and accept the consequences. You can assume responsibility in two ways. First, if you choose to take the risk associated with scholastic dishonesty and any other violation of the Code of Student Conduct and Discipline, you must assume responsibility for your behavior and accept the consequences. In an academic community, the standards for integrity are high. Second, students who become aware of if you are aware of scholastic dishonesty and any other conduct violations on the part of others, you have the responsibility to report it to the relevant professor or the Office of Student Conduct. The decision to do so is another moral dilemma to be faced as you define who you are.

## Student Conduct

### Office of Student Conduct

All students are expected to obey the civil and penal statutes of the State of Texas and the United States, the Regents' Rules and Regulations of The University of Texas System, the rules and regulations of the University, and the orders or instructions issued by an administrative official of the University or The University of Texas System in the course of his/her duties and to observe standards of conduct that are compatible with the University's functions as an educational institution. Any student who engages in conduct that is prohibited by the rules of the University, or by federal, state, local law or regulation is subject to disciplinary action regardless of whether such conduct takes place on or off campus or whether civil or criminal penalties are also imposed for such conduct. Individuals who are not currently enrolled at a component institution of The University of Texas System remain subject to the disciplinary process for conduct that occurred during any period of enrollment and for statements, acts, or omissions related to application for enrollment or the award of a degree.

Information about the rules of conduct and due process procedures can be found on these Web sites:

- UT Arlington Handbook of Operations Procedures (<https://www.uta.edu/policy/hop>)

### Unauthorized Distribution of Copyrighted Material

Unauthorized distribution of copyrighted material may subject students to disciplinary action and civil and criminal penalties. Information concerning the legal consequences of such violations may be found in *Copyright Law of the United States of America and Related Laws Contained in Title 17 of the United States Code*, Circular 92 (<http://www.copyright.gov/title17/92chap5.html#504>). The University's policies on copyrighted materials (ADM 5-200 and 5-300) can be found at <http://www.uta.edu/policy/hop>.

### Hazing

The 74th Texas Legislature modified the law concerning hazing which became effective May 30, 1995. Under the law, individuals or organizations engaging in hazing could be subject to fines and charged with criminal offenses (Section 51.936, Texas Education Code).

A person violates the law if he or she:

- engages in hazing; or
- solicits, encourages, directs, aids or attempts to aid another engaging in hazing; or
- recklessly permits hazing to occur; or
- has firsthand knowledge of the planning of a specific hazing incident involving a student in an educational institution, or
- has firsthand knowledge that a specific hazing incident has occurred, and knowingly fails to report that knowledge in writing to the Office of Student Conduct or other appropriate official of the institution.

An organization violates the law if

- the organization condones or encourages hazing or
- if an officer or any combination of members, pledges, or
- alumni of the organization commits or assists in the commission of hazing.

Thus, according to the law, a person can commit a hazing offense not only by engaging in a hazing activity, but also by soliciting, directing, encouraging, aiding or attempting to aid another in hazing; intentionally, knowingly or recklessly allowing hazing to occur; or by failing to report first hand information that a hazing incident is planned or has occurred in writing to the Office of Student Conduct. The fact that a person consented to or acquiesced in a hazing activity is not a defense to prosecution for hazing under this law.

In an effort to encourage reporting of hazing incidents, the law grants immunity from civil or criminal liability to any person who reports a specific hazing event to the Office of Student Conduct; and immunizes that person from participation in any judicial proceeding resulting from that report. The penalty for failure to report is a fine of up to \$2,000, up to 180 days in jail, or both. Penalties for other hazing offenses vary according to the severity of the injury, which results and range from \$500 to \$10,000 in fines and up to two years confinement.

The law defines hazing as any intentional, knowing or reckless act, occurring on or off the campus of an educational institution, by one person alone or acting with others, directed against a student, that endangers the mental or physical health or safety of a student for the purpose of pledging, being initiated into, affiliating with, holding office in, or maintaining membership in any organization whose members are or include students at an educational institution. Hazing includes but is not limited to:

- Any type of physical brutality, such as whipping, beating, striking, branding, electronic shocking, placing a harmful substance on the body, or similar activity;
- Any type of physical activity, such as sleep deprivation, exposure to the elements, confinement in small space, calisthenics, or other activity that subjects the student to an unreasonable risk or harm or that adversely affects the mental or physical health or safety of the student;
- Any activity involving consumption of food, liquid, alcoholic beverage, liquor, drug, or other substance which subjects the student to an unreasonable risk of harm or which adversely affects the mental or physical health of the student;



- Any activity that intimidates or threatens the student with ostracism, that subjects the student to extreme mental stress, shame, or humiliation, or that adversely affects the mental health or dignity of the student or discourages the student from entering or remaining registered in an educational institution, or that may reasonably be expected to cause a student to leave the organization or the institution rather than submit to acts described in this subsection;
- Any activity that induces, causes, or requires the students to perform a duty or tasks, which involved a violation of the Penal Code.

The University of Texas at Arlington regards hazing as a serious issue and is committed to the removal of any such practice. The Office of Student Conduct is prepared to assist any organization with a review of its activities to ensure they do not violate the hazing law.

## Sexual Harassment and Sexual Misconduct

The safety and security of all students is of the utmost importance. Instances of sexual harassment and sexual misconduct impact the entire community and disrupt the academic progress of all involved. The University of Texas at Arlington's Handbook of Operating Procedures, Procedure 14-1 states the following:

### Definition of Sexual Harassment:

Sexual harassment is defined by the Equal Employment Opportunity Commission (EEOC) and the courts to be any unwelcome sexual advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature, when:

- submission to such conduct is made either explicitly or implicitly a term or condition of employment (or a student's status in a course, program, or activity);
- submission to, or rejection of such conduct by an employee is used as a basis for employment decisions affecting the individual. In the case of a student, it is used as a basis for academic or decisions affecting a student; or,
- such conduct has the purpose or effect of unreasonably interfering with the individual's employment (or the student's educational experience) or creating an intimidating, hostile, or offensive academic environment.

### Definition of Sexual Misconduct:

Sexual misconduct includes sexual advances, requests for sexual favors, or verbal or physical conduct of a sexual nature directed towards another individual that does not rise to the level of sexual harassment but is unprofessional and inappropriate for the workplace or classroom. Examples of behavior that could be considered sexual harassment or sexual misconduct includes, but is **not limited** to, the following:

- physical contact of a sexual nature including touching, patting, hugging, or brushing against a person's body;
- explicit or implicit propositions of offers to engage in sexual activity;
- comments of a sexual nature including sexually explicit statement, questions, jokes or anecdotes, remarks of a sexual nature about a person's clothing or body, remarks about sexual activity, speculation about sexual experience;
- exposure to sexually oriented graffiti, pictures, posters or materials;
- physical interference with or restriction to an individual's movements.

If a person believes they have been the subject of sexual harassment or sexual misconduct, it should be reported immediately to the Equal Opportunity Services Director, the University Police Department and/or the Office of Student Conduct.

The University offers various educational opportunities, campus resources and avenues for support to community members. More information can be found at the following links:

- University of Texas at Arlington's Handbook of Operating Procedures <https://www.uta.edu/policy/hop>
- Relationship, Violence and Sexual Assault Prevention <http://www.uta.edu/rvsp>
- Equal Opportunity Services <http://www.uta.edu/hr/eos>
- *Safe & Sound in Maverick Country* <http://www.uta.edu/safety>

## Campus Solicitations

"Solicitation," as defined in Rule 80103, Section 3 of the Rules and Regulations of the Board of Regents of The University of Texas System, means the sale, lease, rental or offer for sale, lease or rental of any property, product, merchandise, publication or service, whether for immediate or future delivery; an oral statement or the distribution or display of printed material, merchandise or products that is designed to encourage the purchase, use or rental of any property, product, merchandise, publication or service; the oral or written appeal or request to support or join an organization other than a registered student, faculty or staff organization; the receipt of or request for any gift or contribution; or the request to support or oppose or to vote for or against a candidate, issue or proposition appearing on the ballot at any election held pursuant to state or federal law or local ordinances. All solicitations on the UT Arlington campus must conform to the Regents' Rules and Regulations, copies of which are available in the offices of the president, vice presidents, academic deans, numerous other administrative offices and the Central Library. The Regents' Rules and Regulations also may be accessed at the following Web site: [www.utsystem.edu/BOR/rules.htm](http://www.utsystem.edu/BOR/rules.htm) (<http://www.utsystem.edu/BOR/rules.htm>).

## Use of Campus Facilities

The property, buildings or facilities owned or controlled by The University of Texas at Arlington are not open for assembly, speech or other activities as are the public streets, sidewalks and parks. No person, organization, group, association or corporation may use property, buildings or facilities owned or controlled by UT Arlington for any purpose other than in the course of the regular programs or activities related to the University's role and mission unless authorized by the Rules and Regulations of the Board of Regents of The University of Texas System. Any authorized use must be conducted in compliance with the provisions of the Regents' Rules and Regulations (Regents' Rules and Regulations, Rule 80101), the approved rules and regulations of UT Arlington, and applicable federal, state and local laws and regulations.

## Photo Identification Cards

Students are strongly urged to retain possession of their photo identification cards at all times. Misuse of University identification is an offense, which subjects students to discipline. Students lending their photo identification cards for fraudulent purposes, as well as those making use of them, will be disciplined. The student photo identification card is the property of the University, and a student may be asked to surrender the card for appropriate reasons.

## Student Responsibilities

While University faculty and staff members give students academic advice and assistance, each student is expected to take responsibility for his or her education and personal development. The student must know and abide by the academic and disciplinary policies given in this catalog, including rules governing quantity of work, the standard of work required to continue in the University, scholastic probation and dismissal, and enforced withdrawal. The student must also know and meet the requirements of his or her degree program, including the University's core education requirements; must enroll in courses appropriate to the program; must meet prerequisites and take courses in the proper sequence to ensure orderly and timely progress; and must seek advice from appropriate University representatives about degree requirements and other University policies when necessary. The student must also know and adhere to all University deadlines.

## Sources of Information on Academics, Deadlines, and Rules

All students are expected to be familiar with the following sources of information. Students will not be relieved of their responsibility to know the policies, deadlines and rules of the University on the grounds that they were not told. If students have questions regarding these materials, it is the University's expectation that the student will consult his/her academic advisor for guidance and resolution.

### Dean's Offices

Students are responsible to the appropriate Dean of a College or School. Undeclared and freshman students are responsible to the Director of the University Advising Center. In each college/school, the office of the assistant or associate dean serves as a central source of information about academic affairs and student services.

### Academic Advising

The student is responsible for seeking academic advice, for enrolling in appropriate courses to insure progress toward a degree, for timely completion of his or her academic program, for familiarity with the appropriate catalog, and for maintaining University standards. Assistance from an academic advisor is not a substitute for the personal responsibility of the student.

### Undergraduate Student Advising

Academic advisors guide students to develop educational plans that are compatible with their strengths, goals, and interests. While monitoring their progress and guiding students to academic success, advisors also help students understand their responsibilities toward academic success. Academic advisors also serve as a key resource and advocate for students regarding the interpretation of University policies and procedures and referral to campus resources that to aid student success (Menezes, 2005; National Academic Advising Association Clearinghouse).

The student should consult the advising office in his or her department or, if he or she is an undeclared or freshman student, the University Advising Center. A student who is in doubt about any University regulation should always seek clarification before proceeding.

Academic advisors may limit the number of hours and overall difficulty of the students' schedules, require students to take specific courses deemed necessary to their education, prevent students from taking unsuitable courses, require students to attend advising sessions, and otherwise restrict enrollment or take other actions approved by the dean of their college/school or the Director of the University Advising Center to assure the student's best academic interest. Failure to enroll in courses as prescribed/contracted by academic advisor without consultation and consent can lead to disciplinary actions through Student Conduct.

Undergraduate advising locations can be found at <http://www.uta.edu/universitycollege/resources/advising.php>.

### Graduate Student Advising

Each graduate program has a graduate advisor. The graduate advisor represents the academic dean and the Committee on Graduate Studies in matters pertaining to advising graduate students in their academic areas. The graduate advisor's functions include clearing of students for registration,

acting upon requests for drops, adds, section changes and special examinations; maintaining graduate student records; and advising graduate students about their degree plans. The name and contact information for graduate advisors can be found at <http://grad.pci.uta.edu/faculty/advisors>.

## **Enrollment & Attendance**

### **Managing Enrollment**

Once a student registers for classes, the University commits resources to provide registered students with instruction by qualified faculty and sufficient class space for the course. Thus, upon registration, a student assumes full responsibility for either paying fees in full by a prescribed due date, or notifying the University in an appropriate time frame that he/she will not attend and take all appropriate action as prescribed to drop a course(s) or officially withdraw from the University. The student must verify his or her schedule of classes each term, must see that necessary corrections are made, and must keep documentation of all schedule changes and other transactions.

### **Class Attendance, Tardiness and Make-Up Work**

The University is not required by an outside entity to take attendance; however, regular attendance at all class meetings is expected. Individual class attendance and tardiness regulations will be established by instructors and published in the course syllabus or announced to their classes. At the discretion of the instructor, such regulations may not include provisions for making up work missed by the student as a consequence of an absence. Special regulations of colleges and schools required by the unique nature of their programs of study may be enacted through the normal approval process. These special regulations may not conflict with University regulations on class attendance and absence. An instructor is under no obligation to accommodate students who are absent or miss work without prior notification and make-up arrangements.

A student's registration is not automatically cancelled for non-attendance. A student should pay fees in full by the designated deadline or take the appropriate steps to withdraw. To avoid financial responsibility to the University, cancellation of enrollment must be completed no later than the day before the first official University class day. Prompt withdrawal notification helps to free up class space for other students.

### **University Authorized Absences**

The Office of the Vice President for Student Affairs provides lists of students who have absences authorized by the University (e.g., participation in athletic events or scholastic activities that are officially sponsored University functions--those are primarily activities that are funded by the University).

The student must notify the instructor in writing at least one week in advance of the start of the excused absence and arrange with the instructor to make up missed work or missed examinations. Instructors will allow students an opportunity to make up the work and examinations within a reasonable time period following the absence or otherwise adjust the grading to ensure that the student is not penalized for the absence, provided that the student has properly notified the instructor. Students who have properly notified the instructor, will not be penalized for the absence. However, the instructor may respond appropriately if the student fails to complete the assignment or examination satisfactorily within the time limit following the absence set by prior arrangement.

If there is disagreement between student and faculty member regarding what constitutes a reasonable amount of time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the Office of the Vice Provost for Academic Analytics and Operations. The decision of the Vice Provost is final.

### **Absence for Military Service**

In accordance with section 51.9111 of Texas Education Code, a student is excused for attending classes or engaging in other required activities, including examinations, if he or she is called to active military service of reasonably brief duration. The student will be allowed a reasonable amount of time after the absence to complete assignments and take examinations.

### **Withdrawal as a Result of Military Service**

A student who must withdraw from the University as a result of military service will receive the following considerations according to Section 54.006 of the Texas Education Code: (1) receive a refund of tuition and fees (2) if eligible, be assigned a grade of incomplete (I) or (3) as determined by the instructor, receive a final grade or credit in courses where the student has satisfactorily completed a substantial amount of coursework and has demonstrated sufficient mastery of the course material.

### **Observance of Religious Holy Days**

A student who misses an examination, work assignment or other project because of an observance of a religious holy day will be given the opportunity to complete the work missed within a reasonable time after the absence.

### **Checking Email**

E-mail serves a primary means for communication at UT Arlington. Therefore, the University has the right to send communications to students via University-issues e-mail and the right to expect that those communications will be received and read in a timely fashion. The Office of Information Technology (OIT) will assign all students an official University e-mail address. Students are expected to check their official University e-mail account on

a frequent and consistent basis to stay current with University communications. The University recommends checking e-mail daily; in recognition that certain communications may be time-critical.

## Maintaining updated address and phone

While most of University business and communications is handled through official University email or through MyMav, on occasion the University will need to contact students by phone or mail. The student must give current and correct local and permanent addresses and telephone numbers to the University, either through self-service in MyMav or in person to the Office of Admissions, Records and Registration. Official correspondence may be mailed, versus e-mailed, to the appropriate address depending upon the nature of the correspondence and the academic calendar; if the student has moved and failed to correct this address, he or she will not be relieved of responsibility on the grounds that the correspondence was not delivered.

## Requirement to Update Academic Records

UT Arlington students who also enroll at other institutions of higher education have an obligation to ensure that UT Arlington has a complete and accurate academic record. Students who enroll in coursework at other institutions must transfer a record of that coursework to UT Arlington's Office of Admissions, Records and Registration at the conclusion of each term completed externally.

# Student Rights & Security

## Rights Under Family Educational Rights and Privacy Act (FERPA)

At UT Arlington, FERPA rights apply to a student. A student is a person who has been admitted and is registered, regardless of the person's age.

Under FERPA, a student has a right to:

- inspect his or her education records within 45 days of the request;
- require that the University obtain his or her prior written consent before releasing personally identifiable information from education records;
- request that corrections be made to education records if the student believes the records are inaccurate or misleading or otherwise in violation of the student's privacy rights under FERPA.
- file a complaint with the Department of Education concerning an alleged failure by the institution to comply with FERPA.

## Rights Under the Jeanne Clery Disclosure of Campus Security Policy

In compliance with the federal Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act (formerly the Student Right-to-Know and Campus Security Act; P.L. 101-542, as amended), the University of Texas at Arlington publishes specified campus crime statistics and campus security policies through the Office of the Chief of the University Police.

## Other Student Rights

### GRIEVANCES OTHER THAN GRADES

In attempting to resolve any student grievance, the student must first make a serious effort to resolve the matter with the individual with whom the grievance originated. Grievances involving matters other than grades are appealed to the department chair or office director, then to the Vice Provost for Academic Analytics and Operations. Appeals to the Vice Provost must be submitted in writing on an appeal form available in academic departments.

Information on grievance procedures related to grades is available in the Grades and Grading (p. ) section of the catalog.

### SEEKING EXCEPTIONS TO GRADUATE POLICIES

A student may petition for exceptions to published graduate policy by submitting a petition. The Graduate Advisor and the departmental Committee on Graduate Studies Chair will evaluate the petition and send it to the Dean for final decision. Limited exceptions to some rules may be approved if the facts presented by the petitioner are fully justified in the views of the Graduate Advisor, Committee on Graduate Studies Chair, and Dean. All petitions must be submitted on the petition form available online (<http://grad.pci.uta.edu/students/forms>).

## Student Right-to-Know and Campus Security Act

**Campus security and safety guidelines:** In case of emergency or to report a crime in progress, contact the UT Arlington Police at (817) 272-3003. For all other security and safety issues, dial (817) 272-3381 or visit the Campus Police homepage (<http://www.uta.edu/campus-ops/police>).

**Campus security policies:** In compliance with the federal Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, formerly the Student Right-to-Know and Campus Security Act (P.L. 101-542, as amended), the University of Texas at Arlington publishes specified campus crime statistics and campus security policies through the Office of the Chief of the University Police.

Campus security policies include:

- Procedures for reporting criminal actions or other emergencies occurring on campus.
- Policies concerning security of and access to campus facilities, including campus residences; campus law enforcement authority and responsibilities.
- A description of programs designed to inform students and employees about the prevention of crimes, and campus security procedures.
- The policy of monitoring and recording of students' criminal activity occurring at off-campus locations of student organizations officially recognized by the institution.
- The policy regarding the possession, use and sale of alcoholic beverages and illegal drugs, and enforcement of federal and state drug and drinking laws.
- A description of drug or alcohol-abuse education programs.
- Sexual assault programs to prevent sex offenses, and procedures to follow when a sex offense occurs.
- Policy on emergency response and emergency notification procedures involving immediate threat and campus evacuation.
- Missing student information
- Fire and life safety policies and procedures
- Gang free zones and consequences of engaging in organized criminal activities in these zones
- Campus-wide emergency notification procedures in case of immediate threat or campus evacuation (MavAlert (<http://www.uta.edu/campus-ops/police/docs/mav-alert.pdf>))

To learn more how to prevent crime or to respond to emergency situations, visit the website <http://www.uta.edu/campus-ops/police/emergency-management>.

Crime statistics may be accessed on the University Police Web site at <http://www.uta.edu/campus-ops/police>.

**Gang-free zones:** To promote campus safety and deter crime, premises owned, rented or leased by The University of Texas at Arlington, and areas within 1,000 feet of the premises are "gang-free" zones. Certain criminal offenses, including those involving gang-related crimes, will be enhanced to the next highest category of offense if committed in a gang-free zone by an individual 17 years or older. See Texas Penal Code, Section 71.028 (<http://www.statutes.legis.state.tx.us/Docs/PE/htm/PE.71.htm#71028>).

**Missing student notification policy:** If a member of the University community has reason to believe that a student who resides in on-campus housing is missing, he or she should immediately notify the UT Arlington Police Department at 817-272-3381. Students residing in on-campus housing have the option to identify confidentially an individual to be contacted by UT Arlington in the event the student is determined to be missing for more than 24 hours. Contact information will be accessible only to authorized campus officials and law enforcement and will not be disclosed outside of a missing person investigation. To designate a confidential contact, contact Apartment and Residence Life (<http://www.uta.edu/studentaffairs/residence-life-home>) at (817) 272-2926. More details can be found in the Annual Campus Fire and Safety Report (<http://www.uta.edu/campus-ops/police/docs/Annual%20Campus%20Fire%20and%20Safety%20Report%202013.pdf>).

**False alarms reports:** Since Sept. 1, 2013, Section 42.06(b) of the Texas Penal Code (<http://www.legis.state.tx.us/tlodocs/83R/billtext/pdf/HB01284F.pdf#navpanes=0>) mandates that the penalty for the offense of making a false alarm or report involving a public or private institution of higher education is a state jail felony.

## Family Educational Rights and Privacy Act (FERPA)

FERPA, the Family Educational Rights and Privacy Act of 1974, is a federal law that pertains to the release of and access to student education records. In compliance with FERPA, the University of Texas at Arlington does not disclose personally identifiable information contained in student education records, except as authorized by law.

Also known as the Buckley Amendment, this law applies to all schools that receive funds under an applicable program of the US Department of Education. UT Arlington has established policies relating to the accessibility of student information in its custody. These are described below.

Under FERPA, a student has a right to:

- inspect his or her education records within 45 days of the request;
- require that the University obtain his or her prior written consent before releasing personally identifiable information from education records;
- request that corrections be made to education records if the student believes the records are inaccurate or misleading or otherwise in violation of the student's privacy rights under FERPA.
- file a complaint with the Department of Education concerning an alleged failure by the institution to comply with FERPA.

At UT Arlington, FERPA rights apply to a student. A student is a person who has been admitted and is registered, regardless of the person's age.

FERPA applies both to the education record and to the personally identifiable information within the record, which is called directory-type information ([http://www.uta.edu/aao/recordsandregistration/content/student\\_services/ferpa.aspx#dirInfo](http://www.uta.edu/aao/recordsandregistration/content/student_services/ferpa.aspx#dirInfo)). At UT Arlington, an education record is defined as any information recorded in any way, including but not limited to handwriting, print, tape, film, microfilm, microfiche, and digital image. A student does not have a right under FERPA to inspect information that is not an education record ([http://www.uta.edu/aao/recordsandregistration/content/student\\_services/ferpa.aspx#infoInspec](http://www.uta.edu/aao/recordsandregistration/content/student_services/ferpa.aspx#infoInspec)).

UT Arlington students have the right to provide written consent before the University discloses personally identifiable information from the student's education records, except to the extent that FERPA authorizes disclosure without consent.

The University of Texas at Arlington will disclose information from a student's education record without the written consent of the student in specified instances ([http://wwwb.uta.edu/aa/recordsandregistration/content/student\\_services/ferpa.aspx#discPermit](http://wwwb.uta.edu/aa/recordsandregistration/content/student_services/ferpa.aspx#discPermit)). This includes to persons employed by the University in an administrative, supervisory, academic, or support staff position (including law enforcement unit and health staff); a person or company with whom the University has a contract or affiliation (such as an attorney, auditor, collection agent or clinical facility); a member of the UT System Board of Regents; or a person assisting another university official in performing his or her tasks; who needs to review an education record in order to fulfill his or her professional responsibility. For a full listing, please see UT Arlington's FERPA page ([http://wwwb.uta.edu/aa/recordsandregistration/content/student\\_services/ferpa.aspx#discPermit](http://wwwb.uta.edu/aa/recordsandregistration/content/student_services/ferpa.aspx#discPermit)).

UT Arlington uses safe methods to identify and authenticate the identity of students, parents, school officials and all other parties before disclosing education records.

Consult the FERPA webpage at [http://wwwb.uta.edu/aa/recordsandregistration/content/student\\_services/ferpa.aspx](http://wwwb.uta.edu/aa/recordsandregistration/content/student_services/ferpa.aspx) for additional information.

## Tuition & Fees

### Overview

Tuition and fees are subject to change by legislative or regental action and become effective on the date enacted. The Texas Legislature does not set the specific amount for any particular student fee. The student fees assessed above are authorized by state statute; however, the specific fee amounts and the determination to increase fees are made by the university administration and The University of Texas System Board of Regents. (General Appropriations Act 2010-2011, Article IX, §6.16). Visit [www.uta.edu/fees](http://www.uta.edu/fees) for current tuition, fees, and charges.

To comply with Senate Bill 1304, passed by the 81st Texas Legislature the University of Texas at Arlington is required to report to each student the amount of tuition paid by the student that must be set aside to provide financial assistance to qualified students. UT Arlington will notify students by email of the set aside amount.

Tuition is charged based on course of study; therefore a precise semester registration total may be calculated by accessing the Registration Cost Estimation site at [www.uta.edu/fees](http://www.uta.edu/fees).

Undergraduate students who enrolled under the fall 1999 or subsequent catalogs will be required to pay non-Texas resident tuition rates when they exceed 45 hours more than is required for completion of the degree program for which the student is enrolled.

The "99 hour rule" refers to the implementation of Senate Bill 961, passed by the Seventy-fifth Legislature. It is the rule that students admitted during the fall semester of 1999 and thereafter who complete more than 99-hours of *doctoral* level study may be required to pay out-of-state tuition for every subsequent semester. UT Arlington does not to automatically change tuition rates when a doctoral student passes the 99-hour mark. The policy of the University is as follows: Doctoral students who enrolled under the Summer 1999 or subsequent catalogs will be charged non-resident tuition under the following conditions: A doctoral student must pay non-Texas resident tuition beginning the first long semester in which a) the student has been enrolled previously as a graduate student for 14 or more long semesters, AND b) the student has accumulated more than 99 semester credit hours of doctoral study at UT Arlington. Students exceeding both limits will not be eligible for assistantships supported by state funds. Individual exceptions for students exceeding these criteria who are nearing degree completion are considered.

Failure to pay tuition, fees, and charges by the term/session payment due date constitutes voluntary withdrawal from the term/session.

### Description of Tuition, Fees, and Charges

Tuition, fees, and charges are assessed to students based on session credit hours (SCH), a set charge per session, or specific services. They are required of all students, charged to everyone taking specific courses or anyone receiving specific services, or charged only for voluntary products or services. Refer to [www.uta.edu/fees](http://www.uta.edu/fees) and choose Description of Tuition and Fees for a detailed description.

### Exemptions and Waivers

State law provides for several exemptions or waivers of tuition, fees, and charges. Students qualified for a reduced rate in any of the following categories must have that eligibility certified prior to registration. For a complete description and eligibility requirements, please go to <https://webapps.uta.edu/UtaSfs/Application?cmd=exemptions>. This web site will also provide department contact information and a list of tuition, fees, and charges that are exempt or waived. Additional information may be found in the Texas Education Code.

### Tuition Rebate for Baccalaureate Graduates

Texas residents enrolling for the first time in a Texas public institution of higher education may be eligible for a tuition rebate up to \$1,000 when the baccalaureate degree is completed (Texas Education Code, Section 54.0065). The student must have attempted all course work at a Texas public college or university and have been entitled to pay resident tuition at all times while pursuing the degree. The requested rebate must be for course work related to a first baccalaureate degree received from a Texas public university. No more than three hours may be attempted in excess of the minimum

number of semester hours required for the degree under the catalog which the student is graduating. (Hours attempted include transfer credits, credit earned exclusively by examination, courses dropped after the official census date, for-credit developmental courses, optional internship and cooperative education courses, and those repeated exclusively by examination.)

An application form and any other requirements pertaining to the tuition rebate may be obtained from the Graduation section of the Office of Admissions, Records and Registration. Interested students should apply for the rebate when filing for graduation prior to registration for the final semester. To be eligible, a student must apply for the rebate before degrees are awarded for that semester.

This rebate is not part of the UT Arlington Guaranteed Tuition Plan, but you may qualify for it, in addition to qualifying for the Guaranteed Tuition Plan, and earn rebates from both programs if you meet eligibility requirements.

## Payment of Tuition, Fees, and Charges

Please go to [www.uta.edu/fees](http://www.uta.edu/fees) for information on due dates, deadlines, detailed penalties and refunds. Students will be given notice of the amount of his/her tuition charges that were required to be set aside to provide financial assistance for students enrolled at the institution (Texas Education Code, Section 56.014).

## Withdrawal for Non-Payment

Please go to [www.uta.edu/fees](http://www.uta.edu/fees) and select Refunds for Semester Withdrawals and Dropped Courses for information about a specific session.

## Payment Options

Please go to [www.uta.edu/fees](http://www.uta.edu/fees) and select Payment Information in the Paying Your Bills section for deadlines and payment options for a specific session.

- **Installment Payment Option:** (Available in fall and spring semesters only. Installments are not available to Academic Partnership (AP) students or students enrolled in the Finish@UTprogram.) The Installment Payment Option is available to students and requires payment of at least one third of your total current semester registration, plus all past due amounts, by the session payment due date. Additionally, if your tuition, fees, and charges increase for any reason, such as residency status changes or schedule adjustments, the new higher total must be used in your current session calculations. By using the installment plan, you will not be eligible for a Designated Tuition discount.

Note: The following quotation from Texas Education Code 54.007 applies to installment payments due: "A student who fails to make full payment of tuition and fees, including any incidental fees, by the due date may be prohibited from registering for classes until full payment is made. A student who fails to make payment prior to the end of the semester may be denied credit for the work done that semester."

- **Financial Aid:** Please read the Financial Aid section of this catalog or visit [www.uta.edu/fao](http://www.uta.edu/fao) for information.
- **Enrollment Loans:** Loans are offered only if funds are available and the borrower meets underwriting requirements. Loans are available at Bursar Services, Room 130, Davis Hall. Please visit our Web site, [www.uta.edu/fees](http://www.uta.edu/fees), and select Enrollment Loans for specified dates and requirements. Enrollment loans are not available to Academic Partnership (AP) students or students enrolled in the Finish@UTprogram.

Questions may be directed to Bursar Services, 817-272-2172 or by email at [bursar\\_help@uta.edu](mailto:bursar_help@uta.edu). Detailed student account information may not be released to anyone other than the student without the student's written permission in Bursar Services.

## Payment Methods and Locations

The University accepts cash, checks, traveler's checks, money orders, wires, and the following credit cards: MasterCard, Visa, Discover, Diner's Club, and American Express. Any form of payment that is returned unpaid can result in enrollment withdrawal and additional penalties.

- **Online:** Pay by credit card at [www.uta.edu/makepayment](http://www.uta.edu/makepayment).
- **In Person:** Payments can be made in person at Bursar Services, Room 130, E.E. Davis Hall.
- **Mail:** Please include your 10-digit student ID number and do not mail cash or traveler's checks. Check or money order payments can be mailed to:

UT Arlington Bursar Services

P.O. Box 19649

Arlington, TX 76019-0649

- **Traveler's Check:** Traveler's checks must be signed in the presence of a cashier and should be presented in person at the Bursar's window during their regular business hours.
- **International Wires:** Demand drafts and international checks are held for 60 days before refunds can be issued. The use of wires is recommended to expedite refunds.
- **Kiosks:** Payments can be made at kiosks across campus using credit cards, debit cards, and checking or savings accounts.

## Concurrent Enrollment

### COOPERATIVE PROGRAMS BETWEEN UNIVERSITY OF TEXAS SYSTEM COMPONENTS

A student concurrently enrolling at two or more University of Texas System components and participating in a joint cooperative program may register and pay tuition, fees, and charges for all courses through the student's home institution. The concurrent enrollment agreement and waiver of specified fees and charges applies only to students following the concurrent enrollment procedures specified by the registrar of the home institution. Detailed procedures may be obtained from the registrar of the student's home institution. UT Arlington students will find additional information by going to [www.uta.edu/fees](http://www.uta.edu/fees) and selecting Concurrent Enrollment. The concurrent enrollment agreement and waiver of specified fees and charges applies only to students following the concurrent enrollment procedures specified by the registrar of the home institution. Applicable tuition, fees and charges will be assessed and collected at the home institution for the other institution(s). The charges for the following will be assessed and collected at the home institution for the other institution(s):

- Flat rate Tuition at an appropriate rate
- Applicable laboratory fees and special course charges
- Enhanced Designated Tuition
- Any other fees and charges that are required at the host institution that are not charged at the home institution

Student services at the second institution will be made available to concurrently enrolled students paying the appropriate student service fees at the second institution. Some institutions have a reciprocal agreement for honoring parking permits. Details may be obtained from the police departments on each campus. Concurrently enrolled students should report any problems concerning registration, payment of tuition, fees, and charges or other matters related to concurrent enrollment procedures to the registrar of the home institution.

Concurrent students wishing to add or drop courses must do so in compliance with the host institution's policy. On or before the host institution's Census Date, adds or drops may be done through the home institution's registrar. After the Census Date, drops must be done at the host institution.

## Sponsored Students/ Texas Tomorrow Fund Participants

It is the student's responsibility to contact Bursar Services, Room 130, Davis Hall, 817-272-2172, each session prior to the payment deadline date to confirm that an authorization has been received and is sufficient to secure the current session registration.

## Cost of Attendance and Financial Aid Opportunities

Annually, the Office of Financial Aid, Scholarships, and Veteran's Affairs estimates the average expenses for a full-time student for two semesters at UT Arlington, which includes the estimated cost of books, transportation, living expenses plus tuition and fees. Current information may be found at [www.uta.edu/fao](http://www.uta.edu/fao). Navigate to the Cost of Attendance option under the Financial Aid menu for detailed information. (Texas Education Code, Section 61.0777).

## Academic Common Market

The Academic Common Market is an interstate agreement for sharing academic programs through an exchange of students across state lines. Fifteen southern states take part in the Academic Common Market. Texas, Florida and North Carolina participate at the graduate level only. Selected out-of-state programs that are not offered in a student's home state can be accessed through the Academic Common Market at in-state tuition rates.

For information on the graduate programs at The University of Texas at Arlington that are available through the Academic Common Market and the states that have access to those programs, contact the Office of Financial Aid or the Academic Common Market coordinator in the home state.

Further information on the Academic Common Market may be obtained from the Texas State Coordinator for the Academic Common Market: Texas Higher Education Coordinating Board, P.O. Box 12788, Austin, Texas, 78711. Phone: 512-427-6525. E-mail: [linda.mcdonough@thehb.state.tx.us](mailto:linda.mcdonough@thehb.state.tx.us)

## State Law - Excessive Hours

Texas Education Code § 54.014 specifies that resident undergraduate students who initially enrolled as an undergraduate student in an institution of higher education fall semester 1999 and later may be subject to a higher tuition rate for attempting excessive hours at any Texas public institution of higher education while classified as a resident student for tuition purposes.

- Undergraduate students who enrolled initially in the fall 1999 semester or subsequent semesters cannot exceed more than 45 hours of the number of hours required for completion of the degree plan in which they are enrolled. Any hours beyond 45 are considered excessive and may result in additional tuition charges.
- Undergraduate students who enrolled initially in the fall 2006 semester or subsequent semesters cannot exceed more than 30 hours of the number of hours required for completion of the degree plan in which they are enrolled. Any hours beyond 30 are considered excessive and may result in additional tuition charges.

The purpose of these policies is to encourage students to complete their degree programs in an efficient, timely manner.



For additional information regarding the UT Arlington's administration of the Texas excessive hours policy, please visit [http://www.uta.edu/aao/recordsandregistration/content/student\\_services/excessive\\_hours.aspx](http://www.uta.edu/aao/recordsandregistration/content/student_services/excessive_hours.aspx).

## Other Fees

### **INTERNATIONAL STUDENT HEALTH INSURANCE**

International students are required to purchase The University of Texas at Arlington Student Health Insurance Plan while enrolled at the University. Exceptions to this requirement are:

- Coverage by the UT Arlington faculty/staff insurance
- Continuing coverage under a mandatory government-sponsored health plan
- Continuing coverage under a mandatory employer-sponsored insurance plan

Proof of coverage and benefits provided must be documented and must be comparable to the University-sponsored plan. All policies under the three categories of exceptions must contain at least a \$7,500 repatriation benefit and a \$10,000 medical evacuation benefit. All policies must meet USIA regulations for those in "J" status. If coverage does not include medical evacuation and repatriation, supplemental policies covering those items will be made available.

### **MAV EXPRESS CARD FEATURES AND CHARGES**

The Mav Express Card is used for accessing controlled facilities, checking books from the Library, gaining admission to various University activities such as athletic events and for other situations where personal identification is required.

A student may choose to deposit money on the Mav Express Card. This debit feature is called Mav Money. Students may use Mav Money at Dining Services, Bursar Services, University Center, University Bookstore, and many other locations on and off campus. Deposits may be made and account activity reviewed online. .

The Mav Express Card is a permanent card. As a student registers for a semester, the card is automatically validated. It is not necessary to obtain an additional Mav Express Card unless the student loses or destroys the card. Fees associated with the Mav Express Card (ID Card Replacement Fee) can be found at Description of Tuition and Fees: [www.uta.edu/fees](http://www.uta.edu/fees).

For additional information, visit [www.uta.edu/mavexpress](http://www.uta.edu/mavexpress) or call 817-272-2645.

### **MAVERICK PARKING GARAGE**

The optional parking garage is available at an additional per term charge, plus gate card deposit. Day and night passes are offered; however, the official meeting time of all classes must be 5:30 p.m. or later to qualify for the night pass. Passes must be picked up at the garage and are only for parking in the garage. The garage is normally closed between terms. A parking permit must be purchased for parking elsewhere on campus. Contact the Maverick Parking Garage at 817-272-2370 for specific rates and availability.

### **PARKING PERMIT CHARGE**

All students who drive a vehicle on campus need a permit to enter or park legally on campus (Texas Education Code, Section 51.207 (<http://www.statutes.legis.state.tx.us/Docs/ED/htm/ED.51.htm#51207>)). Please order your permit online through the registration screen from your student service center on the web. All students who order their permit before the first day of class will be mailed their permit. The permit will be mailed to their current University mailing address. If students order their permit after the first day of class, they will need to pick up the permit at the University Police Parking Service Office, 1225 W. Mitchell, Suite 112. Hours of business are 7:30 a.m. to 5 p.m. Monday-Friday, with the exception of registration periods. Students picking up a dorm or rental property parking permit must show proof of residency if they are not listed as primary resident.

Per Texas Transportation Code, Section 681.008 (<http://www.statutes.legis.state.tx.us/Docs/TN/htm/TN.681.htm>), Vehicles displaying a disabled veteran license plate are allowed to park in any person with disability parking space without displaying a University of Texas at Arlington parking permit. This exemption does not apply to parking in non-ADA designated spaces

If students withdraw from school any time before classes begin or before the census date, they must bring their permit to the Parking Office to receive a full/partial refund or mail the permit back by certified mail. If the permit is not returned or if it is lost or misplaced, a refund cannot be given. Each student will receive only ONE permit per fiscal year. If it becomes necessary to drive a different vehicle, the permit is transferable. However, the permit owner is responsible for all violations accrued by any vehicle that has their permit displayed. Students who terminate their enrollment prior to spring registration and who have paid a vehicle permit fee may receive a partial refund in accordance with the Rules and Regulations booklet provided they return their permit. No refunds on parking permits will be given after the spring census date for students. Ownership of the permit remains with the institution and is not transferable.

Students are responsible for picking up a copy or visiting the web site for the Rules and Regulations booklet that contains campus parking policies. For additional parking information, pricing information, or hours of extended service during registration, call 817-272-3907 or visit the web site [www.uta.edu/parking](http://www.uta.edu/parking).

## GRADUATION CHARGES

A graduation charge must be paid by each baccalaureate degree candidate when application is made for graduation. If graduation is delayed past the stated semester, the student must reapply for graduation and repay the graduation charge. An additional charge to cover the cost of cap and gown is assessed to each candidate who plans to attend any graduation ceremony. Students who request that their diplomas be mailed after graduation will be required to pay the first class mailing cost.

## COST OF BOOKS

Cost of books depends upon the courses selected. Generally, books for technical subjects are somewhat higher than those for other academic subjects. In certain technical, scientific and fine arts fields, there are extra expenses for equipment and supplies.

The University Bookstore has both new and used textbooks available. The bookstore will purchase used textbooks which are in good condition at any time during the year provided such textbooks continue to be used by the academic departments and if needed by the bookstore. "A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer." (Texas Education Code, Section 51.9705; 19 TAC 4.215 et seq.)

Information about required and recommended course textbooks, including titles, authors, other publisher information and price, can be found at the UT Arlington Bookstore's website, accessible via <http://www.uta.edu/bookstore>. Further information about required course materials is available by reviewing individual course syllabuses at UT Arlington's Instructor and Course Syllabus Information (<http://www.uta.edu/ra/real/courses.php>) website.

## TRANSCRIPTS

The Registrar's Office will mail an official copy of an academic transcript at the written request of a student upon receipt of payment of \$7 for each copy requested. When working conditions permit, the office will provide one-day transcript service if requested. An official transcript will not be issued unless all financial obligations to the University have been satisfied.

## HOUSING AND FOOD EXPENSES

Information about University housing may be found in the Student Housing section of this catalog. Information about campus food service may be found in the University Center section of this catalog.

## Refunds

### DROPPING COURSE(S) BUT CONTINUING ENROLLMENT

Students who drop a course/s while remaining enrolled in the session are refunded in full for drops completed by the published session census date. However, because of the tiered flat rate tuition rates, not every drop will result in a credit to your account. For example, a student who is taking 15 hours and drops to 12 hours will not see a credit to their flat rate tuition amount because 12 hours costs the same as 15 hours (see Flat Rate Fee Schedule (<https://webapps.uta.edu/UtaSfs/Application?cmd=feedescr>)). No refunds will be credited and the student is financially responsible for the full cost of the course/s dropped after the published session census date. (Texas Education Code, Section 54.006).

### TOTAL WITHDRAWAL FROM SCHOOL

A student who officially withdraws from a session (drops all hours of a specific session) will receive a refund according to the schedule below.

1. A student who withdraws prior to the first official university class day will receive a 100 percent refund.
2. Students who withdraw as a result of military service may choose to receive a full refund of tuition and fees, an incomplete (if eligible) or final grade at institution discretion. (Texas Education Code, Section 54.006.)
3. If the foregoing condition is not met, then the refund shall be as shown below. Class days noted are official university class days. They are not the individual student's class meeting days.

### FALL, SPRING AND SUMMER 11-WEEK SESSIONS

During class days 1 through 5—80%

During class days 6 through 10—70%

During class days 11 through 15—50%

During class days 16 through 20—25%

After 20th class day—no refund

### INTERSESSIONS, SUMMER I 5-WEEK AND SUMMER II 5-WEEK SESSIONS

On first class day—80%

On second class day—50%

After second class day—no refund

Applicable dates and deadlines are available at [www.uta.edu/fees](http://www.uta.edu/fees). Select Refunds of Registration Charges (Withdrawals and Drops).

4. Parking refunds must be applied for separately at the Parking Office, 1225 W. Mitchell.

## RETURN OF TITLE IV AND OTHER AID FUNDS

If a student receiving financial assistance withdraws (resigns) from all courses at the University of Texas at Arlington, then UT Arlington and/or the student may be required to return some of the federal, state, and/or institutional funds awarded to the student. These funds would be returned to the grant, scholarship, or loan fund from which the assistance was received.

The federal Return of Title IV Funds policy requires that a portion of federal aid be returned if the student withdraws on or before completing 60% of the semester for which student received federal aid. Students receiving all grades of F or a combination of all Fs and Ws are subject to the Return of Title IV Funds Calculation. Federal financial aid includes the Federal Pell Grant, Federal Academic Competitiveness Grant (ACG), Federal SMART Grant, Federal Supplemental Educational Opportunity Grant (FSEOG), LEAP Grant (formerly SSIG), Federal Perkins Loan, Federal Stafford Loan (subsidized and unsubsidized), and the Federal Parent Loan for Undergraduate Students (PLUS).

Depending on the types and amounts of aid received, UT Arlington may be required to return a certain portion of funds, and the student may be required to repay a portion of the funds. If the student owes a repayment of grant funds as a result of the calculation, he/she cannot receive future federal financial aid funds at any school until repayment has been made. Any federal loan amount owed by the student is to be repaid under the terms of the promissory note (see example below). The student may owe an outstanding balance to UT Arlington once we return funds required through the federal Return of Title IV Funds calculation. Complete details of the policy can be found at [www.uta.edu/fao](http://www.uta.edu/fao), click Financial Aid on the left menu, then Return of Funds Policy. Contact the Office of Financial Aid for additional information.

## DISBURSEMENT OF REFUNDS

For your convenience, direct deposit of your refund is available. Information about direct deposit is published at [www.uta.edu/fees](http://www.uta.edu/fees), select Direct Deposit.

Inquiries concerning refunds should be directed to Bursar Services, Room 130, Davis Hall, 817-272-2172, or by email at [bursar\\_help@uta.edu](mailto:bursar_help@uta.edu).

Current detailed information is available at [www.uta.edu/fees](http://www.uta.edu/fees). Select Refunds of Registration Charges (Withdrawals and Drops)

## Residency Regulations

Resident classifications are determined in accordance with Title 19, Part 1, Chapter 21, Subchapter B of the Texas Administrative Code and the rules of the Texas Higher Education Coordinating Board for determining residence status. Except as specifically provided by law, an individual classified as a nonresident student must pay tuition, fees, and charges required of nonresident students. Students may access these rules at the Texas Administrative Code web site ([http://info.sos.state.tx.us/pls/pub/readtac\\$ext.ViewTAC?tac\\_view=5&ti=19&pt=1&ch=21&sch=B&rl=Y](http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=5&ti=19&pt=1&ch=21&sch=B&rl=Y)).

To be considered a Texas Resident a person must establish a domicile in Texas not later than one year before the census date of the academic term in which the person is enrolled in an institution of higher education, and maintain that domicile continuously for the year preceding the census date. Generally, a person enrolling in an institution of higher education prior to having established a domicile in Texas for 12 consecutive months immediately preceding the census date will be classified as a nonresident student.

Additionally, a person is eligible to be classified as a Texas Resident if the person: maintained a domicile in Texas for at least 36 months prior to graduation from a Texas high school or receipt of the equivalent to a Texas high school diploma, graduated from a Texas high school or received the equivalent of a Texas high school diploma, and maintained a residence in Texas for the 12 months preceding the census date at an institution of higher education. The domicile of a dependent's parents is presumed to be the domicile of the dependent unless the dependent meets all the requirements of this paragraph.

If while attending an institution of higher education a person classified as a nonresident meets the requirements to domicile in Texas, the nonresident student may reclassify as a Texas Resident if business and personal facts or actions are unequivocally indicative of a fixed intention to domicile permanently in Texas. A nonresident classification is presumed to be correct as long as the residence of the individual in Texas is primarily for the purpose of attending an educational institution. Students wishing to reclassify will need to complete a set of the Core Residency Questions and turn them into the Undergraduate Admissions Office with supporting documentation.

Generally, a student attending The University of Texas at Arlington who is not classified as a Texas Resident will be charged nonresident tuition. Certain nonresident students, however, are entitled to pay tuition and other fees at the Texas Resident rate. For example, military personnel assigned to duty in Texas, and their spouses and dependent children, are entitled to pay the same tuition as a Texas resident if certain documentation is provided. Similarly, students who hold a competitive academic scholarship of \$1,000 per year or more awarded through The University of Texas at Arlington are entitled to pay resident fees and charges. Other exceptions to the requirement that nonresident students pay nonresident tuition, fees, and charges are included in the Texas Higher Education Coordinating Board rules for determining residence status ([http://info.sos.state.tx.us/pls/pub/readtac\\$ext.ViewTAC?tac\\_view=5&ti=19&pt=1&ch=21&sch=B&rl=Y](http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=5&ti=19&pt=1&ch=21&sch=B&rl=Y)).

The responsibility of registering under and maintaining the proper residence classification rests on the student. If there is any question concerning the student's classification at the time of registration, or any time thereafter, it is the student's obligation to consult with the Residency Determination Official in the undergraduate school and have the student's classification officially determined. All requests for reclassification should be submitted to the undergraduate school at least 30 days prior to the census date of the term in question. Residency appeals are made to the Residency Appeals Committee. Decisions of the committee are final.

# Degree Requirements

---

See Degree Requirements (p. 44).

## General Core Requirements

### General Core Curriculum for a Bachelor's Degree

The University requires the following courses for each degree:

#### COMMUNICATION

Select two of the following:

COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	6
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
THEA 1303	VOCAL PERFORMANCE I: FUNDAMENTALS	

Total Hours 6

#### CREATIVE ARTS

Select one of the following:

ARCH 1301	INTRODUCTION TO ARCHITECTURE AND INTERIOR DESIGN	3
ART 1301	ART APPRECIATION	
ART 1309	ART OF THE WESTERN WORLD I: GREECE THROUGH RENAISSANCE	
ART 1310	ART OF THE WESTERN WORLD II: BAROQUE TO MODERN	
MUSI 1300	MUSIC APPRECIATION	
THEA 1342	THEATRE AND FILM APPRECIATION	
THEA 1343	INTRODUCTION TO THEATRE	

Total Hours 3

#### GOVERNMENT/POLITICAL SCIENCE

POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3

Total Hours 6

#### LANGUAGE, PHILOSOPHY AND CULTURE

Select one of the following:

ANTH 2322	GLOBAL CULTURES	3
ARAB 2314	INTERMEDIATE ARABIC II	
ARCH 2300	MASTERWORKS OF WESTERN ARCHITECTURE	
ART 1317	THE ART OF NONWESTERN TRADITIONS	
CHIN 2314	INTERMEDIATE CHINESE II	
ENGL 2303	TOPICS IN LITERATURE	
ENGL 2309	WORLD LITERATURE	
ENGL 2319	BRITISH LITERATURE	
ENGL 2329	AMERICAN LITERATURE	
FREN 2314	INTERMEDIATE FRENCH II	
GERM 2314	INTERMEDIATE GERMAN II	
GLOBAL 2301	INTRODUCTION TO GLOBAL ISSUES	
INTS 1310	INTRODUCTION TO POPULAR CULTURE	
KORE 2314	INTERMEDIATE KOREAN II	
LING 2371	LANGUAGE IN A MULTICULTURAL USA	

PHIL 1310	PHILOSOPHICAL PERSPECTIVES
PHIL 2300	INTRODUCTION TO PHILOSOPHY
PORT 2314	INTERMEDIATE PORTUGUESE II
RUSS 2314	INTERMEDIATE RUSSIAN II
SPAN 2314	INTERMEDIATE SPANISH II

Total Hours 3

## LIFE AND PHYSICAL SCIENCE

Select two of the following: 6

ASTR 1345	INTRODUCTORY ASTRONOMY I
ASTR 1346	INTRODUCTORY ASTRONOMY II
BIOL 1333	INTRODUCTION TO BIOLOGY I
BIOL 1334	INTRODUCTION TO BIOLOGY II
BIOL 1441	CELL AND MOLECULAR BIOLOGY
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I
CHEM 1300	INTRODUCTORY CHEMICAL PRINCIPLES
CHEM 1345	CHEMISTRY IN THE WORLD AROUND US
CHEM 1346	CHEMISTRY IN THE WORLD AROUND US II
CHEM 1441	GENERAL CHEMISTRY I
CHEM 1451	CHEMISTRY FOR HEALTH SCIENCES
GEOL 1301	EARTH SYSTEMS
GEOL 1302	EARTH HISTORY
GEOL 1315	METEORITES, ASTEROIDS, FLOOD VOLCANISMS AND MASS EXTINCTIONS
GEOL 1330	GLOBAL WARMING
GEOL 1340	WEATHER AND CLIMATE
GEOL 1350	INTRODUCTION TO OCEANOGRAPHY
GEOL 1360	GEOLOGIC HAZARDS
PHYS 1300	INTRODUCTION TO MUSICAL ACOUSTICS
PHYS 1301	PHYSICS FOR NON SPECIALISTS I
PHYS 1302	PHYSICS FOR NON SPECIALISTS II
PHYS 1441	GENERAL COLLEGE PHYSICS I
PHYS 1442	GENERAL COLLEGE PHYSICS II
PHYS 1443	GENERAL TECHNICAL PHYSICS I
PHYS 1444	GENERAL TECHNICAL PHYSICS II

Total Hours 6

## MATHEMATICS

Select two of the following: 6

MATH 1301	CONTEMPORARY MATHEMATICS
MATH 1302	COLLEGE ALGEBRA
MATH 1303	TRIGONOMETRY
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS
MATH 1313	LIBERAL ARTS HONORS MATHEMATICS
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS
MATH 1322	PRECALCULUS I
MATH 1323	PRECALCULUS II
MATH 1324	ALGEBRA AND TRIGONOMETRY
MATH 1325	ANALYTIC GEOMETRY
MATH 1327	ARCHITECTURAL CALCULUS
MATH 1330	ARITHMETICAL PROBLEM SOLVING
MATH 1331	GEOMETRICAL INFERENCE AND REASONING

MATH 1332	FUNCTIONS, DATA, AND APPLICATIONS	
MATH 1426	CALCULUS I	
MATH 2326	CALCULUS III	
MATH 2425	CALCULUS II	

Total Hours 6

## SOCIAL AND BEHAVIORAL SCIENCES

Select one of the following: 3

ANTH 1306	INTRODUCTION TO ANTHROPOLOGY	
CRCJ 2334	INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM	
ECON 2305	PRINCIPLES OF MACROECONOMICS	
ECON 2306	PRINCIPLES OF MICROECONOMICS	
ECON 2337	ECONOMICS OF SOCIAL ISSUES	
FINA 2330	MONEY, FINANCE AND THE MODERN CONSUMER	
IE 2308	ECONOMICS FOR ENGINEERS	
LING 2301	INTRODUCTION TO THE STUDY OF HUMAN LANGUAGES	
MANA 2302	COMMUNICATIONS IN ORGANIZATIONS	
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	
SOCI 1311	INTRODUCTION TO SOCIOLOGY	

Total Hours 3

## U.S. HISTORY

HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3

Total Hours 6

## FOUNDATIONAL COMPONENT AREA OPTION

Any course listed in the course lists above. A course may only fulfill one component area. 3

Total Hours 3

## OLD--through summer 2014

### ENGLISH COMPOSITION

Six hours (1301 and 1302 or suitable substitutes).

### LITERATURE

Three hours of English or modern language literature or other approved substitute.

### LIBERAL ARTS ELECTIVE

Three hours above the freshman level of literature, or social and cultural studies designated as taught in the College of Liberal Arts, or fine arts or philosophy, or technical writing.

### U.S. HISTORY

Six hours of American history or three hours of American and three hours of Texas history. (This requirement is mandated by state law and cannot be waived.)

### U.S. POLITICAL SCIENCE

Six hours covering U.S. and Texas constitutions. (This requirement is mandated by state law and cannot be waived.)

### MATHEMATICS

Six hours (MATH 1301 or higher. Credit will not be given for both MATH 1301 and 1302.)

### NATURAL SCIENCE

Eight hours in lab science (biology, chemistry, geology and/or physics).

## **SOCIAL/CULTURAL STUDIES**

Three hours\*.

## **FINE ARTS**

Three hours from art, dance, music, architecture or theatre arts.

\*The Social and Cultural Studies requirement will be satisfied by designated courses which have been approved by the Undergraduate Assembly. For a list of approved courses, contact the University Advising Center or see <http://www.uta.edu/universitycollege/current/academic-planning/uac/what-is-advising/core-courses.php>.

International students whose secondary education was taught in their native tongue (other than English) may meet the modern language requirement for the Bachelor of Arts degree by successfully completing six additional hours in English beyond the general requirements for a bachelor's degree. The eight additional hours needed to fulfill the total degree requirements must be approved by the student's major department and must be included in the degree plan. The major department has the right to stipulate the modern language permitted for the bachelor's degree, provided the language is taught at UT Arlington.



# Undergraduate Education

---

## New Maverick Orientation (Freshman and Transfer Orientation)

**B160 Lower Level, University Center · Box 19348 · 817-272-9234 · [www.uta.edu/orientation](http://www.uta.edu/orientation)**

The University of Texas at Arlington is dedicated to the retention and overall success of our students, by promoting academic excellence and fostering lifelong learning. New Maverick Orientation offers a variety of programs, both on campus and online, for new freshmen, transfer students, and veterans students. These programs are designed to meet your individual needs and to assist you in making a smooth transition into life as a UT Arlington Maverick. Our goal is to assist you with the transition process, acclimate you to our way of doing things, connect you to our community and its resources that support your success, and assist you in registering for your first semester of classes.

Attending New Maverick Orientation helps students begin to take ownership of their educational goals and create a framework for their future. Embracing UT Arlington traditions and jumping into the experience will help you learn, right from the beginning, what it means to "Be a Maverick!"

Our office is staffed by professionals who specialize in providing outstanding support and service to incoming students, undergraduate student leaders who service as guides and resources in the on campus programs, and graduate students who are gaining experience for future careers in higher education. Together, we look forward to providing you with a memorable and helpful experience. Welcome to Maverick Country!

## MAVS 1000 Policy

Effective fall 2014, first-time freshmen students (new high school graduates) who have been accepted into UT Arlington are required to take MAVS 1000 First Year Experience. MAVS 1000 orients students to life on campus and assists in the transition to college. Course content and assignments will help students identify their individual needs and skills which will affect their success, determine what resources are appropriate and available to them, and formulate a plan for an actively engaged and enriched experience on the campus.

Exemptions: Students enrolled in UNIV 1131 ISSUES IN COLLEGE ADJUSTMENT through the FIG (Freshmen Interest Group) program will not be required to take MAVS 1000 First Year Experience. In addition, students enrolled in the following college specific first year seminars will be exempt from taking MAVS 1000: MANA 1300, NURS 1300, ARCH 1101, INTD 1101, ART 1300, THEA 1300.

## Student Feedback Surveys

As part of the UT Arlington's efforts toward continually improving the quality of teaching, the University developed the Student Feedback Survey (SFS) program, a campus-wide program that affords students with an opportunity to reflect upon their experience in each organized course (lectures, seminars, and labs) and offer relevant feedback.

Toward the end of each term, each student enrolled in a lecture, seminar, or lab course will receive an e-mailed invitation to participate in the SFS for that particular section. (Students will receive separate e-mail messages for each course in which they are enrolled.) With few exceptions, each SFS is administered online. In every case, the feedback is submitted anonymously.

Once the final grades for the term have been officially certified by the University, summaries of the SFS data are provided to both the professor and his/her supervisor. These reports help members of the faculty identify which aspects of a course should remain unchanged and which aspects might benefit from revision.

# Graduate Education

---

## Mission and Philosophy

The Office of Graduate Studies is part of the Division of Academic Programs and Curricula.

The goal of graduate study is to develop a student's potential for original research, scholarship, creative expression and teaching in his or her chosen field of endeavor. Graduate study actively involves students in research, creative and scholarly pursuits that foster acquisition of factual knowledge and professional skills in an environment that values and promotes discovery, innovation, and the spirit of creative scholarship. Ultimately, graduate study prepares students to become important contributors to and intellectual leaders of their disciplines.

## History and Overview

Graduate study at the University of Texas at Arlington began in 1966 with the initiation of six master's degree programs. Doctoral degree programs were added in 1969 with a Ph.D. in engineering. Today the University offers master's degrees in 71 disciplines or interdisciplinary programs and 29 doctoral degree programs.

## Office of Graduate Studies Website

Students and faculty are encouraged to visit the Office of Graduate Studies website at <http://www.uta.edu/gradstudies> to locate important information about graduate programs and to learn about support resources that help students hone critical skills which lead to academic and professional success.

## Administration of the Advanced Degree Programs

### Academic Deans

Academic deans oversee and regulate graduate program practices taking place in their colleges or schools.

### Committees on Graduate Studies

Each graduate program is governed by a Committee on Graduate Studies. The committee is composed of all full members of the graduate faculty in that program. Graduate faculty from allied fields may serve on the committee, when appropriate. In an interdepartmental program, the Committee on Graduate Studies is appointed by the Vice Provost for Academic Programs and Curricula.

### Graduate Advisors

Each graduate program has a Graduate Advisor. The Graduate Advisor represents the academic dean of the college and the departmental Committee on Graduate Studies in matters pertaining to advising graduate students in their academic areas. The Graduate Advisor's functions include clearing of students for registration, acting upon requests for drops, adds, section changes and special examinations; maintaining graduate student records; and advising graduate students about their degree plans.

# Office of International Education

---

## Mission Statement

The Office of International Education furthers an international focus for the university and supports the development of activities, programs, exchanges and events that create deeper international and global awareness among faculty, staff, students, and the surrounding community.

## International Student and Scholar Services (ISSS)

### INTERNATIONAL STUDENT SERVICES

Advising for international students is available Monday through Friday. In addition, ISSS processes a variety of requests to help students remain in compliance with university policies and government (Department of Homeland Security, Department of State) regulations. ISSS also offers various workshops and seminars throughout the year for international students who want to learn more about topics such as off-campus employment. For more information, including advising hours, request forms, and seminar schedules, please visit: <http://www.uta.edu/oie/>

### J-1 SCHOLAR SERVICES

ISSS works closely with other departments at UT Arlington to bring international exchange visitors to campus for research activities, teaching, and internships. For more information, please visit: <http://www.uta.edu/oie/>

## Programs and Events

The OIE seeks to engage UTA international and domestic students through a variety of programs, including International Student Orientation and International Week, among others. For more information, please visit: <http://www.uta.edu/oie/?page=programs>

## Study Abroad

To help students attain the education demanded by today's increasingly interdependent world, UT Arlington offers the opportunity to study overseas while earning credit toward a degree. Some programs involve direct enrollment in an overseas institution, while others are led by UT Arlington faculty members. For more information, including program and application requirements, please visit: <http://studyabroad.uta.edu>.

# School of Architecture

---

## Mission and Philosophy

The mission of the graduate Architecture and Landscape Architecture programs is to prepare students for sustained contributions and leadership in the design professions. This mission occurs in partnership with the larger University. Together the programs and the University share the aim of educating broadly to the demands of a complex society and, more specifically, to the demands of sophisticated and changing professions.

## History and Overview

Architecture was first taught at what is now The University of Texas at Arlington in the early 1940s as a two-year, non-degree program within the School of Engineering. In 1968, with the support of professional architects in the Dallas/Fort Worth area, architecture became a department of the College of Liberal Arts, granting the degree of Bachelor of Science in Architecture. The department prospered, and by 1973 a decision was made to establish a separate school of architecture based on a four-year undergraduate program with a two-year master of architecture program as the professional degree.

By 1978, the School of Architecture and Environmental Design (as it was named in 1974) had an enrollment of more than 1,000 students with 31 full-time faculty. Four programs were included at that time: architecture, interior design, landscape architecture, and city and regional planning. Subsequently, planning moved to the Institute of Urban Studies. In 1989, the school was renamed the School of Architecture.

Architecture and landscape architecture are seen as both the means and the goal of the education we offer. As *means*, our fields provide a ready path to the larger domain of ideas, history and the human condition. Architecture was seen, after all, as one of the essential liberal arts during the Renaissance. As *goals*, our fields call upon us to learn specific professional knowledge and skills they focus our attitudes and abilities to produce tangible, concrete things. This demand that we alternately widen and narrow our vision is one of the great strengths of the fields and is one source of their effectiveness as courses of study.

Within a broad curriculum, design as a discipline and a process is emphasized. Students are encouraged to give rich visual and material substance to both theoretical and pragmatic ideas. The context for design at UT Arlington centers on the contemporary urban condition, an approach appropriate for a school at the heart of a diverse, expanding and internationally oriented region like Dallas/Fort Worth.

The school's location at the center of the Dallas/Fort Worth area is especially important for students of architecture and landscape architecture. Almost every cultural, social and professional opportunity is nearby. The urban setting serves as a laboratory to observe the issues that confront current design and to test the proposals put forward. Built work by many of the foremost contemporary architects and landscape architects may be experienced and studied firsthand. Kahn, Pei, Wright, Johnson, Meier, Legoretta, Rudolph, Giurgola, Barnes, Predock, Holl, KPF, Kiley and Walker all have major projects here.

The School of Architecture offers large and up-to-date facilities for research and study. Constructed in 1984, the Architecture Building houses studios, classrooms and offices in addition to a CAD laboratory, a photography studio, a materials shop, a slide library and the Architecture and Fine Arts Library, with 40,000 books and 190 periodicals. The UT Arlington Libraries contains more than 1 million volumes, and students have access to The University of Texas System Library, which house 12 million volumes.

The School of Architecture has an enrollment of approximately 1,000 students, of whom about 160 are graduate students. They come from all parts of the United States and the world; more than 20 percent are international students. About one-third of the graduate students are women.

In terms of recognition of quality, 134 School of Architecture students have received awards in 63 major design or research competitions over the last 10 years, most at the national or international level. This unsurpassed record of competitive accomplishment reflects the education focus of the school. Developed student abilities, along with a tradition of integrating work and academic experience, give UT Arlington graduates ready entry and advancement in the professional world.

## Accreditation

The school offers the Master of Architecture and the Master of Landscape Architecture as first professional degrees in the respective programs. The former is accredited by the National Architecture Accrediting Board and the latter by the Landscape Architecture Accrediting Board. The M.Arch. and the M.L.A. taken as second, or post-professional degrees, do not carry professional accreditation.

## Scholastic Activity and Research Interests of the Faculty

The faculty-full-time, adjunct and part-time-are involved in their areas of academic and professional interest. This takes many forms: built projects, design studies and competitions, scholarly writing and applied research. This work enriches the teaching mission and provides contributions to the larger community. For a detailed listing of faculty activity, see the **Faculty Catalog**, available from the School of Architecture.

## Special Programs and Opportunities

Visiting faculty members are an integral part of the graduate program at UT Arlington. Noted teachers from other schools in the United States and abroad as well as distinguished practicing designers offer advanced studios and courses each year. Thus, students have access to both a core of

permanent faculty members and to a changing spectrum of approaches and values. In addition to on-campus coursework, graduate students may study and travel abroad as an integrated part of the curriculum. The school maintains semester-long, full-credit student exchanges during the academic year with architecture schools at the Universities of Barcelona (Spain,) Lund (Sweden,) Innsbruck (Austria,) and Cottbus (Germany.) During the summer, there is a full-credit, five-week travel program to Rome, Florence and Verona, Italy.

## Architecture

### Overview

The design disciplines - **Architecture, Interior Design, Landscape Architecture** - teach us to understand and to shape the space we live in: rooms, buildings, gardens, cities. These disciplines are old, among the first activities of civilization itself. They are also new, requiring advanced knowledge and skills to serve contemporary culture. The design disciplines operate at many levels of thought and concern. On one hand they are very practical, dealing with a host of concrete realities; on the other they are highly conceptual, having to do with meaning and society's highest aspirations.

The purpose of the School's undergraduate curriculum is to pursue professional studies within the context of a liberal education. This goal is a natural one for the design disciplines, drawn as they are from the arts, the sciences, and the humanities.

The School of Architecture offers programs leading to the following degrees:

- Bachelor of Science in Architecture (p. 101)
- Bachelor of Science in Interior Design (p. 113)
- Master of Architecture (p. 106)
- Master of Landscape Architecture (p. 118)

**Bachelor of Science in Architecture:** A four-year program of studies comprising, with a later two-year graduate program, the six-year Master of Architecture curriculum. This sequence, called the **4 + 2 model**, has been adopted by many major universities as the most effective way of combining liberal education with professional education. (See the Graduate Catalog for the Master of Architecture (p. 106) program, which is accredited by the National Architectural Accrediting Board.) The four-year undergraduate degree is not an accredited professional degree; the Master of Architecture is fully accredited.

**Bachelor of Science in Interior Design:** A four-year program of studies, interdisciplinary with architecture, on the design of interior environments. Following the two-year Basic Studies sequence, the student completes two years of Major Studies, an intensive series of courses and studios on the theory, history, skill, and practice of interior design. The program leads to the professional degree in interior design, accredited by the Council for Interior Design Accreditation (CIDA) and the National Association of Schools of Art and Design (NASAD).

**Master of Architecture:** The Master of Architecture is an NAAB-accredited professional degree offered only at the graduate level. The Master of Architecture curriculum is coordinated with the Bachelor of Science in Architecture curriculum degree to form a six-year professional program. Below is the language from the National Architectural Accrediting Board explaining accreditation policy:

*"In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year or two-year term of accreditation, depending on its degree of conformance with established educational standards.*

*Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree."*

**Master of Landscape Architecture:** Landscape Architecture is offered only at the graduate level and is accredited by the American Society of Landscape Architects.

**Minor in History of Architecture:** For students in disciplines requiring a minor, the School of Architecture offers a minor in History of Architecture.

The School of Architecture will assist each student in selecting the path most appropriate to his or her interests and abilities. Academic advising is provided for all students in the school.

## Architecture - Undergraduate Programs

### Overview

The four-year Bachelor of Science in Architecture degree is a four-year pre-professional degree program of studies comprising, with a later two-year graduate program, the six-year Master of Architecture curriculum. This sequence, called the **4 + 2 model**, has been adopted by many major universities as the most effective way of combining liberal education with professional education. It provides the basis for various career possibilities, including the

professional degree of Master of Architecture or the Master of Landscape Architecture; these advanced degrees are normally awarded after two years of graduate study (refer to the graduate catalog for details).

The baccalaureate degree programs combine a core liberal arts curriculum with a structured sequence of courses in architecture and design. A large number of electives allows the student the flexibility to pursue special interests in the school and in the University.

The Bachelor of Architecture degree program consist of two two-year segments: Basic Studies and Major Studies. The first two years (Basic Studies) is a foundation curriculum taken by all undergraduates at that level in the school. In addition to work in the arts and sciences, Basic Studies includes a series of lecture and studio courses which introduce the student to the concepts, history, skills, and vocabulary of design.

In the third and fourth years (Major Studies), the student concentrates in one of the design disciplines, taking courses and studios of a more advanced and professional nature. Those pursuing the Bachelor of Science in Architecture degree follow the architecture sequence.

## **Major Studies: Entrance Requirements**

### **ADMISSIONS REQUIREMENTS**

Admission to the architecture-intended program is open to all students meeting the general requirements for entrance to the University.

### **ENTRANCE REQUIREMENTS**

To declare a major as Architecture and gain permission to enroll in upper-level ARCH or INTD courses:

- The student will have completed the final architecture-intended courses and core curriculum.
- Have a minimum of a 2.8 GPA both overall at UT Arlington as well as within the major (first and second year ARCH courses).
- Complete a Major Declaration form available through the School of Architecture

Prior to completing the application in the School of Architecture office, ALL required architecture-intended coursework must be completed.

GPA requirements may change based on changes in the curriculum of the program. Qualified students must meet the GPA requirements that are in place at the time they fulfill all other requirements to declare their major.

To declare a major for a fall semester, qualified applicants will submit their request to declare a major in the School of Architecture office at the completion of the spring semester, by the department specified deadline.

Students meeting the qualifications to declare a major during the summer or fall semesters will submit their request to declare a major at the completion of the fall semester, by the department specified deadline, for spring entrance consideration\*.

Consideration for fall admission into the major studies programs for qualified summer applicants will be based on space availability.

Coursework taken at other institutions or universities must be noted on the application with accompanying attachments showing the completion of/ or current attendance in the course(s). It is the student's responsibility to ensure that all coursework is transferred to the Office of Admissions at UT Arlington in a timely manner.

Upon entrance into the major studies programs, students will be required to maintain the minimum 2.8 GPAs both overall at UT Arlington and within the major to remain active and proceed within the program.

### **PROGRAMS COHORT**

The undergraduate programs in the School of Architecture at the University of Texas at Arlington are organized in a structured cohort format.

#### **What Is a Cohort?**

A cohort is a group of students that follows the same set schedule and progresses through a program together. The sequential scheduling of the courses promotes an interactive learning environment and facilitates networking opportunities and career-strengthening relationships.

#### **How Does It Work?**

The program consists of a sequence of courses that takes a minimum of eight semesters to complete. The courses are offered in specific semesters that require the students to complete the prior level before proceeding to the next level. If a student gets off-track in the cohort, she/he must wait until the missing course(s) are offered again.

#### **How Are the Courses Sequenced?**

The major courses must be taken as follows:

## Architecture Students

### First Year

First Semester	Hours	Second Semester	Hours
ARCH 1101	1	ARCH 1342	3
ARCH 1301	3		
ARCH 1341	3		
	7		3

### Second Year

First Semester	Hours	Second Semester	Hours
ARCH 2303	3	ARCH 2304	3
ARCH 2551	5	ARCH 2552	5
	8		8

### Third Year

First Semester	Hours	Second Semester	Hours
ARCH 3323	3	ARCH 3324	3
ARCH 3343	3	ARCH 3331	3
ARCH 3553	5	ARCH 3337	3
		ARCH 3554	5
	11		14

### Fourth Year

First Semester	Hours	Second Semester	Hours
ARCH 4321	3	ARCH 4557	5
ARCH 4556	5		
	8		5

Total Hours: 64

## Student Personal Laptop Policy

All declared Architecture and Interior Design majors admitted to the Third Year (Major Studies) are required to have a personal laptop computer configured to the specifications defined by the School of Architecture. Specifications may be found on the Architecture website: [www.uta.edu/architecture/](http://www.uta.edu/architecture/)

## Special Academic Requirements

**GPA Requirements:** Upon admission to the Major Studies, all declared majors must maintain a minimum GPA of 2.8 both within the major and in the cumulative GPA to continue in the upper level program to satisfy requirements for graduation.

**Grade Requirements:** A grade of C or higher must be earned in each School of Architecture course used for credit toward an undergraduate degree and minor offered by the school. A grade of C or higher must be earned in all required Math courses.

**Repetition of Courses:** Three attempts to achieve a satisfactory grade are permitted for each required course in the School of Architecture. Beyond that number of attempts, the student is denied access to the course in question, or to the sequence of courses for which it is requisite. Enrollment in the course for the time sufficient to receive a grade, including the grade W, is considered an attempt.

**Transfer of Credit:** The extent of credit toward degree requirements for academic work done elsewhere will be determined by the representatives of the appropriate program. Students applying to transfer credits from studio courses taken elsewhere must present examples of that work for evaluation.

**Student Projects:** The School of Architecture reserves the right to retain, copyright, use, exhibit, reproduce, and publish any work submitted for course credit. The student is encouraged to develop a portfolio of all work accomplished in advanced courses for future professional and academic uses.

## Requirements for a Bachelor of Science Degree in Architecture

### Architecture

ARCH 1101	ACADEMIC SUCCESS SKILLS IN ARCHITECTURE	1
ARCH 1301	INTRODUCTION TO ARCHITECTURE AND INTERIOR DESIGN	3
ARCH 1341	DESIGN COMMUNICATIONS I	3
ARCH 1342	DESIGN COMMUNICATION II	3
ARCH 2303	HISTORY OF ARCHITECTURE AND DESIGN I	3
ARCH 2304	HISTORY OF ARCHITECTURE AND DESIGN II	3
ARCH 2551	BASIC DESIGN AND DRAWING I	5
ARCH 2552	BASIC DESIGN AND DRAWING II	5
ARCH 3323	CONSTRUCTION MATERIALS AND METHODS	3
ARCH 3324	STRUCTURES I	3
ARCH 3331	ARCHITECTURE AND ENVIRONMENT	3
ARCH 3337	SITE DESIGN	3
ARCH 3343	ARCHITECTURE COMPUTER GRAPHICS (DESIGN COMMUNICATION III)	3
ARCH 3553	DESIGN STUDIO: ARCHITECTURE I	5
ARCH 3554	DESIGN STUDIO: ARCHITECTURE II	5
ARCH 4321	STRUCTURAL SYSTEMS IN BUILDINGS	3
ARCH 4556	DESIGN STUDIO: ARCHITECTURE III	5
ARCH 4557	DESIGN STUDIO: ARCHITECTURE IV	5

### Communications

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3

### Political Science

POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3

### History

HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3

### Mathematics

MATH 1325	ANALYTIC GEOMETRY	3
MATH 1327	ARCHITECTURAL CALCULUS	3

### Natural Science

PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4

### Language, Philosophy & Culture Elective

		3
--	--	---

### Literature

English or modern languages literature or other approved substitute		3
---	--	---

### Social & Behavioral Sciences Elective

Designated courses in social or cultural anthropology, archaeology, social/political/cultural geography, economics, psychology, sociology, classical studies, or linguistics		3
--	--	---

### University Elective

Selected from University course offerings and approved by the academic advisor		3
--	--	---

### Advanced Electives

Advanced architectural history		3
Advanced architectural theory		3
Advanced architectural elective		3
Advanced courses selected by the student with the advice, counsel, and approval of the designated undergraduate advisor for the option		12

Total Hours		129
-------------	--	-----

A least 36 hours must be 3000/4000 level.



## Suggested Course Sequence

### First Year

First Semester	Hours	Second Semester	Hours
ARCH 1101	1	ARCH 1342	3
ARCH 1301	3	ENGL 1302	3
ARCH 1341	3	HIST 2311	3
ENGL 1301	3	MATH 1327	3
MATH 1325	3	Social & Behavioral Sciences Elective	3
POLS 2312	3		
	<b>16</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
ARCH 2303	3	ARCH 2304	3
ARCH 2551	5	ARCH 2552	5
HIST 1312	3	Literature Elective	3
Language, Philosophy & Culture Elective	3	PHYS 1442	4
PHYS 1441	4	POLS 2311	3
	<b>18</b>		<b>18</b>

### Third Year

First Semester	Hours	Second Semester	Hours
ARCH 3323	3	ARCH 3324	3
ARCH 3343	3	ARCH 3331	3
ARCH 3553	5	ARCH 3337	3
Advanced ARCH Elective	3	ARCH 3554	5
University Elective	3		
	<b>17</b>		<b>14</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
ARCH 4321	3	ARCH 4557	5
ARCH 4556	5	Advanced ARCH Theory Elective	3
Advanced ARCH History Elective	3	Advanced Electives	6
Advanced Electives	6		
	<b>17</b>		<b>14</b>

Total Hours: 129

## COMPETENCE IN ORAL PRESENTATIONS

Students obtaining a Bachelor of Science degree in Architecture demonstrate oral proficiency by taking and passing ARCH 2551 BASIC DESIGN AND DRAWING I, ARCH 2552 BASIC DESIGN AND DRAWING II, ARCH 3553 DESIGN STUDIO: ARCHITECTURE I, ARCH 3554 DESIGN STUDIO: ARCHITECTURE II, ARCH 4556 DESIGN STUDIO: ARCHITECTURE III, and ARCH 4557 DESIGN STUDIO: ARCHITECTURE IV or approved equivalents.

## COMPETENCE IN COMPUTER USE

Students obtaining a Bachelor of Science degree in Architecture can demonstrate computer proficiency by:

- Taking and passing ENGL 1301 RHETORIC AND COMPOSITION I or ENGL 1302 RHETORIC AND COMPOSITION II at UT Arlington in a computer classroom environment or ENGL 3372 COMPUTERS AND WRITING, ENGL 3374 WRITING, RHETORIC, AND MULTIMEDIA AUTHORING, CSE 1301 COMPUTER LITERACY (or equivalent), or any other class approved by the Undergraduate Assembly.
- Passing the University computer literacy examination.

## Minor in Architecture History

The school offers numerous courses from which to select the 18 hours required for a minor.

ARCH 2303	HISTORY OF ARCHITECTURE AND DESIGN I	3
ARCH 2304	HISTORY OF ARCHITECTURE AND DESIGN II	3
ARCH 3312	HISTORY OF CONTEMPORARY THEORY	3
ARCH 4305	THE CITY OF ROME	3
ARCH 4308	HISTORY OF URBAN FORM	3
ARCH 4315	TOPICS IN THE HISTORY OF ARCHITECTURE AND DESIGN <sup>1</sup>	3
ARCH 4316	MODERN ARCHITECTURE I	3
ARCH 4317	MODERN ARCHITECTURE II	3

<sup>1</sup> A Special Topics courses whose offerings continually are changing.

## Architecture - Graduate Programs

The purpose of the Master of Architecture degree program is to educate toward ultimate leadership positions within the profession of architecture. Within a broad curriculum, design as a discipline and a process is emphasized. Students are encouraged to give rich visual and material substance to both theoretical and pragmatic ideas. The context for design at the UT-Arlington focuses on the contemporary urban condition, a viewpoint especially appropriate for a school at the heart of a diverse, expanding, and internationally oriented region like Dallas/Fort Worth.

There are three distinct programs of study in architecture, which provide options to graduate students with different backgrounds and needs. Path A requires approximately 3-1/2 years, Path B two years, and Path C one year.

### Accreditation

The Master of Architecture is a NAAB-accredited professional degree offered only at the graduate level. The Master of Architecture curriculum is coordinated with the Bachelor of Science in Architecture curriculum degree to form a six-year professional program.

### Objective

The purpose of the Master of Architecture program is to educate for ultimate leadership positions within the architecture profession.

Design is emphasized as central to the discipline of design deeply informed by history, theory, technology, and the broader cultural setting. Design studios, lecture courses, seminars, and workshops develop the critical mind as well as the visual sensibility.

Architecture and its practice exist within the social fabric. Thus discourse and communication are a vital part of the educational process. Through case studies in studios and courses, students learn to present ideas, and to use and give commentary. Visiting faculty leading practitioners and teachers from other schools provide a rich connection to the world of building and to a variety of views. In addition, international student exchange programs, study-travel courses, and numerous internship opportunities in the Dallas-Fort Worth area connect the learning of architecture with the wider world.

In the United States, most state registration boards require a degree from an accredited degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB,) which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree. The University of Texas at Arlington does not offer the Bachelor of Architecture degree.

The professional program leading to the Master of Architecture degree consists of a sequence of coordinated core courses that introduce and develop architectural knowledge; this is followed by a flexible array of more advanced and speculative course options. The preparation each student brings determines where, in this progression from introductory to advanced work, the program is entered. Path A is for those with a baccalaureate degree

but no specific background in architecture; this sequence normally takes 3.5 years to the M.Arch. Path B is for those with a four-year undergraduate baccalaureate degree with a major in architecture; this sequence assumes satisfactory core studies and consists of about two years of more advanced professional studies. Path C is for those who already hold an accredited professional degree in architecture and who wish for a second professional degree; at least one year of advanced work is required.

## NAAB Statement

The National Architectural Accrediting Board (<http://www.naab.org>) explains the accreditation policy:

"In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB,) which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year or two-year term of accreditation, depending on its degree of conformance with established educational standards.

"Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree."

The complete NAAB Conditions for Accreditation, including Student Performance Criteria, can be found on the NAAB website at [www.naab.org](http://www.naab.org) (<http://www.naab.org>).

## Graduate Teaching Assistantships

To be considered for a Graduate Teaching Assistant position, the candidate must be admitted without provisional conditions. Candidates whose native language is not English must submit an acceptable score on the Test of Spoken English (TSE-A) before arriving in the United States. GTA positions in architecture are limited and are very competitive.

## Fellowships

To be considered for a Dean's Fellowship, the candidate must have a favorable review in most of the evaluation criteria. Candidates must be new students coming to UT Arlington, must have a GPA of 3.0 in their last 60 undergraduate credit hours and any graduate credit hours, and must be enrolled in a minimum of 6 hours in both long semesters to retain their fellowships. Fellowships in architecture are limited and very competitive.

Prospective students are strongly encouraged to contact the Graduate Advisor and discuss their options, the admission process, and how the M.Arch program may fit in their professional plans. Students are also invited to visit the School, sit in on classes, and meet faculty and students at the School of Architecture.

## Master's Admissions Requirements

### UNCONDITIONAL ADMISSION

**Path A:** For unconditional admission to the Path A program, the candidate must meet the following requirements:

- B.S. or B.A. Degree - Hold a 4-year B.S. or B.A. degree from an accredited program.
- GPA of 3.0 - Have a GPA of 3.0 as calculated by Graduate Admissions.
- GRE score of 1000 - Have a minimum total score of 500 in the verbal and 500 in the quantitative portions of the Graduate Record Exam (GRE).
- 3 Letters of recommendation - Submit three letters of recommendation from sources who are familiar with the applicant's academic record, preferably former professors. (For applicants who have been out of school for an extended period, letters of recommendation may be from professional sources if academic ones are no longer available).
- 200 Word Essay  
Submit a short 200-word personal statement providing evidence of professional or academic goals consistent with the Architecture Program.
- TOEFL Score of 550  
For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (TOEFL), or the equivalent score on the computer based test. For otherwise highly qualified candidates, this requirement may be eased.
- Portfolio Submission (Optional)  
Submission of a design portfolio is not required. If a candidate does have a portfolio of creative work showing freehand drawings or sketches, painting, graphic design, architectural or furniture design, he/she is encouraged to submit it.

**Path B:** For unconditional admission to the Path B program, the candidate must meet the above requirements, and in addition must:

- Portfolio Submission (required)  
Submit a portfolio of design work and/or professional involvement, which shows evidence of design capability on a level expected in the graduate program as determined by the Graduate Architecture Admissions Committee. (Design work produced in an office as an employee carries less weight because of the difficulty in determining the applicant's exact contribution to the work shown). The best indication of probable success in the program is the quality of work demonstrated in the portfolio.

**Path C:** For unconditional admission to the Path C program, the candidate must meet the requirements of the Path A and Path B programs (except the requirement of a B.A. or B.S. degree) and must:

- Professional Architecture Degree  
Have a professional architecture degree (B.Arch. or M.Arch. or the international equivalent) from an accredited architecture program.

## PROBATIONARY ADMISSION

**Path A:** Candidates who do not meet the criteria for unconditional admission to Path A, will be considered for probationary admission in which they will be required to maintain a grade of B or better in the first 12 credit hours of courses in the program. To be considered for probationary acceptance, the candidate must perform well on four of the following six criteria:

- Undergraduate performance in relevant courses
- Work experience
- GPA
- GRE
- Portfolio review (optional)
- Letters of recommendation

**Path B:** Candidates who do not meet the criteria for unconditional admission to Path B may be considered for probationary admission in which they will be required to maintain a grade of B or better in the first 12 credit hours of courses in the program. And/or they may also be required to take one or more Path A and/or fourth year design studio as determined by the graduate advisor on review of their portfolio before continuing with the Path B design studio sequence.

To be considered for probationary acceptance, the candidate must perform well on three of the following five criteria:

- Undergraduate performance in relevant courses
- GPA
- GRE
- Letters of recommendation
- Portfolio review

**Path C:** Candidates who do not meet the criteria for unconditional admission to Path C, may be considered for probationary admission in which they will be required to maintain a grade of B or better in the first 12 credit hours of courses in the program. To be considered for probationary acceptance, the candidate must perform well on three of the following five criteria:

- Performance in relevant courses in a program leading to the B.Arch or M.Arch degree.
- GPA
- GRE
- Letters of recommendation
- Portfolio review

Note: Applicants whose native language is not English who do not meet the program's minimum TOEFL score, may be asked to complete extramural training in English, as approved by the program and the Graduate Office.

## PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the submission deadline but who otherwise appears to meet admission requirements may be granted provisional admission. All missing documentation must be received before the end of the first semester of study.

## DEFERRED ADMISSION

A deferred admission may be granted when a file is incomplete or when a denied decision is not appropriate.

## WAIVER OF GRADUATE RECORD EXAM (GRE)

A waiver of the Graduate Record Exam may be considered for a UT Arlington undergraduate who has completed an undergraduate degree in Architecture or Interior Design; the student's GPA must equal or exceed 3.50 in all undergraduate coursework completed at UT Arlington. The GRE waiver may also be extended to other UT Arlington undergraduates who have completed an undergraduate degree at UT Arlington; the student's GPA must equal or exceed a 3.50 in all undergraduate coursework completed at UT Arlington. The final decision to waive the GRE also requires a positive review of completed coursework by the graduate advisor to determine the applicant's readiness to study Architecture.

## DENIAL OF ADMISSION

Candidates who do not satisfy the requirements for probationary admission will not be admitted.

## Architecture Degree Requirements

### PROFESSIONAL DEGREE PROGRAM: PATH A (3.5 YEARS)

For applicants holding a baccalaureate (B.A., B.S.) degree in a subject outside architecture, such as liberal arts, sciences, business, or another profession.

A minimum of 104 credit hours in architectural design, theory, and practice is required of Path A candidates for the professional degree in architecture (M.Arch). Due to the rigor of the program (not unlike any other professional school, law or medicine), students entering this program are advised to discontinue outside employment.

Advancement in Professional Degree Program Path A is predicated upon successful and timely completion of required coursework as well as an annual review of the student's portfolio of design work by the Directors Group of the Architecture Program.

In addition to completing an introductory curriculum beginning in the summer of the first semester of enrollment, students must also complete the Path B core curriculum of 39 credit hours. The core curriculum of this course of study is:

ARCH 5325	ENVIRONMENTAL CONTROL SYSTEMS	3
ARCH 5326	ENVIRONMENTAL CONTROL SYSTEMS	3
ARCH 5329	TOPICS IN COMPUTERS AND DESIGN	3
ARCH 5331	PROFESSIONAL PRACTICE	3
ARCH 5333	CONSTRUCTION II	3
Advanced Studio		24
Total Hours		39

Students approved by the Directors Group to substitute a design thesis for the last semester of the required studio sequence must also take ARCH 5363 DESIGN RESEARCH prior to enrollment in ARCH 5693 DESIGN THESIS.

Electives must include at least one course from each of the following categories of courses offered by the school:

1. history and theory
2. technology and practice, and
3. allied disciplines (landscape architecture, urban design, housing, and interior design).

### PROFESSIONAL DEGREE PROGRAM: PATH B (2 YEARS)

For applicants holding a baccalaureate degree with a major in architecture. Placement in the graduate curriculum may be adjusted on the basis of previous academic and professional work.

A minimum of 54 credit hours is required for the thesis option or 57 for the design thesis and advanced studio options.

The core curriculum for this course of study is:

ARCH 5325	ENVIRONMENTAL CONTROL SYSTEMS	3
ARCH 5326	ENVIRONMENTAL CONTROL SYSTEMS	3
ARCH 5327	ARCHITECTURAL STRUCTURES II	3
ARCH 5328	ARCHITECTURAL STRUCTURES III	3
ARCH 5329	TOPICS IN COMPUTERS AND DESIGN	3
ARCH 5331	PROFESSIONAL PRACTICE	3
ARCH 5333	CONSTRUCTION II	3
Advanced Studio		18
Select one of the following:		
ARCH 5693	DESIGN THESIS	
ARCH 5698	RESEARCH THESIS	
Advanced Studio		
Total Hours		39

Students in design thesis option must take ARCH 5395 TOPICS IN ARCHITECTURE prior to enrollment in ARCH 5693 DESIGN THESIS.

Electives must include at least one course from each of the following categories of courses offered by the School of Architecture:

1. history and theory
2. technology and practice and
3. allied disciplines (landscape architecture, urban design, housing and interior design).

## **POST-PROFESSIONAL DEGREE PROGRAM: PATH C (1 YEAR)**

For applicants holding a previous professional degree in Architecture (B.Arch.) from an accredited program. The M.Arch, as a second rather than a first professional degree, does not receive NAAB Accreditation.

Thirty credit hours are required of students in Path C with thesis while 33 hours will be required of students with design thesis or advanced studio options.

A minimum of 18 hours is required in architectural program courses including six hours of history/theory as well as thesis, design thesis, or advanced studio. Students are also required to take an advanced studio which may be waived by student request if design proficiency or equivalent experience has been demonstrated. The remainder of the work will be arranged with and approved by the Graduate Advisor to suit the interests of the student. Courses of study provide for an area of specialization or for advanced general studies.

The School of Architecture offers international study programs in Rome, Italy, Barcelona, Spain, Innsbruck, Lund, Sweden and Cottbus, Germany. The Rome Program, conducted for five weeks each summer by UT Arlington faculty, is open to upper division and graduate students and may be used to satisfy history and elective requirements. The Barcelona, Innsbruck and Lund programs are semester-long exchange programs with universities in these cities, with the normal expectation of both studio and elective credit.

## **M.C.R.P. AND M.ARCH. DUAL DEGREE PROGRAM**

Students in this dual program may earn both the Master of City and Regional Planning and the Master of Architecture degrees in a curriculum of 87 semester credit hours. Applicants must meet the admission requirements of both the M.C.R.P. and the M.Arch. programs. City and Regional Planning students wishing to earn the M.Arch degree will be required to take Path A in the Architecture Program unless they have earned an undergraduate degree in architecture which will allow CIRP applicants to take Path B. Programs of study will follow both master's programs, with all of the 15 credit hours of electives in the M.Arch program to be taken in the MCRP program. In addition to the 36 credit hours of architectural core courses, the remainder of coursework will be in the City and Regional Planning program in the School of Urban and Public Affairs with a required thesis proposal and programs of work to be jointly approved by the City and Regional Planning Program and the Architecture Program. A thesis supervisor should be selected from CIRP or the School of Architecture, and committee members should be selected from both faculties.

Course selection and programs of study should be designed with the assistance of the Graduate Advisors in both programs. Only in special instances may students select the thesis substitute plan of the MCRP program. The successful candidate will be awarded both degrees rather than one joint degree.

## **Admissions Requirements**

Applicants must meet the general requirements of the Office of Graduate Studies. A personal interview with the Director, Graduate Advisor or members of the landscape architecture faculty is strongly recommended. Three letters of recommendation are required, and it is suggested that at least two of the letters come from former educators or academic contact. Applicants also are required to submit scores from the Graduate Record Exam (GRE). Average GRE scores of successful applicants since 1998 have been approximately 550 Verbal and 550 Quantitative. Also required is a grade point average (GPA) of 3.00 as calculated by the Office of Graduate Studies.

Applicants holding first professional degrees in landscape architecture, or in some cases degrees related to landscape architecture (such as architecture, engineering, environmental design, horticulture, interior design, planning, and the like) are required to submit portfolios reflecting the applicants' professional and/or academic experiences and interests. Portfolios are assessed according to proficiency in design, presentation and layout, technical skills, and content, similar to criteria used in design studios.

Applicants who have a weakness in one of the criteria for admission can enhance their credentials with strengths in the remaining criteria.

Applicants can be admitted according to four conditions: Unconditional; Provisional; Probationary; and, Deferred. Applicants who do not meet the criteria of one of these conditions will be denied admission to the Program.

## **UNCONDITIONAL ADMISSION**

Applicants must possess a bachelor's degree from an accredited college or university. Transcripts from all previous college or university work, along with scores from the Graduate Record Exam (GRE), and three letters of recommendation are required of all applicants. In addition, applicants should have a minimum Grade Point Average (GPA) of 3.0, as calculated by the Office of Graduate Studies. Applicants holding the first professional degree in landscape architecture, or a related field, must submit a portfolio.

## PROVISIONAL ADMISSION

Those who have submitted their applications forms, but whose packets are incomplete, can be admitted provisionally if their GPA meets minimum requirements, and if the Program and the Office of Graduate Studies have received official transcripts. In this case, incomplete materials could include letters of recommendation, GRE scores, and/or portfolios.

## PROBATIONARY ADMISSION

Those who have weaknesses in no more than two of the Degree Requirements (letters of recommendation, GRE scores, and GPA), can be admitted on probation, with the condition that they make no less than a B in the first 12 hours of coursework in landscape architecture. Such students must complete no fewer than 9 credits during the semester in which they are on probation.

## DEFERRED ADMISSION

Those who have weaknesses in no more than two of the Degree Requirements (letters of recommendation, GRE scores, and GPA), and/or who have not submitted all of the materials required for unconditional admission, can have their applications deferred for one semester, until outstanding requirements and criteria are met.

## INTERNATIONAL STUDENT ADMISSION

International applicants must meet the Degree Requirements (letters of recommendation, GRE scores, and GPA), and must be admitted in one of the admission categories described above. In addition, applicants whose native language is not English must have a demonstrated speaking ability in English. They also must meet the Program's minimum required score of 575 on the paper exam, or an equivalent score on the computer based- or internet-based tests, on the Test of English as a Foreign Language (TOEFL). International applicants who do not meet the Program's minimum TOEFL score, must complete extramural training in English, as approved by the Program and the Office of Graduate Studies.

## Certificate in Repositioning & Turnaround Strategies

### 13 Credits for Certificate --- Four Core Courses and Studio

Purposefully designed for real estate professionals seeking enhanced skills and new career options, or for graduate students seeking new credentials in course electives, the University of Texas at Arlington Graduate School of Architecture offers a special Certificate Program in Repositioning & Turnaround Strategies. This one-semester 14 -week intensive Certificate meets two evenings each week, Wednesday + Thursday at The Universities Center, 1901 Main St. in downtown Dallas. The Financial Analyses course meets on Saturday mornings for three weeks in the UT Arlington Ft Worth campus with the remainder of the course taught online. For Students already experienced in financial modeling, this component can be replaced by Independent Research to qualify for the Certificate.

#### **ARCH 5101. DIRECTED STUDY: ANALYTICAL SOFTWARE TUTORIAL. 1 Hour.**

Introduction to software relevant to ARCH 5375, ARCH 5376 and ARCH 5377: Excell Argus.

#### **ARCH 5370. ADVANCED DESIGN STUDIO. 3 Hours.**

Studio course in the generation and development of architectural ideas in formal and environmental contexts.

#### **ARCH 5375. PROPERTY AND ASSET REPOSITIONING. 3 Hours.**

The physical planning and design issues impacting project performance levels and asset appreciation.

#### **ARCH 5376. PROPERTY DUE DILIGENCE. 3 Hours.**

Course addresses physical project data collection techniques.

#### **REAE 5392. FINANCIAL ANALYSIS. 3 Hours.**

Course in financial feasibility for those without knowledge of real estate cash flow analysis and excel spreadsheets.

---

### Certificate Program Faculty

The UT Arlington Certificate Program is led by senior UT Arlington Faculty from the Graduate Schools of Architecture and Business Administration, and assisted by Visiting Lecturers drawn from the DFW real estate industry.

#### **Michael P Buckley**

#### **Director, Certificate Program in Repositioning & Turnaround Strategies, Center for Metropolitan Density**

Professor Buckley formerly directed Columbia's Master of Science in Real Estate program and now heads the UT Arlington Certificate in Repositioning & Turnaround Strategies, and the new UT Arlington research platform, the Center for Metropolitan Density.

Past President of the Connecticut Society of Architects, he now serves on the Dallas AIA Exec Committee. As President of Halcyon LTD Development Advisors, he has an international reputation for mixed-use concepts and strategic urban planning. Assignments to redevelop underutilized sites include San Juan's El Triangulo Dorado Harbor Plan and Washington DC's Navy Yard. Consulting engagements included Organizational options for a major Asian developer and Strategic Cluster studies for cities in Texas, Connecticut and Puerto Rico.

Prof Buckley is a former ULI Trustee and former Chair, ULI Program Committee and Urban Development Mixed-Use Council. He is now on the Research Committee of the Real Estate Roundtable DC, Affinity Group Leader for the Pension Real Estate Assoc, Academic Member of the Assoc. of Foreign Investors in Real Estate, and The Commercial Real Estate Finance Council. He serves on the Advisory Boards of Interlink Group, and the Texas Sustainability Council. He holds BA and BSc degrees from Rice University, and a Master's degree in Advanced Studies from MIT.

### **Fred A. Forgey**

#### **Professor of Finance, UTA College of Business**

#### **Director, Graduate Real Estate Programs**

Dr. Forgey teaches the program's Real Estate Development Financial Analysis and Valuation course. He is executive director of Graduate Real Estate Programs for the UT Arlington College of Business. Over the past 20 years, he has held faculty positions with the University of Auckland-New Zealand, University of North Texas, University of Texas at Austin and Texas A&M University, where he was coordinator for the Master of Science in Land Development Program. He has led a variety of specialized study abroad programs to Australia and New Zealand, has taught in executive MBA programs in Asia and has been a professor of real estate for ORIX Capital Markets. Dr. Forgey's teaching and research focus on adaptive re-use and redevelopment initiatives. He currently serves as chair of the Downtown Bryan Economic Development Association in Bryan, Texas.

### **Adjunct Faculty/ Visiting Lectures**

The UT Arlington Cert Program has an objective to maintain a close working relationship and a deliberate outreach to the real estate industry.

Each Semester, a select group of industry leaders share their project experience and opinions of emerging trends and proven operational and investment practices. Over the past two years the UT Arlington Cert Program has benefitted from an outstanding array of professionals from Banking, Law, Development, Leasing, Asset Management and Private Equity, with senior executives serving as Visiting Lecturers such as:

- **Michael Dalton** - Vice President, Archon Group
- **Peter McKee** - Partner, Andrews Kurt
- **John Walsh** - President, TIG USA
- **Steve Kennedy** - Partner, E2M Private Equity
- **Jay Small** - Vice President OREO Keybank
- **Steve Kanoff** - EVP, Westmont Realty
- **Mark Wolf** - Principal, JHP Architects
- **Chuck Bedsole** - VP Hospitality. Alvarez& Marsal
- **David Parham** - Partner, Baker McKenzie

### **UT Arlington Roundtable Series**

Now in its third year, this popular topic-oriented gathering is sponsored by UT Arlington Center for Metropolitan Density and is an integral part of the Certificate curriculum which has been co-sponsored by major DFW Professional organizations including:

- North Texas District Council
- The Real Estate Council
- AIA Dallas
- Texas Capital Bank
- Cushman & Wakefield LLP
- Haynes & Boone LLP
- Ernst & Young LLP
- Jones Lang LaSalle

The UT Arlington Roundtable series has featured Panelists from the top DFW Region, including Asset Managers, Real Estate Funds Financiers, Developers, Equity Sources, Brokers and Law Firms such as:

- Holiday Fenoglio Fowler LLP
- Granite Properties
- Hunt Realty Corp
- Texas Capital Bank
- Witten Assocs
- Cushman & Wakefield LLP
- Invesco Real Estate
- Stratford Land Corporation



- Primera Companies
- E2M Private Equity
- Corgan Associates
- CityPlace Development
- Andrews Kurth LLP
- Berkadia Commercial Mortgage
- Joe Foster Company
- Crosson-Danis
- Centerline / C3 M
- DLA Piper LLP
- BOKA Powell
- Good Fulton Farrel
- Hughes Development
- Jones Lang LaSalle
- The Weitzman Group
- Dallas Area Rapid Transit
- Texas Institute for Sustainability
- Jackson Walker LLP
- City of Dallas Eco Dev
- Archon Group
- Billingsley Companies
- Trinity Works
- HKS Architects
- Cityview Corp
- UCR Realty
- Baker McKenzie LLP
- Ernst & Young LLP
- Haynes & Boone LLP
- Behringer Harvard
- JHP Architects
- Interlink Group
- Texas Capital Bank

## Interior Design

### Bachelor of Science in Interior Design

Interior Design at UT Arlington focuses on the commercial, institutional, and large-project scale activities of the profession, a focus very appropriate in the context of architecture.

The Bachelor of Science in Interior Design is a four-year program of studies, interdisciplinary with architecture, on the design of interior environments and consists of two two-year segments: Basic Studies and Major Studies. Following the two-year Basic Studies sequence, the student completes two years of Major Studies, an intensive series of courses and studios on the theory, history, skill, and practice of interior design.

In the third and fourth years (Major Studies), the student concentrates in one of the design disciplines, taking courses and studios of a more advanced and professional nature.

The program leads to the professional degree in interior design, accredited by the Council for Interior Design Accreditation (CIDA) and the National Association of Schools of Art and Design (NASAD).

### Accreditation

The program is fully accredited by the Council for Interior Design Accreditation (CIDA) and the National Association of Schools of Art and Design (NASAD).

## Major Studies: Entrance Requirements

### ADMISSIONS REQUIREMENTS

Admission to the interior design-intended program is open to all students meeting the general requirements for entrance to the University.

### ENTRANCE REQUIREMENTS

To declare a major as Interior Design and gain permission to enroll in upper-level INTD or ARCH courses:

- The student will have completed the final architecture-intended or interior design-intended courses and core curriculum.
- Have a minimum of a 2.8 GPA both overall at UT Arlington as well as within the major (first and second year ARCH courses).
- Complete a Major Declaration form available through the School of Architecture

Prior to completing the application in the School of Architecture office, ALL required interior design-intended course work must be completed.

GPA requirements may change based on changes in the curriculum of the program. Qualified students must meet the GPA requirements that are in place at the time they fulfill all other requirements to declare their major.

To declare a major for a fall semester, qualified applicants will submit their request to declare a major in the School of Architecture office at the completion of the spring semester, by the department specified deadline.

Students meeting the qualifications to declare a major during the summer or fall semesters will submit their request to declare a major at the completion of the fall semester, by the department specified deadline, for spring entrance consideration\*.

Consideration for fall admission into the major studies programs for qualified summer applicants will be based on space availability.

Coursework taken at other institutions or universities must be noted on the application with accompanying attachments showing the completion of/ or current attendance in the course(s). It is the student's responsibility to ensure that all coursework is transferred to the Office of Admissions at UT Arlington in a timely manner.

Upon entrance into the major studies programs, students will be required to maintain the minimum 2.8 GPAs both overall at UT Arlington and within the major to remain active and proceed within the program.

### PROGRAMS COHORT

The undergraduate programs in the School of Architecture at the University of Texas at Arlington are organized in a structured cohort format.

#### What Is a Cohort?

A cohort is a group of students that follows the same set schedule and progresses through a program together. The sequential scheduling of the courses promotes an interactive learning environment and facilitates networking opportunities and career-strengthening relationships.

#### How Does It Work?

The program consists of a sequence of courses that takes a minimum of eight semesters to complete. The courses are offered in specific semesters that require the students to complete the prior level before proceeding to the next level. If a student gets off-track in the cohort, she/he must wait until the missing course(s) are offered again.

#### How Are the Courses Sequenced?

The major courses must be taken as follows:

##### Interior Design Students

###### First Year

First Semester	Hours	Second Semester	Hours
ARCH 1301	3	ARCH 1342	3
ARCH 1341	3		
INTD 1101	1		
	7		3

###### Second Year

First Semester	Hours	Second Semester	Hours
ARCH 2303	3	ARCH 2304	3

ARCH 2551	5	ARCH 2552	5
	<b>8</b>		<b>8</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
INTD 3305	3	INTD 3322	3
INTD 3321	3	INTD 3323	3
INTD 3343	3	INTD 3357	3
INTD 3553	5	INTD 3555	5
	<b>14</b>		<b>14</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
INTD 4332	3	INTD 4344	3
INTD 4368	3	INTD 4345	3
INTD 4393 or 4395	3	INTD 4369	3
INTD 4394	3	INTD 4563	5
INTD 4562	5		
	<b>17</b>		<b>14</b>

---

Total Hours: 85

**Student Personal Laptop Policy**

All declared Interior Design majors admitted to the Third Year (Major Studies) are required to have a personal laptop computer configured to the specifications defined by the School of Architecture. Specifications may be found on the Architecture website: [www.uta.edu/architecture/](http://www.uta.edu/architecture/)

**Special Academic Requirements**

**GPA Requirements:** Upon admission to the Major Studies, all declared majors must maintain a minimum GPA of 2.8 both within the major and in the cumulative GPA to continue in the upper level program to satisfy requirements for graduation.

**Grade Requirements:** A grade of C or higher must be earned in each School of Architecture course used for credit toward an undergraduate degree and minor offered by the school. A grade of C or higher must be earned in all required Math courses.

**Repetition of Courses:** Three attempts to achieve a satisfactory grade are permitted for each required course in the School of Architecture. Beyond that number of attempts, the student is denied access to the course in question, or to the sequence of courses for which it is requisite. Enrollment in the course for the time sufficient to receive a grade, including the grade W, is considered an attempt.

**Transfer of Credit:** The extent of credit toward degree requirements for academic work done elsewhere will be determined by the representatives of the appropriate program. Students applying to transfer credits from studio courses taken elsewhere must present examples of that work for evaluation.

**Student Projects:** The School of Architecture reserves the right to retain, copyright, use, exhibit, reproduce, and publish any work submitted for course credit. The student is encouraged to develop a portfolio of all work accomplished in advanced courses for future professional and academic uses.

**Requirements for a Bachelor of Science Degree in Interior Design****Architecture**

ARCH 1301	INTRODUCTION TO ARCHITECTURE AND INTERIOR DESIGN	3
ARCH 1341	DESIGN COMMUNICATIONS I	3
ARCH 1342	DESIGN COMMUNICATION II	3
ARCH 2303	HISTORY OF ARCHITECTURE AND DESIGN I	3
ARCH 2304	HISTORY OF ARCHITECTURE AND DESIGN II	3
ARCH 2551	BASIC DESIGN AND DRAWING I	5
ARCH 2552	BASIC DESIGN AND DRAWING II	5

**Interior Design**

INTD 1101	ACADEMIC SUCCESS SKILLS INTERIOR DESIGN	1
INTD 3305	HISTORY OF INTERIOR DESIGN	3
INTD 3321	INTERIOR MATERIALS I	3
INTD 3322	INTERIOR MATERIALS II	3
INTD 3323	LIGHTING DESIGN	3
INTD 3343	INTERIOR DESIGN COMMUNICATION III	3
INTD 3357	BUILDING INFORMATION MODELING & VISUALIZATION	3
INTD 3553	DESIGN STUDIO: INTERIOR DESIGN I	5
INTD 3555	DESIGN STUDIO: INTERIOR DESIGN II	5
INTD 4332	PROFESSIONAL PRACTICE: INTERIOR DESIGN	3
INTD 4344	INTERIOR DESIGN COMMUNICATION IV	3
INTD 4345	ARCHITECTURAL GRAPHICS	3
INTD 4393	INTERIOR DESIGN INTERNSHIP	3
or INTD 4395	SPECIAL TOPICS IN INTERIOR DESIGN	
INTD 4394	DESIGN RESEARCH METHODS AND APPLICATION	3
INTD 4368	INTERIOR DESIGN AND DETAILING	3
INTD 4369	FURNITURE DESIGN AND CONSTRUCTION	3
INTD 4562	DESIGN STUDIO: INTERIOR DESIGN III	5
INTD 4563	DESIGN STUDIO: INTERIOR DESIGN IV	5
<b>Communications</b>		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
<b>Political Science</b>		
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
<b>History</b>		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
<b>Mathematics</b>		
MATH 1324	ALGEBRA AND TRIGONOMETRY	3
or MATH 1302 & MATH 1303	COLLEGE ALGEBRA and TRIGONOMETRY	
MATH 1325	ANALYTIC GEOMETRY	3
<b>Natural Science</b>		
PHYS 1301	PHYSICS FOR NON SPECIALISTS I	3
PHYS 1302	PHYSICS FOR NON SPECIALISTS II	3
<b>Art History</b>		
Art history elective, approved		3
<b>Language, Philosophy &amp; Culture</b>		
<b>Literature</b>		
English or modern languages literature or other approved substitute		3
<b>Social and Behavior Sciences</b>		
Designated courses in social or cultural anthropology, archaeology, social/political/cultural geography, economics, sociology, classical studies, or linguistics		3
Total Hours		127

At least 36 hours must be 3000/4000 level.

## Suggested Course Sequence

### First Year

First Semester	Hours	Second Semester	Hours
ARCH 1301	3	HIST 1311	3

ARCH 1341	3	ARCH 1342	3
PHYS 1301	3	ENGL 1301	3
POLS 2312	3	MATH 1325	3
INTD 1101	1	PHYS 1302	3
MATH 1324	3		
	<b>16</b>		<b>15</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
ARCH 2303	3	ARCH 2304	3
ARCH 2551	5	ARCH 2552	5
ENGL 1302	3	Language, Philosophy & Culture	3
HIST 1312	3	Literature Elective	3
POLS 2311	3	Social & Behavioral Sciences Electives	3
	<b>17</b>		<b>17</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
INTD 3305	3	INTD 3322	3
INTD 3553	5	INTD 3323	3
INTD 3321	3	INTD 3357	3
INTD 3343	3	INTD 3555	5
		Art History	3
	<b>14</b>		<b>17</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
INTD 4332	3	INTD 4344	3
INTD 4393 or 4395	3	INTD 4345	3
INTD 4394	3	INTD 4369	3
INTD 4368	3	INTD 4563	5
INTD 4562	5		
	<b>17</b>		<b>14</b>

---

Total Hours: 127

**COMPETENCE IN ORAL PRESENTATIONS**

Students obtaining a Bachelor of Science degree in Interior Design demonstrate oral proficiency by taking and passing ARCH 2551 BASIC DESIGN AND DRAWING I and ARCH 2552 BASIC DESIGN AND DRAWING II, or approved equivalents.

**COMPETENCE IN COMPUTER USE**

Students obtaining a Bachelor of Science degree in Interior Design can demonstrate computer proficiency by:

- Taking and passing ENGL 1301 RHETORIC AND COMPOSITION I or ENGL 1302 RHETORIC AND COMPOSITION II at UT Arlington in a computer classroom environment or ENGL 3372 COMPUTERS AND WRITING, ENGL 3374 WRITING, RHETORIC, AND MULTIMEDIA AUTHORING, CSE 1301 COMPUTER LITERACY (or equivalent), or any other class approved by the Undergraduate Assembly.

- Passing the University computer literacy examination.

## Minor in Architecture History

The school offers numerous courses from which to select the 18 hours required for a minor.

ARCH 2303	HISTORY OF ARCHITECTURE AND DESIGN I	3
ARCH 2304	HISTORY OF ARCHITECTURE AND DESIGN II	3
ARCH 3312	HISTORY OF CONTEMPORARY THEORY	3
ARCH 4305	THE CITY OF ROME	3
ARCH 4308	HISTORY OF URBAN FORM	3
ARCH 4315	TOPICS IN THE HISTORY OF ARCHITECTURE AND DESIGN <sup>1</sup>	3
ARCH 4316	MODERN ARCHITECTURE I	3
ARCH 4317	MODERN ARCHITECTURE II	3

<sup>1</sup> A Special Topics courses whose offerings continually are changing.

## Landscape Architecture

### Master of Landscape Architecture

The Program in Landscape Architecture has the dual objectives of providing students with a core of design and technical skills in combination with experiences in pure and applied research. The Landscape Architecture Program enables students to enter practice as landscape architects in private, public, academic, and research organizations.

The mission of the Program in Landscape Architecture is to educate for ultimate leadership in the landscape architecture profession. This mission requires the development and exercise of both intellect and sensibility.

#### Accreditation

The Program in Landscape Architecture is fully accredited by the Landscape Architectural Accreditation Board of the American Society of Landscape Architects. Graduates from the program are qualified to sit for the Landscape Architecture Registration Exam which, when successfully passed, qualifies individuals to practice as landscape architects in the state of Texas.

#### Objective

The mission of the Program in Landscape Architecture is to educate for ultimate leadership in the landscape architecture profession. This mission requires fostering rigorous scholarly inquiry of the discipline, and the preparation of knowledgeable practitioners.

The Program in Landscape Architecture has the dual objectives of providing students with a core of design and technical skills in combination with experiences in pure and applied research. This duality prepares students for identifying and solving problems in the profession through design and research, and it is a Program focus. The Program in Landscape Architecture also prepares students to enter practice in private, public, academic, and research organizations.

Student preparation is enhanced by specialized coursework taken inside and outside of landscape architecture and by the topic of one's thesis. Students are directed to select thesis committee members early-on and to select specialized courses which reinforce students' areas of primary interest in landscape architecture.

The Program in Landscape Architecture is fully accredited by the Landscape Architecture Accreditation Board. Graduates from the Program are qualified to sit for the Landscape Architecture Registration Exam which, when successfully passed, qualifies individuals to practice as landscape architects in the State of Texas.

### Graduate Teaching/Research Assistantships

To be considered for a Graduate Teaching or Research Assistantship, the candidate must be admitted without provisional conditions. In order to be eligible for teaching assistantships, students whose native language is not English, must complete extramural training in English as approved by the Program and the Graduate School.

### Fellowships and Scholarships

To be considered for fellowships or scholarships in the Program the candidate must have a favorable review in most of the evaluation criteria. Fellowships and scholarships in landscape architecture are limited and very competitive. Generally, candidates must be new students coming to UT

Arlington, must have a GPA of 3.0 in their last 60 undergraduate credit hours and any graduate hours, and must be enrolled in a minimum of 9 hours in both long semesters to retain their fellowships or scholarships.

## Master's Admissions Requirements

Applicants must meet the general requirements of the Office of Graduate Studies. A personal interview with the Director, Graduate Advisor or members of the landscape architecture faculty is strongly recommended. Three letters of recommendation are required and it is suggested that at least two of the letters come from former educators or academic contact. Applicants also are required to submit scores from the Graduate Record Exam (GRE). Average GRE scores of successful applicants since 1998 have been approximately 550 Verbal and 550 Quantitative. Also required is a grade point average (GPA) of 3.00 as calculated by the Office of Graduate Studies.

Selected applicants holding first professional degrees in landscape architecture, or in some cases degrees related to landscape architecture (such as architecture, engineering, environmental design, horticulture, interior design, planning, and the like) are required to submit portfolios reflecting the applicants' professional and/or academic experiences and interests. Portfolios are assessed according to proficiency in design, presentation and layout, technical skills, and content, similar to criteria used in design studios.

Applicants who have a weakness in one of the criteria for admission can enhance their credentials with strengths in the remaining criteria.

Applicants can be admitted according to four conditions: Unconditional; Provisional; Probationary; and, Deferred. Applicants who do not meet the criteria of one of these conditions will be denied admission to the Program.

### Unconditional Admission

Applicants must possess a bachelor's degree from an accredited college or university. Transcripts from all previous college or university work, along with scores from the Graduate Record Exam (GRE), and three letters of recommendation are required of all applicants. In addition, applicants should have a minimum Grade Point Average (GPA) of 3.0, as calculated by the Office of Graduate Studies. Applicants holding the first professional degree in landscape architecture, or related fields, must submit a portfolio. Applicants should contact the Landscape Architecture Graduate Advisor or Program Director regarding this requirement.

### Provisional Admission

Those who have submitted their applications forms, but whose packets are incomplete, can be admitted provisionally if their GPA meets minimum requirements, and if the Program and the Office of Graduate Studies have received official transcripts. In this case, incomplete materials could include letters of recommendation, GRE scores, and/or portfolios.

### Probationary Admission

Those who have weaknesses in no more than two of the Degree Requirements (letters of recommendation, GRE scores, and GPA), can be admitted on probation, with the condition that they make no less than a B in the first 12 hours of coursework in landscape architecture. Such students must complete no fewer than 9 credits during the semester in which they are on probation.

### Deferred Admission

Those who have weaknesses in no more than two of the Degree Requirements (letters of recommendation, GRE scores, and GPA), and/or who have not submitted all of the materials required for unconditional admission, can have their applications deferred for one semester, until outstanding requirements and criteria are met.

### International Student Admission

International applicants must meet the Degree Requirements (letters of recommendation, GRE scores, and GPA), and must be admitted in one of the admission categories described above. In addition, applicants whose native language is not English must have a demonstrated speaking ability in English. They also must meet the Program's minimum required score of 575 on the paper exam, or an equivalent score on the computer based- or internet-based tests, on the Test of English as a Foreign Language (TOEFL). International applicants who do not meet the Program's minimum TOEFL score, must complete extramural training in English, as approved by the Program and the Office of Graduate Studies.

## GRADUATE TEACHING/RESEARCH ASSISTANTSHIPS

To be considered for a Graduate Teaching or Research Assistantship, the candidate must be admitted without provisional conditions. In order to be eligible for teaching assistantships, students whose native language is not English, must complete extramural training in English as approved by the Program and the Office of Graduate Studies.

## FELLOWSHIPS AND SCHOLARSHIPS

To be considered for fellowships or scholarships in the Program the candidate must have a favorable review in most of the evaluation criteria. Fellowships and scholarships in landscape architecture are limited and very competitive. Generally, candidates must be new students coming to UT Arlington, must have a GPA of 3.0 in their last 60 undergraduate credit hours and any graduate hours, and must be enrolled in a minimum of 9 hours in both long semesters to retain their fellowships or scholarships.

## DEGREE REQUIREMENTS

### First Professional Degree Program

The core curriculum for the Program in Landscape Architecture prepares students holding a college degree in a field other than landscape architecture or a related design discipline to complete the requirements for the first professional degree in landscape architecture. The core curriculum also provides students with the basic equivalent of a bachelor's degree in landscape architecture. For full-time students with degrees from other non-design disciplines, the core usually takes three semesters to complete. For all students, electives must be concentrated in areas of interest which support the student's thesis and/or the student's professional objectives.

## Landscape Architecture Degree Requirements

### FIRST PROFESSIONAL DEGREE PROGRAM

The core curriculum for the Program in Landscape Architecture prepares students holding a college degree in a field other than landscape architecture or a related design discipline to complete the requirements for the first professional degree in landscape architecture. The core curriculum also provides students with the basic equivalent of a bachelor's degree in landscape architecture. For full-time students with degrees from other non-design disciplines, the core usually takes three semesters to complete. For all students, electives must be concentrated in areas of interest which support the student's thesis and/or the student's professional objectives.

An approved degree plan must be submitted no later than the start of the student's second semester of graduate work.

The following coursework is a suggestion to meet the Program's mission. Each student will be counseled, based upon interests and background, to develop an appropriate degree plan.

### The Core Curriculum

#### First Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
LARC 5320	3	LARC 5312	3	LARC 5350	3
LARC 5330	3	LARC 5331	3		
LARC 5341	3	LARC 5382	3		
LARC 5661	6	LARC 5662	6		
	<b>15</b>		<b>15</b>		<b>3</b>

#### Second Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
LARC 5342	3	LARC 5302	3	Select one of the following:	
LARC 5663	6	LARC 5340	3	LARC 5395 (or LARC 5660 if necessary)	3
Landscape Architecture elective of any LARC 53XX		LARC 5380	3		
		LARC 5664 (CAD experience required)	6		
	<b>9</b>		<b>15</b>		<b>3</b>

#### Third Year

First Semester	Hours	Second Semester	Hours
Advanced or Independent Study in Landscape Architecture	9	LARC 5294	2
LARC 5665	6	LARC 5698	6



Advanced or Independent Study in Landscape Architecture	3
<b>15</b>	<b>11</b>

Total Hours: 86

- <sup>1</sup> After completing 45 credit hours, the first professional degree student is evaluated by means of an academic review and portfolio review by the Graduate Studies Committee. The committee identifies areas of strength and weakness in the student's performance and recommends appropriate action. Upon completion of the three core semesters, the student is required to develop an area of specialization or primary interest. The student must consult with faculty advisors to complete this step, which includes a preliminary agreement between student and faculty advisors regarding the specialization or primary interest and the appropriate research method to support it. If a student is interested in Advanced Landscape Architecture, for example, a probable program of study could look like the following terms.

Students pursuing other primary areas of interest also must consult with appropriate faculty advisors for approval.

### ADVANCED STANDING

Students from backgrounds other than landscape architecture or its related fields must complete the 92 credits required in the curriculum. Students with degrees and/or professional experience in fields related to landscape architecture (such as architecture, engineering, environmental design, horticulture, interior design, planning and the like) may apply for advanced standing, allowing them to enter the academic phase (second year) of the curriculum. Advanced standing in these cases requires a minimum of 62 total credit hours for graduation.

Students with first professional degrees in landscape architecture also may apply for advanced standing, allowing them to enter the research (third year) phase of the curriculum. Advanced standing in these cases requires a minimum of 30 total credit hours for graduation.

### Minimum Program for Advanced Standing

(For students from fields of study related to landscape architecture)

#### First Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
LARC 5312 or 5313	3	LARC 5302	3	Select one of the following:	
LARC 5330	3	LARC 5331	3	LARC 5668 or 5695 (Specialization)	6
LARC 5341	3	LARC 5342	3		
LARC 5663	6	LARC 5664 (CAD experience required)	6		
	<b>15</b>		<b>15</b>		<b>6</b>

#### Second Year

First Semester	Hours	Second Semester	Hours
LARC 5340	3	LARC 5294	2
LARC 5380	3	LARC 5698	6
LARC 5665	6	Study in specialization	3
Study in primary area of interest	3		
	<b>15</b>		<b>11</b>

Total Hours: 62

### Minimum Program for Advanced Standing

(For students with first professional degrees in landscape achitecture from LAAB accredited schools)

**First Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
LARC 5380	3	LARC 5294	2
LARC 5665	6	LARC 5302	3
Specialization Option Courses	6	LARC 5698	6
		Specialization Option Courses / Independent Study	4
	<b>15</b>		<b>15</b>

---

Total Hours: 30

# College of Business

---

## Overview

Since its origination in 1965, the College of Business has been one of the fastest growing business schools in the nation. This growth has mirrored the dynamic growth of the D/FW Metroplex as the college has worked hard to provide high quality educational programs. The college is organized into six academic departments: Accounting, Economics, Finance, Information Systems and Operations Management, Management, and Marketing. A total of 103 full-time equivalent faculty organize and conduct classes, including 88 with doctoral degrees from some of the top schools in the nation. The college currently enrolls 5,500 students, of whom more than 1,500 are enrolled in 12 graduate business programs.

Teaching, research, and community service are the essential activities of the College of Business. All three activities are aimed at enhancing the college's scholarly environment and strengthening relationships with the business community. The emphasis on excellence in the performance of these cornerstone activities enables the college to offer an outstanding business education for students over a broad spectrum of interest, age, and experience. All bachelor's, master's and doctoral programs are fully accredited by AACSB International-The Association to Advance Collegiate Schools of Business.

## Mission, Vision and Values

The mission of the College of Business is to create and disseminate knowledge with global impact that engages the business community and positively impacts society. The College seeks to be ranked among the top business schools in the nation.

As its vision, the College develops recognized business thought-leaders who create value and enrich the world. Faculty, students and graduates of the College are functioning as thought-leaders for better understanding the economies of the enterprise, effectively managing its resources and producing results for goal accomplishment.

Five values form much of the foundation upon which the College operates on a daily basis in developing and offering degree programs, linking faculty and students to the business and professional communities, and conducting relevant research to advance business practices and enhance the performance of business and other organizations. These values are:

Integrity – We do the right thing, always being honest, transparent and accountable.

Respect - We treat all people in a way that affirms their individual uniqueness, worth and dignity.

Diversity – We pursue an inclusive environment where individual differences create value.

Excellence – We continually strive to achieve the highest levels of performance in all our endeavors.

Collaboration – We team with internal and external partners to create and accomplish shared goals.

## Accreditation

The University of Texas at Arlington's College of Business is fully accredited in business and accounting at both the undergraduate and graduate levels by the AACSB-International – The Association to Advance Collegiate Schools of Business.

## Business Undergraduate Advising Center

107 Business Building  
817-272-3368  
[www.uta.edu/business/ugadvise/](http://www.uta.edu/business/ugadvise/)

Each student in the College of Business has access to a professional academic advisor for educational and vocational guidance. The advising process is designed to assist students as they make important decisions related to their academic progress at UT-Arlington and career goals in general.

Specifically, the purpose of advising is:

- To empower students to clarify and achieve their educational goals by providing timely and accurate information about degree requirements, as well as College and University policies and procedures.
- To provide every business student with the opportunity to develop a relationship with a knowledgeable advisor in order to obtain sound academic advising with a degree of continuity.
- To provide students with information about additional services, programs, and support systems available within the College and University as appropriate.

Ultimately, the student is responsible for seeking academic advice, making decisions regarding goals, meeting degree requirements, and enrolling in appropriate courses. The academic advisor is to provide assistance and help in these decisions. All students are responsible for understanding and complying with University and College policies and procedures.

The Advising Center is located on the first floor of the Business Building, Suite 107 and operates on an appointment basis. Please contact the Center by calling 817.272.3368 between the hours of 8:00 am and 5:00 pm, Monday through Friday.

## Graduate Business Services

107 Business Building  
817-272-3004/3005

<http://wwwb.uta.edu/business/gradbiz>

Graduate Business Services (GBS) provides information to assist students with various issues relating to their graduate business education. Prospective students, current students and graduating students can contact GBS for general information, assistance with understanding graduate program rules and admission status. Specific advising questions are addressed to the program advisor.

The office is located on the first floor of the Business Building, Suite 107. Please contact GBS by calling 817.272.3004/3005 between the hours of 8:00 am and 5:00 pm, Monday through Friday. While the University is in session, the office has extended hours Monday through Thursday from 8:00 am to 6:46 pm.

## Goolsby Leadership Academy

304 Business Building  
817-272-3085  
[www.uta.edu/goolsby](http://www.uta.edu/goolsby)  
[goolsbyacademy@uta.edu](mailto:goolsbyacademy@uta.edu)

The Goolsby Leadership Academy was founded in 2003 with a gift of \$2 million from an anonymous donor in honor of John and Judy Goolsby. John Goolsby is a 1964 graduate of the College of Business with a degree in accounting. Much of his executive career was spent as CEO of the Howard Hughes Corporation. There are three sets of Academy participants: students, faculty members, and executives. Each year the Academy selects qualified undergraduate students who take a series of specialized courses regarding different aspects of leadership and participate in special projects and field activities designed to give them real-world leadership experiences. Faculty associated with the Academy teach leadership courses and conduct leadership research. Executives mentor Goolsby students, provide field research opportunities for faculty scholarship, and support Academy leadership training programs.

Goolsby Scholars are encouraged to apply for admission to the Honors College. Each of the required Goolsby courses qualifies for Honors College credit. Form more information, please visit the Honors College website.

Course fee information is published in the online student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

## Undergraduate Degree Programs

To attain these objectives, guidelines have been developed to provide minimum coverage of the basic areas of human knowledge and exposure to the fundamentals in each of the functional areas of business.

There are two major degree programs, each developed within the frame of reference described above. The first is the Bachelor of Business Administration (B.B.A.) Degree, with subject area concentrations in finance, information systems, management, marketing, operations management, real estate, or economics. A minor is not required or allowed for any B.B.A. The B.B.A. (Accounting) degree, while adhering to the basic philosophy outlined, permits a maximum 27 semester hour concentration in accounting. Thus, in addition to acquiring excellent preparation for a management career in industry, a student may also pursue professional objectives leading to a career in private, governmental, or public accounting. The B.B.A. in International Business is a dual concentration program requiring specific international business course work and 26 to 32 hours in one modern language (French, German, Russian, or Spanish). The second major degree program is a Bachelor of Science (B.S.). A B.S. degree in accounting is offered for students planning a career in professional accounting who also desire in-depth study in a related business discipline such as economics, finance, or information systems. This degree program permits a maximum 27 semester hour concentration in accounting and, depending on the area, 15 to 24 semester hours in a related business discipline. A B.S. degree in information systems is offered for the student planning a professional career in business information systems. A B.S. degree in economics is also offered for the benefit of the student planning a career as a professional economist; a minor is required for degree completion. The requirements for the B.B.A. in International Business are found later in this section. The requirements for the additional B.B.A. degree programs and the B.S. degree programs are found in their respective departmental sections.

## Admission Policy

Accounting, Economics, Finance, Information Systems, International Business-Modern Language, Management, Marketing, Operations Management, Real Estate Degree Programs (B.B.A. and B.S.)

### DIRECT ADMISSION CRITERIA

Applicants who have completed 30 or more hours of transferable college credit will be directly admitted to a business major based on the following criteria:

- Students must meet all UT Arlington admission requirements and
- Students must have a grade point average of 3.25 or better for all college level credit earned.

In addition to meeting the criteria stated above, students must attend a Business Success Workshop. Students are notified about the workshop in writing.

### APPLICANTS WHO DO NOT MEET DIRECT ADMISSION CRITERIA

Applicants who do not meet the criteria for direct admission stated above will be admitted as business-intended majors. Academic performance will be evaluated after twelve (12) hours of business course work at UT Arlington. To declare a major, a business-intended student must meet the following criteria:

- An overall grade point average of 2.25 at UT Arlington;
- A business grade point average of 2.50 at UT Arlington; and
- Completion of the CoB math requirement. (The CoB math requirement includes MATH 1302 COLLEGE ALGEBRA or MATH 1315 COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS and MATH 1316 MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS, or equivalent courses as transfer credits.)

## College of Business Probation and Dismissal

If at any time a business-intended student does not meet the above standards, the student is on College of Business Probation. If the Admission Criteria can be met by eighteen (18) hours of business coursework at UT-Arlington, the student may be allowed to continue as a business-intended major up to the semester containing the eighteenth hour of business course work under an enrollment contract. Depending on the circumstances, a student on CoB probation may have restrictions on course load, course selection, and will be given specific course grade requirements that must be met. All business hours will be used to calculate a business grade point average for the CoB admission purposes.

Students who do not meet the requirements for declaring a business major after eighteen (18) hours of business course work or do not meet the requirements outlined in the enrollment contract will not be allowed to take additional business courses at UT Arlington. The student will be dismissed from the CoB and must choose a major other than business in order to remain enrolled at UT Arlington.

## Degree Progress and Major Dismissal

Students who have been accepted to a business degree program must maintain satisfactory progress in their field of study (major). Declared business majors are subject to dismissal from a business degree program and will not be permitted to enroll for additional courses in that major if they:

- Receive a grade of D or F in more than one upper level major course, or
- Receive any combination of grades of D or F in two attempts of the same major course.

## College of Business Graduation Requirements

In addition to meeting the credit hour and course requirements for a specific College of Business degree program, the student must meet the following requirements:

- Be a declared business major;
- A minimum overall grade point average of 2.0;
- A minimum grade point average of 2.0 in all course work taken from the College of Business;
- A minimum grade point average of 2.0 for courses taken within the major/concentration area for those majors having a concentration (This requirement also applies to modern language course work for International Business degree programs);
- Students must complete at least 50 percent of their business course work in residence;
- Students with a concentration other than Accounting, must complete a minimum of 9 credit hours in residence of upper level concentration course work beyond the Business Core; and
- A grade of "C" or better must be earned in all major/concentration courses required for the degree.

## Computer Literacy and Oral Competency

Students majoring in business administration obtain competencies in computer literacy and oral presentation via required course work. They are required to take a computer course, INSY 2303 INTRODUCTION TO M.I.S. AND DATA PROCESSING. Students are also required to take an oral communication course, COMS 1301 FUNDAMENTALS OF PUBLIC SPEAKING, or COMS 2305 BUSINESS AND PROFESSIONAL COMMUNICATION

## Special Undergraduate Programs and Opportunities

### BUSINESS HONORS PROGRAM

The Business Honors Program (BHP) operates as a part of UT Arlington's Honors College. Its primary objective is to establish a cohesive community of exceptionally intelligent and motivated students who will pursue the study of business together in a stimulating learning environment. Participation in the BHP is open to students who maintain a total cumulative grade point average of 3.2 or higher. Students who complete the program successfully will receive a special citation on their diplomas. The University honors degree requirements are compatible with all College of Business degree programs.

### INTERNSHIP FOR DEGREE CREDIT

One approved internship can be used as an advanced business elective for eligible students. Students must be a declared business major, junior or senior standing, have an overall UT Arlington GPA of 2.5 or better, have 3 hours of advanced business electives available, and complete the approval forms before the appropriate semester deadline.

The internship must be related to the student's major and is graded on a pass/fail basis. No credit will be given for previous experience or activities. For specific course requirements, refer to the internship approval forms. If a change of major occurs, the internship no longer applies to the degree.

### SALES CERTIFICATE PROGRAM

The Sales Certificate program prepares undergraduate students for a challenging and rewarding career in the sales profession. The program will enhance students' abilities to sell themselves, their ideas, products, and services. It also equips students with knowledge and skills related to managing mutually beneficial relationships with customers. The Sales Certificate is available to business and non-business majors. Certificate requirements can be found in the Department of Marketing section of the catalog.

### FAST TRACK MASTER'S DEGREES IN ACCOUNTING

This program emphasizes preparation for a career as a professional accountant, including preparation for the Certified Public Accountant designation. Most states, including Texas, require completion of at least 150 semester hours of college study of which at least 37 semester hours must be in accounting in order for an individual to be licensed as a Certified Public Accountant. The Fast Track Program in Accounting is designed to fulfill these requirements and enable outstanding senior undergraduate Accounting students to satisfy degree requirements leading to a Master's of Science in Accounting or a Master's of Science in Taxation while completing their undergraduate studies and thereby completing fewer courses to earn both undergraduate and graduate degrees in accounting.

An undergraduate Accounting student will apply:

- within 30 hours of completing a bachelor's degree
- upon completion of at least 30 hours at UTA, achieving an overall UTA GPA of 3.3 or better
- with an overall GPA of 3.3 or better in all college courses (at all schools), and
- with a UTA Business GPA of 3.3 or better.

Additionally, a candidate must have completed 12 hours of specified undergraduate Fast Track foundation courses with a minimum GPA of 3.5 in these courses. These courses are mandatory and must be completed at UT Arlington. The foundation courses required for admission to the various Fast Track programs are:

ACCT 3311	FINANCIAL ACCOUNTING I	3
ACCT 3312	FINANCIAL ACCOUNTING II	3
FINA 3313	BUSINESS FINANCE	3
BSTAT 3321 or BSTAT 3322	BUSINESS STATISTICS I (whichever is taken first at UTA) BUSINESS STATISTICS II	3
Total Hours		12

Once admitted, a student will be allowed to take select graduate courses that may be used to satisfy both bachelor's and master's degree requirements. These students will be allowed to enroll in Auditing, Effective Business Communication, and an Accounting elective at the graduate level and these courses should not be completed as an undergraduate.

An undergraduate student who successfully completes the Fast Track graduate coursework with grades of B or better will graduate with the undergraduate degree and will be automatically admitted to the Graduate School at that time. The student will not be required to take the Graduate

Management Admissions Test (GMAT), will not have to complete the normal Graduate School application for admission, and will not have to pay the related application fee.

For more details about this program, please consult the graduate accounting advisor ([graduate.accounting.advisor@uta.edu](mailto:graduate.accounting.advisor@uta.edu)).

## FAST TRACK MASTER'S DEGREES IN BUSINESS

Fast Track Programs enable outstanding senior undergraduate Business students to satisfy degree requirements leading to select master's degrees in business while completing their undergraduate studies.

An undergraduate Business student will apply:

- within 30 hours of completing a bachelor's degree
- upon completion of at least 30 hours at UTA, achieving an overall UTA GPA of 3.2 or better
- with an overall GPA of 3.2 or better in all college courses (at all schools), and
- with a UTA Business GPA of 3.3 or better.

Additionally, a candidate must have completed 12 hours of specified undergraduate Fast Track foundation courses with a minimum GPA of 3.5 in these courses. These courses are mandatory and must be completed at UT Arlington. The foundation courses required for admission to the various Fast Track programs are:

### MBA or MS-INSY or MS-HR

ECON 3310	MICROECONOMICS (first completed at UTA)	3
or ECON 3312	MACROECONOMICS	
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
BSTAT 3321	BUSINESS STATISTICS I (first completed at UTA)	3
or BSTAT 3322	BUSINESS STATISTICS II	
Total Hours		12

### MS-REAE

ECON 3310	MICROECONOMICS (first completed at UTA)	3
or ECON 3312	MACROECONOMICS	
FINA 3313	BUSINESS FINANCE	3
REAE 3325	REAL ESTATE FUNDAMENTALS	3
BSTAT 3321	BUSINESS STATISTICS I (first completed at UTA)	3
or BSTAT 3322	BUSINESS STATISTICS II	
Total Hours		12

### MA-ECON

ECON 3310	MICROECONOMICS	3
ECON 3312	MACROECONOMICS	3
FINA 3313	BUSINESS FINANCE	3
BSTAT 3321	BUSINESS STATISTICS I (first completed at UTA)	3
or BSTAT 3322	BUSINESS STATISTICS II	
Total Hours		12

Once admitted, a student will be allowed to take select graduate courses that may be used to satisfy both bachelor's and master's degree requirements.

An undergraduate student who successfully completes the Fast Track graduate coursework with grades of B or better will graduate with the undergraduate degree will be automatically admitted to the Graduate School at that time. The student will not be required to take the Graduate Management Admissions Test (GMAT), will not have to complete the normal Graduate School application for admission, and will not have to pay the related application fee.

For more details about this program, please refer the appropriate graduate advisor.

## Requirements for a Bachelor of Business Administration in International Business/ Modern Language

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

<b>Pre-Professional Course Requirements - Fulfill the University General Core Requirements (36 hours)</b>		
General Core Requirements (p. 93)		39
Communication (minimum 6 hours required)		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Mathematics (minimum 6 hours required)		
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	3
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	3
Life and Physical Sciences (minimum 6 hours required)		6
From Approved University General Core Requirement List		
Language, Philosophy & Culture (minimum 3 hours required)		
Satisfied by Modern Language Level IV (See Modern Language Options below)		
Creative Arts		3
From Approved University General Core Requirement List		
US History (minimum 6 hours required)		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Government/Political Science (minimum 6 hours required)		
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Social & Behavioral Sciences (minimum 3 hours required)		
Satisfied by completion of ECON 2305 in the Business Core		
Foundational Component Area (minimum 3 hours required)		
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
<b>Professional Course Requirements - Business Core (36 hours)</b>		
ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
ECON 2305	PRINCIPLES OF MACROECONOMICS (Social & Behavioral Sciences University Core Requirement)	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322	ORGANIZATIONAL STRATEGY	3
MARK 3321	PRINCIPLES OF MARKETING	3
<b>Professional Course Requirements - Advanced International Business (15 hours)</b>		
BLAW 4310	BASIC INTERNATIONAL LAW FOR BUSINESS	3
Select one of the following:		3
ECON 4306	COMPARATIVE ECONOMIC SYSTEMS	
ECON 4321	INTERNATIONAL TRADE	
ECON 4322	INTERNATIONAL FINANCE	
FINA 4324	INTERNATIONAL CORPORATE FINANCE	3
MANA 4321	INTERNATIONAL MANAGEMENT	3
MARK 4325	INTERNATIONAL MARKETING	3
<b>Modern Language Requirements (26 hours)</b>		



Select one of the following areas (beyond all other requirements): 26

French

German

Russian

Spanish

See Modern Language Options section below for specific courses

### Advanced Electives (9 hours)

Upper level, advisor approved electives. (Students are encouraged to include six hours of degree specific language in this area.) 9

Total Hours 119

Students are strongly encouraged to study abroad. The College of Business, the Department of Modern Languages, and the International Office currently work together in assisting student participation in existing exchange programs. Furthermore, the University will continue to develop exchange agreements with other recognized international universities.

## MODERN LANGUAGE OPTIONS

### French

Students concentrating in International Business/French should be certain they meet the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions, a student must complete:

FREN 1441	BEGINNING FRENCH I <sup>1</sup>	4
FREN 1442	BEGINNING FRENCH II <sup>1</sup>	4
FREN 2313	INTERMEDIATE FRENCH I <sup>1</sup>	3
FREN 2314	INTERMEDIATE FRENCH II (Satisfies Language, Philosophy & Culture University General Core Requirement)	3
FREN 3300 or FREN 3303	PHONOLOGY & PRONUNCIATION ADVANCED FRENCH CONVERSATION	3
FREN 4314	ADVANCED FRENCH GRAMMAR AND COMPOSITION	3
FREN 4334	CONTEMPORARY FRENCH CULTURE	3
FREN 4335	BUSINESS FRENCH	3
Total Hours		26

### German

Students concentrating in International Business/German should be certain they meet the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions, a student must complete:

GERM 1441	GERMAN LEVEL I <sup>1</sup>	4
GERM 1442	BEGINNING GERMAN II <sup>1</sup>	4
GERM 2313	INTERMEDIATE GERMAN I <sup>1</sup>	3
GERM 2314	INTERMEDIATE GERMAN II (Satisfies the Language, Philosophy & Culture University General Core Requirement)	3
GERM 3313	TOPICS IN GERMAN CULTURE & CONVERSATION	3
GERM 3314	TOPICS IN GERMAN CULTURE AND CIVILIZATION	3
GERM 4334	THE CULTURE OF BUSINESS	3
GERM 4335	BUSINESS GERMAN	3
Total Hours		26

### Russian

Students concentrating in International Business/Russian should be certain they meet the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions, a student must complete:

RUSS 1441	BEGINNING RUSSIAN I <sup>1</sup>	4
RUSS 1442	BEGINNING RUSSIAN II <sup>1</sup>	4
RUSS 2313	INTERMEDIATE RUSSIAN I <sup>1</sup>	3

RUSS 2314	INTERMEDIATE RUSSIAN II (Satisfies the Language, Philosophy & Culture University General Core Requirement)	3
RUSS 3333	CONVERSATION AND TOPICS IN RUSSIAN CULTURE	3
RUSS 4362	RUSSIA AND THE SUCCESSOR STATES TODAY	3
RUSS 4334	THE CULTURE OF BUSINESS	3
RUSS 4335	BUSINESS RUSSIAN	3
Total Hours		26

## Spanish

Students concentrating in International Business/Spanish should be certain they meet the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions, a student must complete

SPAN 1441	BEGINNING SPANISH I <sup>1</sup>	4
SPAN 1442	BEGINNING SPANISH II <sup>1</sup>	4
SPAN 2313	INTERMEDIATE SPANISH I <sup>1</sup>	3
SPAN 2314	INTERMEDIATE SPANISH II (Satisfies the Language, Philosophy & Culture University General Core Requirement)	3
SPAN 3311	SPANISH CULTURE AND CIVILIZATION	3
or SPAN 3312	LATIN AMERICAN CULTURE AND CIVILIZATION	
SPAN 3314	ADVANCED SPANISH GRAMMAR	3
SPAN 4334	CULTURE AND ECONOMIC GLOBALIZATION IN THE HISPANIC WORLD	3
SPAN 4335	BUSINESS SPANISH	3
Total Hours		26

Non-heritage speakers should plan to take SPAN 3303 ADVANCED SPANISH CONVERSATION as an advanced business elective. Heritage speakers should plan to take SPAN 2315 in place of SPAN 2314 and SPAN 3305 ADVANCED SPANISH FOR HERITAGE SPEAKERS in place of SPAN 3314 ADVANCED SPANISH GRAMMAR.

<sup>1</sup> Students will be placed in appropriate language level upon completion of a written and/or a verbal competency exam administered by the Modern Language Department.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3
Life & Physical Science	3	Life & Physical Science	3
Modern Language Requirement - Level I	4	Modern Language Requirement - Level II	4
	<b>16</b>		<b>16</b>

### Second Year

First Semester	Hours	Second Semester	Hours
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
POLS 2311	3	INSY 2303	3
COMS 1301	3	POLS 2312	3
Modern Language Requirement - Level III	3	Modern Language Requirement - Level IV	3
	<b>15</b>		<b>15</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Modern Language Requirement	3	Modern Language Requirement	3
ECON 4306, 4321, or 4322	3	MANA 4321	3
BLAW 3310	3	BSTAT 3321	3
FINA 3313	3	MARK 3321	3
MANA 3318	3	Creative Arts	3
	<b>15</b>		<b>15</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Modern Lanaguage Requirement	3	Modern Language Requirement	3
FINA 4324	3	BLAW 4310	3
MARK 4325	3	MANA 4322	3
BCOM 3360	3	Advanced Elective	3
Advanced Elective	3	Advanced Elective	3
	<b>15</b>		<b>15</b>

---

Total Hours: 122

## Undergraduate Minors

The College of Business offers several minors to undergraduate Non-Business majors. The requirements for the Business Administration Minor follow. The requirements for the minors in Accounting, Economics, and Information Systems are found in their respective departmental sections.

### Minor in Business Administration

The College of Business:

- Requires half of the course work for a minor in business be completed in residence at UT Arlington. For an 18-hour minor requirement, this would require a minimum of 9 hours of business course work at UT Arlington.
- Requires a grade of C or better in all minor requirement courses.
- Will not use vocational and technical courses (including WECM courses) toward any business minor.

### BUSINESS ADMINISTRATION

Select three of the following:

ACCT 2301	PRINCIPLES OF ACCOUNTING I	9
ACCT 2302	PRINCIPLES OF ACCOUNTING II <sup>1</sup>	
ECON 2305	PRINCIPLES OF MACROECONOMICS	
ECON 2306	PRINCIPLES OF MICROECONOMICS	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	

Select 9 hours Jr/Sr level from one area or from several areas: <sup>1</sup>

ACCT	9
BCOM	
BLAW	
BSTAT	
ECON	
FINA	
INSU	
INSY	
MANA	

MARK

OPMA

REAE

Total Hours

18

## Special Graduate Programs and Opportunities

### THE GRADUATE ADVANCED STUDIES PROGRAM

This is a certificate program open to those holding a graduate degree in a business field. Applicants must meet normal MBA admissions requirements and complete 12-21 semester hours of graduate courses in a specified area. This is an excellent way for business professionals to update their business skills in advanced areas.

### SPECIAL STUDENTS

An applicant can gain admission as a special student in the College of Business, but he/she must meet the same admission requirements as those unconditionally admitted. In order to take masters and/or doctoral level courses in the College of Business, a student must be admitted as a graduate student.

### DUAL DEGREE PROGRAMS

The college offers a rich array of dual degree opportunities that build synergistic skill sets that prepare students for more advanced career opportunities. While most dual degree programs include two graduate business degrees, the Professional Management Option in the MBA program allows professionals with undergraduate degrees in engineering, architecture, nursing, education, and urban affairs to complete a master's degree in that field along with the MBA. Dual degree programs allow students to earn two degrees with a substantial reduction in course requirements. The MBA Program also offers a special dual degree with Thunderbird School of Global Management.

### FAST TRACK PROGRAMS

The Fast Track Program enables outstanding undergraduate UT Arlington Business students to satisfy degree requirements that will lead to a master's degree in Business Administration (MBA), Accounting, Human Resource Management, Real Estate, Taxation, Information Systems, or Economics while completing their undergraduate studies. If admitted, students will be allowed to take select graduate courses that may be used to satisfy both bachelor's and master's degree requirements. Admitted students will be allowed to complete 6 to 9 hours of selected graduate coursework as an undergraduate student. A GPA of 3.0 in the graduate work is required to continue taking graduate courses. Any Fast Track student who completes the 6 to 9 hours of graduate coursework with grades of B or better will be automatically admitted to Graduate School. The student would then be awarded his or her bachelor's degree. The student will not be required to take the GMAT, complete the graduate application, and will have the related application fees waived.

### FACILITATED ADMISSION OF OUTSTANDING UT ARLINGTON UNDERGRADUATES

The following programs participate in the Facilitated Admissions program: Master of Business Administration, Master of Arts in Economics, Master of Science in Human Resource Management, Master of Science in Information Systems, Master of Science in Marketing Research and Master of Science in Real Estate. Students pursuing Facilitated Admission must demonstrate quantitative proficiency. For details on admission into the program please refer to UT Arlington's Graduate Catalog Special Admissions Programs under Admission Requirements and Procedures.

### INTERNSHIP PROGRAM

Graduate students are encouraged to participate in internships to supplement and complement classroom education by providing valuable experience and training in their chosen area of expertise. Internships allow students to meet and interact with professionals in the work setting, identify and develop critical professional skills, clarify their own career goals and interests, and develop important contacts for future development. This internship program is open to all graduate students who have completed nine hours of graduate courses, are in good academic standing (GPA => 3.0), and have secured their advisor's approval for up to three hours of graduate credit. Interested students should ask for a fact sheet and an application in the Graduate Business Services Office. After gaining the advisor's approval, students will complete an application and meet with the appropriate departmental internship coordinator. Once an internship is obtained, the coordinator will monitor progress and assign a Pass/Fail grade.

### STUDY ABROAD/EXCHANGE PROGRAMS

The leaders for the 21st century will be deeply involved in business opportunities around the world. Study abroad/exchange programs are available to help students prepare in both curricular and extracurricular ways for these future international leadership roles. Students wishing to study abroad are encouraged to review the many opportunities contained in the Study Abroad Library in the International Office. Once a specific program is identified, students discuss the available courses with their advisor to ensure they meet degree requirements. Depending on their terms, study abroad/exchange programs may allow students to complete courses as resident credit or as transfer credit.

### Waivers and Transfer Credit

There are three types of required courses: deficiency, core and advanced. Applicants may have both deficiency and core courses waived without the requirement for a substitute course if they have completed a similar course, during the last 10 years, at a recognized college or university and received

a "B" or better grade (3.0) in that course or have a business degree in the same field of study.\* Extensions to this 10-year limit may be granted for managers and executives who have completed educational activities to remain current or have extensive related experience. Each master's program has its own waiver policy. Check with the advisor

A maximum of 9 hours of advanced coursework may be transferred in from other AACSB accredited schools if approved by the program advisor. Transfer of graduate courses from other universities will be considered on a case-by-case basis. All work submitted for transfer credit must have been completed no more than six years before completion of a graduate program at the University of Texas at Arlington.

\* Note: The University of Texas at Austin offer Business Foundations Programs (BFP) for non-business majors that provide solid foundations in basic business concepts. BFP courses and courses from equivalent programs for non-business majors at other colleges/universities may not be used for course waiver credit.

## Doctoral Program

The objective of the Doctor of Philosophy in Business Administration degree is primarily to develop scholars with an ability to teach and conduct independent research in various areas of business administration. The program prepares students for careers as creative teachers and researchers by providing thorough preparation in both the theory and practice of business administration. The curriculum emphasizes and develops the rigorous analytical skills needed to make significant contributions in fields of business. Graduates of the program will assume significant roles in the world's educational and research institutions.

Coursework is offered in the following areas: accounting, banking and finance, business economics, business policy/strategic management, business statistics, personnel/human resource management, insurance and risk management, international business management, investments and securities, labor/industrial relations, management information systems, management sciences, marketing management and research, organizational behavior, organizational theory, production/operations management, real estate, small business management and ownership, and taxation. Coursework in these areas of study supports the following major fields: Accounting, Finance, Information Systems, Management, Marketing, and Operations Management.

## Accounting

### Mission of the Department

The mission of the Department of Accounting is to:

1. prepare students from diverse backgrounds for professional careers in accounting,
2. create, interpret, and disseminate knowledge of accounting, and
3. provide service to the University and accounting profession.

### Accreditation

The College of Business is fully accredited by the AACSB International- The Association to Advance Collegiate Schools of Business The Department of Accounting has separate accounting accreditation by the AACSB. The department is also a member of the Federation of Schools of Accountancy, an organization to promote and support high quality accredited graduate programs in accounting.

### Scholastic Activity and Research Interests of the Faculty

The Department of Accounting values strong academic scholarship. The faculty are involved in a broad spectrum of pure and applied research that are publishable in top tier journals such as The Accounting Review, Journal of Accounting Research and Journal of Accounting and Economics, and in practitioner journals such as The CPA Journal, Journal of Accountancy, among others. Many of the faculty also have professional certifications and years of experience in the business world, including serving as consultants, expert witnesses, and in other professional capacities. They actively engage in research that enables them to be at the forefront of the discovery of new knowledge in their fields. All these activities allow them to bring academic and professional experiences to enhance the quality of teaching in the classroom.

### Careers in Accounting

Accountants serve as analysts, consultants, and problem-solvers in business and government. Earning an accounting degree opens up a diverse array of career opportunities including: partner in an international accounting or consulting firm, corporate controller, chief financial officer, director of internal auditing, financial planner, or commercial lender. Compensation is highly competitive with excellent geographic mobility. Upward career mobility is outstanding.

Students of accounting learn to use and control information technology systems, prepare and analyze financial reports, structure business transactions, and develop effective business plans. Individuals who like being challenged by a variety of situations and technologies and who enjoy identifying, analyzing, and solving problems are well-suited to majoring in accounting.

# Accounting - Graduate Programs

## Objective

The objective of the Master of Professional Accounting, the Master of Science in Accounting, and the Master of Science in Taxation degree programs is to prepare students for professional careers in the public, private, or governmental sector. As a part of this objective, these programs are designed to provide the educational background to become a Certified Public Accountant or to attain other professional certifications. The MPA program, appropriate for students without significant prior study in accounting, is also designed to provide an understanding of selected fields such as management, finance, economics, and business law. The MS in Accounting and MS in Taxation are more specialized degrees which build on the individual's prior background in accounting and business-related subjects.

The department also offers a Certificate in Taxation. The objective of this certificate program is to serve degreed professionals who wish to update or add to their knowledge of taxation.

## Careers in Accounting

Accounting is a career without limits. Accountants serve as analysts, consultants, and problem-solvers in business and government. Earning an accounting degree opens up a diverse array of career opportunities including: partner in an international accounting or consulting firm, corporate controller, chief financial officer, director of internal auditing, financial planner, or commercial lender. Compensation is highly competitive with excellent geographic mobility.

Students of accounting learn to use and control information technology systems, prepare and analyze financial reports, structure business transactions, and develop effective business plans. Individuals who like being challenged by a variety of situations and technologies and who enjoy identifying, analyzing, and solving problems are well-suited to majoring in accounting. Additional information about the accounting profession and its diverse opportunities can be obtained at <http://www.aicpa.org/BECOMEACPA/Pages/BecomeaCPA.aspx>.

## Accreditation

The College of Business and the Department of Accounting are accredited by AACSB - International. The department is also a member of the Federation of Schools of Accountancy.

## University and College Fellowship/Scholarship Awards

The Department of Accounting follows all applicable Graduate admission criteria when awarding graduate fellowships and scholarships. Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.0 as calculated by Graduate Admissions (or 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT) will not be used as a sole criterion or the primary criterion for determining fellowship and/or scholarship support.

## Fast Track Program

The Fast Track Program in Accounting enables outstanding undergraduate UT Arlington accounting students to satisfy degree requirements that will lead to a Master's of Science in Accounting or Master's of Science in Taxation degree while completing their undergraduate studies. If admitted, students will be allowed to take select graduate courses that may be used to satisfy both bachelor's and master's degree requirements. Admitted students will be allowed to complete 6 to 9 hours of selected graduate coursework as an undergraduate student. A GPA of 3.0 on the graduate work is required to continue taking graduate courses. Any Fast Track student who completes the 6 to 9 hours of graduate coursework with grades of B or better will be automatically admitted to Graduate School. The student would then be awarded his or her bachelor's degree. The student will not be required to take the GMAT, complete the Graduate School Application, and will have the related application fees waived.

## Classroom Time Flexibility

All of the graduate degree programs offered by the Department of Accounting can be completed by individuals who work full-time and wish to attend class in the evenings. Each student's program of work must be approved by the Accounting Graduate Advisor and must include a minimum of 37 semester hours. A minimum of 28 semester hours must be taken at The University of Texas at Arlington. During the final semester, students who have written a thesis must defend the thesis in an oral examination.

## Transfer Credit Applied to Master's Degree

University policy allows students to transfer in no more than nine hours of transfer credit into a graduate program. Equivalent coursework completed at other institutions of recognized standing prior to admittance into the UTA masters' program may be transferred to a masters' degree program after evaluation and approval. Courses from other universities taken after a student has been admitted into a masters' program at UT Arlington must be approved in advance by the Department of Accounting Graduate Studies Committee. To request transfer credit, students must complete the Transfer of Graduate Credit form and obtain approvals from the Department of Accounting's graduate advisor and chair of the Department of Accounting's Committee on Graduate Studies. As a general rule, transfer credits will not be approved for core graduate courses in any of the department's masters' programs or for transfer credits taken without prior approval. Other courses which are not considered suitable to a student's program of work will not be approved. The department's transfer credit policy is in addition to the university's regulation on transfer credit and course waivers. Transferred courses

do not appear on the UT Arlington Official Transcript and grades earned in transferred courses are not included in calculating a student's UT Arlington graduate grade-point average.

## Departmental Grade and Graduation Requirements

Students enrolled in accounting degree programs are subject to the grade requirements for academic probation and graduation as specified under the general regulations of the Graduate Admissions.

## Admissions Requirements

### ADMISSION CRITERIA

The Department has two alternative sets of conditions that allow applicants to be unconditionally admitted without review by the Department's Admission and Petition Committee. The Departmental Graduate Advisor reviews all applications and determines if they qualify for admission under one of these two sets of criteria. Applicants who do not satisfy any of the following sets of conditions for unconditional admission are referred to the Departmental Admission and Petition Committee for consideration.

### UNCONDITIONAL ADMISSION WITHOUT COMMITTEE REVIEW

Applicants qualify for unconditional admission without the need for review by the Departmental Admission and Petition Committee if they meet any one of the following two sets of unconditional admission criteria:

#### Unconditional Admission Set #1: GMAT Condition

Individuals who meet each of the following two conditions are given unconditional admission:

- Applicant holds an earned bachelor's degree from an AACSB accredited college or university, with a minimum GPA of 3.0 on the last 60 hours of undergraduate work and
- GMAT total score is at least 550 with verbal and quantitative score at the 40th percentile or higher, on both.

#### Unconditional Admission Set #2: GMAT Waiver Condition

This unconditional admission set #2 focuses on satisfying any one of the following criteria.

- Graduated from UTA within three years of expected entrance into the graduate program with a BBA in Accounting with a minimum of 3.25 overall GPA and 3.25 accounting GPA ;
- Graduated from an AACSB accredited college or university with an earned bachelor's degree, with a minimum GPA of 3.0 in the major and overall, holds a current recognized professional accounting credential or license (e.g., certified public accountant, certified management accountant, certified financial analyst, chartered accountant);
- Graduated from an AACSB accredited college or university with an earned bachelor's degree, with a minimum GPA of 3.0 in the major and overall, and completed another postbaccalaureate degree (e.g., master's degree, JD degree, LLM degree, MD degree, Ph.D. degree).

### ADMISSION WITH COMMITTEE REVIEW

Applicants who require committee review are considered for admission using the following factors, with no single factor used as the primary criterion for making admission decisions.

- Undergraduate and graduate GPA (overall, major, and last 60 hours) and program accreditation status of the applicant's degree granting institution;
- Score on the GMAT (including separate scores on the verbal and quantitative portions);
- Applicant's professional work experience and professional certification/licensure; and
- Letters of reference and personal statement provided by the applicant.

By considering the totality of the applicant's circumstances, including the factors listed above, the Admission and Petition Committee will evaluate an applicant's readiness to successfully complete one of the Department's graduate programs. Depending on the judgment of the committee, the decision may be to grant unconditional admission, probationary admission, provisional admission, deferred admission, or to deny admission. The decision of the committee is final.

An applicant whose native language is not English must demonstrate a sufficient level of skill with the English language to assure success in graduate studies as defined under Admissions Requirements and Procedures in the Graduate Catalog. International applicants must submit a TOEFL score or IELTS score that meets the standards as listed in the admission requirements.

## Pre-enrollment Competency (or deficiency) Requirements

If students have not satisfactorily completed all of their pre-enrollment competency (deficiency) requirements, they will, in addition to their program of work, also be required to complete those pre-enrollment competency courses. If college courses constituting the pre-enrollment competency requirements have not been completed with a grade of A or B, students must include these courses in their program of work. A grade of A or B is

required for each pre-enrollment competency (deficiency) course included in the program of work. Deficiency courses may be completed at the undergraduate level but core courses must be completed at the graduate level.

## Master of Science in Accounting

This program is designed for students who have an undergraduate degree in accounting or a degree in business administration with a major in accounting who wish to specialize in an area of accounting other than tax. The student, with the assistance and consent of the Graduate Advisor, will develop a course of study designed to meet his or her educational needs in light of previous academic work and career objectives.

The M.S. in Accounting requires the student to complete a minimum of 37 semester hours of coursework, 24 of which must be in the accounting discipline.

### M.S. IN ACCOUNTING TRACKS

Students can select various specialization tracks in an accounting-related discipline such as external reporting, audit/systems or managerial. Students may also choose to direct their 12 hours of business electives toward a specialized track such as finance, economics, information systems, management or marketing. Recommended course sequences for both the accounting and external tracks can be obtained by consulting the "Advising" section of the departmental Web site at [wweb.uta.edu/accounting](http://wweb.uta.edu/accounting).

## Master of Professional Accounting (MPA)

The MPA program is designed for individuals who hold an undergraduate degree in any major other than accounting (economics, engineering, finance, liberal arts, management, mathematics, science, etc.) . The MPA program requires the student to complete a minimum of 43 semester hours of coursework.

For those individuals who hold an undergraduate business degree, the MPA will normally require 43 hours of coursework. For those individuals who hold an undergraduate degree in a non-business discipline, the MPA will normally require 46 hours of coursework for those with a science or engineering undergraduate degree and 52 hours for most other non-business undergraduate degrees. Regardless of undergraduate background, the MPA degree requires a total of 27 hours of accounting plus 6 hours of accounting principles as a pre-enrollment requirement. Thus, MPA graduates will have a total of 33 hours of accounting.

## Master of Science in Taxation

The Master of Science in Taxation (MST) is designed for students who have an undergraduate degree in accounting or a degree in business administration with a major in accounting who wish to specialize in taxation. The student, with the assistance and consent of the Graduate Advisor, will develop a course of study designed to meet his or her educational needs in light of previous academic work and career objectives.

The degree requires a minimum of 37 semester hours, of which 27 semester hours must be accounting. Of the required accounting semester hours, 15 of those semester hours must be in the area of taxation beyond ACCT 5314 PRINCIPLES OF FEDERAL INCOME TAX.

## Certificate in Taxation

To support The University of Texas at Arlington's mission to provide lifelong learning opportunities to the community, the Department of Accounting offers qualified applicants an opportunity to participate in a Graduate Certificate in Taxation. The program offers graduate courses in specific areas of taxation as a means of

- maintaining and promoting their professional development in an interactive environment;
- acquiring continuing education hours necessary to maintain a professional certification;
- furthering their opportunity to participate in a graduate degree program. Subject to the applicable degree requirements, up to 4 courses taken in the certificate program can be applied toward a master's degree;
- providing quality cost-efficient staff training;
- interacting with other professionals and developing a dialogue that can improve your practice's efficiency and effectiveness. A number of our professors in the program are either currently with the Internal Revenue Service or in practice in the area of specialization associated with the course.

## ADMISSION REQUIREMENTS

This certification program is a post-baccalaureate educational opportunity available to degreed professionals. It is narrower in scope and shorter in duration than any of the department's graduate degree programs. To qualify, an applicant must

- have an undergraduate degree;
- have a grade point average of 3.0;
- follow the admission procedures required for a special student.

A GMAT score and letters of recommendation are not required for admission to the program.



## INFORMATION ABOUT YOUR STATUS AS A SPECIAL STUDENT

Special student status characteristics:

- Good for only one semester
- Must be approved by the Dean of Graduate Studies
- No more than twelve (12) hours of work earned as a special student may be applied to a graduate degree at UT Arlington.

A person who is admitted as a special student and later seeks admission to a degree program must submit a regular Graduate Admissions Application form, pay the application fee, submit all required documents, and meet all admission requirements, including admission tests and any additional requirements established by the degree program.

## APPLICATION TO A GRADUATE PROGRAM

Admission as a special student in no way guarantees subsequent unconditional admission into a graduate program or the Graduate School. Anyone who enters the Certification Program and later seeks a graduate degree at the College of Business may apply 12 hours of coursework toward that degree program if done within 6 years of completion of the certificate by petitioning Graduate Admissions through her/his prospective academic department. Only grades of A and B may be so applied toward graduate credit.

## TERMS OF ADMISSION

Once admitted, participants may take up to four (4) of the approved courses. The terms of admission allow participants to take only the specific courses approved for the program. Participants would not be allowed to take courses outside of their program without applying for and having been accepted into the graduate program.

## CURRENT GRADUATE STUDENTS

Graduate students currently enrolled in a UT Arlington graduate program may also earn the certificate by notifying the Chair of the Department of Accounting of their intent to participate in the certification program and by successfully completing the prescribed number of classes.

## Available Courses

The Certificate in Taxation requires students to take and successfully complete, with a minimum GPA of 3.0, four advanced tax courses. Those students entering the Certificate Program without having taken the equivalent of the undergraduate tax course will also be required to take a "foundation" course, ACCT 5314 PRINCIPLES OF FEDERAL INCOME TAX. The four advanced tax courses are limited to ACCT 5339 TAX PLANNING AND RESEARCH and three additional courses selected from the following:

ACCT 5341	TAXATION OF PASSTHROUGH ENTITIES	3
ACCT 5342	TAX PROBLEMS OF CORPORATIONS AND SHAREHOLDERS	3
ACCT 5345	STATE AND LOCAL TAXATION	3
ACCT 5346	TAX PRACTICE AND PROCEDURE	3
ACCT 5347	FEDERAL TAXATION OF GIFTS AND ESTATES	3

Courses appropriate for the Certificate Program have been selected because their subject matters directly relate to materials needed by professionals engaged in tax-related activities. Full course descriptions for these advanced courses are included in The University of Texas at Arlington's Graduate Catalog.

## Grade Point Average While in the Certificate Program

All participants in the program must meet the normal GPA requirements of Graduate Admissions, College and Department of Accounting. In particular, they must maintain an overall GPA of 3.0 in order to receive the Certificate.

## Accounting - Undergraduate Programs

### Overview of Degree Programs

To support its mission, the Department of Accounting offers two undergraduate degree programs: the Bachelor of Business Administration with a major in accounting and the Bachelor of Science with a major in accounting. Both degree programs provide accounting and business knowledge sufficient to enable the pursuit of professional opportunities in government, industry, and public practice. The Bachelor of Business Administration degree is intended for those individuals who seek a broader education while the Bachelor of Science degree is appropriate for individuals who wish to complete significant course work in a related business discipline such as finance, economics, or information systems.

The Department of Accounting also offers a Fast Track in Accounting for students who wish to pursue both a bachelor's and master's degree in accounting. Students accepted into the Fast Track program complete fewer courses to earn both, Bachelors and Masters, degrees than non-participants.

## Objective

The objective of the Bachelor in Business Administration and Bachelor of Science in Accounting is to prepare students for graduate study and/or for professional careers in the public, private, government and non-for profit sector as internal auditors, management accountants, government auditors and other accounting related functions. As a part of this objective, these programs are designed to provide the educational background to become a Certified Management Accountant, Certified Internal Auditor, Certified Fraud Examiner or to attain other professional certifications.

Students of accounting learn to use and control information technology systems, prepare and analyze financial reports, structure business transactions, and develop effective business plans. Individuals who like being challenged by a variety of situations and technologies and who enjoy identifying, analyzing, and solving problems are well-suited to majoring in accounting.

## Accreditation

The accounting program in the Department of Accounting is fully accredited by the AACSB International.

## Transfer Credit

Acceptance of transfer credit for accounting courses will generally be limited to those courses taught in the freshman and sophomore years in the Department of Accounting at UT Arlington. Junior and senior level accounting courses taught at UT Arlington, but completed at another institution, must be validated if they are to be used to fulfill degree requirements for an undergraduate degree in accounting. Courses are ordinarily validated from an examination of course materials and acceptable performance on a validation examination. Students must earn a grade of C or higher on the validation examination for transfer credit. Information about the validation examination can be obtained from the undergraduate advisor.

## Entrance Examination for ACCT 3311 (Intermediate I)

A student's performance in ACCT 3311 FINANCIAL ACCOUNTING I (Intermediate I) is often viewed as an important indicator of aptitude for success in the accounting profession. To help ensure that each student enrolling in ACCT 3311 FINANCIAL ACCOUNTING I has the preparation to succeed, student must pass an entrance examination prior to enrolling in ACCT 3311 FINANCIAL ACCOUNTING I. Students who score in the top one-third of a UT-Arlington ACCT 2301 PRINCIPLES OF ACCOUNTING I comprehensive exam (with no less than a B on that exam), and earn a B or better in the UT-Arlington ACCT 2301 PRINCIPLES OF ACCOUNTING I are exempt from the ACCT 3311 FINANCIAL ACCOUNTING I entrance examination. Details regarding this entrance examination may be obtained on the departmental website.

## Degree Progress and Major Dismissal

Students who have been admitted to an accounting degree program must maintain satisfactory progress in their field of study. Declared accounting majors are subject to dismissal from accounting degree programs and will not be permitted to continue to enroll in accounting courses at UT Arlington if they:

- Receive a grade of D or F in more than two upper level accounting courses, or
- Receive a combination of grades of D or F on two attempts of the same accounting course.

## Graduation Requirements

In addition to requirements imposed by the University and College of Business, students must earn a grade of C or higher in each accounting course presented to satisfy the requirements for a degree with a major in accounting.

## Fast Track Master's Degree in Accounting

This program emphasizes preparation for a career as a professional accountant, including preparation for the Certified Public Accountant designation. Most states, including Texas, require completion of at least 150 semester hours of college study of which at least 37 semester hours must be in accounting in order for an individual to be licensed as a Certified Public Accountant. The Fast Track Program in Accounting is designed to fulfill these requirements and enable outstanding senior undergraduate Accounting students to satisfy degree requirements leading to a Master's of Science in Accounting or a Master's of Science in Taxation while completing their undergraduate studies and thereby completing fewer courses to earn both undergraduate and graduate degrees in accounting.

An undergraduate Accounting student will apply:

- within 30 hours of completing a bachelor's degree
- upon completion of at least 30 hours at UTA, achieving an overall UTA GPA of 3.3 or better
- with an overall GPA of 3.3 or better in all college courses (at all schools), and
- with a UTA Business GPA of 3.3 or better.

Additionally, a candidate must have completed 12 hours of specified undergraduate Fast Track foundation courses with a minimum GPA of 3.5 in these courses. These courses are mandatory and must be completed at UT Arlington. The foundation courses required for admission to the various Fast Track programs are:

ACCT 3311	FINANCIAL ACCOUNTING I	3
ACCT 3312	FINANCIAL ACCOUNTING II	3
FINA 3313	BUSINESS FINANCE	3
BSTAT 3321	BUSINESS STATISTICS I (whichever is taken first at UTA)	3
or BSTAT 3322	BUSINESS STATISTICS II	
Total Hours		12

Once admitted, a student will be allowed to take select graduate courses that may be used to satisfy both bachelor's and master's degree requirements. These students will be allowed to enroll in Auditing, Effective Business Communication, and an Accounting elective at the graduate level and these courses should not be completed as an undergraduate.

An undergraduate student who successfully completes the Fast Track graduate coursework with grades of B or better will graduate with the undergraduate degree and will be automatically admitted to the Graduate School at that time. The student will not be required to take the Graduate Management Admissions Test (GMAT), will not have to complete the normal Graduate School application for admission, and will not have to pay the related application fee.

For more details about this program, please consult the graduate accounting advisor ([graduate.accounting.advisor@uta.edu](mailto:graduate.accounting.advisor@uta.edu)).

## Requirements for a Bachelor of Business Administration Degree in Accounting

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

<b>Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)</b>		
General Core Requirements (p. 93)		39
Communication (minimum 6 hours required)		6
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
Mathematics (minimum 6 hours required)		6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life and Physical Sciences (minimum 6 hours required)		6
From Approved University General Core Requirement List		
Language, Philosophy & Culture (minimum 3 hours required)		3
From Approved University General Core Requirement List		
Creative Arts (minimum 3 hours required)		3
From Approved University General Core Requirement List		
US History (minimum 6 hours required)		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Government/Political Science (minimum 6 hours required)		6
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (minimum 3 hours required)		3
FINA 2330	MONEY, FINANCE AND THE MODERN CONSUMER	
or MANA 2302	COMMUNICATIONS IN ORGANIZATIONS	
Foundational Component Area (minimum 3 hours required)		3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Non-Business elective (3 hours)		3
<b>Professional Course Requirements - Business Core (42 hours)</b>		
ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3

ECON 2306	PRINCIPLES OF MICROECONOMICS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322	ORGANIZATIONAL STRATEGY	3
MARK 3321	PRINCIPLES OF MARKETING	3
OPMA 3306	OPERATIONS MANAGEMENT	3
Advanced Economics Elective (ECON 33xx or 43xx)		3
<b>Professional Course Requirements - Advanced Accounting (21 hours)</b>		
ACCT 3303	INTRODUCTION TO ACCOUNTING INFORMATION SYSTEMS	3
ACCT 3311	FINANCIAL ACCOUNTING I	3
ACCT 3312	FINANCIAL ACCOUNTING II	3
ACCT 3315	PRINCIPLES OF FEDERAL INCOME TAX	3
ACCT 4302	ACCOUNTING IN MANAGERIAL PLANNING AND CONTROL	3
ACCT 4318	AUDITING	3
ACCT 4304	COST ACCOUNTING	3
or ACCT 4325	GOVERNMENTAL ACCOUNTING	
<b>Advanced Business Electives (12 hours)</b>		
Junior or Senior level business, economics, finance, information systems, management, marketing, operations management, or real estate. All electives must be selected with the approval of the accounting advisor. See recommended elective tracks below.		12
Total Hours		117

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3
Life & Physical Science	3	Life & Physical Science	3
COMS 1301	3	Creative Arts	3
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours
ACCT 3311	3	ACCT 3303	3
BLAW 3310	3	ACCT 3312	3

FINA 3313	3	BSTAT 3321	3
MANA 3318	3	MARK 3321	3
Advanced Economics Elective	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
ACCT 3315	3	ACCT 4304 or 4325	3
ACCT 4302	3	ACCT 4318	3
OPMA 3306	3	BCOM 3360	3
Advanced Business Elective	3	MANA 4322	3
Advanced Business Elective	3	Advanced Business Electives	3
	<b>15</b>		<b>15</b>

Total Hours: 120

**Requirements for a Bachelor of Science Degree in Accounting**

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

**Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)**

General Core Requirements (p. 93)		39
Communication (minimum 6 hours required)		6
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
Mathematics (minimum 6 hours required)		6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life and Physical Sciences (minimum 6 hours required)		6
From Approved University General Core Requirement List		
Language, Philosophy & Culture (minimum 3 hours required)		3
From Approved University General Core Requirement List		
Creative Arts (minimum 3 hours required)		3
From Approved University General Core Requirement List		
US History (minimum 6 hours required)		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Government/Political Science (minimum 6 hours required)		6
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Science (minimum 3 hours required)		3
FINA 2330	MONEY, FINANCE AND THE MODERN CONSUMER	
or MANA 2302	COMMUNICATIONS IN ORGANIZATIONS	
Foundational Component Area (minimum 3 hours required)		3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
or COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	
Non-Business elective (3 hours)		3
<b>Professional Course Requirements - Business Core (39 hours)</b>		
ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3

ECON 2306	PRINCIPLES OF MICROECONOMICS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322	ORGANIZATIONAL STRATEGY	3
MARK 3321	PRINCIPLES OF MARKETING	3
Advanced Economics Elective (ECON 33xx or 43xx)		3
<b>Professional Course Requirements - Accounting (21 hours)</b>		
ACCT 3303	INTRODUCTION TO ACCOUNTING INFORMATION SYSTEMS	3
ACCT 3311	FINANCIAL ACCOUNTING I	3
ACCT 3312	FINANCIAL ACCOUNTING II	3
ACCT 3315	PRINCIPLES OF FEDERAL INCOME TAX	3
ACCT 4302	ACCOUNTING IN MANAGERIAL PLANNING AND CONTROL	3
ACCT 4318	AUDITING	3
ACCT 4304	COST ACCOUNTING	3
or ACCT 4325	GOVERNMENTAL ACCOUNTING	
<b>Advanced Business Electives (15 hours)</b>		
Junior or Senior level business, economics, finance, information systems, management, marketing, operations management, or real estate. All electives must be selected with the approval of the accounting advisor. See recommended elective track below.		15
Total Hours		117

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3
COMS 1301 or 2305	3	Life & Physical Science	3
Life & Physical Science	3	Creative Arts	3
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours
ACCT 3311	3	ACCT 3303	3
BLAW 3310	3	ACCT 3312	3
FINA 3313	3	BSTAT 3321	3

MANA 3318	3	MARK 3321	3
Advanced Economics Elective	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>
<b>Fourth Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
ACCT 3315	3	ACCT 4304 or 4325	3
ACCT 4302	3	ACCT 4318	3
Advanced Business Elective	3	BCOM 3360	3
Advanced Business Elective	3	MANA 4322	3
Advanced Business Elective	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>

Total Hours: 120

## Recommended Advanced Business Elective Tracks for Accounting Majors

### FINANCE INDUSTRY TRACK

In addition to the Core Business Requirement of FINA 3313, Business Finance.

ECON 3303	MONEY AND BANKING
FINA 3317	FINANCIAL INSTITUTIONS AND MARKETS
FINA 4311	MONEY AND CAPITAL MARKETS
FINA 4315	ADVANCED BUSINESS FINANCIAL ANALYSIS
FINA 4319	FINANCIAL DERIVATIVES

### INFORMATION SYSTEMS TRACK

In addition to the Business Core Requirement of INSY 2303, Introduction to MIS and Data Processing.

INSY 3303	COMPUTER NETWORKS AND DISTRIBUTED COMPUTING
INSY 3309	PYTHON PROGRAMMING
INSY 3323	DIGITAL TECHNOLOGIES FOR BUSINESS
INSY 4312	FUNDAMENTALS OF INFORMATION SECURITY

### SALES AND MARKETING TRACK

In addition to the Business Core Requirements of BCOM 3360, Effective Business Communication, and MARK 3321, Principles of Marketing.

MARK 3322	PROFESSIONAL SELLING
MARK 3323	INTEGRATED MARKETING COMMUNICATION
MARK 4308	MANAGEMENT AND LEADERSHIP OF THE SALES FORCE
MANA 4341	NEGOTIATIONS AND CONFLICT RESOLUTION

Students will receive a Sales Certificate if all courses are completed and the student has applied for the certificate.

## Minor in Accounting

The College of Business:

- Requires half of the course work for a minor in business be completed in residence at UT Arlington. For an 18-hour minor requirement, this would require a minimum of 9 hours of business course work at UT Arlington.
- Requires a grade of C or better in all minor requirement courses.
- Will not use vocational and technical courses (including WECM courses) toward any business minor.

**ACCOUNTING**

ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II <sup>1</sup>	3
ACCT 3311	FINANCIAL ACCOUNTING I <sup>1</sup>	3
ACCT 33xx or 43xx <sup>1</sup>		3
ACCT 33xx or 43xx <sup>1</sup>		3
ACCT 33xx or 43xx <sup>1</sup>		3
Total Hours		18

Students must complete at least 9 hours of upper level accounting coursework at UT Arlington.

The following ACCT prefix courses may not be used to satisfy the minor requirements:

ACCT 3309 ACCOUNTING FOR MANAGERS

A minimum accounting GPA of 2.0 must be maintained for accounting classes completed at UT Arlington. ACCT 3309 ACCOUNTING FOR MANAGERS will NOT be included in the accounting GPA calculation.

<sup>1</sup> *Mandatory Prerequisites: Prerequisites MUST be met before enrollment in the course. A student should consider these when selecting courses to satisfy the minor requirement and when registering. For a complete list of prerequisites see the Undergraduate Catalog or the Business Undergraduate Advising Office.*

**Business Administration - Graduate Programs****Master of Business Administration**

The Master of Business Administration program prepares leaders and managers for careers within all types of organizations. The faculty's research contributes to educational excellence. Different MBA delivery formats and certificates serve a wide variety of interests.

**Doctor of Philosophy in Business Administration**

At UTA we are committed to mentoring and producing the next generation of business educators and researchers. The College of Business doctoral program is small and flexible, involving in-depth study in the functional areas of accounting, finance, information technology, marketing, operations management, organizational behavior, or strategic management.

While most graduates undertake careers as teachers, scholars and researchers working within academic environments, the doctoral degree can lead to careers in industry and government.

**Master of Business Administration****ADMISSIONS**

Admission to the MBA program is based upon a score on the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) and the record of one's undergraduate academic performance. These scores are calculated into an index score. To calculate the index score use approximately the last 60 hours of the undergraduate GPA, multiply this GPA by 200 and add the GMAT total score. A GMAT or GRE score need not be the sole criterion for determining admission to the MBA program. Multiple criteria may be used to make admission decisions. Because the GRE is scored differently, the percentile on the GRE will be matched to that of the GMAT, to convert the GRE score to a GMAT score please visit: [https://www.ets.org/gre/institutions/about/mba/comparison\\_tool](https://www.ets.org/gre/institutions/about/mba/comparison_tool).

A graduate grade point average is used in the index when it is 3.0 or above and is based on at least 24 semester hours.

An applicant whose native language is not English must demonstrate a sufficient level of skill with the English language to assure success in graduate studies as defined in the TOEFL and IELTS Test Score Minimums section under Admissions Requirements and Procedures the Graduate Catalog.

To apply please visit: [https://www.applytexas.org/adappc/gen/c\\_start.WBX](https://www.applytexas.org/adappc/gen/c_start.WBX)

**UNCONDITIONAL ADMISSION**

For unconditional admission, the applicant's composite total from the index is 1080 or greater which demonstrates a potential for successful academic performance as a graduate business student. Applicants may submit other documents (as listed in 1-6 below) as further proof of ability of to succeed in graduate studies.



## PROBATIONARY ADMISSION

An applicant with an index score below 1080 or an applicant who shows deficiency in other areas may be granted probationary admission. Students who are admitted on probation must earn a GPA of 3.0 for their first 12 hours of MBA core coursework. Items 1-6 below will be used to indicate potential for successful academic performance and identify positive indicators for a probationary admission.

1. A resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. Applicants with two to five years of experience are preferred.
2. Grades in specified undergraduate business and non-business courses (math, accounting, economics, statistics, for example). The focus is on the last 60 hours of coursework.
3. Educational objectives and quality of written expression of the 200 word application essay.
4. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience who can assess the applicant's potential success in graduate school.
5. General and specific program accreditation status of degree-granting institution.
6. Professional certification or licensure.

## PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admission deadline but otherwise appears to meet admission requirements may be granted provisional admission. Complete and satisfactory credentials must be received by Graduate Admissions before the end of the semester in which the student has registered in a provisional status. Provisional admission does not guarantee subsequent admission on an unconditional basis.

## DEFERRED AND DENIED ADMISSION

A deferred decision may be made when an applicant's file is not sufficiently complete to make an admission decision, or when an applicant needs to improve certain criteria to improve their competitive status for future admission consideration. For an applicant with an index score falling substantially below 1080, and lacking sufficient evidence to indicate potential for academic success as an MBA student, admission will likely be denied. All applicant data will be carefully reviewed before an admission denial is made. The decision to defer/deny admission is not based on any single criterion.

## SCHOLARSHIP INFORMATION

Students unconditionally admitted, have a minimum undergraduate GPA of 3.0 as calculated by Graduate Admissions (or 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT or GRE) will not be used as the sole criterion for determining fellowship and/or scholarship opportunity.

## MBA Requirements

The 45-hour program is designed to accommodate both full-time and part-time students from widely divergent backgrounds. It is not necessary to have completed prior academic work in business administration. Core courses, which are an integral part of the program, are designed to prepare all students for advanced program coursework.

## WAIVERS

A waiver is provided in the campus MBA format if a student holds an undergraduate degree in an area of study that aligns with an MBA core course. A prerequisite is considered fulfilled when the student is granted a waiver of that specific MBA core course. MBA core courses may not be taken as electives in the advanced program.

## DEFICIENCY COURSES

Applicants may be required to complete deficiency courses at the beginning of their studies. A graduate level course in business statistics may be required. Students who are deficient in written and/or oral communication may be required to take GESP.

BSTAT 5301	INTRODUCTION TO STATISTICS	3
------------	----------------------------	---

## CORE COURSES

There are eleven MBA core and advanced courses (33 hours). The following courses are considered core MBA courses:

ACCT 5301	ACCOUNTING ANALYSIS I <sup>1</sup>	3
ECON 5311	ECONOMIC ANALYSIS <sup>1</sup>	3
OPMA 5361	OPERATIONS MANAGEMENT	3
MARK 5311	MARKETING	3
FINA 5311	BUSINESS FINANCIAL MANAGEMENT <sup>1</sup>	3
MANA 5312	MANAGEMENT	3

---

Total Hours 18

<sup>1</sup> Indicates a core course that is a pre-requisite for courses taken in the advanced portion of the MBA program. Pre-requisite courses should be taken early in the MBA Program.

## ADVANCED PROGRAM

The advanced program provides each student the opportunity to tailor their studies to enhance their career interest.

Requirements for the advanced program include the following courses:

BSTAT 5325	ADVANCED STATISTICAL METHODS <sup>1</sup>	3
BLAW 5330	LEGAL ENVIRONMENT OF BUSINESS	3
or MANA 5337	ETHICS AND THE BUSINESS ENVIRONMENT	
ECON 5313	MANAGERIAL ECONOMICS <sup>1</sup>	3
ACCT 5302	ACCOUNTING ANALYSIS II <sup>1</sup>	3
MANA 5336	STRATEGIC MANAGEMENT (Capstone course - taken in second to last or last semester of program)	3
Total Hours		15

<sup>1</sup> If relevant academic background is extensive in this subject area, the program advisor may allow course substitutions which will correspondingly expand the number of electives in the advanced portion of the program.

## SPECIALTY AND BREADTH ELECTIVES

A total of twelve hours (four courses) beyond the core and required advanced courses are required to complete the 45-hour degree. MBA students can take courses in different areas or may choose to specialize in a given area such as accounting, economics, finance, information systems, management, operations management, or marketing. Students may wish to tailor their program of work to develop business skills and perspectives essential to their career goals and objectives. A variety of specialties may be considered. Courses taken outside the area of specialty are considered breadth electives. However, the advanced portion of the program must have a minimum of five courses (15 semester hours) outside the area of specialty which may be satisfied by the required advanced courses.

Students may take breadth electives in any of the curriculum areas of the MBA program. Students may take up to six semester hours in non-business coursework as part of their breadth electives, subject to the approval of the MBA program advisor. An approved study abroad program or internship can also be used to satisfy a breadth elective.

## PROFESSIONAL MANAGEMENT ELECTIVES

Students holding bachelor's or master's degrees in professional fields such as architecture, education, engineering, nursing, social work, and urban studies have the option of taking, with program advisor approval, up to 12 hours of approved breadth electives in their professional area as part of their MBA degree requirements. With these electives, professionals can develop advanced management skill in a functional area by declaring a 9-12 hour specialty, or pursue a more general management approach by declaring "no specialty."

## Professional Cohort format (also referred to as CMBA or PMBA)

Besides the MBA program on the main campus, the professional cohort format (PMBA or CMBA) of the MBA program is designed for working professionals who desire to continue full-time employment. In this specially designed, team-based (cohort) format, MBA courses are taken in sequence, in accelerated 5- or 8-week sessions. This format, which is only offered at the Fort Worth campus, allows students to complete their MBA degree in 24 months. Like the on-campus program, this program is 45 semester hours and includes the same curriculum requirements as the "regular" on-campus MBA program detailed above.

## Executive MBA Program

The Executive MBA (EMBA) program is designed to provide high-quality graduate management education to experienced mid-level and upper-level managers and executives. The program covers all functional areas of business management and exhibits several content integrating themes associated with successful management of modern business organizations. These include leadership and ethics, international business operations, innovation, and effective utilization of teams. A two week trip to an international location, typically China, is included in the program. Each successful student will also earn a Graduate Certificate in Asian Business Studies.

The program is a 15 month, cohort-based design with a lock-step, fixed curriculum. The schedule of classes is non-traditional and utilizes weekend and accelerated formats. Students, who are usually fully employed, enter the program as a group, beginning in August of each year and progress through courses together. Course content is delivered by senior faculty, most of whom have extensive industry experience. Frequent guest speakers are utilized for content expertise. The focus of the program is to use methods that maximize student interaction and connects classroom discussion directly to each student's job situation.

## Grade and Graduation Requirements

The MBA program follows the grade requirements for probation as specified under the general regulations of the Graduate Catalog. In addition, students must have at least a 3.0 grade point average in all coursework and area of specialty to graduate.

### THESIS DEGREE REQUIREMENTS

Requirements for the MBA thesis degree are the same as those for a non-thesis program with the following change. A six-hour thesis must be added to the normal 36-hour advanced MBA program. All candidates for this type degree shall defend the thesis at a final oral examination.

### DUAL DEGREE OPTION

Students may pair the MBA degree with a specialized graduate degree. Students requesting the dual degree program must be admitted to each participating program. The number of hours that may be used jointly will be determined by the total number of hours required by both degree programs if completed separately as defined in the graduate catalog. Dual degree programs are available at the master's level only.

### JOINT DEGREE: BACHELOR OF SCIENCE IN BIOLOGY AND MASTER OF BUSINESS ADMINISTRATION

A five-year program designed to prepare students for careers as managers with specific knowledge of the biomedical science field. Students are required to take courses from life sciences, business, and liberal arts, culminating in a joint Master of Business Administration Degree (MBA), including a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Business and the College of Science. The BS in Biology will be conferred at the same time as the MBA. If students in this joint degree program are not accepted into the MBA program, or if students enter the MBA program and fail to complete the requirements for the MBA, then, in order to earn a BS in Biology they must take the same, full complement of courses required for a BS as students not enrolled in the joint program. Students interested in this integrated undergraduate and graduate degree plan should consult with the Biology undergraduate advisor. If eligible for the program, the Biology undergraduate advisor will direct them to contact Graduate Business Services. Application procedures will be discussed at that stage.

### THUNDERBIRD

MBA students may further enhance their international skills by participating in the dual degree program with Thunderbird University. Under this program, students may earn both an MBA (UT Arlington) and the Master of International Management (Thunderbird) degree. This program normally allows students to apply 12 hours of advanced coursework and all core requirements towards both programs. Students wishing to participate may obtain detailed information about the program from the MBA Advisor in the College of Business Administration. Students must independently apply and gain admission to both programs.

### GRADUATE ADVANCED STUDIES CERTIFICATE

Individuals who hold a graduate degree in business and wish to pursue additional graduate studies in business solely for the purpose of professional development may apply to the MBA Program as a special student. Applicants should outline their professional development objectives in their written essay that accompanies their application. Additionally, they must meet all requirements for admission to the MBA program. Coursework in this program must meet the grade requirements of Graduate Admissions and be completed within a three year time-limit. A certificate will be granted upon successful completion of 12-21 hours of approved coursework in an area of business. Executives completing courses from two or more areas will be awarded a certificate in the area of executive development. Managers or functional specialists completing courses in one area of study will be awarded a certificate for their professional development area. Some courses taken under this program may not be applied in the future toward another graduate degree at this University.

### SPECIALTY OR PROFESSIONAL MANAGEMENT OPTION

Please review the Specialty and Breadth or Professional Management Elective sections under the Master's tab for specific requirements. This option is for current MBA students.

## Ph.D. in Business Administration

### ADMISSION

Admission to the Ph.D. program is based upon the completion of the general admission requirements of the Graduate School. For Ph.D. program admission a score on the Graduate Management Admission Test (GMAT) or Graduate Record Exam (GRE), and a record of undergraduate and master level academic performance are required. Students for whom English is not their native language must achieve a TOEFL score of at least 550. International applicants that score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete U.T. Arlington's Graduate English Skills Program prior to beginning graduate coursework. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. A standardized test score (GMAT or GRE) will not be used as the sole criterion for denying an applicant's admission to the Ph.D. program.

Specifically, multiple criteria are used to make admission decisions. Quantitative measures include an applicant's GMAT or GRE score and grade point averages on undergraduate and master level work as calculated by the Graduate School. No formula is used nor weights assigned to these factors. The

Ph.D. Graduate Studies Committee and the field coordinator for the student's track in the Ph.D. program give consideration to these and other factors (educational objectives, letters of recommendation, etc.) in the entire file to arrive at a decision. Interviews with prospective students are encouraged and given consideration in the decision process. There are no set minimum scores for GMAT or GRE required for admission and no cutoff scores on grade point averages. Prospective students are encouraged to work with their track's field coordinator to work through the admission process.

## CATEGORIES OF ADMISSION DECISIONS

An applicant is unconditionally admitted when all factors for consideration indicate very strong potential for academic success as a business doctoral student. When multiple factors indicate lack of potential, admission will be denied. Probationary admission is not available for the doctoral program.

A provisional decision to admit may be granted when the applicant meets criteria for unconditional admission but an item of applicant information has not been received by the Graduate School. A deferred decision may be made when an applicant's file is not sufficiently complete to make an admit or deny decision.

## UNIVERSITY AND COLLEGE FELLOWSHIP/SCHOLARSHIP AWARDS

Doctoral students who are newly admitted, have a minimum undergraduate grade point average of 3.0 as calculated by the Graduate School (and 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT or GRE) will not be used as the sole criterion for determining fellowship and/or scholarship eligibility.

## DEGREE REQUIREMENTS

All students must complete work in a major (dissertation) field and a research field. Additional minor area courses may be external to the College of Business. If deemed appropriate by the student's committee, examples are industrial engineering, mathematics, computer science, sociology, and psychology. The student must petition for approval of an external minor field.

The following minimum semester hours must be included in the student's Program of Study.

	Minimum Semester Hours
Business Foundation	0-15 <sup>1</sup>
Major Field	24 <sup>2</sup>
Research Field	12 <sup>2</sup>
Dissertation	18

<sup>1</sup> From 0-15 hours depending upon the student's background at the time of admission to the doctoral program.

<sup>2</sup> Previous equivalent advanced coursework may be accepted.

## Residence Requirements

Each student enrolled in the doctoral program must enroll for and successfully complete a minimum of 15 hours in one 12-month period prior to completion of the comprehensive examinations. Each student must enroll for at least 12 hours every year. All students enrolled in the program must successfully complete all coursework and comprehensive examinations within a maximum of 60 months from initial enrollment in the program. A minimum of 24 graduate hours in residence, excluding dissertation, are required for all candidates.

## Diagnostic and Annual Performance Evaluations

All doctoral students are expected to show steady progress toward their degree and to demonstrate satisfactory advances in their ability and motivation to conduct independent research throughout their program. During a student's program, a diagnostic evaluation will be conducted near the end of the first year, but no later than 24 credit hours. After the first year, an annual performance evaluation will take place each subsequent year. The evaluation will be conducted by the major area Ph.D. advisor in consultation with a faculty committee. If the student has not yet passed all comprehensive examinations or does not have a formal dissertation committee, the faculty committee will consist of the faculty in the major area. If the student has passed all comprehensive examinations and has a formal dissertation committee, the faculty committee will consist of the Dissertation Committee.

Upon completion of the evaluation, a recommendation of continuation or discontinuation in the program is made to the College of Business Ph.D. program director for a final decision. For a discontinuation decision resulting from the first year diagnostic evaluation, the student will immediately be discontinued in the Ph.D. program. For a discontinuation decision in the annual performance review in the second year and beyond, the student will have one regular semester (Fall or Spring) to demonstrate satisfactory improvement in their performance. At that time the major area Ph.D. advisor in consultation with the appropriate faculty committee, and the Ph.D. program director, will make a final decision on whether the improvements are satisfactory. An unsatisfactory decision at that time will result in the immediate discontinuation of the student in the program.

During the diagnostic and annual performance reviews, reasons for poor performance include: grade point averages below minimum GPA requirements, unsatisfactory progress in completing coursework, unsatisfactory progress in completing dissertation, and inadequate demonstration of ability and motivation to conduct independent research.

## Comprehensive Examinations

Students must demonstrate competence in all their fields of study by the successful completion of comprehensive examinations. Written comprehensive examinations in each field will be given at the start of each fall and spring semester of each year and may be given during the summer term. A student is eligible for a written comprehensive examination when that student has completed:

1. the Business Foundation with a GPA of at least 3.25 and
2. prescribed coursework in the field.

If a student fails a written comprehensive examination and continues in that field, the examination must be retaken by the end of the next long semester. If a student fails a second comprehensive examination, that student will not be permitted to continue in the program.

A student must complete all written examinations within 25 months or retake any examinations which fall outside the 25-month period. When a student successfully completes all the written examinations, that student is scheduled for a comprehensive oral examination which is administered by the student's Supervisory Committee. A student who fails the comprehensive oral examination is given a second oral examination within 12 months of the date of the first examination. If a student fails the second comprehensive oral examination, that student will not be permitted to continue in the program.

Upon successful completion of written and oral comprehensive examinations, the student is admitted to candidacy.

## Dissertation

The Dissertation Committee consists of a minimum of five members. The chair of the Dissertation Committee must be from the major field. At least one member of the committee must be from the research field and one member of the committee must be from outside the major field. With the approval of the Graduate Dean, one of the five members may be a nationally or internationally recognized non-U.T. Arlington scholar.

Following completion of the comprehensive examinations, students will be required to enroll for at least nine hours of dissertation each regular semester and at least six hours each summer until completion of the dissertation. See Doctoral Requirements for Dissertations at the front of this catalog for exceptions. Students must register for a minimum total of 18 semester hours of dissertation and must be enrolled for a minimum of nine hours of dissertation in the semester in which they defend the dissertation.

The dissertation must be completed within four years of the oral comprehensive examination.

## Economics

Economics examines how individuals, businesses, and societies interact. By studying economics, you can gain a better understanding of the costs and benefits of a course of action and thus make informed decisions. Decision-making skills are necessary in multiple areas of the economy including the government and business workplaces.

Economics teaches you to think critically and to solve problems, skills that are highly valued in the workplace. You learn not only how to find data, but how to work with that data and then logically explain insights gained from the analyses. Current research interests of economics faculty include topics in technology, telecommunications, behavioral economics, forecasting, environment, labor, health, international trade, and international finance. The diverse skills and interests of the economics faculty will provide opportunities for learning and growth to the student in our modern economy.

## Economics - Graduate Programs

The Master of Arts is an applied economics program. As a "terminal" degree program, it teaches marketable skills for employment in business or government. The program consists of a solid analytical core in economics and quantitative methods, supplemented with courses in special fields. Potential specialization areas currently emphasized are forecasting/quantitative techniques, international business economics, and applied financial economics. The program is also recognized nationally for preparing students who want to pursue the Ph.D. degree in economics.

Economics is one of the minor areas a student may choose to study in the Doctor of Philosophy in Business Administration program in the College of Business. Additional information concerning the doctoral program is presented in the catalog under the heading Business Administration.

## Admission Requirements

Admission to the M.A. program in economics is based upon the completion of the general admission requirements of the Graduate Admissions Office. For admission to the M.A. program in economics, a score on either the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) and record of one's academic undergraduate performance are required. Students for whom English is not their native language must achieve a TOEFL score of at least 550 (213 on computer-based test). International applicants who score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete UT Arlington's Graduate English Skills Program prior to beginning graduate coursework. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise, and leadership experience. A standardized test score (GMAT or GRE) will not be used as the sole criterion for admitting applicants or the primary criterion for denying admission to the M.A. program in economics.

Multiple criteria are used to make admission decisions. Unconditional acceptance is based on consideration of all the information listed below and the decision to deny admission is not based on any single criterion alone.

1. A bachelor's degree from an accredited general or specific program.
2. An acceptable undergraduate GPA as calculated by Graduate Admissions (approximately the last 60 hours), generally greater than a 3.0 on a 4.0 scale.
3. An acceptable score on the Graduate Record Examination or GMAT. Successful students generally have a minimum score of 148 (600 old GRE scale) on the quantitative section and 150 (450 old GRE scale) on the verbal section of the GRE or a minimum score of 480 on the GMAT.
4. Favorable letters of recommendation from at least three individuals able to assess the applicant's potential success in graduate school.
5. Grades in specified undergraduate business and non-business courses (e.g., math, accounting, economics, statistics).
6. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or an equivalent score on a computer-based test) or a score of 40 on the Test of Spoken English. International applicants must submit a TOEFL score or IELTS score that meets the standards as listed in the admission requirements.

## **UNCONDITIONAL ADMISSION**

For unconditional admission, the applicant's composite total from the index (this index is derived by using a formula that multiplies the GPA by 200 and adds the resulting value to the GMAT score) must be 1080 or greater and items 1 through 5 above should strongly indicate potential for successful academic performance as a M.A. Economics student.

For unconditional admission, the applicant can score 148 (600 old GRE scale) or higher on the Quantitative section and 150 (450 old GRE scale) or higher on the Verbal section of the GRE and items 1 through 5 above should strongly indicate potential for successful academic performance as a MA economics student.

The GRE/GMAT test requirement for admissions to the economics MA program can, under extraordinary circumstances, be waived at the discretion of the department if the applicant already has been awarded a terminal graduate degree from a regionally or professionally accredited program.

## **PROBATIONARY ADMISSION**

If applicants do not meet items 1 through 6 for unconditional admission, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that an applicant earn a GPA of 3.0 or better in the first twelve hours of graduate coursework at UT Arlington.

## **DEFERRED AND PROVISIONAL ADMISSION**

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but whom otherwise appear to meet admission requirements may be granted provisional admission.

## **DENIAL OF ADMISSION**

After a thorough review of the application file, a candidate may be denied admission if he or she has less than satisfactory performance on any two of the admission criteria. All applicant data will be carefully reviewed before an admission denial is made.

## **FELLOWSHIPS AND SCHOLARSHIPS**

Students admitted with no provisional conditions to satisfy are eligible for available scholarship and/or fellowship support. A limited number of merit-based scholarships and fellowships may be awarded to graduate students enrolled in a minimum of six hours of coursework in both long semesters.

## **Degree Requirements**

### **M.A. DEGREE IN ECONOMICS: THREE OPTIONS**

The Department of Economics provides three Master's tracks: a Thesis Option for those intending to later pursue a Ph.D. in economics, and two Non-Thesis tracks, a traditional flexible option and an applied economics option. The Ph.D. Preparation Option is designed primarily for students who intend to pursue a Ph.D. in economics. This program provides excellent preparation for entry into a Ph.D. program. The second option is the flexible non-thesis program enabling a degree candidate greater flexibility in designing a program to fit one's interest. A third track, also non-thesis, is the Applied Economic Analysis or "number crunching" option designed to prepare graduates to manage and analyze data sets. In this track there is less emphasis on theory and a greater focus on empirical tools.

## M.A. DEGREE, THESIS: PH.D. PREPARATION OPTION

The Ph.D. Preparation Option in the M.A. degree program is an excellent choice for students intending to obtain a Ph.D. in economics later at another institution. A minimum of 24 semester hours of coursework, plus a minimum of six semester hours of thesis study, is required to obtain the M.A. in economics, Thesis Option. The core course requirements are:

ECON 5301	MATHEMATICS FOR ECONOMISTS (or equivalent)	3
ECON 5310	MICROECONOMIC THEORY	3
ECON 5312	MACROECONOMIC THEORY	3
ECON 5336	APPLIED BUSINESS AND ECONOMICS DATA ANALYSIS	3
ECON 5339	APPLIED BUSINESS AND ECONOMICS DATA ANALYSIS II	3
ECON 5337	BUSINESS & ECONOMIC FORECASTING	3
ECON 5338	APPLIED TIME SERIES	3
ECON 5329	RESEARCH METHODS IN APPLIED ECONOMICS	3
ECON 5698	THESIS (Students develop a thesis topic in consultation with a faculty member who supervises the thesis with other committee members.)	6
Total Hours		30

## M.A. DEGREE, NON-THESIS: TRADITIONAL OPTION

The non-thesis M.A. degree in economics gives a solid foundation in economic theory and the key elements of econometric analysis but is more flexible than the thesis option. It requires a minimum of 36 semester hours of coursework, including 18 hours required core courses. The remaining 18 hours include 6 semester hours in economics and twelve semester hours in supporting subjects with the approval of the graduate advisor. Successful completion of ECON 5329 RESEARCH METHODS IN APPLIED ECONOMICS satisfies the Graduate School requirement of a final master's examination. This program may be appealing to dual-degree candidates as discussed below.

ECON 5301	MATHEMATICS FOR ECONOMISTS (or equivalent)	3
ECON 5310	MICROECONOMIC THEORY	3
ECON 5312	MACROECONOMIC THEORY	3
ECON 5336	APPLIED BUSINESS AND ECONOMICS DATA ANALYSIS	3
ECON 5339	APPLIED BUSINESS AND ECONOMICS DATA ANALYSIS II	3
ECON 5329	RESEARCH METHODS IN APPLIED ECONOMICS	3
6 HOURS ECON ELECTIVES		6
12 HOURS SUPPORTING SUBJECTS		12
Total Hours		36

## M.A. DEGREE, NON-THESIS: APPLIED ECONOMIC ANALYSIS OPTION

The Applied Economic Analysis option in the M.A. program focuses on a major growth area-data analysis. Hal Varian, chief economist at Google, has explained why the demand for data analysis is growing rapidly. Organizations have low-cost computer time, huge quantities of data, and access to software tools that allow data analysis. The problem in using these assets is a shortage of qualified empirical analysts. One must know how to find data, be critical of it, develop it by use of software packages, and explain what has been learned by analysis. Advances in econometrics analysis allow us to better understand key issues, such as pricing and cost, inventory management, population trends, and other issues that impact business and government.

This non-thesis option M.A. in economics requires 36 semester hours of coursework. The focus is on quantitative analysis with a requirement of 18 hours and will normally be taken in the following sequence so analytical tools can be fully developed:

ECON 5336	APPLIED BUSINESS AND ECONOMICS DATA ANALYSIS	3
ECON 5337	BUSINESS & ECONOMIC FORECASTING	3
ECON 5338	APPLIED TIME SERIES	3
ECON 5339	APPLIED BUSINESS AND ECONOMICS DATA ANALYSIS II	3
ECON 5341	ADVANCED BUSINESS AND DATA ANALYTICS	3
ECON 5329	RESEARCH METHODS IN APPLIED ECONOMICS	3
Total Hours		18

ECON 5341 ADVANCED BUSINESS AND DATA ANALYTICS satisfies the Graduate School requirement of a final master's examination. It is a professional research project that allows the candidate to demonstrate the "number crunching" abilities developed in the program. The resulting work will provide evidence to employers of practical ability to manage and analyze data for a range of private and public organizations. Six semester hours of

electives in economics are also required plus twelve semester hours in supporting relevant courses as approved by the graduate advisor. This program may be appealing to dual degree candidates as discussed below and candidates with a strong quantitative and computer-based skill orientation.

## Fast Track and Facilitated Programs

The MA ECON program participates in both the Fast Track and Facilitated Admission programs for UT Arlington undergraduates.

# Economics - Undergraduate Programs

## Overview

Students who plan to earn a degree in economics in one of the specialized fields listed below should consider the following suggestions as to their choice of elective economics courses:

- Those planning to do **graduate work** in economics should include two semesters of calculus, as well as linear algebra in their program. Additional math courses are encouraged and should be selected with assistance from the Economics Department's graduate advisor.
- Those planning to apply for **law school** admission should include ECON 3305 LAWS AND ECONOMICS and ECON 3335 ECONOMICS OF PUBLIC POLICIES among their economics electives.
- Those planning to pursue careers in the **health sector** should include ECON 3301 THE ECONOMICS OF HEALTH and ECON 4311 ECONOMICS FOR MANAGERS among their economics electives.
- Those planning to work as an **economic analyst** should include Industrial ECON 3313 INDUSTRIAL ORGANIZATION AND PUBLIC POLICY, and ECON 4311 ECONOMICS FOR MANAGERS among their economics electives.

## Requirements for a Bachelor of Business Administration Degree in Economics

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

<b>Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)</b>		
General Core Requirements (p. 93)		39
Communication (minimum 6 hours required)		6
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
Mathematics (minimum 6 hours required)		6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
or MATH 1325	ANALYTIC GEOMETRY	
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
or MATH 1426	CALCULUS I	
Life and Physical Sciences (minimum 6 hours required)		6
From Approved University General Core Requirement List		
Language, Philosophy & Culture (minimum 3 hours required)		3
From Approved University General Core Requirement List		
Creative Arts (minimum 3 hours required)		3
From Approved University General Core Requirement List		
US History (minimum 6 hours required)		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Government/Political Science (minimum 6 hours required)		6
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (minimum 3 hours required)		3
FINA 2330	MONEY, FINANCE AND THE MODERN CONSUMER	
or MANA 2302	COMMUNICATIONS IN ORGANIZATIONS	
Foundational Component Area (minimum 3 hours required)		3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Non-Business elective (3 hours)		3
<b>Professional Course Requirements - Business Core (39 hours)</b>		



ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322	ORGANIZATIONAL STRATEGY	3
MARK 3321	PRINCIPLES OF MARKETING	3
OPMA 3306	OPERATIONS MANAGEMENT	3
<b>Professional Course Requirements - Advanced Economics (15 hours)</b>		
ECON 3303	MONEY AND BANKING	3
ECON 3310	MICROECONOMICS	3
ECON 3312	MACROECONOMICS	3
ECON 3318	INTRODUCTION TO ECONOMETRICS	3
ECON 4311	ECONOMICS FOR MANAGERS	3
or ECON 4323	INTRODUCTION TO MATHEMATICAL ECONOMICS	
or ECON 4325	ECONOMIC FORECASTING	
<b>Advanced Business Electives (21 hours)</b>		
Junior or Senior level business, accounting, finance, information systems, management, marketing, operations management, or real estate. No ECON courses will apply. Must include three (3) different departments/prefixes from the College of Business.		21
Total Hours		117

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3
Life & Physical Science	3	Life & Physical Science	3
COMS 1301	3	Creative Arts	3
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours
ECON 3303	3	ECON 3310	3

BLAW 3310	3	BCOM 3360	3
FINA 3313	3	BSTAT 3321	3
MANA 3318	3	Advanced Business Elective	3
MARK 3321	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
ECON 3312	3	ECON 4311, 4323, or 4325	3
ECON 3318	3	MANA 4322	3
Advanced Business Elective	3	OPMA 3306	3
Advanced Business Elective	3	Advanced Business Elective	3
Advanced Business Elective	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>

Total Hours: 120

**Requirements for a Bachelor of Science Degree in Economics**

Students must have completed ECON 2305 PRINCIPLES OF MACROECONOMICS and ECON 2306 PRINCIPLES OF MICROECONOMICS before enrolling in certain upper-level economics courses. Specified prerequisites are designated for certain courses.

**Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)**

General Core Requirements (p. 93)	39
Communication (minimum 6 hours required)	6
ENGL 1301	RHETORIC AND COMPOSITION I
ENGL 1302	RHETORIC AND COMPOSITION II
Mathematics (minimum 6 hours required)	6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS
or MATH 1325	ANALYTIC GEOMETRY
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS
or MATH 1426	CALCULUS I
Life and Physical Sciences (minimum 6 hours required)	6
From Approved University General Core Requirement List	
Language, Philosophy & Culture (minimum 3 hours required)	3
From Approved University General Core Requirement List	
Creative Arts (minimum 3 hours required)	3
From Approved University General Core Requirement List	
US History (minimum 6 hours required)	6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT
Government/Political Science (minimum 6 hours required)	6
POLS 2311	GOVERNMENT OF THE UNITED STATES
POLS 2312	STATE AND LOCAL GOVERNMENT
Social & Behavioral Sciences (minimum 3 hours required)	3
FINA 2330	MONEY, FINANCE AND THE MODERN CONSUMER
or MANA 2302	COMMUNICATIONS IN ORGANIZATIONS
Foundational Component Area (minimum 3 hours required)	3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING
Non-Business elective (3 hours required)	3
<b>Professional Course Requirements - Business Core (21 hours)</b>	

ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
<b>Professional Course Requirements - Economics (30 hours)</b>		
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
ECON 3303	MONEY AND BANKING	3
ECON 3310	MICROECONOMICS	3
ECON 3312	MACROECONOMICS	3
ECON 3318	INTRODUCTION TO ECONOMETRICS	3
ECON 4311	ECONOMICS FOR MANAGERS	3
or ECON 4323	INTRODUCTION TO MATHEMATICAL ECONOMICS	
or ECON 4325	ECONOMIC FORECASTING	
Plus 9 hours of 3000/4000 level economics, with a minimum of three hours at the 4000 level. Total hours in economics may not exceed 30.		9
<b>Minor Requirements</b>		
18 hours, at least six hours of 3000/4000 level. (The nine hours in accounting and information systems in the Business Core and nine hours from business communications, finance, statistics, or business law may be used as a minor in Business Administration.)		18
Other electives sufficient to give the total number of hours required for the degree		6
Total Hours		117

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315 or 1325	3	MATH 1316 or 1426	3
HIST 1311	3	HIST 1312	3
Life & Physical Science	3	Life & Physical Science	3
COMS 1301	3	Creative Arts	3
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours
ECON 3303	3	ECON 3312	3
ECON 3310	3	Advanced Economics Elective	3
BLAW 3310	3	BSTAT 3321	3

FINA 3313	3	BCOM 3360	3
Minor Requirement	3	Minor Requirement	3
	<b>15</b>		<b>15</b>
<b>Fourth Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
ECON 3318	3	ECON 4311, 4323, or 4325	3
Advanced Economics Elective (4000 level)	3	Advanced Economics Elective	3
Minor Requirement	3	Minor Requirement	3
Minor Requirement	3	Minor Requirement	3
Other elective	3	Other elective	3
	<b>15</b>		<b>15</b>

Total Hours: 120

## Minor in Economics for Non-Business Majors

The College of Business:

- Requires half of the course work for a minor in business be completed in residence at UT Arlington. For an 18-hour minor requirement, this would require a minimum of 9 hours of business course work at UT Arlington.
- Requires a grade of C or better in all minor requirement courses.
- Will not use vocational and technical courses (including WECM courses) toward any business minor.

### ECONOMICS

ECON 2337	ECONOMICS OF SOCIAL ISSUES (Optional)	0 - 3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
ECON 3303	MONEY AND BANKING <sup>1</sup>	3
ECON 3310	MICROECONOMICS <sup>1</sup>	3
ECON 3312	MACROECONOMICS <sup>1</sup>	3
ECON 33xx or 43xx <sup>1</sup>		3
Total Hours		18-21

<sup>1</sup> *Mandatory Prerequisites: Prerequisites MUST be met before enrollment in the course. A student should consider these when selecting courses to satisfy the minor requirement and when registering. For a complete list of prerequisites see the Undergraduate Catalog or the Business Undergraduate Advising Office.*

## Finance and Real Estate

The Department of Finance and Real Estate at UTA is committed to providing one of the highest quality finance programs in Texas. Located in the center of the Dallas/FortWorth Metroplex, UTA is in the midst of a dynamic employment market. The Department of Finance and Real Estate at UTA has fourteen full-time faculty, four full-time real estate faculty, and three full-time business law faculty. The department offers a full complement of classes in corporate finance, investments, financial institutions and capital markets, and international finance. The opportunity exists for students to participate in the finance industry through internships and part-time employment, while continuing their business education. Firms hiring finance students focus on many issues including managerial finance, banking, investment, brokerage, international money markets, insurance, personal financial planning, and mortgage activities. Firms hiring real estate students focus on topics such as environmental consulting, property tax, investment consulting, property development and management, property financing, mortgage banking, appraisal and valuation, site location analysis, and syndication. The departmental student organizations have ranked among the top student organizations in the country and have been placed high in nationwide competition.

The Finance and Real Estate Department seeks excellence in the providing of education, research and service to its various constituencies. Our mission has several dimensions: to achieve and maintain a reputation of high quality in all our degree programs (undergraduate, masters and doctoral); to generate research that will enhance theory and its real-world application; and to provide requisite service in facilitating the fullest realization of potential of all our fellow participants - students, businesses, governments and society at large.

# Finance and Real Estate - Graduate Programs

## Master of Science in Quantitative Finance

The Master of Science in Quantitative Finance degree program is designed to meet the growing demand for financial professionals equipped to implement state-of-the-art analytical techniques in support of financial decision-making. Students complete a rigorous seven-course sequence that includes: finance theory, mathematical finance, financial modeling, economic theory, and econometrics. Students then complete a five-course elective program designed jointly by the student and the program advisor. The Master of Science in Quantitative Finance degree program is a specialized degree program designed to build upon the candidate's prior background.

## Master of Science in Real Estate (Not currently admitting students)

The purpose of the Master of Science in Real Estate degree program is to provide students an opportunity to obtain a better understanding of the mechanics of real estate decision making in modern society and a greater depth of training in the discipline of real estate decision making than is possible at the baccalaureate level. The specific objectives of the program are to prepare students for careers in business, government, research, and teaching and for further graduate study. In this program, students are exposed to the theory, research, and practical applications of numerous real estate content areas, including investment analysis, appraisal, real estate development, primary and secondary mortgage markets, and mortgage backed securities. The Master of Science in Real Estate degree program is a specialized degree program designed to build upon the candidate's background.

## Accreditation

Both programs are accredited by AACSB-International.

## Admission - Master of Science in Quantitative Finance

Admission to the M.S. in Quantitative Finance (MSQF) program is based upon the completion of the general graduate admission requirements of the University. For admission into the MSQF program, an acceptable score in the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) and acceptable undergraduate performance are required. The GMAT is strongly preferred. Preference is given to individuals having extensive mathematics or computer science backgrounds. Students whose native language is not English must also take the Test of English as a Foreign Language (TOEFL), TOEFL iBT, Test of Spoken English (TSE) or International English Language Testing System (IELTS). International applicants scoring below acceptable levels on verbal portions of entrance examinations may be admitted conditional upon passing an English proficiency exam or upon completing the University's Graduate English Skills Program prior to beginning graduate coursework. The GMAT or GRE score shall not be used as the sole criterion for admitting applicants or the primary criterion for denying an applicant's admission into the MSQF program. Specifically, multiple criteria are used to make admission decisions. Unconditional acceptance is based on consideration of all the information listed below, and the decision to deny admission is not based on any single criterion.

Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience.

Along with the grade point average and GMAT or GRE scores, admission criteria include the following:

1. An undergraduate GPA of at least 3.0 on a 4.0 scale as calculated by Graduate Admissions. The grade point average is calculated on your undergraduate degree using approximately the last 60 hours. A graduate grade point average is used in the index along with GMAT scores when it is a 3.0 or above and based on at least 24 hours.
2. GMAT or GRE sub-scores (verbal and quantitative) are also considered in the admission decision. A typical successful candidate will score at or above the 75th percentile on the quantitative portion, and at or above the 40th percentile on the verbal portion of either exam.
3. International Applicants must submit a score of at least 550 on the paper-based TOEFL, a score of at least 213 on the computer-based TOEFL, a minimum score of 40 on the TSE, a minimum score of 6.5 on the IELTS, or a minimum TOEFL iBT total score of 79 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 16 for the listening section to meet this requirement.
4. Grades in specified undergraduate business and non-business courses (math, accounting, economics, statistics, for example)
5. Mathematics coursework through multivariate calculus (calculus III).
6. A satisfactory 200 word essay outlining the role that the MSQF degree is intended to play in the applicant's career objectives.
7. Positive letters of recommendation from three persons familiar with the applicant's academic background and/or work experience who can assess the applicant's potential for success in graduate school.
8. General and specific program accreditation status of degree-granting institution.
9. Professional work experience.
10. Professional certification or licensure.

## UNCONDITIONAL ADMISSION

For unconditional admission, items 1 through 6 above should indicate strongly the potential for successful academic performance at the master's level. Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.0 as calculated by Graduate Admissions (or 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support.

A standardized test score (GMAT or GRE) will not be used as the sole criterion or the primary criterion for determining fellowship and/or scholarship eligibility.

## PROBATIONARY ADMISSION

An applicant deemed deficient in one or more of the above criteria may be considered for probationary admission upon careful review of his/her materials. An applicant admitted under this provision shall be expected to complete his/her first 12 hours of coursework with a GPA of 3.0 or better.

## PROVISIONAL, DEFERRED AND DENIED ADMISSION

Provisional admission may be granted if an applicant is unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements. A deferred decision may be granted when a file is incomplete or when denial is inappropriate.

An applicant will likely be denied admission when three or more of items one through six above indicate lack of potential for success in the program. All applicant data will be evaluated carefully before a denial is issued.

## Degree Requirements

The M.S. in Quantitative Finance is designed to provide a specialized, highly analytical graduate education to financial managers, financial analysts, and technical personnel. The program consists of 36 credit hours of coursework in finance, economics, mathematics, statistics, and computer science. All students will complete a twenty-one-hour set of foundation classes consisting of:

ECON 5310	MICROECONOMIC THEORY	3
FINA 5323	INVESTMENTS	3
FINA 5327	FINANCIAL DERIVATIVES	3
FINA 5330	REAL OPTIONS	3
FINA 5350	MATHEMATICAL FINANCE	3
FINA 5351	SEMINAR IN FINANCIAL MODELING	3
FINA 5392	SELECTED TOPICS IN FINANCE	3
Total Hours		21

The remaining fifteen-hours of coursework are selected by the student, subject to the approval of the program advisor. Courses will be chosen from a list that includes:

1. finance elective classes (international finance, financial institutions, capital markets, real options, and capital budgeting),
2. economics (macroeconomic theory, econometrics, time series analysis),
3. mathematics (advanced calculus, real analysis, differential equations, stochastic processes, and numerical methods),
4. statistics (probability theory, mathematical statistics), and
5. computer science (programming languages, numerical methods, parallel processing, software engineering).

Students who do not have the appropriate background may have to take additional foundation coursework. Quantitative background appropriate to begin the MSQF program consists of a minimum of 6 credit hours of calculus and 3 credit hours each in linear algebra, statistics, and computer programming. Other foundation coursework would include at least 3 credit hours each of microeconomics and finance.

## Master of Science in Real Estate (Not currently admitting students)

### ADMISSION - MASTER OF SCIENCE IN REAL ESTATE

Along with the grade point average and GMAT or GRE scores, admission criteria include the following:

1. An undergraduate grade point average (GPA) of 3.0 on a 4.0 scale, as calculated by Graduate Admissions, is typical of a successful candidate. This will be integrated into a formula or index that multiplies the GPA by 200 and adds the resulting value to the GMAT Score. An index score greater than 1070 or higher is typical of a successful candidate.
2. GMAT sub scores (verbal and quantitative) are also considered in the admission decision. GMAT sub scores greater than the 30th percentiles are typical of a successful candidate.
3. A GRE quantitative percentile greater than the 30th percentile and Verbal percentile greater than the 30th percentile is typical of a successful applicant.
4. International applicants must submit a score of at least 550 on the paper-based TOEFL, a score of at least 213 on the computer-based TOEFL, a minimum score of 40 on the TSE, a minimum score of 6.5 on the IELTS, or a minimum TOEFL iBT total score of 79 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 16 for the listening section to meet this requirement.
5. Grades in specified undergraduate business and non-business courses (math, accounting, economics, statistics, for example)
6. Educational objectives and quality of written expression of the 200 word application essay.

7. Letters (2 are required) of recommendation from two persons familiar with the applicant's academic background and/or work experience who can assess the applicant's potential success in graduate school.
8. General and specific program accreditation status of degree-granting institution.
9. Professional work experience.
10. Professional certification or licensure.

## UNCONDITIONAL ADMISSION

For unconditional admission, the applicant's composite total from the index must be 1070 or higher and items 1 through 5 above should strongly indicate potential for successful academic performance as a graduate real estate student.

Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.0 as calculated by Graduate Admissions (or 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT) will not be used as the primary criterion for determining fellowship and/or scholarship eligibility.

## PROBATIONARY ADMISSION

For an applicant with an index score below 1070, probationary admission may be available if items 1-10 indicate a potential for successful academic performance as a graduate real estate student. Students who are admitted on probation will have one or more conditions specified, such as a GPA of 3.0 or better for the first 12 hours of graduate study.

## PROVISIONAL, DEFERRED AND DENIED ADMISSION

A provisional decision to admit may be granted when the applicant meets criteria for unconditional or probationary status but one or more applicant credentials are incomplete. A deferred decision may be made when an applicant's file is not sufficiently complete to make a final admission decision.

For an applicant with an index score less than 1000 and if items 1-10 do not indicate a potential for successful academic performance as a graduate real estate student admission will likely be denied. All applicant data will be carefully reviewed before an admission denial is made.

## WAIVER OF GMAT SCORE FOR GRADUATE CERTIFICATE IN REAL ESTATE DEVELOPMENT STUDENTS

Students who successfully complete the Graduate Certificate in Real Estate Development with a GPA of 3.5 or higher will, upon the recommendation of the Real Estate Admissions Committee and approval of the Dean of Business, be granted a waiver of the GMAT requirement for their application to the Master of Science in Real Estate program.

## DEGREE REQUIREMENTS

The program, which can be completed by part-time students who attend classes during the late afternoon, evening hours, and Saturdays, is designed to accommodate students with divergent educational backgrounds and career interests. Each student's program of work must be approved by the Real Estate Graduate Advisor and it must contain a minimum of 15 semester hours in approved advanced graduate real estate courses taken at The University of Texas at Arlington.

A minimum of 36 semester hours is required. All classes must be approved by the Graduate Advisor in Real Estate. Students who do not have a bachelor's degree in business administration may have to take additional coursework (up to 3 semester hours) to acquire a sufficient general business foundation. Students may have foundation courses waived by the Graduate Advisor if they have completed equivalent courses.

ECON 3310	MICROECONOMICS (first completed at UTA)	3
or ECON 3312	MACROECONOMICS	
FINA 3313	BUSINESS FINANCE	3
REAE 3325	REAL ESTATE FUNDAMENTALS	3
BSTAT 3321	BUSINESS STATISTICS I (first completed at UTA)	3
or BSTAT 3322	BUSINESS STATISTICS II	
Total Hours		12

A minimum of 36 semester hours including six hours of thesis (REAE 5698 THESIS) is required if the student chooses to write a thesis. The thesis hours will involve working closely with one or more members of the graduate faculty from the Department of Finance and Real Estate on a research project in a specialized area of interest in real estate.

## FAST TRACK PROGRAM

The MS in Real Estate participates in the Fast Track program. Students interested in this program should first contact their Undergraduate Advisor.

## Graduate Certificate in Real Estate Development (not currently admitting students)

### OBJECTIVE

In keeping with the mission of The University of Texas at Arlington to provide lifelong learning opportunities, the Department of Finance and Real Estate now offers a Graduate Certificate in Real Estate Development. The Graduate Certificate in Real Estate Development is designed to provide qualified real estate professionals advanced instruction in real estate development and allow them to further their professional development. This post-baccalaureate Certificate provides an educational opportunity that is narrower in scope, and shorter in duration, than graduate degree programs. It is ideal for people transitioning from one sector of real estate into real estate development, or those in the process of satisfying education requirements for various professional real estate licenses.

### ADMISSION

Admissions to the Graduate Certificate in Real Estate Development is based upon the general graduate admission requirements of the University. Generally applicants must have an undergraduate grade point average of at least 2.9 as calculated by Graduate Admissions. A graduate grade point average is used when the applicant has attained at least 24 graduate semester hours.

Applicants whose undergraduate GPA was less than a 2.9 may still be admitted to the Graduate Certificate in Real Estate Development program by meeting the admissions requirements for the M.S. Real Estate program.

### COURSE REQUIREMENTS

#### Foundation Course

REAE 5311	REAL ESTATE ANALYSIS	3
-----------	----------------------	---

#### Required Courses

REAE 5314	SEMINAR IN REAL ESTATE DEVELOPMENT	3
REAE 5321	SEMINAR IN REAL ESTATE INVESTMENT	3
REAE 5319	SEMINAR IN REAL ESTATE FINANCE	3
REAE 5334	SEMINAR IN REAL ESTATE APPRAISAL	3

Total Hours		15
-------------	--	----

### USE OF COURSES TOWARD DEGREE PROGRAM

Students that initially enroll in the Graduate Certificate in Real Estate Development may later use up to 15 hours of coursework from the Certificate program toward the Master of Science in Real Estate degree.

You may be entitled to know what information The University of Texas at Arlington (UT Arlington) collects concerning you. You may review and have UT Arlington correct this information according to procedures set forth in UTS139 (<http://www.utsystem.edu/policy/policies/uts139.html>). The law is found in sections 552.021 (<http://www.statutes.legis.state.tx.us/Docs/GV/htm/GV.552.htm#552021>), 552.023 (<http://www.statutes.legis.state.tx.us/Docs/GV/htm/GV.552.htm#552023>) and 559.004 (<http://www.statutes.legis.state.tx.us/Docs/GV/htm/GV.559.htm#559004>) of the Texas Government Code. For more information, see our Privacy Policy (<http://www.uta.edu/oit/policy/Internet-privacy.php>).

## Finance and Real Estate - Undergraduate Programs

Finance is the branch of business concerned with management of money. The specific nature of the money management function depends to some extent on the type of organization. Based on similarity of the finance function, finance is generally classified into three areas: corporate finance, investments and securities, and financial institutions. Career opportunities may be available in each of these areas. A brief description of each area along with some courses applicable to each is provided below. A faculty advisor should be consulted before making final decisions relative to a degree program.

**Financial Institutions:** Commercial banks, savings and loan associations, credit unions, mutual funds, pension funds, finance companies, and insurance companies. Also, various governmental bodies that regulate financial institutions are included.

**Investments and Securities:** Firms such as investment banks, stockbrokers, institutional investors, and investment advisory services.

**Corporate Finance:** Manufacturing firms, wholesalers, retailers, and firms engaged in providing all types of non-financial services.

### Requirements for a Bachelor of Business Administration in Finance

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

#### Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours)

General Core Requirements (p. 93)



Communication (minimum 6 hours required)		6
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
Mathematics (minimum 6 hours required)		6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life and Physical Sciences (minimum 6 hours required)		6
From Approved University General Core Requirement List		
Language, Philosophy & Culture (minimum 3 hours required)		3
From Approved University General Core Requirement List		
Creative Arts (minimum 3 hours required)		3
From Approved University General Core Requirement List		
US History (minimum 6 hours required)		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Government/Political Science (minimum 6 hours required)		6
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (minimum 3 hours required)		3
FINA 2330	MONEY, FINANCE AND THE MODERN CONSUMER	
or MANA 2302	COMMUNICATIONS IN ORGANIZATIONS	
Foundational Component Area (minimum 3 hours required)		3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Non-Business elective (3 hours)		3
<b>Professional Course Requirements - Business Core (48 hours)</b>		
ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
ACCT 3311	FINANCIAL ACCOUNTING I	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322	ORGANIZATIONAL STRATEGY	3
MARK 3321	PRINCIPLES OF MARKETING	3
OPMA 3306	OPERATIONS MANAGEMENT	3
Advanced Economics Elective (ECON 33xx or 43xx)		6
<b>Professional Course Requirements - Finance (12 - 18 hours)</b>		
FINA 3315	INVESTMENTS	3
FINA 3317	FINANCIAL INSTITUTIONS AND MARKETS	3
FINA 4315	ADVANCED BUSINESS FINANCIAL ANALYSIS	3
Advanced Finance Elective (FINA 33xx or 43xx)		3
Advanced Finance or Advanced Business Electives		6
<b>Advanced Business Electives (9 hours)</b>		
Advanced Accounting Elective (ACCT 33xx or 43xx)		3
Advanced business, economics, information systems, management, marketing, operations management, or real estate. No FINA or ACCT will apply. Must include two different departments/prefixes in the College of Business. See list of recommended business electives below.		6
Total Hours		117

**RECOMMENDED BUSINESS ELECTIVES FOR FINANCE MAJORS**

ACCT 3312	FINANCIAL ACCOUNTING II
BLAW 3311	LAW I
BLAW 3312	LAW II
INSU 4329	PROPERTY AND CASUALTY RISK MANAGEMENT
INSY 3305	INFORMATION SYSTEMS ANALYSIS AND DESIGN
REAE 3325	REAL ESTATE FUNDAMENTALS
REAE 4319	REAL ESTATE FINANCE
REAE 4321	REAL ESTATE INVESTMENT

**SUGGESTED COURSE SEQUENCE****First Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3
Life & Physical Science	3	Life & Physical Science	3
COMS 1301	3	Creative Arts	3
	<b>15</b>		<b>15</b>

**Second Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
BLAW 3310	3	FINA 3315	3
FINA 3313	3	FINA 3317	3
MANA 3318	3	BCOM 3360	3
MARK 3321	3	BSTAT 3321	3
Advanced Accounting Elective	3	Advanced Economics Elective	3
	<b>15</b>		<b>15</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
ACCT 3311	3	FINA 4315	3
Advanced Finance Elective	3	MANA 4322	3
Advanced Business Elective	3	OPMA 3306	3
Advanced Economics Elective	3	Advanced Business Electives	3

Advanced Finance or Advanced Business Elective	3	Advanced Finance or Advanced Business Elective	3
	15		15

Total Hours: 120

## Requirements for a Bachelor of Business Administration in Real Estate

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

<b>Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)</b>			
General Core Requirements (p. 93)			39
Communication (minimum 6 hours required)			6
ENGL 1301	RHETORIC AND COMPOSITION I		
ENGL 1302	RHETORIC AND COMPOSITION II		
Mathematics (minimum 6 hours required)			6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS		
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS		
Life and Physical Sciences (minimum 6 hours required)			6
From Approved University General Core Requirement List			
Language, Philosophy & Culture (minimum 3 hours required)			3
From Approved University General Core Requirement List			
Creative Arts (minimum 3 hours required)			3
From Approved University General Core Requirement List			
US History (minimum 6 hours required)			6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865		
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT		
Government/Political Science (minimum 6 hours required)			6
POLS 2311	GOVERNMENT OF THE UNITED STATES		
POLS 2312	STATE AND LOCAL GOVERNMENT		
Social & Behavioral Sciences (minimum 3 hours required)			3
FINA 2330	MONEY, FINANCE AND THE MODERN CONSUMER		
or MANA 2302	COMMUNICATIONS IN ORGANIZATIONS		
Foundational Component Area (minimum 3 hours required)			3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING		
Non-Business elective (3 hours)			3
<b>Professional Course Requirements - Business Core (48 hours)</b>			
ACCT 2301	PRINCIPLES OF ACCOUNTING I		3
ACCT 2302	PRINCIPLES OF ACCOUNTING II		3
ECON 2305	PRINCIPLES OF MACROECONOMICS		3
ECON 2306	PRINCIPLES OF MICROECONOMICS		3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING		3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION		3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS		3
BSTAT 3321	BUSINESS STATISTICS I		3
FINA 3313	BUSINESS FINANCE		3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR		3
MANA 4322	ORGANIZATIONAL STRATEGY		3
MARK 3321	PRINCIPLES OF MARKETING		3
OPMA 3306	OPERATIONS MANAGEMENT		3
Advanced Accounting Elective (ACCT 33xx or 43xx)			3
Advanced Economics Elective (ECON 33xx or 43xx)			6
<b>Professional Course Requirements - Real Estate (15 - 18 hours)</b>			
REAE 3325	REAL ESTATE FUNDAMENTALS		3

REAE 4319	REAL ESTATE FINANCE	3
REAE 4334	REAL ESTATE APPRAISAL	3
Advanced Real Estate Electives (REAE 33xx or REAE 43xx)		6
Advanced Real Estate or Advanced Business Elective		3
<b>Advanced Business Electives (9 hours)</b>		
BLAW 3314	REAL ESTATE LAW	3
Advanced business, economics, finance, information systems, management, marketing, or operations management. No REAE or BLAW will apply. Must include two (2) different departments/prefixes in the College of Business.		6
Total Hours		117

## RECOMMENDED BUSINESS ELECTIVES FOR REAL ESTATE MAJORS

ACCT 3315	PRINCIPLES OF FEDERAL INCOME TAX
ECON 4325	ECONOMIC FORECASTING
FINA 3315	INVESTMENTS
FINA 3317	FINANCIAL INSTITUTIONS AND MARKETS
FINA 4320	CAPITAL BUDGETING
FINA 4351	FINANCIAL MODELING
INSU 4329	PROPERTY AND CASUALTY RISK MANAGEMENT
INSU 4330	LIFE AND HEALTH RISK MANAGEMENT
MARK 4311	MARKETING RESEARCH

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3
Life & Physical Science	3	Life & Physical Science	3
COMS 1301	3	Creative Arts	3
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours
REAE 3325	3	REAE 4319	3
BLAW 3310	3	BLAW 3314	3
FINA 3313	3	Advanced Real Estate Elective	3
MANA 3318	3	BSTAT 3321	3

Advanced Economics Elective	3	MARK 3321	3
	<b>15</b>		<b>15</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
REAE 4334	3	MANA 4322	3
Advanced Real Estate Elective	3	OPMA 3306	3
BCOM 3360	3	Advanced Business Electives	3
Advanced Business Elective	3	Advanced Economics Elective	3
Advanced Accounting Elective	3	Advanced Real Estate or Advanced Business Elective	3
	<b>15</b>		<b>15</b>

---

Total Hours: 120

## Health Care Administration - Graduate Programs

### Objectives

The program in Health Care Administration is designed to provide graduate students an integrated, contemporary, and multidisciplinary education. Diverse topics are integrated into the curriculum, research and residences to provide:

1. An understanding of the modern health industry
2. Knowledge, skills and abilities to assume administrative roles in various organizations in the health industry
3. Opportunities to develop leadership skills
4. Interactions with diverse specialists in the health industry to evaluate and resolve administrative problems

### Admission

Admission to the M.S. in Health Care Administration (HCAD) program is based upon the completion of the general admission requirements of Graduate Admissions. For HCAD program admission a score on the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) and record of one's undergraduate academic performance are required. Students for whom English is not their native language must achieve a TOEFL score of at least 575 (paper-based) or 230 (computer-based). International applicants that score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete UT Arlington's Graduate English Skills Program prior to beginning graduate coursework. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. A standardized test score (GMAT or GRE) will not be used as the sole criterion for admitting applicants or the primary criterion for denying an applicant's admission to the HCAD program.

Multiple criteria are used to make admission decisions. Quantitative measures include an applicant's GMAT or GRE scores and grade point average as calculated by Graduate Admissions. These measures are integrated into a formula, or index, that multiplies the grade point average by 200 and adds the total GMAT score. Index factors are weighed equally at the outset of applicant evaluation. A graduate grade point average is used in the index when it is 3.0 or above and is based on at least 24 semester hours. For unconditional admission, the applicant's composite total from the index must be 1050 or higher and items 1 through 5 above should strongly indicate potential for successful academic performance as a graduate health care administration student.

Along with grade point average and GMAT or GRE scores, admission criteria include the following:

1. GMAT or GRE sub scores (verbal and quantitative)
2. GMAT or GRE writing sample
3. Grades in specified undergraduate business and non-business courses (math, accounting, economics, statistics, for example)
4. Educational objectives and quality of written expression of the application essay
5. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience
6. Undergraduate Major
7. General and specific program accreditation status of degree granting institution
8. Professional work experience
9. Professional certification or licensure
10. A personal interview, at the discretion of the program advisor

## UNCONDITIONAL ADMISSION

The GMAT or GRE test may be waived for applicants with an earned graduate degree in an appropriate health care related discipline or profession.

The GMAT or GRE test may also be waived for applicants with five or more years of increasing responsibility in managerial, professional, and/or technical positions in the health care industry, and with a 3.0 grade point average on undergraduate work as calculated by Graduate Admissions; detailed work history required with application.

The GMAT or GRE test may also be waived for applicants who have (within the last 3 years) or will receive an undergraduate degree from UT Arlington with a GPA of 3.2 or higher, as calculated by the graduate school.

Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.0 as calculated by the Graduate School (or 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT or GRE) will not be used as the sole criterion or the primary criterion for determining fellowship and/or scholarship eligibility.

## PROBATIONARY ADMISSION

For an applicant with an index score below 1050, probationary admission may be available when at least three items of 1 through 5 above strongly indicate potential for successful academic performance as a graduate health care administration student. Items 6 through 10 will also be used to identify positive indicators for admission. Students who are admitted on probation will have one or more conditions specified, such as a GPA not less than a 3.0 for the first 12 hours of graduate study.

## PROVISIONAL, DEFERRED AND DENIED ADMISSION

A provisional decision to admit may be granted when the applicant meets criteria for unconditional or probationary status but one or more applicant credentials are incomplete. A deferred decision may be made when an applicant's file is not sufficiently complete to make an admit or deny decision.

For an applicant with an index score less than 1000 and other evidence that indicates lack of potential for academic success as a graduate health care administration student, admission will likely be denied. However, all applicant data will be carefully reviewed before an admission denial is made.

## Degree Requirements

The M.S. Degree in Health Care Administration requires 39 hours of specified coursework. The thirteen courses are normally taken in the following sequence.

HCAD 5301	HEALTH CARE ADMINISTRATION I	3
HCAD 5337	ETHICS, LEADERSHIP, AND TEAMWORK	3
HCAD 5305	FINANCIAL ACCOUNTING FOR HEALTH CARE INDUSTRY	3
HCAD 5306	MANAGERIAL ACCOUNTING FOR HEALTH CARE INDUSTRY	3
FINA 5315	HEALTH CARE FINANCIAL MANAGEMENT	3
HCAD 5310	HEALTH CARE LAW	3
INSY 5350	HEALTH CARE INFORMATION SYSTEMS	3
OPMA 5377	HEALTH CARE QUALITY ASSESSMENT	3
MARK 5330	SERVICES MARKETING MANAGEMENT	3
BSTAT 5315	STATISTICAL METHODS FOR HEALTH CARE ADMINISTRATORS	3
ECON 5333	ECONOMICS OF HEALTH	3
HCAD 5390	STRATEGIC MANAGEMENT FOR HEALTH CARE ORGANIZATIONS	3
HCAD 5399	GRADUATE HEALTH CARE ADMINISTRATION INTERNSHIP	3
Total Hours		39

Together these courses provide the student with a general background in business and economics and industry relevant knowledge in all of the fundamental areas of managing health care organizations. The residence or internship course requirement can be satisfied in either of two methods. The residence options are as follows:

## WORKING RESIDENCE/INTERNSHIP

The completion of a residence/Internship is a primary component of the program for students who do not have prior appropriate professional work experience in a health-related organization. The residence provides students the opportunity to acquire firsthand professional knowledge of and experience with the functioning of a health-related organization. The working residence requires the completion of 240 hours of approved work experience in a professional capacity and a final written report, related to the student's residence, supervised by a member of the faculty of the degree program. The Graduate Advisor will provide overall supervision and coordination of the residence.

## RESIDENCE/INTERNSHIP SUBSTITUTE

A student who has substantial and acceptable work experience in a supervisory or professional position may qualify for the residence substitute. Work experience is approved by the Graduate Advisor. Accordingly, a student may request:

### Option I

Design, conduct and complete a supervised research project, an effort equivalent in scope to three (3) hours of graduate research-oriented courses, that is highly relevant to the student's intended future professional focus in lieu of a working residence; the project will be supervised by at least one member of the faculty of the degree program, or

### Option II

Complete an approved graduate course with significant research content highly relevant for the student's intended future professional field of specialty.

## Integrated Degree Plans

### BACHELOR OF SCIENCE IN BIOLOGY AND MASTER OF SCIENCE IN HEALTH CARE ADMINISTRATION

A five-year curriculum designed to prepare students for careers in health care administration. The curriculum also prepares students for medical school and advanced study. Students are required to take courses from life sciences, business and liberal arts, culminating in a five-year Master of Science Degree in Health Care Administration (HCAD), including a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Business and the College of Science. The BS in Biology will be conferred at the same time that the student is awarded the MS in Health Care Administration. If a student engaged in this joint degree program is not accepted into the HCAD graduate program, or enters the HCAD program and fails to complete the requirement for the master's degree in HCAD, then in order to earn a BS in Biology, the student must take the same, full complement of courses required to earn the BS as taken by students not enrolled in the BIOL/HCAD joint program.

Students interested in this integrated undergraduate and graduate degree plan should consult with the Biology undergraduate advisor and the Health Care Administration Graduate Advisor.

## Dual Degree Program

### MASTER OF SCIENCE IN HEALTH CARE ADMINISTRATION AND MASTER OF SCIENCE IN NURSING

The College of Business and the School of Nursing offer a dual degree consisting of the M.S. in Health Care Administration and the Master of Science in Nursing. Both degrees focus on administration and health care content and can be completed with a minimum of 56 hours total. Students can expand their knowledge and skills of nursing while also preparing themselves for administrative positions in a variety of health care organizations. Persons interested in pursuing both degrees simultaneously should review the dual degree arrangements presented in the introductory sections of the catalog and consult with both the advisor of the M.S. in Nursing and the advisor of the M.S. in Health Care Administration.

## Graduate Certificate Program

### ADMISSION

The certificate program is available to any student who has been admitted into Graduate Studies at UT Arlington. The student should contact the Graduate Advisor to declare the intent to earn the certificate before enrolling in courses to satisfy certificate requirements.

### PROGRAM OF STUDY

The certificate requires the completion of at least 12 hours of courses (as approved by the Graduate Advisor) selected from:

Select at least four of the following:

HCAD 5301	HEALTH CARE ADMINISTRATION I	12
HCAD 5310	HEALTH CARE LAW	
HCAD 5390	STRATEGIC MANAGEMENT FOR HEALTH CARE ORGANIZATIONS	
ECON 5333	ECONOMICS OF HEALTH	
HCAD 5306	MANAGERIAL ACCOUNTING FOR HEALTH CARE INDUSTRY	
FINA 5315	HEALTH CARE FINANCIAL MANAGEMENT	
INSY 5350	HEALTH CARE INFORMATION SYSTEMS	
OPMA 5377	HEALTH CARE QUALITY ASSESSMENT	

Total Hours

12

A grade of A or B must be received for all courses that can be applied to meet certificate requirements.

## **CHANGE OF PROGRAM TO THE M.S. HEALTH CARE ADMINISTRATION PROGRAM**

A student in the Certificate Program must apply for a change of program and meet all admission requirements to enter the M.S. Health Care Administration program.

## **Information Systems and Operations Management**

The Department of Information Systems and Operations Management (ISOM) offers a rich environment for studying and excelling in the fields of technology and/or operations. Students learn the business and technical skills for a more effective and efficient organization. Faculty are dedicated to teaching and nurturing students to help them achieve their full potential. ISOM fosters relationships with the community and works closely with industry to address their technology and operations needs.

The ISOM Department offers a BBA in Information Systems, BBA in Operations Management, an MS in Business Analytics, an MS in Information Systems, and a Ph.D. in Business Administration with emphasis in Operations Management or Information Systems. Students are prepared for a variety of careers in these fields.

## **Scholastic Activity and Research Interests of the Faculty**

Faculty conduct research in their respective fields and make significant contributions to industry and academia by publishing, speaking and attending conferences. All faculty are eager to share their experiences and research knowledge. Research topics include business analytics, security, business intelligence, quality management, operations process and control, and many more.

## **Information Systems and Operations Management - Graduate Programs**

The ISOM Department offers the MS in Business Analytics and the MS in Information Systems. These programs are AACSB-International accredited and STEM approved.

Our graduate students are prepared for advancement in rewarding and challenging careers in such fields as business analyst, systems analyst, project management, systems design, and business analytics. Other College of Business graduate students can enhance their expertise in specific areas by using Information Systems, Operations Management, and Business Statistics courses as electives.

Our advisors are:

Dr. Alan Cannon, Ph.D. Coordinator

Statistics and Operations Management (Business Administration)

Dr. Carolyn Davis, Graduate Advisor

Information Systems, MS

Business Analytics, MS

Dr. Radha Mahapatra, Ph.D. Coordinator

Information Systems (Business Administration)

## **Master of Science in Business Analytics (MSBA)**

### **OBJECTIVE**

The Master of Science in Business Analytics is designed to prepare graduates to identify and implement opportunities for the strategic use of business analytics with an emphasis on business. Students gain knowledge of a broad range of disciplines and functions in the business as well as specialized knowledge of business analytics and its accompanying skill set. An intensive curriculum covering business intelligence, data mining, econometrics, marketing research, statistical techniques prepares students for careers in the field of business analytics.

### **ADMISSION REQUIREMENTS**

Admission to the M.S. in Business Analytics (MSBA) program is based on completion of the general admission requirements of the Graduate School as specified under the Graduate Admissions Requirements and Procedures in the Graduate Catalog.

Admission criteria include the following:



1. An undergraduate grade point average (GPA) of 3.25 on a 4.0 scale, as calculated by Graduate Admissions, is typical of a successful candidate. This will be integrated into a formula or index that multiplies the GPA by 200 and adds the resulting value to the GMAT score. An index score greater than 1200 is typical of a successful candidate.
2. The GMAT or the GRE will be considered for an admission decision. Quantitative and Verbal percentiles on the GMAT/GRE should be above the 50<sup>th</sup> percentile. A GMAT score of 580 is typical of a successful candidate.
3. An applicant whose native language is not English must demonstrate a sufficient level of skill with the English language to assure success in graduate studies as defined under Admissions Requirements and Procedures in the Graduate Catalog. In addition, the applicant must successfully complete a face-to-face interview (either in person or online) with the MSBA Graduate Advisor.
4. Educational objectives and quality of written expression of the application essay.
5. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience who can assess the applicant's potential success in graduate school.
6. Professional work experience. Applicants should submit a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise, analytics expertise, and leadership experience.

## UNCONDITIONAL ADMISSION

For unconditional admission, an applicant must meet criteria 1 through 5.

## PROBATIONARY ADMISSION

For an applicant with an index score below 1200, probationary admission may be available when other criteria show positive indicators for admission. Students admitted on probationary status must meet probationary admission conditions as specified by the MSBA Graduate Advisor.

## PROVISIONAL, DEFERRED AND DENIED ADMISSION

Provisional, deferred, and denied admission decisions meet the criteria as defined under Admissions Requirements and Procedures in the Graduate Catalog.

## DEGREE REQUIREMENTS

The MSBA is a non-thesis program consisting of 36 semester hours to include required courses in the areas of business acumen and communication, data acquisition and architecture, and statistics and analytics. Electives sufficient to complete the program are selected with approval of the MSBA Graduate Advisor. When there is equivalent work/course experience, the student must meet with the MSBA Graduate Advisor to select alternate coursework.

ACCT 5307	MEASUREMENT AND ANALYSIS FOR BUSINESS DECISION-MAKING	3
MANA 5344	Evidence-Based Management	3
INSY 5337	DATA WAREHOUSING AND BUSINESS INTELLIGENCE	3
INSY 5339	PRINCIPLES OF BUSINESS DATA MINING	3
ECON 5337	BUSINESS & ECONOMIC FORECASTING	3
INSY 5379	BUSINESS ANALYTICS CAPSTONE PROJECT	3

Elective courses as approved by the MSBA Graduate Advisor

## FOUNDATION REQUIREMENTS

When the applicant does not have a business degree, three of the following foundation courses are required making the program a total of 45 semester hours.

ACCT 5301	ACCOUNTING ANALYSIS I	3
ECON 5311	ECONOMIC ANALYSIS	3
FINA 5311	BUSINESS FINANCIAL MANAGEMENT	3
MARK 5311	MARKETING	3
MANA 5312	MANAGEMENT	3

## Transfer Credit

A maximum of 9 hours of advanced coursework may be transferred in from other AACSB-accredited schools if approved by the MSBA Graduate Advisor.

## Master of Science in Information Systems (MSIS)

### OBJECTIVE

The Master of Science in Information Systems is designed to provide graduates with both a general knowledge of business and a specialized knowledge of information systems. Students are exposed to the theory, research, and practical applications of numerous information systems areas including management information systems, database management systems, systems analysis and design, and data communications; and may take electives in general systems concepts, electronic commerce, business analytics, problem formulation, computer science, management sciences, research, and other related fields. The program is designed to prepare students for information systems careers in business and industry, as well as in government and nonprofit organizations.

### ADMISSION REQUIREMENTS

Admission to the M.S. in Information Systems (MSIS) program is based on completion of the general admission requirements as specified under Admissions Requirements and Procedures in the Graduate Catalog.

Admission criteria include the following:

1. An undergraduate grade point average (GPA) of 3.00 on a 4.0 scale (as described in the Graduate Catalog) is typical of a successful candidate. This will be integrated into a formula or index that multiplies the GPA by 200 and adds the resulting value to the GMAT score. An index score greater than 1080 is typical of a successful candidate.
2. The GMAT or the GRE will be considered for an admission decision. Quantitative and Verbal percentiles on the GRE should be above the 40th percentile. Quantitative and verbal percentiles on the GMAT should be above the 30<sup>th</sup> percentile. The GMAT is preferred. A GMAT score of 480 is typical of a successful candidate. The GMAT or GRE test may be waived for applicants with an earned graduate degree in an appropriate information systems related discipline or profession. The GMAT or GRE test may also be waived for applicants with five or more years of increasing responsibility in managerial, professional, and/or technical positions in the information systems or related field as proven by their resume and supervisor confirmation. The GMAT/GRE test may also be waived for applicants who meet the Facilitated Admission and Fast Track criteria as defined under Admissions Requirements and Procedures in the Graduate Catalog.
3. An applicant whose native language is not English must demonstrate a sufficient level of skill with the English language to assure success in graduate studies as defined under Admissions Requirements and Procedures in the Graduate Catalog.
4. Educational objectives and quality of written expression of the application essay.
5. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience who can assess the applicant's potential success in graduate school.
6. Professional work experience. Applicants should submit a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise, professional certification or licensure, and leadership experience. In addition, the immediate supervisor should submit a letter confirming work experience.

#### Unconditional Admission

For unconditional admission, an applicant must meet criteria 1 through 5.

#### Probationary Admission

For an applicant with an index score below 1080, probationary admission may be available when other criteria show positive indicators for admission. Students admitted on probationary status must meet probationary admission conditions as specified by the MSIS Graduate Advisor.

#### Provisional, Deferred and Denied Admission

Provisional, deferred, and denied admission decisions meet the criteria as defined under Admissions Requirements and Procedures in the Graduate Catalog.

### DEGREE REQUIREMENTS

The Department of Information Systems and Operations Management provides two Master's tracks: a Thesis Option for those intending to later pursue a Ph.D. in Information Systems, and a Non-Thesis track, a traditional flexible option. The thesis track program provides preparation for entry into a Ph.D. program. The second option is the flexible non-thesis program enabling a degree candidate greater flexibility in designing their program.

The thesis option consists of a minimum of 30 semester hours

#### Master of Science in Information Systems: Thesis Option

BSTAT 5325	ADVANCED STATISTICAL METHODS	3
INSY 5309	OBJECT-ORIENTED BUSINESS PROGRAMMING	3
INSY 5335	APPLIED DATABASE MANAGEMENT	3
INSY 5341	ANALYSIS AND DESIGN	3

INSY 5357	ENTERPRISE RESOURCE PLANNING	3
Elective courses approved by the Graduate Advisor		9
Thesis work taken in the last semester		6
<hr/>		
Total Hours		30

The thesis student must be enrolled in six hours of thesis. Once the student is enrolled in the thesis course, continuous enrollment is expected. The student must be enrolled in six hours of thesis during the semester in which the thesis is defended and the final Master's Examination is unconditionally passed. The degree candidate must defend the thesis in a final oral examination open to all members of the Faculty.

The non-thesis option consists of 33 semester hours.

### Master of Science in Information Systems: Non-Thesis Option

BSTAT 5325	ADVANCED STATISTICAL METHODS	3
INSY 5309	OBJECT-ORIENTED BUSINESS PROGRAMMING	3
INSY 5335	APPLIED DATABASE MANAGEMENT	3
INSY 5341	ANALYSIS AND DESIGN	3
INSY 5357	ENTERPRISE RESOURCE PLANNING	3
INSY 5375	MANAGEMENT OF INFORMATION TECHNOLOGIES	3
Elective courses approved by the Graduate Advisor		15
<hr/>		
Total Hours		33

The non-thesis option electives can be focused in two tracks: systems development and business analytics. The systems development track concentrates on the analysis, design, and implementation of business systems and their management issues. Courses in this track cover such topics as object-oriented technology, data base design, advanced systems design techniques, and project management. The business analytics track concentrates on technologies and skills needed to analyze big data to gain insights which help improve business decisions and planning. Courses in this track would cover such topics as data mining, data warehousing, statistical computing, and selective statistics topics. The student must meet with the MSIS Graduate Advisor to determine the appropriate coursework for the selected track.

When there is equivalent work/course experience, the student must meet with the MSIS Graduate Advisor to select alternate coursework. An approved 3-credit hour graduate internship (INSY 5399 GRADUATE INFORMATION SYSTEMS INTERNSHIP) may also be taken as an elective.

### Transfer Credit

A maximum of 9 hours of advanced coursework may be transferred in from other AACSB-accredited schools if approved by the MSIS Graduate Advisor.

## Information Systems and Operations Management - Undergraduate Programs

The Department of Information Systems and Operations Management offers the BBA in Information Systems, the BBA in Operations Management, the BS in Information Systems, and a minor in Information Systems. Students develop generalized business knowledge as well as specialized skills for addressing technical and operations needs of an organization. Students are prepared for a variety of jobs including business analyst, programmer/developer, systems designer, supply chain management, and operations process and control.

### Requirements for a Bachelor of Business Administration in Information Systems

The student concentrating in information systems is encouraged to take a computer science course as an outside elective. Required information systems electives and advanced business electives should be selected with the advice of an academic advisor.

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

<b>Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)</b>		
General Core Requirements (p. 93)		39
Communication (minimum 6 hours required)		6
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
Mathematics (minimum 6 hours required)		6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life and Physical Sciences (minimum 6 hours required)		6

From Approved University General Core Requirement List Language, Philosophy & Culture (minimum 3 hours required)	3
From Approved University General Core Requirement List Creative Arts (minimum 3 hours required)	3
From Approved University General Core Requirement List US History (minimum 6 hours required)	6
HIST 1311 HISTORY OF THE UNITED STATES TO 1865	
HIST 1312 HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Government/Political Science (minimum 6 hours required)	6
POLS 2311 GOVERNMENT OF THE UNITED STATES	
POLS 2312 STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (minimum 3 hours required)	3
FINA 2330 MONEY, FINANCE AND THE MODERN CONSUMER or MANA 2302 COMMUNICATIONS IN ORGANIZATIONS	
Foundational Component Area (minimum 3 hours required)	3
COMS 1301 FUNDAMENTALS OF PUBLIC SPEAKING	
Non-Business elective (3 hours)	3
<b>Professional Course Requirements - Business Core (39 hours)</b>	
ACCT 2301 PRINCIPLES OF ACCOUNTING I	3
ACCT 2302 PRINCIPLES OF ACCOUNTING II	3
ECON 2305 PRINCIPLES OF MACROECONOMICS	3
ECON 2306 PRINCIPLES OF MICROECONOMICS	3
INSY 2303 INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360 EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310 LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321 BUSINESS STATISTICS I	3
FINA 3313 BUSINESS FINANCE	3
MANA 3318 MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322 ORGANIZATIONAL STRATEGY	3
MARK 3321 PRINCIPLES OF MARKETING	3
OPMA 3306 OPERATIONS MANAGEMENT	3
<b>Professional Course Requirements - Advanced Information Systems (18 hours)</b>	
INSY 3300 OBJECT-ORIENTED PROGRAMMING	3
INSY 3303 COMPUTER NETWORKS AND DISTRIBUTED COMPUTING	3
INSY 3304 DATABASE MANAGEMENT SYSTEMS	3
INSY 3305 INFORMATION SYSTEMS ANALYSIS AND DESIGN	3
Advanced Information Systems Elective (INSY 33xx or 43xx, INSY 3323 will not apply)	6
<b>Advanced Business Electives (15 hours)</b>	
Advanced business, accounting, economics, finance, management, marketing, operations management, or real estate. No INSY will apply. Must include three (3) different departments/prefixes in the College of Business.	15
<b>Advanced Business Elective or Non-Business Elective (3 hours)</b>	
	3
Total Hours	117

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3
Life & Physical Science	3	Life & Physical Science	3

COMS 1301	3	Creative Arts	3
	<b>15</b>		<b>15</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
INSY 3300	3	INSY 3304	3
INSY 3303	3	INSY 4305 (Advanced INSY Elective)	3
BLAW 3310	3	BCOM 3360	3
FINA 3313	3	MARK 3321	3
MANA 3318	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
INSY 3305	3	Advanced INSY Elective	3
BSTAT 3321	3	MANA 4322	3
Advanced Business Elective	3	OPMA 3306	3
Advanced Business Elective	3	Advanced Business Elective	3
Advanced Business Elective	3	Advanced Business or Non-Business Elective	3
	<b>15</b>		<b>15</b>

---

Total Hours: 120

## Requirements for a Bachelor of Science in Information Systems

The student studying information systems is encouraged to take a computer science course as an outside elective. Required information systems electives and advanced business electives should be selected with the advice of an academic advisor.

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

### Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)

General Core Requirements (p. 93)	39
Communication (minimum 6 hours)	6
ENGL 1301	RHETORIC AND COMPOSITION I
ENGL 1302	RHETORIC AND COMPOSITION II
Mathematics (minimum 6 hours required)	6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS
Life and Physical Sciences (minimum 6 hours required)	6
From Approved University General Core Requirement List	

Language, Philosophy & Culture (minimum 3 hours required)		3
From Approved University General Core Requirement List		
Creative Arts (minimum 3 hours required)		3
From Approved University General Core Requirement List		
US History (minimum 6 hours required)		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Government/Political Science (minimum 6 hours required)		6
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (minimum 3 hours required)		3
FINA 2330	MONEY, FINANCE AND THE MODERN CONSUMER	
or MANA 2302	COMMUNICATIONS IN ORGANIZATIONS	
Foundational Component Area (minimum 3 hours required)		3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Non-Business Elective (3 hours required)		3
<b>Professional Courses - Business Core (39 hours)</b>		
ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322	ORGANIZATIONAL STRATEGY	3
MARK 3321	PRINCIPLES OF MARKETING	3
OPMA 3306	OPERATIONS MANAGEMENT	3
<b>Professional Courses - Advanced Information Systems (27 hours)</b>		
INSY 3300	OBJECT-ORIENTED PROGRAMMING	3
INSY 3303	COMPUTER NETWORKS AND DISTRIBUTED COMPUTING	3
INSY 3304	DATABASE MANAGEMENT SYSTEMS	3
INSY 3305	INFORMATION SYSTEMS ANALYSIS AND DESIGN	3
INSY 4305	ADVANCED APPLICATION DEVELOPMENT	3
INSY 4306	ADVANCED SYSTEMS DEVELOPMENT	3
INSY 4325	INFORMATION RESOURCE MANAGEMENT	3
Advanced Information Systems Electives (INSY 33xx or 43xx, INSY 3323 will not apply)		6
<b>Advanced Business Electives (6 hours)</b>		
Advanced business, accounting, economics, finance, management, marketing, operations management, or real estate. No INSY will apply.		6
<b>Advanced Business Elective or Non-Business Elective (3 hours)</b>		
Total Hours		117

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3

Life & Physical Science	3	Life & Physical Science	3
COMS 1301	3	Creative Arts	3
	<b>15</b>		<b>15</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
INSY 3300	3	INSY 3304	3
INSY 3303	3	INSY 4305	3
BLAW 3310	3	BCOM 3360	3
FINA 3313	3	MARK 3321	3
MANA 3318	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
INSY 3305	3	INSY 4306	3
Advanced INSY Elective	3	INSY 4325	3
Advanced INSY Elective	3	MANA 4322	3
BSTAT 3321	3	OPMA 3306	3
Advanced Business Elective	3	Advanced Business or Non-Business Elective	3
	<b>15</b>		<b>15</b>

Total Hours: 120

**Requirements for a Bachelor of Business Administration in Operations Management**

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

**Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)**

General Core Requirements (p. 93)	39
Communication (minimum 6 hours required)	6
ENGL 1301	RHETORIC AND COMPOSITION I
ENGL 1302	RHETORIC AND COMPOSITION II
Mathematics (minimum 6 hours required)	6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS
Life and Physical Sciences (minimum 6 hours required)	6
From Approved University General Core Requirement List	
Language, Philosophy & Culture (minimum 3 hours required)	3

From Approved University General Core Requirement List		
Creative Arts (minimum 3 hours required)		3
From Approved University General Core Requirement List		
US History (minimum 6 hours required)		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Government/Political Science (minimum 6 hours required)		6
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (minimum 3 hours required)		3
FINA 2330	MONEY, FINANCE AND THE MODERN CONSUMER	
or MANA 2302	COMMUNICATIONS IN ORGANIZATIONS	
Foundational Component Area (minimum 3 hours required)		3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Non-Business elective (3 hours)		3
<b>Professional Course Requirements - Business Core (42 hours)</b>		
ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322	ORGANIZATIONAL STRATEGY	3
MARK 3321	PRINCIPLES OF MARKETING	3
OPMA 3306	OPERATIONS MANAGEMENT	3
Advanced Accounting Elective (ACCT 33xx or 43xx)		3
<b>Professional Course Requirements - Advanced Operations Management (15 - 18 hours)</b>		
OPMA 3308	OPERATIONS PLANNING AND CONTROL	3
OPMA 4309	GLOBAL SUPPLY CHAIN MANAGEMENT	3
Advanced Operations Management Electives (OPMA 33xx or 43xx)		9
Advanced Operations Management or Advanced Business Electives		3
<b>Advanced Business Electives (12 hours)</b>		
BSTAT 3322	BUSINESS STATISTICS II	3
Advanced business, accounting, economics, finance, information systems, management, marketing, or real estate. No OPMA or BSTAT will apply. Must include two different departments/prefixes in the College of Business.		9
<b>Advanced Business Elective or Non-Business Elective (3 hours)</b>		3
Total Hours		117

## RECOMMENDED BUSINESS ELECTIVES FOR OPERATIONS MANAGEMENT MAJORS

ACCT 3309	ACCOUNTING FOR MANAGERS
or ACCT 4302	ACCOUNTING IN MANAGERIAL PLANNING AND CONTROL
ACCT 4304	COST ACCOUNTING
ECON 3310	MICROECONOMICS
FINA 4320	CAPITAL BUDGETING
MANA 3320	HUMAN RESOURCE MANAGEMENT
MANA 4320	LABOR RELATIONS
MARK 4303	RETAIL AND SERVICE MARKETING



## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	MATH 1316	3
MATH 1315	3	Life & Physical Science	3
Life & Physical Science	3	Creative Arts	3
COMS 1301	3	ENGL 1302	3
HIST 1311	3	HIST 1312	3
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
ECON 2305	3	ACCT 2302	3
FINA 2330 or MANA 2302	3	ECON 2306	3
ACCT 2301	3	INSY 2303	3
Language, Philosophy & Culture	3	POLS 2312	3
POLS 2311	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours
OPMA 3306	3	OPMA 3308	3
BLAW 3310	3	BSTAT 3321	3
FINA 3313	3	MARK 3321	3
MANA 3318	3	Advanced Business Elective	3
Advanced Accounting Elective	3	BCOM 3360	3
	<b>15</b>		<b>15</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
OPMA 4309	3	Advanced Operations Management Elective	3
Advanced Operations Management Elective	3	Advanced Operations Management Elective	3
BSTAT 3322	3	MANA 4322	3
Advanced Business Elective	3	Advanced Operations Management or Advanced Business Elective	3
Advanced Business Elective	3	Advanced Business or Non-Business Elective	3
	<b>15</b>		<b>15</b>

Total Hours: 120

## Minor in Information Systems

The College of Business:

- Requires half of the course work for a minor in business be completed in residence at UT Arlington. For an 18-hour minor requirement, this would require a minimum of 9 hours of business course work at UT Arlington.
- Requires a grade of C or better in all minor requirement courses.

- Will not use vocational and technical courses (including WECM courses) toward any business minor.

## INFORMATION SYSTEMS

INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
INSY 3300	OBJECT-ORIENTED PROGRAMMING <sup>1</sup>	3
INSY 3304	DATABASE MANAGEMENT SYSTEMS <sup>1</sup>	3
INSY 3305	INFORMATION SYSTEMS ANALYSIS AND DESIGN <sup>1</sup>	3
INSY 33xx or 43xx <sup>1</sup>		3
INSY 33xx or 43xx <sup>1</sup>		3
Total Hours		18

<sup>1</sup> *Mandatory Prerequisites: Prerequisites MUST be met before enrollment in the course. A student should consider these when selecting courses to satisfy the minor requirement and when registering. For a complete list of prerequisites see the Undergraduate Catalog or the Business Undergraduate Advising Office.*

## Management

The Management Department offers a BBA in Management, a MS in Human Resource Management and a Ph.D. in Business Administration with emphasis in Strategic Management, Organizational Behavior, Human Resource Management, and International Business. The department also offers courses that support the Master of Business Administration (MBA), Master of Health Care Administration (HCAD), as well as many of the College's other specialized Masters programs.

Regardless of the degree program, the Department of Management is committed to providing a high quality educational experience for students to develop the knowledge and skills necessary for leadership roles in society. We are also committed to the creation and dissemination of new knowledge through active research agendas. Our dedicated and talented faculty regularly publish in some of the field's leading journals and serve on a number of editorial boards.

## Management - Graduate Programs

### Objective

The basic purpose of the Master of Science degree in Human Resource Management is to provide students with both a general knowledge of business and a specialized knowledge in human resource management. Students are exposed to the theory, research and practical applications of numerous content areas, including human resource strategy and policy, human resource planning, human resource information systems, career planning and development, employee relations law, organization change and development, employee selection, compensation, training and development and employee diversity in organizations. The program is designed to prepare students for human resource management careers in business and industrial firms, as well as government and nonprofit organizations.

### Accreditation

The Master of Science in Human Resource Management is accredited by the AACSB-International (Association to Advance Collegiate Schools of Business-International).

The Master of Science in Human Resource Management curriculum is also accredited by SHRM National Association to meet their guidelines.

The Master of Science in Human Resources Management curriculum has been certified to meet the guidelines for the HRCI re-accreditation.

## Admission Requirements to the Master of Science in Human Resource Management

Admission to the Master of Science in Human Resource Management (MSHRM) program is based upon the completion of the general admission requirements of Graduate Admissions. For admission into the MSHR program an acceptable score on the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) and acceptable academic undergraduate performance are required. The GMAT is strongly preferred.

Students for whom English is not their native language must also take the Test of English as a Foreign Language (TOEFL), TOEFL iBT, Test of Spoken English (TSE) or International English Language Testing System (IELTS). International applicants that score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete UT Arlington's Graduate English Skills Program prior to beginning graduate coursework.

A standardized test score (GMAT or GRE) will not be used as the sole criterion or the primary criterion for determining an applicant's admission to the MSHR program. Specifically, multiple criteria are used to make admission decisions. Unconditional acceptance is based on consideration of all the information listed below and the decision to deny admission is not based on any single criterion.

Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and HR experience.

Along with the grade point average and GMAT or GRE scores, admission criteria include the following:

1. An undergraduate grade point average (GPA) of 3.00 on a 4.0 scale, as calculated by Graduate Admissions, is typical of a successful candidate. This will be integrated into a formula or index that multiplies the approximately the last 60 hours of the undergraduate GPA by 200 and adds the resulting value to the GMAT Score. An index score greater than 1100 is typical of a successful candidate.
2. GMAT sub scores (verbal and quantitative) are also considered in the admission decision. A GMAT total score greater than 500 is typical of a successful candidate.
3. A GRE quantitative percentile greater than 50% and Verbal percentile greater than 50% is typical of a successful applicant.
4. An applicant whose native language is not English must demonstrate a sufficient level of skill with the English language to assure success in graduate studies as defined in the TOEFL and IELTS Test Score Minimums section under Admissions Requirements and Procedures in the Graduate Catalog.
5. Grades in specified undergraduate business and non-business courses (math, accounting, economics, statistics, for example)
6. Educational objectives and quality of written expression of the 200 word application essay.
7. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience who can assess the applicant's potential success in graduate school.
8. General and specific program accreditation status of degree-granting institution.
9. Professional work experience.
10. Professional certification or licensure.

## UNCONDITIONAL ADMISSION

For unconditional admission, the applicant's composite total from the index must be 1100 or higher.

Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.00 as calculated by Graduate Admissions (or 3.00 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT) will not be used as the sole criterion or the primary criterion for determining fellowship and/or scholarship eligibility.

## PROBATIONARY ADMISSION

For an applicant with an index score below 1100, probationary admission may be available when at least three items of 1 through 5 above strongly indicate potential for successful academic performance as a graduate HR student. Items 6 through 10 will also be used to identify positive indicators for admission. Students who are admitted on probation must maintain a 3.0 GPA for the first 12 hours of graduate study.

## PROVISIONAL, DEFERRED AND DENIED ADMISSION

A provisional decision to admit may be granted when the applicant meets criteria for unconditional or probationary status but one or more applicant credentials are incomplete. A deferred decision may be made when an applicant's file is not sufficiently complete to make an admit or deny decision.

For an applicant with an index score less than 1040 and other evidence indicating lack of potential for academic success as a graduate HR student, admission will likely be denied. However, all applicant data will be carefully reviewed before an admission denial is made.

## Degree Requirements

The program is designed primarily for the student who has a bachelor's degree in business administration. A minimum of 30 semester hours is required if the student chooses to write a thesis. If the student chooses not to write a thesis, a minimum of 36 semester hours is required. Students who do not have bachelor's degrees in business administration may have to take additional coursework (up to 18 semester hours) to acquire sufficient general business knowledge for effective performance as a human resource executive.

Coursework for the program includes six hours of required work in research and statistical methods, 15 hours of required work in human resources and policy, and thesis or elective hours in related management courses to complete the 30- or 36-hour requirements. For the students who choose to write a thesis, the six hours of thesis (taken in the final semester) will involve working closely with one or more members of the graduate faculty from the Department of Management on a research project in a specialized area of interest in human resource management.

The curriculum is as follows:

### Core Courses

ACCT 5301

ACCOUNTING ANALYSIS I

ECON 5311	ECONOMIC ANALYSIS	
OPMA 5361	OPERATIONS MANAGEMENT	
MARK 5311	MARKETING	
FINA 5311	BUSINESS FINANCIAL MANAGEMENT	
MANA 5312	MANAGEMENT	
<b>Advanced Courses (thesis and non-thesis)</b>		
Required human resource and policy courses:		21
MANA 5340	STRATEGIC HUMAN RESOURCE MANAGEMENT	
MANA 5341	STAFFING AND PERFORMANCE MANAGEMENT	
MANA 5322	COMPENSATION & REWARD SYSTEMS	
MANA 5323	TRAINING AND DEVELOPMENT	
MANA 5327	HUMAN RESOURCE LAW	
MANA 5336	STRATEGIC MANAGEMENT	
MANA 5334	ORGANIZATION CONSULTING & RESEARCH	
Required research courses:		6
BSTAT 5325	ADVANCED STATISTICAL METHODS	
MANA 5329	HR METRICS AND ANALYTICS (Prerequisite BSTAT 5325)	
Additional electives as required based on core waiver policy		
Total Hours		45

## WAIVERS AND TRANSFER CREDIT

There are three types of required courses: deficiency, core and advanced. Programs of work will normally vary in length from 36 to 45 hours (plus deficiency courses), depending upon waivers granted. The first three waivers of core courses will be used to expand the number of electives in the advanced program rather than shorten the overall program. Additional waivers of core courses may reduce the program to a minimum of 36 hours. Applicants may have both deficiency and core courses waived without the requirement for a substitute course if they have completed, during the last 10 years, a similar course at a recognized college or university and received a "B" or better grade.<sup>1</sup> Extensions to this 10 year limit may be granted for managers and executives who have completed educational activities to remain current or have extensive related experience. Additionally, a maximum of 9 hours of advanced coursework may be transferred in from other AACSB accredited schools if approved by program advisor. Transfer of graduate classes from other universities will be considered on a case by case basis.

<sup>1</sup> Note: The University of Texas at Austin offer Business Foundations Programs (BFP) for non-business majors that provide solid foundations in basic business concepts. BFP courses and courses from equivalent programs for non-business majors at other colleges/universities may not be used for course waiver credit.

# Management - Undergraduate Programs

## Requirements for a Bachelor of Business Administration Degree in Management

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

<b>Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)</b>		
General Core Requirements (p. 93)		39
Communication (minimum 6 hours required)		6
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
Mathematics (minimum 6 hours required)		6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life and Physical Sciences (minimum 6 hours required)		6
From Approved University General Core Requirement List		
Language, Philosophy & Culture (minimum 3 hours required)		3
From Approved University General Core Requirement List		
Creative Arts (minimum 3 hours required)		3
From Approved University General Core Requirement List		

US History (minimum 6 hours required)		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Government/Political Science (minimum 6 hours required)		6
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (minimum 3 hours required)		3
FINA 2330 or MANA 2302	MONEY, FINANCE AND THE MODERN CONSUMER COMMUNICATIONS IN ORGANIZATIONS	
Foundational Component Area (minimum 3 hours required)		3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Non-Business elective (3 hours)		3
<b>Professional Course Requirements - Business Core (45 hours)</b>		
ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322	ORGANIZATIONAL STRATEGY	3
MARK 3321	PRINCIPLES OF MARKETING	3
OPMA 3306	OPERATIONS MANAGEMENT	3
Advanced Accounting Elective (ACCT 33xx or 43xx)		3
Advanced Economics Elective (ECON 33xx or 43xx)		3
<b>Professional Course Requirements - Management (12-15 hours)</b>		
MANA 3319	MANAGEMENT PROCESS THEORY	3
MANA 3320	HUMAN RESOURCE MANAGEMENT	3
Advanced Management Electives (MANA 33xx or 43xx)		6
Advanced Management or Advanced Business Elective		3
<b>Advanced Business Electives (15 hours)</b>		
Junior or Senior level business, accounting, economics, finance, information systems, marketing, operations management, or real estate. No MANA courses apply. Must include three (3) departments/prefixes from the College of Business.		15
Total Hours		117

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3
Life & Physical Science	3	Life & Physical Science	3
COMS 1301	3	Creative Arts	3
	<b>15</b>		<b>15</b>

**Second Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
ACCT 2301	3	ACCT 2302	3
ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
BLAW 3310	3	MANA 3319	3
FINA 3313	3	MANA 3320	3
MANA 3318	3	BCOM 3360	3
MARK 3321	3	BSTAT 3321	3
Advanced Economics Elective	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Advanced Management Elective	3	Advanced Management Elective	3
OPMA 3306	3	MANA 4322	3
Advanced Business Elective	3	Advanced Accounting Elective	3
Advanced Business Elective	3	Advanced Business Elective	3
Advanced Management or Advanced Business Elective	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>

Total Hours: 120

**Optional Tracks for Management Majors**

Management Track Options are suggestive; other course sets may be chosen for use by Management students.

**HUMAN RESOURCES MANAGEMENT/ORGANIZATIONAL BEHAVIOR**

Students are limited to 9 hours of management beyond the mandatory MANA 3318, MANA 3319, MANA 3320:

12

**Recommended Advanced Management and Business Electives**

MANA 3319	MANAGEMENT PROCESS THEORY
MANA 3325	ENTREPRENEURSHIP AND VENTURE MANAGEMENT
MANA 4338	SMALL BUSINESS ANALYSIS
MANA 4339	DIRECTED STUDIES IN ENTREPRENEURSHIP
MANA 4341	NEGOTIATIONS AND CONFLICT RESOLUTION

**Additional Options**

MANA 3320	HUMAN RESOURCE MANAGEMENT
MANA 4325	LEADERSHIP IN ORGANIZATIONS
MANA 4340	BUSINESS AND SOCIETY
MARK 4303	RETAIL AND SERVICE MARKETING
OPMA 3308	OPERATIONS PLANNING AND CONTROL

## INTERNATIONAL MANAGEMENT TRACK

See requirements for Bachelor of Business Administration Degree in International Business/Modern Language Option.

Students are limited to 9 hours of management beyond the mandatory MANA 3318, MANA 3319, MANA 3320.

12

### Recommended Advanced Management and Business Electives

MANA 4321	INTERNATIONAL MANAGEMENT
FINA 4324	INTERNATIONAL CORPORATE FINANCE
MARK 4325	INTERNATIONAL MARKETING
BLAW 4310	BASIC INTERNATIONAL LAW FOR BUSINESS
ECON 4306	COMPARATIVE ECONOMIC SYSTEMS
ECON 4321	INTERNATIONAL TRADE
ECON 4322	INTERNATIONAL FINANCE

### Additional Options

MANA 3319	MANAGEMENT PROCESS THEORY
MANA 4325	LEADERSHIP IN ORGANIZATIONS
MANA 4326	DIVERSITY IN ORGANIZATIONS
MANA 4330	TEAM MANAGEMENT
MANA 4340	BUSINESS AND SOCIETY

## ENTREPRENEURSHIP/SMALL BUSINESS

Students are limited to 9 hours of management beyond the mandatory MANA 3318, MANA 3319, MANA 3320:

12

### Recommended Advanced Management and Business Electives

MANA 3319	MANAGEMENT PROCESS THEORY
MANA 3325	ENTREPRENEURSHIP AND VENTURE MANAGEMENT
MANA 4338	SMALL BUSINESS ANALYSIS
MANA 4339	DIRECTED STUDIES IN ENTREPRENEURSHIP
MANA 4341	NEGOTIATIONS AND CONFLICT RESOLUTION

### Additional Options

MANA 3320	HUMAN RESOURCE MANAGEMENT
MANA 4325	LEADERSHIP IN ORGANIZATIONS
MANA 4340	BUSINESS AND SOCIETY
MARK 4303	RETAIL AND SERVICE MARKETING
OPMA 3308	OPERATIONS PLANNING AND CONTROL

## GENERAL MANAGEMENT

Students are limited to 9 hours of management beyond the mandatory MANA 3318, MANA 3319, MANA 3320.

12

### Recommended Advanced Management and Business Electives

MANA 3319	MANAGEMENT PROCESS THEORY
MANA 3320	HUMAN RESOURCE MANAGEMENT
MANA 4325	LEADERSHIP IN ORGANIZATIONS
MANA 4341	NEGOTIATIONS AND CONFLICT RESOLUTION

### Additional Options

MANA 3325	ENTREPRENEURSHIP AND VENTURE MANAGEMENT
MANA 4321	INTERNATIONAL MANAGEMENT
MANA 4326	DIVERSITY IN ORGANIZATIONS
MANA 4330	TEAM MANAGEMENT
MANA 4340	BUSINESS AND SOCIETY

## Marketing

Marketing is critically important to businesses. Top management realizes that a company must understand the marketplace and buyer needs and wants if it is to grow and compete effectively. Marketing centers on the customer and focuses on processes aimed at creating, delivering, and communicating value to customers.

The discipline of marketing will provide you with outstanding career opportunities in professional selling, marketing research, advertising, purchasing, distribution management, product development, wholesaling, and product management. The demand for marketing professionals continues to grow as today's organizations place greater emphasis on effective marketing as a means of achieving their goals.

Ever increasing worldwide competition, expanding global market, and accelerating technological advancements provide exciting business challenges that UTA's marketing curriculum is uniquely designed to address. With a diverse faculty experienced in both practical and theoretical applications, the marketing department at UTA provides insightful learning opportunities that will equip you with the knowledge to meet the challenges of the new economy.

## Marketing - Graduate Programs

### Objective: Master of Science in Marketing Research

The objective of the Master of Science in Marketing Research (MSMR) is to prepare students for successful careers in marketing research, marketing planning, product or brand management, and related fields. The program is project oriented; many of the required advanced courses conduct client projects as a part of the course requirements. The projects are team-based; class members work in teams to accomplish project objectives.

### Assistantships

Graduate Teaching Assistantships may be offered to students who have been accepted in the program. The Marketing Department will request and evaluate the applications and make the selection of applicants for the positions based on departmental needs and university requirements. Graduate Research Assistantships may be offered on an as needed basis. When GRA positions are available, the Marketing faculty involved in the project will solicit applications from students who have been admitted to the program. The applicants will be evaluated by the appropriate faculty.

### Scholarships

Students who have been accepted into the program are encouraged to pursue scholarship opportunities within the College of Business and the university.

Scholarship funds from the member firms of the MSMR Advisory Board and the MSMR Alumni Association may be available to support students who have been accepted into the program and are enrolled full-time and in good standing with the University.

Students are advised that scholarship opportunities are available. A faculty committee and, if appropriate, MSMR alumni select recipients based on a rank ordering of eligible students

### Accreditation

The Master of Science in Marketing Research degree is accredited by the AACSB International - The Association to Advance Collegiate Schools of Business.

### Admission Requirements

Admission to the Master of Science in Marketing Research (MSMR) program is based on completion of the general admission requirements of Graduate Admissions. For MSMR program admission a score on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) and the official record of undergraduate (and post-graduate, if applicable) are required. The GMAT is preferred.

Applicants for whom English is not their native language must also present official results of the Test of English as a Foreign Language (TOEFL), TOEFL iBT, Test of Spoken English (TSE) or International English Language Testing System (IELTS). The MSMR program's objective is to have all applicants qualified to be either Graduate Teaching Assistants (GTA) or Graduate Research Assistants. (GRA).

A standardized test score (GMAT or GRE) will not be used as the sole criterion for determining an applicant's admission to the MSMR program. The admission decision is made based on the totality of information listed below:

1. An undergraduate grade point average (GPA) greater than 3.25 on a 4-point scale (as calculated by Graduate Admissions) is indicative of an applicant who is likely to be successful in the program. The GPA calculated by the Graduate School is based on the last 60 hours of the undergraduate program. A graduate GPA is used when it is 3.0 or above and based on at least 24 hours.
2. Either the GMAT or the GRE will be considered for the admission decision. On both the GMAT and GRE, both quantitative and verbal component percentiles above the 50th percentile are indicative of an applicant who can be successful in the program. A GMAT combined score of 580 or above is indicative of an applicant who is likely to be successful in the program. There is no commonly accepted conversion from GRE to GMAT for combined scores. The algorithm provided by the Educational Testing Service (ETS) is used to estimate the likely GMAT combined score for student who have submitted GRE score to be considered for admission. The midpoint of the confidence interval is assumed to be an estimator for a likely GMAT combined score. The results from 1 and 2 above are combined to create an index. The index is created by multiplying the GPA by 200 and adding the GMAT combined score (or the estimate based on GRE scores.) An index score of 1200 or greater is indicative of an applicant who is likely to be successful in the program.



3. International applicants must submit official scores of measures designed to demonstrate English language proficiency. English language proficiency is indicative of an applicant who is likely to be successful in the program. The MSMR program's objective is to have all students qualified to be able to perform as Graduate Teaching Assistants and/or Graduate Research Assistants. The MSMR program requires a minimum of 550 on the paper-based TOEFL, a score of at least 213 on the computer-based TOEFL, a minimum score of 40 on the TSE, a minimum score of 6.5 on the IELTS, or a minimum TOEFL iBT total score of 79 with section scores of at least 22 for the writing section, 23 for the speaking section, 20 for the reading section, and 16 for the listening section. International students who do not meet program requirements may be asked to provide additional information to demonstrate English language proficiency.
4. Grades in specific undergraduate business and non-business courses (math, accounting, economics, statistics, for example).
5. Educational objectives and passion for marketing research, as well as quality of written expression of the 200 word application essay or the personal statement.
6. Letters of recommendation from three persons familiar with the applicant's work ethic as evidenced in academic background or work experience.
7. A personal interview in person or by telephone.
8. General and specific program accreditation status of degree-granting institution.
9. Professional work experience.
10. Professional certification or licensure.

## UNCONDITIONAL ADMISSION

To be considered for Unconditional Admission, the applicant's index score should be 1200 or higher, and items 3 through 10 above should be indicative of strong potential to be successful in this program.

## PROBATIONARY ADMISSION

For an applicant with an index score below 1200, probationary admission may be available when items of 1 through 10 above strongly indicate potential for successful academic performance as an MSMR student. When GMAT Verbal or Quantitative percentiles are below the 50th percentile, probationary admission may be available. For applicants submitting the GRE as part of the application for admission, when GRE verbal or Quantitative percentiles are below the 50th percentile, probationary admission may be available. Students admitted on probationary status for low verbal or quantitative percentiles must satisfactorily complete one or more English and/or math courses in the first two semesters as specified by the Graduate Advisor. Students who are admitted on probation must meet the conditions specified, such as GPA of not less than a 3.0 for the first 12 hours of graduate study and any required undergraduate course.

## PROVISIONAL ADMISSION

A provisional decision to admit an applicant may be granted when the applicant meets the criteria for unconditional or probationary admission but one or more applicant credentials are missing from the applicant file.

## ADMISSION DENIAL

If an applicant's record does not provide sufficient evidence of likelihood of being successful in the program following careful review of all available information, admission will be denied.

## Degree Requirements

The program is designed primarily for students who have earned a Bachelor of Business Administration (BBA or equivalent). For those students, the program consists of the 36 semester hours of Advanced Courses.

Students with degrees other than BBA are required to take up to 21 Hours of Foundation courses required by the College of Business. Foundation courses may be waived if equivalent coursework has been completed with a grade of B or better within the previous 5 years.

Students are encouraged to complete deficiency requirements prior to admission or at the beginning of their studies. College courses in business math (including probability and set theory, linear equations, matrix algebra, compound interest, annuities, and differential and integral calculus), business statistics, and computers (including general topics, spreadsheets and word processing and electronic communications) may be taken prior to entry into the program.

### Foundation Courses

ACCT 5301	ACCOUNTING ANALYSIS I	3
ACCT 5302	ACCOUNTING ANALYSIS II	3
ECON 5311	ECONOMIC ANALYSIS	3
MARK 5311	MARKETING	3
MANA 5312	MANAGEMENT	3
FINA 5311	BUSINESS FINANCIAL MANAGEMENT	3
BSTAT 5325	ADVANCED STATISTICAL METHODS	3

### Advanced Courses

MARK 5320	BUYER BEHAVIOR	3
MARK 5327	RESEARCH FOR MARKETING DECISIONS	3
MARK 5328	PRODUCT MANAGEMENT	3
MARK 5337	MARKETING INFORMATION MANAGEMENT	3
MARK 5338	QUALITATIVE RESEARCH	3
MARK 5340	MARKETING STRATEGY	3
MARK 5341	ADVANCED TOPICS IN MARKETING RESEARCH I	3
MARK 5342	ADVANCED TOPICS IN MARKETING RESEARCH II	3
MARK 5343	ADVANCED RESEARCH ANALYSIS I	3
MARK 5344	ADVANCED RESEARCH ANALYSIS II	3
MARK 5396	MARKETING RESEARCH INTERNSHIP I	3
MARK 5397	MARKETING RESEARCH INTERNSHIP II	3

Total Hours

57

## Marketing Research Internship

The Marketing Research Internships (MARK 5396 MARKETING RESEARCH INTERNSHIP I and MARK 5397 MARKETING RESEARCH INTERNSHIP II) represent an integrative component of the MSMR program. MSMR students are responsible for developing the relationships necessary to secure an internship offer. The internship opportunities developed by the students require approval by the Marketing Department.

The internships each consist of a minimum of 240 hours (12 weeks half-time); the typical internship parallels the start and end of a semester (spring, summer and fall) but internship opportunities may require a more lengthy commitment on the part of the student.

The MSMR intern must be working on marketing research projects; they must have some managerial input into the project; and they must be supervised by someone with a background in marketing research.

## Admission and Degree Requirements

Please see the Ph.D.in Business Administration (p. 147) section of this catalog for admission and degree requirements for the Ph.D.in Business Administration (Marketing emphasis)

## Marketing - Undergraduate Programs

The Department of Marketing offers a Bachelor of Business Administration (B.B.A.) in Marketing and an undergraduate Certificate in Sales. Students will develop knowledge centered on a customer centric view of the market, long-term customer satisfaction, and the development of mutually beneficial relationships. The discipline of marketing prepares students for exciting and rewarding career opportunities where they serve their internal and external customers.

## Requirements for a Bachelor of Business Administration Degree in Marketing

Students must meet all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses.

<b>Pre-Professional Course Requirements - Fulfill the University General Core Requirements (42 hours and 3 elective hours)</b>		
General Core Requirements (p. 93)		39
Communication (minimum 6 hours required)		6
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
Mathematics (minimum 6 hours required)		6
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life and Physical Sciences (minimum 6 hours required)		6
From Approved University General Core Requirement List		
Language, Philosophy & Culture (minimum 3 hours required)		3
From Approved University General Core Requirement List		
Creative Arts (minimum 3 hours required)		3
From Approved University General Core Requirement List		
US History (minimum 6 hours required)		6

HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Government/Political Science (minimum 6 hours required)		6
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (minimum 3 hours required)		3
FINA 2330 or MANA 2302	MONEY, FINANCE AND THE MODERN CONSUMER COMMUNICATIONS IN ORGANIZATIONS	
Foundational Component Area (minimum 3 hours required)		3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Non-Business elective (3 hours)		3
<b>Professional Course Requirements - Business Core (45 hours)</b>		
ACCT 2301	PRINCIPLES OF ACCOUNTING I	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
BLAW 3310	LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS	3
BSTAT 3321	BUSINESS STATISTICS I	3
FINA 3313	BUSINESS FINANCE	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MANA 4322	ORGANIZATIONAL STRATEGY	3
MARK 3321	PRINCIPLES OF MARKETING	3
OPMA 3306	OPERATIONS MANAGEMENT	3
Advanced Accounting Elective (ACCT 33xx or 43xx)		3
Advanced Economics Elective (ECON 33xx or 43xx)		3
<b>Professional Course Requirements - Marketing (18 hours)</b>		
MARK 3324	BUYER BEHAVIOR	3
MARK 4311	MARKETING RESEARCH	3
MARK 4322	ADVANCED MARKETING MANAGEMENT AND STRATEGY	3
Advanced Marketing Electives (MARK 33xx or 43xx)		9
<b>Advanced Business Electives (12 hours)</b>		
Junior or Senior level business, accounting, economics, finance, information systems, management, operations management, or real estate. No MARK courses apply. Must include three (3) departments/prefixes from the College of Business.		12
Total Hours		117

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
HIST 1311	3	HIST 1312	3
Life & Physical Science	3	Life & Physical Science	3
COMS 1301	3	Creative Arts	3
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
ACCT 2301	3	ACCT 2302	3

ECON 2305	3	ECON 2306	3
FINA 2330 or MANA 2302	3	INSY 2303	3
POLS 2311	3	POLS 2312	3
Language, Philosophy & Culture	3	Non-Business Elective	3
	<b>15</b>		<b>15</b>
<b>Third Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
BLAW 3310	3	MARK 3324	3
FINA 3313	3	Advanced Marketing Elective	3
MANA 3318	3	BCOM 3360	3
MARK 3321	3	BSTAT 3321	3
Advanced Economics Elective	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>
<b>Fourth Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
MARK 4311	3	MARK 4322	3
Advanced Marketing Elective	3	Advanced Marketing Elective	3
OPMA 3306	3	MANA 4322	3
Advanced Accounting Elective	3	Advanced Business Elective	3
Advanced Business Elective	3	Advanced Business Elective	3
	<b>15</b>		<b>15</b>

Total Hours: 120

## Sales Certificate Program

The Sales Certificate program prepares students for a challenging and rewarding career in the sales profession. The program will enhance students' abilities to sell themselves, their ideas, as well as products and services. It also equips students with knowledge and skills related to managing mutually beneficial relationships with customers. The certificate program stresses the ethical aspects of sales, deemed essential for sustainable growth, and combines a strong theoretical background with emphasis on applications and practice. The Sales Certificate is available to business and non-business majors.

### ADMISSION AND ELIGIBILITY REQUIREMENTS

Students seeking admission to the Sales Certificate program must have completed 45 hours of college credit with a minimum UTA GPA of 2.0.

To remain eligible for the Sales Certificate, a student must maintain a 2.0 or better GPA in program coursework and earn a grade of C or better in every Sales Certificate course.

A student who receives any combination of grades of D or F in more than one Sales Certificate course or in two attempts of the same Sales Certificate course will be dismissed from the program.

### CERTIFICATE REQUIREMENTS FOR BUSINESS MAJORS

The Sales Certificate requires 18 credit hours for business majors: 12 credit hours required and an additional 6 credit hours from elective options as listed.

#### Required

BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
MARK 3321	PRINCIPLES OF MARKETING	3
MARK 3322	PROFESSIONAL SELLING	3
MARK 4308	MANAGEMENT AND LEADERSHIP OF THE SALES FORCE	3

**Electives**

MARK 3323	INTEGRATED MARKETING COMMUNICATION	3
or MARK 4303	RETAIL AND SERVICE MARKETING	
MARK 4393	MARKETING INTERNSHIP (Marketing majors only)	3
or MANA 4340	BUSINESS AND SOCIETY	
or MANA 4341	NEGOTIATIONS AND CONFLICT RESOLUTION	

Total Hours

18

**CERTIFICATE REQUIREMENTS FOR NON-BUSINESS MAJORS**

The Sales Certificate requires 21 credit hours for non-business majors: 18 credit hours required and an additional 3 credit hours from elective options as listed.

**Required**

ECON 2306	PRINCIPLES OF MICROECONOMICS	3
BCOM 3360	EFFECTIVE BUSINESS COMMUNICATION	3
MANA 3318	MANAGING ORGANIZATIONAL BEHAVIOR	3
MARK 3321	PRINCIPLES OF MARKETING	3
MARK 3322	PROFESSIONAL SELLING	3
MARK 4308	MANAGEMENT AND LEADERSHIP OF THE SALES FORCE	3

**Elective**

MANA 4341	NEGOTIATIONS AND CONFLICT RESOLUTION	3
or MARK 3323	INTEGRATED MARKETING COMMUNICATION	
or MARK 4303	RETAIL AND SERVICE MARKETING	

Total Hours

21

# College of Education & Health Professions

---

## Mission

The mission of the College of Education and Health Professions (COEHP) is to promote a collaborative culture of excellence in research, teaching, and service. The College is committed to fostering critical, creative thinkers prepared to engage meaningfully in a dynamic society.

## History and Overview

In 1979, The Center for Professional Teacher Education, now the College of Education and Health Professions, began offering coursework at the graduate level. In the late 1980s, a Master of Education and Teaching degree (M.Ed.T.) was approved. This degree served teachers who wanted the opportunity to extend their knowledge base in education and related fields with graduate coursework. The degree enabled students to combine graduate coursework in education with study in an academic discipline related to their teaching field or specialization. Its success led to the expansion of education offerings to include additional certifications in Reading and Educational Administration as well as supplemental certification in Bilingual Education (BIL), English as a Second Language (ESL), and Gifted and Talented (G/T).

As one of only a few Texas universities authorized to offer post baccalaureate teacher certification at the graduate level, the College of Education and Health Professions began offering graduate level teacher certification with an M.Ed.T. in the summer of 1998. With expansion of program offerings, the M.Ed.T. no longer met the needs of all degree-seeking students. In 1999, the College of Education and Health Professions added two new master's degree programs, a Master of Education (M.Ed.) in Educational Leadership and Policy Studies and a Master of Education (M.Ed.) in Curriculum and Instruction.

The M.Ed.T. is now offered exclusively to students seeking teacher certification (early childhood - grade 6, middle level, secondary and all level) at the graduate level. The M.Ed. in Educational Leadership and Policy Studies is available to students pursuing principal certification, principal certification emphasizing dual language, as well as higher education administration. The M.Ed. in Curriculum and Instruction (C&I) is for educators wanting to extend their knowledge in education and related fields, including science and mathematics. The M.Ed. in C&I also serves students wanting to earn a master's degree along with Reading Specialist Certificate and the Master Reading Teacher Certificate. The Department also offers the M.Ed. in C&I with science, mathematics, or social studies education as specialization areas. Supplemental certification in Bilingual Education and English as a Second Language may also be added to the M.Ed. in C&I. Superintendent certification is also available.

The Doctor of Philosophy (Ph.D.) in K-16 Educational Leadership and Policy Studies was first offered in the summer of 2007. With advancements in technology, many graduate courses are available via the Internet with additional courses being added each semester. The College of Education and Health Professions has an enrollment of more than 1,000 students with approximately 600 students pursuing graduate level degrees certificates.

## Conceptual Framework

The conceptual framework of the UT Arlington College of Education and Health Professions was developed collaboratively and has evolved over time. Following the identification of a set of core values held by all involved in the preparation of candidates enrolled in the College, members of the university, PK-12 districts and area business and foundation communities worked together to develop a shared vision for education.

All activities in the College are guided by the belief that we are *Partners for the Future*, committed to fostering critical, creative thinkers prepared to engage meaningfully in a dynamic society. This belief is characterized and distinguished by three core values: Professionalism, Knowledge, and Leadership. Research, Diversity, and Technology are themes woven throughout each core value. The College mission, core values and themes serve as the coherent thread running through all professional programs, guiding the systematic design and delivery of clinical/field experiences, course curricula, assessments, and evaluation. The Conceptual Model consists of six interrelated and interacting components, which are viewed as essential contexts for the shaping of informed, skilled, and responsible partners:

- The first core value, Professionalism, represents the assumption that candidates develop an expertise and specialized knowledge of their field. A high quality of work, standard of professional ethics and behaviors, as well as work morale and motivation are all necessary factors of a developed interest and desire to do a job well.
- The second core value, Knowledge, represents candidate theoretical or practical understanding of a subject. In today's world, candidate knowledge includes not only academic content mastery, but also skills such as critical thinking, communication, technology literacy, and collaboration, each required for success in college, life, and career.
- The third core value, Leadership, represents candidate ability to organize, assist, and support others in the achievement of a common task. Candidates develop and refine their leadership skills within the context of their interactions with curricula, faculty, and other professionals.

The next three components of the model, Research, Diversity, and Technology, represent themes woven into the core values:

- Research encompasses the investigation of ideas and theories with the purpose of discovering, interpreting, and developing new systems, methods, and support for knowledge, behaviors, and attitudes.

- Diversity is an indispensable component of academic excellence. A commitment to diversity means a dedication to the inclusion, welcome, and support of individuals from all groups, encompassing the various characteristics of persons in our community such as race, ethnicity, national origin, gender, age, socioeconomic background, religion, sexual orientation, and disability.
- Technology is emphasized throughout all programs and is used to support and improve student learning.

All components lead to the achievement of one goal—the development of informed and responsible *Partners for the Future* - who are committed to fostering analytical, innovative thinkers prepared to engage meaningfully in a dynamic society.

## Scholarly Activity and Research Interests of the Faculty

College of Education and Health Professions faculty members strive to model the characteristics of the most proficient professional educators for all students aspiring to membership in the education and exercise, sport and health studies professions. Faculty members in the College of Education and Health Professions have consistently achieved recognition for their excellence in teaching in the University and beyond. They have received numerous honors, including the University of Texas System Board of Regents Outstanding Teaching Award, UT System Chancellor's Council Teaching Award, election to UT Arlington's Academy of Distinguished Teachers, and the Piper Professor award at the state level. They have also served as guest lecturers at universities across the country. In addition, numerous faculty members have received recognition for their scholarly publications and professional contributions.

The College of Education and Health Professions also values faculty scholarship for its potential impact on the increased effectiveness of teaching and learning in professional education preparation programs and in public and private school settings. Scholarly and research activities cover a variety of areas represented by the expertise of each individual faculty member.

Evidence of service to the College of Education and Health Professions, the University, the community and the practicing profession is also expected of the faculty. This includes service to local constituencies such as school districts, education service centers, parent-teacher groups, professional associations, and/or other agencies and organizations dedicated to the improvement of teaching and learning, as well as involvement in outreach programs, community events, civic leadership, and the promotion of alumni support and involvement. The extensive service activities of faculty members in the various departments have garnered additional awards from the University, the community, the state, and a variety of professional organizations.

Department of Curriculum and Instruction (p. 194)

Curriculum & Instruction faculty scholarship focuses on a wide range of topics associated with teaching and learning. These include improving the effectiveness of instruction in various content areas; studying family support for learning; addressing issues associated with social sciences; using technology to enhance distance education instruction and student mentoring; online supplemental student teacher supervision; the effectiveness of service learning; the connections among brain physiology, cognition, and education; and effective practices in school counselor preparation. Funded projects include providing UT Arlington students as mentors to high school students for college success, math and science cohorts and camps, improving sustainability in post-secondary education, including college success strategies in educator preparation coursework. For more information about programs in Curriculum and Instruction in the College of Education and Health Professions, go to <http://www.uta.edu/coehp/curricandinstruct>.

Department of Educational Leadership and Policy Studies (p. 206)

In the area of educational administration, research activities and publications have focused on school leadership trends, developing collaborations among the University, public, private and charter schools, fostering creativity in learning organizations, and studying school legal, policy, governance, and finance issues. Current focus is on transition research relative to students, faculty, and leadership across PK-16 school settings, between high school and beyond, and transitions between leadership levels. Other research examines how the media portrays educators and the education profession. See <http://www.uta.edu/coehp/educleadership> for additional information about programs in Educational Leadership and Policy Studies in the College of Education and Health Professions.

Department of Kinesiology (p. 212)

Faculty research interests and publications include dynamic regulation of blood pressure, pulmonary responses to exercise, postural control in elderly, the effects of therapeutic modalities on the treatment of athletic injuries, the effects of hyperbaric oxygen on the treatment of diseases, applied biomechanics, assessment and management of sports-related concussions, motor development, adapted sports, and sports pedagogy. For more information on Kinesiology programs in the College of Education and Health Professions, see <http://www.uta.edu/coehp/kinesiology>.

## Resources

### CERTIFICATION AND ADVISING SERVICES

Patty Motlagh (<http://www.uta.edu/coehp/personnel/emp.php?id=29>), Assistant Dean for Student Affairs/Certification Officer, 501 Carlisle Hall (<http://www.uta.edu/maps/index.php?id=8>)

Certification and Advising Services helps students succeed by providing the information and support services needed to achieve their academic and career goals. The Academic Advisors are available to assist students in various stages of preparing for or furthering their careers as educators and school administrators.

Certification and Advising Services also provides information and advising regarding admission requirements and degree plan options, as well as the academic content areas.

To schedule an advising appointment: 817.272.2956

For certification and advising questions: [coehpadvising@uta.edu](mailto:coehpadvising@uta.edu)

Information concerning state examinations and application procedures needed to obtain teacher, principal, superintendent, and special program certification in Texas may also be provided by Certification and Advising Services.

To be eligible for certification under all programs, a candidate must meet specific criteria set by the College of Education and Health Professions, the University, and the State Board for Educator Certification. To be recommended to the State Board for Educator Certification/Texas Education Agency for initial teacher certification, a teacher candidate must have successfully completed the following:

- All course work required for certification, including a baccalaureate degree.
- All College of Education and Health Professions certification courses with a grade of C or better and with a minimum GPA of 3.0.
- For purposes of determining eligibility for certification, all applicable grades, including those earned at other institutions, will be used in the calculation of grade point averages.
- Pass all required Texas Examinations for Educator Standards (TExES).

## PROFESSIONAL DEVELOPMENT

The Office of Professional Development supports partnerships between the College of Education and Health Professions and PK-16 schools and their communities. Partner public school districts and the College of Education and Health Professions collaborate to provide high-quality learning environments for future teachers. Prospective teacher candidates apply their knowledge of content and pedagogy during both a Field-Based Experience semester and a Student Teaching semester arranged through the Office of Professional Development. The Field-Based Experience semester gives teacher education candidates the opportunity to observe and interact with diverse student populations in variety of formal and informal educational settings at partnership schools. During the Student Teaching semester, these pre-service teachers refine their teaching skills by working directly with students in classrooms, at designated public schools in the candidate's area of certification, guided by a cooperating mentor teacher and supervising university faculty. Contact: Dr. Denise Collins, Director of the Office of Professional Development, 817.272.7448, [dacollins@uta.edu](mailto:dacollins@uta.edu).

## EDUCATION CAREER SERVICES

[www.uta.edu/coehp/career](http://www.uta.edu/coehp/career), 817.272.2831, or [careerservices@uta.edu](mailto:careerservices@uta.edu).

The Education Career Services office assists education students who are seeking positions as teachers and administrators. Positive collaborative relationships with partners in the various school districts are important to the College, the districts and students. The annual College of Education and Health Professions Career Day is held in March and typically hosts over 50 school districts. Employers can list position vacancies as well as district job fairs with Education Career Services. In addition, Education Career Services offers career planning seminars, which include guidance on resume writing and developing strong interviewing and networking skills. The ultimate goal is to prepare UT Arlington students for the next step in their career development as professional educators and administrators.

## UTEACH ARLINGTON

UTeach Arlington is a science and mathematics secondary teacher preparation program jointly offered by the College of Science and the College of Education and Health Professions. It features early field experiences in PK-12 schools, guidance from Master Teachers, and scholarship and internship opportunities. UTeach courses will be added gradually over the next few years; therefore, the program is currently limited to students who will be graduating in spring 2014 or later. Students who are interested in mathematics or science education, but will be graduating prior to spring 2014, should pursue the existing secondary certification program offered through the College of Education and Health Professions (<http://www.uta.edu/coehp>). Secondary certifications include Composite Science, offered in the Departments of Biology and Earth and Environmental Sciences; Life Science, offered in the Department of Biology; Physical Science, offered in the Departments of Physics and Chemistry and Biochemistry; Chemistry, offered in the Department of Chemistry and Biochemistry; Physics/Mathematics, offered in the Department of Physics; and Mathematics, offered in the Department of Mathematics. Descriptions of these programs are provided in each department's section of this catalog. For information, contact: Dr. Ann Cavallo, Co-director, College of Education and Health Professions, [cavallo@uta.edu](mailto:cavallo@uta.edu); Dr. Greg Hale, Co-director, College of Science, [greg@hale.uta.edu](mailto:greg@hale.uta.edu); Dr. Ramon Lopez, Co-director, College of Science, [relopez@uta.edu](mailto:relopez@uta.edu); Erin Gonzales, UTeach Arlington Academic Advisor, 817.272.0784, [egonzales@uta.edu](mailto:egonzales@uta.edu); or visit: <http://www.uta.edu/cos/uteach/index.html>.

## OFFICE OF DEVELOPMENT AND LEADERSHIP GIFTS

The Office of Development and Leadership Gifts plans, manages and directs the College of Education and Health Professions' comprehensive development program. This entails working with alumni, corporations, foundations, and friends to raise private gifts that will support and enhance the College's strategic priorities for academic programs, student services, research efforts and outreach activities. The office works with the College of



Education and Health Professions faculty and administration in the identification, cultivation, solicitation and stewardship of donors and prospects. Contact: Anne Robillard, Director of Development, 817.272.7451 or 817.272.2842, anne.robillard@uta.edu.

## **NATIONAL ACCREDITATION**

The Office of the Associate Dean for Assessment provides leadership, direction, and oversight for the assessment and continuous improvement processes for national accreditation in the College of Education and Health Professions, including unit effectiveness and academic affairs as they relate to assessment and accreditation requirements. Contact: Dr. Carrie Y. Barron Ausbrooks, Associate Dean for Assessment, 871.272.5310, causbrooks@uta.edu.

## **Centers in the College of Education and Health Professions**

### **SOUTHWEST CENTER FOR MIND, BRAIN, EDUCATION**

The mission of the Southwest Center for Mind, Brain, Education is to facilitate collaborative relationships among educators, policymakers, and researchers in the cognitive and developmental sciences. The Center seeks to identify and support promising research agendas at the intersection of mind, brain and education. Researchers, educators, and policymakers will find a forum where ideas are welcomed and at the same time critically and rigorously examined. The Center invites individuals interested in how advances in neuroscience, genetics, and cognitive science can inform educational practice and leadership. The Center also seeks to advance educational research by recognizing, and profiting from, the role that practical experience plays in defining promising research directions. Contact: Dr. Marc Schwartz, Director, 817.272.5641, schwarma@uta.edu.

### **SCIENCE EDUCATION AND CAREER CENTER**

The College of Education and Health Professions and the College of Science work collaboratively through the Science Education and Career Center to increase the number of new and existing educators, in both formal and informal settings, who are adequately prepared to deliver challenging, standards-based science, mathematics, and technology (SMT) instruction through the application of new, research-validated models for teaching and learning. The Center loans science teaching kits to UT Arlington alumni through the Science and Math Teacher Resource Center Web site. The Center also coordinates the University's outreach to school districts, community-based organizations, and local businesses in support of efforts to guide all PK-16 students, especially those in urban settings, in achieving higher standards of learning in SMT. Contact information: 817.272.2129, <http://www.uta.edu/cos/SECC/login.php>.

### **CENTER FOR BILINGUAL EDUCATION**

Created in response to the growing number of English language learners, the Center for Bilingual Education strives to increase the number of qualified bilingual and ESL teachers in Texas. The Center prepares pre-service and in-service teachers to work with linguistically and culturally diverse student populations. The Center also provides technical support to school districts in their implementation of dual language, bilingual, and ESL education programs. Additionally, the Center offers preparation for the certification examinations in the areas of the EC-6 Bilingual Generalist and the Bilingual Target Language Proficiency Test--Spanish. For information, contact Dr. Luis Rosado, Director, 817.272.7567, rosado@uta.edu.

### **CENTER FOR SOCIAL STUDIES EDUCATION**

The goals of the Center for Social Studies Education are to advance social studies education research, improve social studies teacher preparation, and provide outreach to social studies learners and their teachers. The Center includes faculty from the College of Education and Health Professions, the College of Liberal Arts, and the College of Business. The Center faculty coordinate social studies teacher certification at UT Arlington, establish targeted partnerships to advance educational opportunities and excellence in social studies for under-represented and under-served populations, and facilitate collaborative relationships across colleges and universities for the advancement of PK-16 teaching and learning in disciplines such as history, geography, economics, and political science. Contact: Dr. Mary Curtis, Director, mary.curtis@uta.edu or [www.uta.edu/socialstudies](http://www.uta.edu/socialstudies).

### **CENTER FOR PK-16 EDUCATION POLICY AND RESEARCH**

The mission of the Center for PK-16 Education Policy and Research, founded in the Department of Educational Leadership & Policy Studies at UT Arlington, is to produce and disseminate cutting-edge research on PK-16 education to inform education policy and practice. We are guided by the belief that educational leadership and opportunity are strengthened by research that takes systemic, integrated approaches to understanding persistent problems across the educational continuum. Contact: Dr. Daniel Saunders, Director, saunders@uta.edu.

### **CENTER FOR HEALTHY LIVING AND LONGEVITY**

The Department of Kinesiology's Center for Health Living and Longevity provides a multidisciplinary approach to improving health and functioning throughout the lifespan. Research and education initiatives focus on keeping senior citizens active, decreasing the incidence of sedentary-related diseases (diabetes, cardiovascular disease, osteoporosis, obesity, etc.), and the assessment and management of concussions. Contact: Dr. Christopher Ray, Director, 817.272.0082, chrisray@uta.edu.

# Curriculum and Instruction

## Undergraduate Degrees

- Bachelor of Arts in Interdisciplinary Studies with EC-6 Bilingual Teacher Certification (p. 200)
- Bachelor of Arts in Interdisciplinary Studies with EC-6 ESL Teacher Certification (p. 200)
- Bachelor of Arts in Interdisciplinary Studies with 4-8 Middle-Level English Language Arts/Social Studies Teacher Certification (p. 203)
- Bachelor of Science in Interdisciplinary Studies with 4-8 Middle-Level Math/Science Teacher Certification (p. 204)
- Bachelor of Science in Interdisciplinary Studies with 4-8 Middle Level Generalist Teacher Certification (p. 200)

## Graduate Degrees

- Master of Education in Teaching (M.Ed.T.) with Teacher Certification (p. 195)
- Master of Education in Curriculum and Instruction (p. 196)
- Master of Education in Curriculum and Instruction - Science Education (p. 196)
- Master of Education in Curriculum and Instruction - Mathematics Education (p. 196)
- Master of Education in Curriculum and Instruction - Literary Studies (p. 195)
- Master of Education in Curriculum and Instruction - Mind, Brain, and Education (p. 195)
- Master of Education in Curriculum and Instruction - Social Studies Education (p. 195)

## Certificates

- Initial Teacher Certification (p. 198)
- Master Reading Teacher Certificate (p. 198)
- Reading Specialist Certification (p. 198)
- English as a Second Language (ESL) (p. 198)
- Bilingual Education (BIL) (p. 198)
- School Counseling Certification (p. 198)

# Curriculum and Instruction - Graduate Programs

## Degrees / Certificates

### MASTER'S DEGREES (P. 195)

- Academic Partnership Ed. Curriculum & Instruction, M.Ed. Mathematics
- Academic Partnership Ed. Curriculum & Instruction, M.Ed. Science
- Academic Partnership Ed. Curriculum & Instruction, M.Ed. Triple Literacy
- Ed. Curriculum & Instruction, M.Ed.
- Ed. Curriculum & Instruction, M.Ed. Non Thesis Mathematics
- Ed. Curriculum & Instruction, M.Ed. Non Thesis Science
- Ed. Curriculum & Instruction, M.Ed. Writing Focus
- Mind, Brain and Education, M.Ed. Non Thesis
- Reading Specialist, M.Ed.
- Teaching - Early Childhood, M.Ed.T.
- Teaching - Middle Level, M.Ed.T.
- Teaching - Secondary Level, M.Ed.T.

### CERTIFICATES (P. 197)

- Education in Teaching, All Level Certificate
- Education in Teaching, ESL EC6 Generalist Certificate
- Education in Teaching, Mid-Level Certificate
- Education in Teaching, Secondary Level Certificate
- English Secondary Language Certificate
- Gifted & Talented Certificate
- Master Reading Teacher Certificate

- Master Tech. Teaching Certificate
- Reading Specialist Certificate
- School Counselor Certificate
- Teaching - Teacher Certification Only

## Programs

The Department of Curriculum and Instruction currently offers the Master of Education in Teaching (M.Ed.T.) and the Master of Education in Curriculum and Instruction (M.Ed.) degrees. Certification and supplemental certifications are offered for: Reading Specialist, Master Reading Teacher, Bilingual Education (BEEP), and English as a Second Language (ESL). Distance learning opportunities in some degree programs are available for those interested (see section on Distance Learning Options). Students pursuing a master's degree are required, with the assistance of the Graduate Advisor and graduate faculty, to complete a tentative program of work. This program of work is filed in the College of Education and Health Professions Graduate Advising Office and may be modified as needed. All master's degrees in Curriculum and Instruction comprise a minimum of 36 semester hours and are non-thesis. Candidates for master's degrees are required to submit a final program of work and complete a designated capstone course for their program: EDUC 5397 IMPLEMENTING AND DISSEMINATING CLASSROOM RESEARCH for M.Ed.T. and M.Ed. in Curriculum and Instruction, and LIST 5317 LITERACY PRACTICUM II for M.Ed. with emphasis in Literacy Studies.

## Objective

The Master of Education in Teaching (M.Ed.T.) degree is designed for those wishing to pursue initial teacher certification at the graduate level. The Master of Education in Curriculum and Instruction (M.Ed.) degree provides opportunities for those interested in developing effective teaching, research, and leadership skills that are congruent with an ever-expanding theoretical knowledge base in the field. The M.Ed. enables teachers to specialize in advanced coursework in their teaching fields and other professional certification areas designed to meet a variety of professional goals. Both degrees help prepare graduates to reflect upon their own teaching as well as on the state of education as a whole and to better understand the linkage between the theory and practice of teaching. Each student's program of study is planned individually and provides academic and/or pedagogical specialization within the context of the general field of education. Graduate faculty in the College of Education and Health Professions as well as those in departments and in the colleges throughout the University work closely with students in formulating study plans that meet the students' objectives and individual goals for professional growth. Each program of work includes both professional and academic components.

## Admissions Requirements

### UNCONDITIONAL ADMISSION

- Current GRE score of 400 on quantitative section (140 on the revised GRE) and 500 on verbal section (153 on the revised GRE)
- 3.0 GPA during the last 60 hours of undergraduate coursework and a 3.0 average on all graduate work
- 3 letters of reference on file

### PROBATIONARY ADMISSION

Applicants who score less than 400 (140 on the revised GRE) on the quantitative and 500 (153 on the revised GRE) on the verbal sections of the GRE will be considered for probationary admission on the basis of the following:

- 3.0 GPA during the last 60 hours of undergraduate coursework AND a 3.0 average on all graduate work
- Professionally relevant experience
- Writing sample evaluated by the COEHP Graduate Studies Committee. When available, the GRE writing sample will be required for probationary admission.

**Terms of Probation upon Acceptance:** All students admitted under probation status will be required to earn a 3.0 GPA during the first 12 hours of graduate coursework in the program, with no grade lower than a "B."

### PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admissions deadline, but who otherwise appear to meet admission requirements, may be granted provisional admission.

### DEFERRED ADMISSION

An applicant's admission may be deferred when a file is not complete or when denying admission is not appropriate.

### DENIED ADMISSION

An applicant may be denied admission if the conditions for unconditional and probationary admission have not been met.

In addition, if a student has been suspended or expelled from the University of Texas at Arlington or any other university or program for reasons other than academic reasons, that student may be denied admission or readmission to an educator preparation program in the College of Education and Health Professions.

## ELIGIBILITY FOR SCHOLARSHIPS/FELLOWSHIPS

To be eligible, candidates must be new students coming to UT Arlington in the fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Office of Graduate Studies, and must be enrolled in a minimum of six (6) hours of coursework in both long semesters to retain their fellowships.

## DISTANCE LEARNING OPTIONS

Many graduate courses in the Department of Curriculum and Instruction are offered on campus as well as over the Internet. For the distance learning option, students enroll in the Internet course and complete all course requirements from the convenience of their home or school computers. Basic computer competence is necessary (logging on to a Web site, sending and receiving e-mail). Students need a reliable Internet connection and a consistent e-mail address. All assignments are submitted electronically according to an established calendar of deadlines. Students proceed at their own pace in a highly interactive learning environment.

## Degree Requirements

### MASTER OF EDUCATION IN TEACHING (M.ED.T.) WITH TEACHER CERTIFICATION

The Master of Education in Teaching (M.Ed.T.), a 36-hour non-thesis degree, is a unique and specialized degree that enables a student holding a baccalaureate degree to pursue initial teacher certification and use those hours toward requirements of a master's degree. In addition to being accepted by the Office of Graduate Studies, students must also be admitted into the Teacher Certification program (consult a teacher certification advisor for current admittance requirements). For teacher certification, students must meet state requirements for their teaching field(s) or specialization and complete the graduate-level coursework for early childhood - grade 6, middle level, secondary, or early childhood - grade 6 bilingual certification. They must also fulfill the student teaching requirements and pass the appropriate certification exams (consult a teacher certification advisor for current certification information). Up to 18 hours of teacher certification coursework may be applied to the total 36 hours required for completion of the M.Ed.T.; however, students must complete teacher certification courses and pass the appropriate certification exams before proceeding to courses that apply to the master's degree. Students may earn teacher certification without completing a master's degree. See the College of Education and Health Professions Web site at [www.uta.edu/coehp](http://www.uta.edu/coehp) for more details on all programs.

### MASTER OF EDUCATION (M.ED.)

The Master of Education degree in Curriculum and Instruction (M.Ed.), a 36-hour non-thesis degree, is a broad-based degree that enables students to pursue academic and professional goals within an individualized program. Following are possible master's degree options.

#### M.ED. IN CURRICULUM AND INSTRUCTION

This particular master's degree option is ideal for students desiring a pedagogical foundation in education in addition to an 18-hour concentration of a particular resource area or academic discipline. A common core of 18 hours of graduate education coursework in instructional strategies, curriculum design, and research are required. Students also choose from a variety of certifications available through the College of Education and Health Professions to incorporate into their master's degree plan (see the section on Professional Certifications), or they may choose to incorporate up to 18 hours of graduate coursework from disciplines outside of Education. For example, a degree plan for a student who desires TESOL (Teaching English to Speakers of Other Languages) certification would include the required 18 hours of coursework in Education along with the 18 hours of Linguistics coursework from the Program in Linguistics. The Graduate Advisor works with students in creating a degree plan that meets their professional needs and goals. (Note: The Graduate Advisor and graduate faculty must approve all coursework included in a degree plan.) This degree does not require a student to hold a teacher certificate. See the College of Education and Health Professions Web site at [www.uta.edu/coehp](http://www.uta.edu/coehp) for more details on the program.

#### M.ED. IN CURRICULUM AND INSTRUCTION - SCIENCE EDUCATION

#### M.ED. IN CURRICULUM AND INSTRUCTION - MATHEMATICS EDUCATION

The *M.Ed. in Curriculum and Instruction - Science Education* and *M.Ed. in Curriculum and Instruction - Mathematics Education* offer opportunity for students to pursue graduate studies by taking a *Core component* of 6 courses (18 credit hours) in the College of Education and Health Professions focusing on topics such as inquiry-based, problem-based teaching and learning, diversity, and classroom research, and a *Concentration area component* of 6 courses (18 credit hours). The six *concentration area* courses may be taken either in the Department of Curriculum and Instruction for a science and mathematics content-curriculum integration emphasis and/or in the College of Science for deeper subject matter emphasis in the various science and mathematics disciplines. These programs offer flexibility in course selection, yet are focused on science and mathematics teaching and learning in K-16 educational settings.

A version of this program is offered online through the Academic Partnership program. For more information on the online program please visit: <http://stateu.com/uta/education.asp> For information on the on-campus science and mathematics education program and scholarships available for teachers, contact: Dr. Ann Cavallo, [cavallo@uta.edu](mailto:cavallo@uta.edu) or Jamie Williams, [robin@uta.edu](mailto:robin@uta.edu), 817.272.2832.

## M.ED. IN CURRICULUM AND INSTRUCTION - LITERACY STUDIES (AVAILABLE ONLINE)

One of the most popular M.Ed. degree plans is the M.Ed. in Curriculum and Instruction with an emphasis in Literacy Studies. In this program, students specialize in advanced coursework designed to meet a variety of professional goals related to literacy. For instance, students may pursue professional certificates including the following.

- **Reading Specialist** is a national certification available in all states. Literacy coaches generally work with teachers to help them with best literacy practices. Reading Specialist is an advanced certificate that certified teachers may add to their existing credential upon completion of two year's teaching experience and a master's degree with at least 27 hours of graduate coursework in literacy. Once recommended for the Reading Specialist from UTA, students may also apply for the Master Reading Teacher (MRT) certificate without the additional MRT exam.
- **English as a Second Language** is a national certification available in all states. All states have some type of English as a Second Language (ESL) designation. In Texas, ESL is an add-on certificate that individuals with an initial teaching certificate can add to their existing credential with only 12 hours of graduate coursework.
- **Master Reading Teacher (MRT)** is a Texas only certificate. MRTs work in designated schools to tutor struggling readers and may also serve as literacy coaches. The MRT sequence includes 12 graduate hours of coursework. Students who hold the Reading Specialist Certificate can apply for the MRT without additional coursework or the MRT test.
- **Triple Literacy** is a degree option that leads to Reading Specialist, ESL, and Master Reading Teacher certification.
- **Writing Focus** is a 36-hour, non-certificate, degree focus area providing extra coursework in writing instruction and assessment.

Out of state students seeking certification should go to <http://www.uta.edu/coehp/distaneducation/> for information about their certification options.

In addition to these professional certificates, students may choose focused coursework in areas including:

- Writing
- Working with culturally and linguistically diverse students

This program requires 36 credit hours (12 courses). Once students have successfully completed all coursework, they will graduate with a Master of Education in Curriculum and Instruction. In addition, on passing the appropriate TExES tests, students will also have the Reading Specialist Certification, Master Reading Teacher Certification, and/or supplemental certification in English as a Second Language. The ESL is a 12-hour, four-course program that can be taken as part of this master's degree plan or separately in preparation for the TExES test for supplemental certification in ESL. For additional information, contact Dr. Kathleen Tice at [KTice@uta.edu](mailto:KTice@uta.edu).

## M.ED. IN CURRICULUM AND INSTRUCTION - MIND, BRAIN, AND EDUCATION

The master's degree in Mind, Brain, and Education integrates research in the cognitive and neurosciences and education along with classroom practice to develop more effective teaching methods as well as a deeper understanding of how to support life-long learning. The degree is a 36-hour non-thesis, non-certification program, focused on integrating cognitive science, neuroscience, and education to challenge and information pedagogy. The program focuses on the potential and limits of cognitive neuroscience in education and the central role educators can play in shaping research agendas in MBE. Graduates are expected to serve their community and the field by completing a project defined and carried out during the two-year program. Applicants must be accepted by the Office of Graduate Studies and admitted to the program as part of a cohort. Students complete nine required courses (27 credits), choose two additional courses from a list of approved electives (6 credits) and choose one unrestricted additional course that meets the needs of the candidate (3 credits). For additional information, contact Dr. Marc Schwartz at [schwarma@uta.edu](mailto:schwarma@uta.edu).

## Coursework and Completion Requirements

- Coursework that is more than six years old at the time of graduation or teacher/administrator certification program completion cannot be used toward meeting the requirements for a master's degree or graduate-level certification.
- Master's degree and graduate level certification programs must be completed within six years (time in military service excluded) from initial registration in the Graduate School.
- Appropriate state exams and application to the State Board for Educator Certification for a standard certificate must be made within six months of completion of student teaching. If a candidate allows the six month period to go by without passing all state exams and applying for certification, additional coursework and/or state exams will be required.
- Each candidate in the College of Education and Health Professions of UT Arlington will be evaluated on professional dispositions ([http://www.uta.edu/coehp/\\_downloads/professionaldispositions.pdf](http://www.uta.edu/coehp/_downloads/professionaldispositions.pdf)) by faculty and staff. These dispositions have been identified as essential for a highly-qualified professional. Instructors and program directors will work with candidates rated as "unacceptable" in one or more stated criteria. The candidate will have an opportunity to develop a plan to remediate any digressions.

## Professional-Level Certifications

The Department of Curriculum and Instruction offers graduate-level programs leading to professional certificates. Certifications include Initial Teacher Certification (Early Childhood - Grade 6, Middle Level, Secondary, and All-Level) and the Reading Specialist and Master Reading Teacher Certification. Supplemental certification is available for English as a Second Language (ESL), Bilingual (BIL) and Gifted and Talented. The graduate-level coursework required for these programs may be applied toward a master's degree (M.Ed.T.). The Graduate Advisor works with the student to build an individual

degree plan that incorporates one or more of these certification areas. See the College of Education and Health Professions Web site at [www.uta.edu/coehp](http://www.uta.edu/coehp) for more details on these programs.

## **INITIAL TEACHER CERTIFICATION**

Students holding a baccalaureate degree may pursue initial teacher certification at the graduate level. Students must be admitted to the Graduate School as master's-degree-seeking students (students may elect to complete certification only) and be admitted to Teacher Certification in the College of Education and Health Professions (see a Teacher Certification advisor for current requirements). Up to 18 hours of graduate-level teacher certification hours may be applied toward an M.Ed.T. Students must also complete the student teaching requirements and pass the appropriate TExES exams. Candidates for Teacher Certification must also meet all state requirements for coursework in their teaching field/academic specialization. Note, certification students must be advised and cleared to take teacher certification courses through Teacher Certification Advising. See the College of Education and Health Professions Web site at [www.uta.edu/coehp](http://www.uta.edu/coehp) for more details on the program.

## **MASTER READING TEACHER CERTIFICATE (AVAILABLE ONLINE)**

This certification focuses on the needs of the multicultural and multilingual classrooms of today. To qualify for the Master Reading Teacher (MRT) Certificate, students must complete nine semester credit hours and pass the Master Reading Teacher TExES. Students who complete the requirements for the Reading Specialist certificate and are recommended for that certificate may apply for the MRT as well without taking the MRT exam. See the College of Education and Health Professions Web site at [www.uta.edu/coehp](http://www.uta.edu/coehp) for more details on the program.

## **READING SPECIALIST CERTIFICATION (AVAILABLE ONLINE)**

Teachers interested in focusing on the important area of reading may pursue the Reading Specialist Certificate, an all-level (K-12) certificate. This unique program focuses on the needs of the multicultural and multi-linguistic classrooms of today with the possibility of integrating the requirements for the Master Reading Teacher and the supplemental certification for ESL into the total program if desired. To qualify for the Reading Specialist Certificate, students must complete a master's degree, hold a valid Texas teacher certificate, document two years of acceptable classroom teaching experience, and pass the Reading Specialist TExES. Those who already hold a master's degree and who are seeking only the Reading Specialist Certificate are required to complete 27 semester credit hours. See the College of Education and Health Professions Web site at [www.uta.edu/coehp](http://www.uta.edu/coehp) for more details on the program.

## **ENGLISH AS A SECOND LANGUAGE (ESL) (AVAILABLE ONLINE)**

The English as a Second Language (ESL) certification prepares candidates to teach children from all cultural and language backgrounds (speakers of Spanish, Vietnamese, etc.), and is required for those teachers working with students in grades PK-12 whose first language is not English. (No foreign language background is required for the ESL certificate.) The ESL endorsement may be added to any valid Texas teacher certificate. Students are required to take four required courses in any sequence, complete a practicum in an ESL classroom or one year of successful teaching experience in an ESL or Bilingual Education program approved by the Texas Education Agency, and pass the ESL TExES. (The four courses may be applied toward a master's degree and to the Reading Specialist Certificate.) See the College of Education and Health Professions Web site at [www.uta.edu/coehp](http://www.uta.edu/coehp) for more details on the program.

## **BILINGUAL EDUCATION (BIL)**

Teachers who are fluent in Spanish and wish to specialize in bilingual education will want to add the Bilingual Education to their initial certification. The required 12 hours of coursework may be incorporated into a master's degree program developed in consultation with the Graduate Advisor and graduate faculty. Students are required to take four courses and provide documentation of one year of successful teaching experience in a bilingual setting approved by the Texas Education Agency. Candidates must also pass the EC-6 Bilingual Generalist, and the Bilingual Target Language Proficiency Test--Spanish. See the College of Education and Health Professions Web site at [www.uta.edu/coehp](http://www.uta.edu/coehp) for more details on the program.

## **SCHOOL COUNSELING CERTIFICATION**

UTA's Counseling Certification Program is designed for teachers who hold a master's degree in Education and who have at least two years of teaching experience. At the end of the required 15 hours of coursework, successful candidates must pass the TExES certification examination for School Counselors. This will qualify them to hold positions as school guidance counselors at any level from kindergarten through grade 12 in Texas schools. The six-course, 15-hour counseling program will be taught on campus during after-school hours. A six-hour supervised counseling practicum will take place in schools or on campus with school-age children. The practicum hours must be successfully accomplished in order for the candidate to be approved by the UTA to take the state exam. A school counselor needs to acquire the academic knowledge and skills necessary to do the job but additionally must have a personality or disposition appropriate for helping professions. Candidates will be expected to complete the supervised practicum that will allow them the opportunity to demonstrate they can work successfully with students and others in the educational environment. Admission requirements include a completed master's degree from an accredited university in any approved area of education, transcript of both undergraduate and graduate coursework, and a minimum of two completed years of successful teaching either in public or private schools in any grade, K-12. A letter of support documenting the successful teaching experience will be required. See the College of Education and Health Professions Web site at [www.uta.edu/coehp](http://www.uta.edu/coehp) or contact program director Dr. Mary Lynn Crow ([mlcrow@uta.edu](mailto:mlcrow@uta.edu)) for more details on the program.

## Curriculum and Instruction - Undergraduate Programs

The mission of the Department of Curriculum and Instruction is to prepare and support effective professional educators who can meet students' diverse academic, social, and personal needs. Department faculty members also contribute to education by generating and disseminating high-quality research, developing innovative programs to meet education needs, and through providing meaningful professional service.

The Department of Curriculum and Instruction offers five programs: Early Childhood - Grade 6, Middle-level (grades 4 - 8), Secondary (grades 8 - 12), Early Childhood - Grade 6 Bilingual, and Literacy. All of the programs are based on state certifications and state standards. The department offers the following undergraduate degrees:

- Bachelor of Arts in Interdisciplinary Studies with EC-6 Bilingual Teacher Certification
- Bachelor of Arts in Interdisciplinary Studies with EC-6 ESL Teacher Certification
- Bachelor of Arts in Interdisciplinary Studies with 4-8 Middle-Level English Language Arts/Social Studies Teacher Certification
- Bachelor of Science in Interdisciplinary Studies with 4-8 Middle-Level Math/Science Teacher Certification
- Bachelor of Science in Interdisciplinary Studies with 4-8 Middle Level Generalist Teacher Certification

Please consult the College of Education and Health Professions Web site for current information on degree plans.

Degreed students may choose the post-baccalaureate program for initial teacher certification at the graduate level. See the College of Education and Health Professions Web site (<http://www.uta.edu/coed>) or a graduate academic advisor for details.

### Field Experience

The application deadline is March 1 for the Fall semester and October 1 for the Spring semester Field Experience placements.

Early Childhood - 6th Grade Field Experience occurs in the fall semester. Students enroll in three on-campus courses. They also spend one day per week in a public school classroom. In this classroom, they will work with a cooperating teacher and complete assignments from their on-campus courses. Candidates may be offered opportunities for employment as early childhood teaching assistants in a kindergarten setting. Candidates must complete all core and support system courses and meet all requirements (GPA, THEA scores, and prerequisite courses) prior to the Field Experience semester.

The first year of the Middle-Level certification includes a minimum of 40 hours of field-based experiences each semester. The second year in the program includes a fall field-based experience on Monday through Thursday for the entire school day. The spring semester is a student teaching experience, which begins with the school district calendar and lasts for 18 weeks (Monday through Friday the entire school day).

To be eligible to enter the second year of the Middle-Level education program, a candidate must have completed:

EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
EDML 4350	NATURE & CURRICULUM NEEDS OF THE YOUNG ADOLESCENT LEARNER	3
EDML 4370	SOCIAL STUDIES & DIVERSITY IN THE MIDDLE LEVEL GRADES	3
LIST 4343	CONTENT AREA READING AND WRITING	3
BEEP 4384	LITERACY METHODS FOR ESL/BILINGUAL CLASSROOMS	3

Be currently enrolled in:

EDML 4371	SCIENCE IN THE MIDDLE LEVEL GRADES	3
EDML 4372	MATHEMATICS IN THE MIDDLE LEVEL GRADES	3
EDML 4676	MIDDLE LEVEL FIELD-BASED EXPERIENCE	6
LIST 4378	TEACHING , READING, WRITING, AND LITERATURE IN THE MIDDLE LEVEL GRADES	3

- Have filed a degree plan with the College of Education and Health Professions.
- Have an overall (or last 60 hours) GPA of 3.0.
- Have completed the required content area courses.
- Have a minimum GPA of 3.0 in all College of Education and Health Professions certification courses.

Middle-level certification candidates also have a field experience during fall of the second year (EDML 4676 MIDDLE LEVEL FIELD-BASED EXPERIENCE). This experience involves observing and teaching in assigned schools working with cooperating teachers, university supervisors, and middle-level students.

Field Experience for Secondary Certification is a one-semester experience for students. Eligible secondary certification students must make application ([www.uta.edu/coed/fieldexperience/](http://www.uta.edu/coed/fieldexperience/)) for secondary Field Experience before the deadline early in the semester preceding the Field Experience assignment. Secondary Field Experience applications are then reviewed by partner schools, and students are subsequently assigned by the Office of

Professional Development to appropriate school sites (based on student's area of specialization and the partner school's needs). Criminal background checks are required by school districts prior to field experience school placement.

For purposes of determining eligibility for Field Experience, all applicable grades, including those earned at other institutions, will be used in the calculation of grade point averages. Students are urged not to take more than 15 semester credit hours during the Field Experience semester.

Students must attend a mandatory orientation to become familiar with the Field Experience Handbook and the requirements prior to beginning the Field Experience assignment.

To be eligible to enter the Field Experience in the secondary certification program, the student must:

- Have filed a degree plan with major academic department and have provided a copy to the College of Education and Health Professions advising office.
- Have an overall (or last 60 hours) GPA of 3.0.
- Have a minimum GPA of 3.0 in all College of Education and Health Professions certification courses with a grade of C or better in all College of Education and Health Professions certification courses.

For 15 weeks during the UT Arlington Field Experience semester, secondary students will spend five instructional clock hours and a one-hour planning period per week in their assigned schools working with cooperating teachers and secondary students.

## Student Teaching

**Early Childhood - 6th Grade Student Teaching** is a full-time supervised and directed practice in an approved Pre-K- 6th grade classroom. Student teachers will have at least two placements. Student teachers who are employed as early childhood teaching assistants in the fall will remain in a kindergarten setting for Student Teaching. Student Teaching is in the spring and begins and ends with the public school district calendar.

**Middle-level 4th-8th Grade Student Teaching** is the final semester. Candidates spend 720 hours in the field during student teaching. They attend faculty meetings, parent-teacher conferences and professional development experiences, as well as regularly scheduled university seminars that involve presentations by partner school principals and university faculty. Student Teaching takes place during the spring semester, begins with the public school district calendar, and lasts 18 weeks.

**Student Teaching for Secondary Certification** immediately follows the Field Experience semester for students seeking Secondary certification and All-level certification. It is a one-semester experience scheduled to begin and end with the public school district calendar that involves working full-time with cooperating teachers and grades 8-12 students in the school setting five days a week. Student Teaching is considered full-time enrollment.

Students must attend a mandatory orientation to become familiar with the Student Teaching Handbook and the requirements prior to beginning the Student Teaching assignment.

For purposes of determining Student Teaching eligibility for all education students, the following must be completed:

- 3.0 GPA overall.
- 3.0 GPA in all College of Education and Health Professions certification courses with a grade of C or better in all College of Education and Health Professions certification courses.
- Additional requirements specific to each certification level.

## Oral Communication Competency Requirement

All students will satisfy the oral communication requirement during the professional development sequence leading to initial teacher certification. Students must complete the Field Experience semester with an acceptable evaluation of oral communication by university supervisors and assigned cooperating teachers in the field.

## Degrees with Teacher Certification

### Degrees with EC-6 Certification

### BACHELOR OF ARTS IN INTERDISCIPLINARY STUDIES WITH ESL EC-6 TEACHER CERTIFICATION

#### Pre-Professional Courses

General Core Requirements (p. 93)

39

ENGL 1301	RHETORIC AND COMPOSITION I
ENGL 1302	RHETORIC AND COMPOSITION II
ENGL 2309	WORLD LITERATURE
ENGL 2319	BRITISH LITERATURE
or ENGL 2329	AMERICAN LITERATURE
HIST 1311	HISTORY OF THE UNITED STATES TO 1865 <sup>1</sup>



HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT <sup>1</sup>	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
MATH 1302	COLLEGE ALGEBRA	
MATH 1330	ARITHMETICAL PROBLEM SOLVING	

Natural Science (lab science, Biology recommended) 8 credit hours

#### Program Requirements

Foreign Language, two courses, Spanish preferred, at 1441 and 1442 level. No sign language.

MATH 1331	GEOMETRICAL INFERENCE AND REASONING	
MATH 1332	FUNCTIONS, DATA, AND APPLICATIONS	

Select two of the following: 6

SCIE 3301	PHYSICAL SCIENCE - PHYSICS	
SCIE 3302	PHYSICAL SCIENCE - CHEMISTRY	
SCIE 3303	GEOLOGY, METEOROLOGY, AND OCEANOGRAPHY	
SCIE 3304	ASTRONOMY	
SCIE 3305	ENVIRONMENTAL SYSTEMS	

Art, dance, music, theatre arts, or other approved course. (MUSI 3305 or ART 1301 recommended) 3

Early Childhood Support System - 9 hours at 2000 level or above. See advisor.

#### Professional Courses

Courses that focus on children, families, schools and communities, especially those concerned with diversity and learning (PSYC, SOCI, SOCW, WOMS) 12

EDUC 4316	FOUNDATIONS OF EDUCATION	3
ELED 4317	GROWTH, DEVELOPMENT, AND LEARNING THEORY	3
BEEP 3381	LANGUAGE MINORITY STUDENTS: DEVELOPMENT AND ASSESSMENT	3
ELED 4321	CLASSROOM MANAGEMENT, PEDAGOGY, AND PRACTICES IN EC-6 EDUCATION	3
BEEP 4306	FAMILY LITERACY AND SECOND LANGUAGE ACQUISITION	3
BEEP 4385	SHELTERED ENGLISH INSTRUCTION	3
EDTC 4301	TECHNOLOGY APPLICATIONS	3
LIST 4373	LITERACY LEARNING FOR EC-6 STUDENTS: READING AND WRITING	3
LIST 4374	LITERACY LEARNING FOR EC-6 STUDENTS: LITERATURE AND LANGUAGE	3
LIST 4376	ASSESSMENT IN LITERACY LEARNING	3
ELED 4311	TEACHING MATHEMATICS IN EARLY AND ELEMENTARY EDUCATION	3
ELED 4312	TEACHING SCIENCE AND HEALTH IN EARLY AND ELEMENTARY EDUCATION	3
ELED 4314	TEACHING SOCIAL STUDIES IN EARLY ELEMENTARY EDUCATION	3
BEEP 4384	LITERACY METHODS FOR ESL/BILINGUAL CLASSROOMS	3
ELED 4687	STUDENT TEACHING IN EARLY AND ELEMENTARY EDUCATION	6

Total Hours 108

<sup>1</sup> One Texas History may be taken in place of one US History: HIST 3363 TEXAS TO 1850 or HIST 3364 TEXAS SINCE 1845.

## BACHELOR OF ARTS IN INTERDISCIPLINARY STUDIES WITH EC-6 BILINGUAL TEACHER CERTIFICATION

#### Pre-Professional Courses

General Core Requirements (p. 93) 39

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
ENGL 2309	WORLD LITERATURE	
ENGL 2319 or ENGL 2329	BRITISH LITERATURE AMERICAN LITERATURE	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865 <sup>1</sup>	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT <sup>1</sup>	
POLS 2311	GOVERNMENT OF THE UNITED STATES	

POLS 2312	STATE AND LOCAL GOVERNMENT	
MATH 1302	COLLEGE ALGEBRA	
MATH 1330	ARITHMETICAL PROBLEM SOLVING	
MATH 1331	GEOMETRICAL INFERENCE AND REASONING	
MATH 1332	FUNCTIONS, DATA, AND APPLICATIONS	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
SPAN 2314	INTERMEDIATE SPANISH II	
Program Requirements		
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS (recommended)	4
Select two of the following:		6
SCIE 3301	PHYSICAL SCIENCE - PHYSICS	
SCIE 3302	PHYSICAL SCIENCE - CHEMISTRY	
SCIE 3303	GEOLOGY, METEOROLOGY, AND OCEANOGRAPHY	
SCIE 3304	ASTRONOMY	
SCIE 3305	ENVIRONMENTAL SYSTEMS	
MUSI 3305	MUSIC FOR CHILDREN	3
or ART 1301	ART APPRECIATION	
SPAN 2313	INTERMEDIATE SPANISH I	3
Select one of the following:		6
Heritage Speakers:		
SPAN 3305	ADVANCED SPANISH FOR HERITAGE SPEAKERS	
Non-heritage speakers:		
SPAN 3303	ADVANCED SPANISH CONVERSATION	
SPAN 3314	ADVANCED SPANISH GRAMMAR	
or SPAN 3315	COMPOSITION THROUGH LITERATURE	
Select one of the following:		3
SPAN 4317	CHICANO LITERATURE	
HIST 3368	MEXICAN AMERICAN HISTORY	
Any MAS 23XX or above		
<b>Professional Courses</b>		
Courses to be completed in the first year of the COEHP Bilingual program sequence:		
BEEP 3381	LANGUAGE MINORITY STUDENTS: DEVELOPMENT AND ASSESSMENT	3
BEEP 4305	BILITERACY DEVELOPMENT IN DUAL LANGUAGE PROGRAMS	3
ELED 4317	GROWTH, DEVELOPMENT, AND LEARNING THEORY	3
EDTC 4301	TECHNOLOGY APPLICATIONS	3
LIST 4373	LITERACY LEARNING FOR EC-6 STUDENTS: READING AND WRITING	3
LIST 4376	ASSESSMENT IN LITERACY LEARNING	3
BEEP 4382	LITERACY INSTRUCTION IN SPANISH FOR THE BILINGUAL CLASSROOM	3
BEEP 4306	FAMILY LITERACY AND SECOND LANGUAGE ACQUISITION	3
Courses to be completed in the second-year:		
BEEP 4311	MATH IN DUAL LANGUAGE SETTINGS	3
BEEP 4312	SCIENCE AND HEALTH EDUCATION IN DUAL LANGUAGE SETTINGS	3
BEEP 4314	CREATIVE ARTS AND SOCIAL STUDIES IN DUAL LANGUAGE SETTINGS	3
BEEP 4384	LITERACY METHODS FOR ESL/BILINGUAL CLASSROOMS	3
BEEP 4319	ASSESSMENT OF CULTURALLY AND LINGUISTICALLY DIVERSE STUDENTS IN EC-6 SETTINGS	3
BEEP 4687	STUDENT TEACHING IN EC-6 BILINGUAL/ESL CLASSROOMS	6
Total Hours		109

<sup>1</sup> One Texas History may be taken in place of one US History: HIST 3363 TEXAS TO 1850 or HIST 3364 TEXAS SINCE 1845.

## BACHELOR OF ARTS IN INTERDISCIPLINARY STUDIES WITH 4-8 MIDDLE-LEVEL ENGLISH LANGUAGE ARTS/SOCIAL STUDIES TEACHER CERTIFICATION

### Pre-Professional Courses

General Core Requirements (p. 93) 39

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
ENGL 2309	WORLD LITERATURE	
ENGL 2319 or ENGL 2329	BRITISH LITERATURE AMERICAN LITERATURE	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865 <sup>1</sup>	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT <sup>1</sup>	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
MATH 1302	COLLEGE ALGEBRA	
MATH 1330	ARITHMETICAL PROBLEM SOLVING	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
SPAN 2314	INTERMEDIATE SPANISH II (recommended)	

### Program Requirements

ENGL 2350 INTRODUCTION TO ANALYSIS AND INTERPRETATION 3

Select one of the following: 3

ENGL 3371	ADVANCED EXPOSITION	
ENGL 3372	COMPUTERS AND WRITING	
ENGL 4371	ADVANCED ARGUMENTATION	

Select one of the following: 3

ENGL 3339	CLASSICAL BACKGROUNDS	
ENGL 3361	HISTORY OF WORLD LITERATURE I	
ENGL 4366	YOUNG ADULT LITERATURE	3
ENGL 4370	RHETORIC AND COMPOSITION FOR SECONDARY SCHOOL TEACHERS	3
HIST 2301	HISTORY OF CIVILIZATION	3
HIST 2302	HISTORY OF CIVILIZATION	3
HIST 3363	TEXAS TO 1850	3
HIST 3364	TEXAS SINCE 1845	3

Select one of the following: 3

POLS 3303	INTRODUCTION TO PUBLIC ADMINISTRATION	
POLS 3306	LEGISLATIVE ORGANIZATION AND PROCEDURE	
POLS 3307	COMPARATIVE STATE AND LOCAL POLITICS	
POLS 3311	PUBLIC OPINION	
POLS 3327	AMERICAN POLITICAL PARTIES	
POLS 4314	SEPARATION OF POWERS AND AMERICAN INSTITUTIONS	
POLS 4324	ELECTORAL BEHAVIOR	
POLS 4328	MODERN POLITICAL IDEAS	
POLS 4330	THE U.S. PRESIDENCY	

BIOL 1442 STRUCTURE AND FUNCTION OF ORGANISMS (recommended) 4

SPAN 2313 INTERMEDIATE SPANISH I 3

### Professional Courses

Courses to be completed in the first year of the COEHP Middle-Level Program:

EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
EDML 4350	NATURE & CURRICULUM NEEDS OF THE YOUNG ADOLESCENT LEARNER	3
EDML 4370	SOCIAL STUDIES & DIVERSITY IN THE MIDDLE LEVEL GRADES	3
LIST 4343	CONTENT AREA READING AND WRITING	3
BEEP 4384	LITERACY METHODS FOR ESL/BILINGUAL CLASSROOMS	3

Courses to be completed in the second year of the COEHP Middle-Level Program:

Fall Field-Based Courses -		
EDML 4371	SCIENCE IN THE MIDDLE LEVEL GRADES	3
EDML 4372	MATHEMATICS IN THE MIDDLE LEVEL GRADES	3
EDML 4676	MIDDLE LEVEL FIELD-BASED EXPERIENCE (all day Monday-Friday)	6
Spring Field-Based Experience -		
EDML 4677	MIDDLE LEVEL STUDENT TEACHING	6
Total Hours		109

<sup>1</sup> One Texas History may be taken in place of one US History: HIST 3363 TEXAS TO 1865 or HIST 3364 TEXAS SINCE 1865.

## BACHELOR OF SCIENCE IN INTERDISCIPLINARY STUDIES WITH 4-8 MIDDLE-LEVEL MATH/SCIENCE TEACHER CERTIFICATION

### Pre-Professional Courses

General Core Requirements (p. 93)		39
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
ENGL 2309	WORLD LITERATURE	
ENGL 2319	BRITISH LITERATURE	
or ENGL 2329	AMERICAN LITERATURE	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865 <sup>1</sup>	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT <sup>1</sup>	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
MATH 1302	COLLEGE ALGEBRA	
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
MATH 1330	ARITHMETICAL PROBLEM SOLVING	
MATH 1331	GEOMETRICAL INFERENCE AND REASONING	
MATH 1332	FUNCTIONS, DATA, AND APPLICATIONS	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	

### Program Requirements

MATH 4350	PRECALCULUS FOR MID-LEVEL MATHEMATICS TEACHERS (Capstone I)	3
MATH 4351	CALCULUS FOR MID-LEVEL MATHEMATICS TEACHERS (Capstone II)	3
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS (recommended)	4
SCIE 3301	PHYSICAL SCIENCE - PHYSICS	3
SCIE 3302	PHYSICAL SCIENCE - CHEMISTRY	3
SCIE 3303	GEOLOGY, METEOROLOGY, AND OCEANOGRAPHY	3
SCIE 3304	ASTRONOMY	3
SCIE 3305	ENVIRONMENTAL SYSTEMS	3

### Professional Courses

Courses to be completed in the first year of the COEHP Middle-Level Program:

EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
EDML 4350	NATURE & CURRICULUM NEEDS OF THE YOUNG ADOLESCENT LEARNER	3
EDML 4370	SOCIAL STUDIES & DIVERSITY IN THE MIDDLE LEVEL GRADES	3
LIST 4343	CONTENT AREA READING AND WRITING	3
BEEP 4384	LITERACY METHODS FOR ESL/BILINGUAL CLASSROOMS	3

Courses to be completed in the second year of the COEHP Middle-Level program:

Fall Field-Based Courses -		
EDML 4371	SCIENCE IN THE MIDDLE LEVEL GRADES	3
EDML 4372	MATHEMATICS IN THE MIDDLE LEVEL GRADES	3
EDML 4676	MIDDLE LEVEL FIELD-BASED EXPERIENCE (all day Monday - Thursday)	6
Spring Field-Based Experience -		

EDML 4677	MIDDLE LEVEL STUDENT TEACHING	6
Total Hours		97

<sup>1</sup> One Texas History may be taken in place of one US History: HIST 3363 TEXAS TO 1865 or HIST 3364 TEXAS SINCE 1865.

## BACHELOR OF SCIENCE IN INTERDISCIPLINARY STUDIES WITH 4-8 MIDDLE LEVEL GENERALIST TEACHER CERTIFICATION

### Pre-Professional Courses

General Core Requirements (p. 93)		39
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
ENGL 2309	WORLD LITERATURE	
ENGL 2319	BRITISH LITERATURE	
or ENGL 2329	AMERICAN LITERATURE	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865 <sup>1</sup>	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT <sup>1</sup>	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
MATH 1302	COLLEGE ALGEBRA	
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
MATH 1330	ARITHMETICAL PROBLEM SOLVING	
MATH 1331	GEOMETRICAL INFERENCE AND REASONING	
MATH 1332	FUNCTIONS, DATA, AND APPLICATIONS	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
GEOL 1301	EARTH SYSTEMS	
GEOL 1302	EARTH HISTORY	

### Program Requirements

ENGL 2350	INTRODUCTION TO ANALYSIS AND INTERPRETATION	3
Select one of the following:		3
ENGL 3371	ADVANCED EXPOSITION	
ENGL 3372	COMPUTERS AND WRITING	
ENGL 4370	RHETORIC AND COMPOSITION FOR SECONDARY SCHOOL TEACHERS	
Select one of the following:		3
ENGL 3339	CLASSICAL BACKGROUNDS	
ENGL 3340	HISTORY OF AMERICAN LITERATURE	
ENGL 3344	AMERICAN INDIAN LITERATURE	
ENGL 3345	AFRICAN AMERICAN LITERATURE	
ENGL 3346	MEXICAN AMERICAN LITERATURE	
ENGL 3361	HISTORY OF WORLD LITERATURE I	
ENGL 3362	HISTORY OF WORLD LITERATURE II	
ENGL 4366	YOUNG ADULT LITERATURE	3
MATH 4350	PRECALCULUS FOR MID-LEVEL MATHEMATICS TEACHERS (Capstone I)	3
MATH 4351	CALCULUS FOR MID-LEVEL MATHEMATICS TEACHERS (Capstone II)	3
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS (recommended)	4
Select two of the following:		6
SCIE 3301	PHYSICAL SCIENCE - PHYSICS	
SCIE 3302	PHYSICAL SCIENCE - CHEMISTRY	
SCIE 3303	GEOLOGY, METEOROLOGY, AND OCEANOGRAPHY	
SCIE 3304	ASTRONOMY	
SCIE 3305	ENVIRONMENTAL SYSTEMS	

Economics course approved by COEHP advisor

### Professional Courses

Courses to be completed in the first year of the COEHP program sequence:

EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
EDML 4350	NATURE & CURRICULUM NEEDS OF THE YOUNG ADOLESCENT LEARNER	3
EDML 4360	TEACHING STUDENTS WITH SPECIAL NEEDS - A SURVEY	3
LIST 4343	CONTENT AREA READING AND WRITING	3
BEEP 4384	LITERACY METHODS FOR ESL/BILINGUAL CLASSROOMS	3
EDTC 4301	TECHNOLOGY APPLICATIONS	3

Field Experience Semester -

EDML 4370	SOCIAL STUDIES & DIVERSITY IN THE MIDDLE LEVEL GRADES	3
EDML 4371	SCIENCE IN THE MIDDLE LEVEL GRADES	3
EDML 4372	MATHEMATICS IN THE MIDDLE LEVEL GRADES	3
LIST 4378	TEACHING , READING, WRITING, AND LITERATURE IN THE MIDDLE LEVEL GRADES	3

Student Teaching 6

Courses to be completed in the first year of the COEHP Middle-Level Program:

EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
EDML 4350	NATURE & CURRICULUM NEEDS OF THE YOUNG ADOLESCENT LEARNER	3
EDML 4370	SOCIAL STUDIES & DIVERSITY IN THE MIDDLE LEVEL GRADES	3
LIST 4343	CONTENT AREA READING AND WRITING	3
BEEP 4384	LITERACY METHODS FOR ESL/BILINGUAL CLASSROOMS	3

Courses to be completed in the second year of the COEHP Middle-Level Program:

Fall Field-Based Courses -

EDML 4371	SCIENCE IN THE MIDDLE LEVEL GRADES	3
EDML 4372	MATHEMATICS IN THE MIDDLE LEVEL GRADES	3
EDML 4676	MIDDLE LEVEL FIELD-BASED EXPERIENCE (all day Monday - Thursday)	6

Spring Field-Based Experience -

EDML 4677	MIDDLE LEVEL STUDENT TEACHING	6
-----------	-------------------------------	---

Total Hours 136

<sup>1</sup> One Texas History may be taken in place of one US History: HIST 3363 TEXAS TO 1850 or HIST 3364 TEXAS SINCE 1845.

## Educational Leadership and Policy Studies

### Undergraduate Degrees

- Leadership Minor (p. 211)
- Leadership Certificate (p. 211)

### Graduate Degrees

- Master of Education in Educational Leadership and Policy Studies, with Principal Certificate (p. )
- Master of Education in Educational Leadership and Policy Studies, with Principal Certificate, Dual-Language Emphasis (p. )
- Master of Education in Educational Leadership and Policy Studies, with Higher Education Administration Emphasis (p. )
- Doctor of Philosophy (Ph.D.) in K-16 Educational Leadership and Policy Studies (p. )

### Certificates

- Principal Certificate (p. )
- Superintendent Certificate (p. )

## Educational Leadership and Policy Studies - Graduate Programs

### Programs

The Department of Educational Leadership and Policy Studies offers the Master of Education (M.Ed.) in Educational Leadership and Policy Studies. In addition to core courses in educational leadership and policy studies, three distinct emphases are available: Principal Certificate, Principal Certificate

with Dual Language, and Higher Education Administration. For those with a master's degree, the Department offers certification preparation courses for candidates seeking a Principal Certificate or a Superintendent Certificate.

The Department also offers the Doctor of Philosophy in K-16 Educational Leadership and Policy Studies.

## Degrees and Certifications

Graduate work in Educational Leadership and Policy Studies at UT Arlington may lead to the following degrees and certifications:

### DEGREES

- Master of Education (M.Ed.) in Educational Leadership and Policy Studies
- Doctor of Philosophy (Ph.D.) in K-16 Educational Leadership and Policy Studies

### ONLINE ACADEMIC PARTNERSHIP DEGREE PROGRAMS

- Master of Education (M.Ed.) in Educational Leadership and Policy Studies (AP)

### EDUCATOR PREPARATION PROGRAMS

- Principal
- Superintendent (offered online through Academic Partnerships)

## Admissions Requirements - Master's Program

### UNCONDITIONAL ADMISSION

Applicants are typically offered unconditional admission if they meet two of the three following criteria:

- An undergraduate grade point average (GPA) of 3.0 or higher on a 4.0 scale, as calculated by the Graduate School or a graduate GPA of 3.5 or higher on a 4.0 scale on 12 or more hours as calculated by the Graduate School may be used in lieu of the undergraduate GPA
- A minimum of two of the following three Graduate Record Examination (GRE) scores: (1) verbal minimum score of 153, (2) quantitative score of 144, (3) written analytical minimum score of 3.5. For exams taken before August 1, 2011, a minimum of two of the three scores are required: (1) verbal minimum score of 500, (2) quantitative minimum score of 500, (3) written analytical minimum score of 3.5.
- Three letters of reference on file, completed by three persons who can assess the applicant's aptitude, academic skills, and abilities needed for success in the Educational Leadership and Policy Studies master's program

### PROBATIONARY ADMISSION

Applicants are typically offered probationary admission if they meet two of the three following criteria:

- An undergraduate grade point average (GPA) of at least 2.8 on a 4.0 scale, as calculated by the Graduate School or a graduate GPA of 3.3 or higher on a 4.0 scale on 12 or more hours as calculated by the Graduate School may be used in lieu of the undergraduate GPA
- A minimum of two of the following three Graduate Record Examination (GRE) scores: (1) verbal minimum score of 146, (2) quantitative score of 140, (3) written analytical minimum score of 3.0. For exams taken before August 1, 2011, a minimum of two of the three scores are required: (1) verbal minimum score of 400, (2) quantitative minimum score of 400, (3) written analytical minimum score of 3.0.
- Three letters of reference on file, completed by three persons who can assess the applicant's aptitude, academic skills, and abilities needed for success in the Educational Leadership and Policy Studies master's program

**Terms of Probation upon Acceptance:** All students admitted under probation status will be required to earn a 3.5 GPA during the first 12 hours of graduate coursework in the program.

### PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admissions deadline, but whom otherwise appears to meet admissions requirements may be granted provisional admission.

### DEFERRED ADMISSION

An applicant's admission may be deferred when a file is not complete or when denying admission is not appropriate.

### DENIED ADMISSION

An applicant may be denied admission if the conditions for unconditional and probationary admission have not been met.

In addition, if a student has been suspended or expelled from the University of Texas at Arlington or any other university or program for reasons other than academic reasons, that student may be denied admission or readmission to an educator preparation program in the College of Education and Health Professions.

## Master's Degree Programs

### MASTER OF EDUCATION IN EDUCATIONAL LEADERSHIP AND POLICY STUDIES, WITH PRINCIPAL CERTIFICATE

#### Core Courses

EDAD 5322	EDUCATIONAL RESEARCH AND EVALUATION	3
EDAD 5360	LEADERSHIP THEORY	3
EDAD 5365	Leading Learning Organizations	3
EDAD 5380	DIVERSITY AND EQUITY IN EDUCATION	3
EDAD 5388 or EDAD 5376	EDUCATIONAL POLICY ISSUES IN THE PUBLIC SCHOOLS EDUCATIONAL GOVERNANCE	3
EDAD 5399	CAPSTONE PRACTICUM IN EDUCATIONAL LEADERSHIP AND POLICY STUDIES	3

#### Principal Certificate Courses

EDAD 5305	CURRICULUM DESIGN, IMPLEMENTATION, AND EVALUATION	3
EDAD 5330	LEADERSHIP IN THE INSTRUCTIONAL SETTING	3
EDAD 5381	GOVERNANCE, POLITICAL AND LEGAL ASPECTS OF EDUCATION	3
EDAD 5383	THE PRINCIPALSHIP	3
EDAD 5384	RESOURCE MANAGEMENT IN EDUCATION	3
EDAD 5389	ADMINISTRATIVE PRACTICUM	3

Total Hours 36

### MASTER OF EDUCATION IN EDUCATIONAL LEADERSHIP AND POLICY STUDIES, WITH PRINCIPAL CERTIFICATE, DUAL-LANGUAGE EMPHASIS

#### Core Courses

EDAD 5322	EDUCATIONAL RESEARCH AND EVALUATION	3
EDAD 5360	LEADERSHIP THEORY	3
EDAD 5365	Leading Learning Organizations	3
EDAD 5380	DIVERSITY AND EQUITY IN EDUCATION	3
EDAD 5388 or EDAD 5376	EDUCATIONAL POLICY ISSUES IN THE PUBLIC SCHOOLS EDUCATIONAL GOVERNANCE	3
EDAD 5399	CAPSTONE PRACTICUM IN EDUCATIONAL LEADERSHIP AND POLICY STUDIES	3

#### Principal Certificate/Bilingual Courses

BEEP 5321	ESL METHODS FOR EC-6 LEARNERS	3
EDAD 5330	LEADERSHIP IN THE INSTRUCTIONAL SETTING	3
EDAD 5381	GOVERNANCE, POLITICAL AND LEGAL ASPECTS OF EDUCATION	3
BEEP 5366	SPANISH FOR SCHOOL ADMINISTRATORS & TEACHERS	3
BEEP 5318	FOUNDATIONS IN BILINGUAL EDUCATION	3
BEEP 5365	ORGANIZATION & ADMINISTRATION OF DUAL LANGUAGE PROGRAMS	3

Total Hours 36

### MASTER OF EDUCATION IN EDUCATIONAL LEADERSHIP AND POLICY STUDIES, WITH HIGHER EDUCATION ADMINISTRATION EMPHASIS

#### Core Courses

EDAD 5322	EDUCATIONAL RESEARCH AND EVALUATION	3
EDAD 5360	LEADERSHIP THEORY	3
EDAD 5365	Leading Learning Organizations	3
EDAD 5380	DIVERSITY AND EQUITY IN EDUCATION	3
EDAD 5388 or EDAD 5376	EDUCATIONAL POLICY ISSUES IN THE PUBLIC SCHOOLS EDUCATIONAL GOVERNANCE	3
EDAD 5399	CAPSTONE PRACTICUM IN EDUCATIONAL LEADERSHIP AND POLICY STUDIES	3

#### Higher Education Emphasis Courses

EDAD 5305	CURRICULUM DESIGN, IMPLEMENTATION, AND EVALUATION	3
-----------	---	---



EDAD 5351	HIGHER EDUCATION ADMINISTRATION AND STUDENT AFFAIRS	3
EDAD 5352	HIGHER EDUCATION LAW	3
EDAD 5354	THE AMERICAN COMMUNITY COLLEGE	3
EDAD 5356	HISTORY, PRINCIPLES, AND PHILOSOPHY OF HIGHER EDUCATION ADMINISTRATION	3
EDAD 5357	HIGHER EDUCATION TRENDS AND ISSUES	3
Total Hours		36

## Doctoral Degree Program

### DOCTOR OF PHILOSOPHY (PH.D.) IN K-16 EDUCATIONAL LEADERSHIP AND POLICY STUDIES

The Ph.D. degree is designed for candidates who seek to enter careers in research, institutional assessment, policy analysis, institutional leadership, or the professoriate. The program challenges the conventional wisdom that higher education and K-12 education are different worlds by bringing together scholars and students from all levels of education to work and study together. Particularly, the program focuses on narrowing achievement gaps by studying and creating efficacious transitions within the educational experience. Working from the premise that all people can learn at high levels, the program includes the study of the systemic barriers at all levels of education that prevent so many children, adolescents, and young adults from being as successful as they can possibly be.

In addition to becoming experts in their particular area of inquiry, graduates will have a broad foundation in the study of educational leadership and policy at all levels. Students in the Ph.D. program will be part of a cohort throughout their coursework.

### Admission Requirements - Ph.D. Program

A select number of qualified applicants are admitted each session to the cohort-based program. Each cohort begins coursework during the fall semester. Specific guidelines for applying to this program are found on the departmental website. Admission into this program is very competitive. The departmental admissions committee considers prior educational experiences, prior work experiences, GRE scores, writing samples, and professional references. Finalists may be invited to campus to interview with the committee.

In addition to the general Office of Graduate Studies admission requirements, applicants must meet the following requirements for unconditional admission.

- Master's degree in education or other field appropriate for the doctorate in Educational Leadership and Policy Studies
- Grade point minimum average of 3.5 out of a possible 4.0 from the master's degree
- Successful applicants for unconditional admission are expected to present a minimum of two of the following three Graduate Record Examination (GRE) scores: (1) verbal minimum score of 153, (2) quantitative score of 144, and (3) written analytical minimum score of 4. For exams taken before August 1, 2011, a minimum of two of the three scores are required: (1) verbal minimum score of 500, (2) quantitative minimum score of 500, and (3) written analytical minimum score of 4.
- Applicants who do not meet the minimum score requirement for a standardized test will be considered for probationary admission status when other factors are taken into account in a holistic review.
- A minimum score of 550 on the Test of English As a Foreign Language (TOEFL) for applicants whose native language is not English
- At least three years of documented experience in a work environment in which the primary professional responsibility at any level has been education (e.g., teaching, administration, curriculum development, professional development, post secondary education, government or private industry settings)
- Admission is very competitive. Meeting admission standards does not guarantee admission to the program.
- Applicants who have been suspended or expelled from the University of Texas at Arlington or any other university or program for reasons other than academic reasons may be denied admission or readmission to an educator preparation program in the College of Education and Health Professions.

### Required Courses

1. Research Methods Core		
EDAD 6304	K-16 QUANTITATIVE RESEARCH DESIGN & METHODOLOGY	3
EDAD 6308	QUALITATIVE RESEARCH DESIGN & METHODOLOGY	3
EDAD 6310	STATISTICAL METHODS	3
EDAD 6315	ADVANCED STATISTICAL METHODS	3
EDAD 6318	ADVANCED QUALITATIVE METHODS	3
2. Foundations Core		
EDAD 6320	K-16 PHILOSOPHY & HISTORY POLICY RESEARCH	3
3. Policy Research Core		
EDAD 6327	K-16 POLICY & LAW ANALYSIS RESEARCH	3
4. Leadership Research Core		
EDAD 6342	K-16 ORGANIZATIONAL & LEADERSHIP THEORY RESEARCH	3

5. Dissertation (24 semester credit hours minimum) selected from:

EDAD 6399	DISSERTATION	3
EDAD 6699	DISSERTATION	6

#### **Elective Courses**

Approved Electives		18
--------------------	--	----

### **Written and Oral Comprehensive Examinations**

To be elevated to candidacy for the Ph.D., students must successfully pass a written and oral qualifying examination.

#### **Dissertation**

Students elevated to candidacy for the Ph.D. may register for the dissertation. The dissertation is the culmination of the Ph.D. program and represents a distinct contribution to the field of knowledge. A dissertation defense is required.

### **Recommendation to the State Board for Educator Certification**

To be eligible for certification under all programs, a candidate must meet specific criteria set by the College of Education and Health Professions, the University, and the Texas Education Agency/State Board for Educator Certification. To be recommended to the Texas Education Agency/State Board for Educator Certification for initial teacher certification, a teacher candidate must have successfully completed the following:

Effective fall 2007, students must pass all appropriate state exams and apply for appropriate state certifications with the State Board for Educator Certification/Texas Education Agency within six months of the completion of their residency/practicum/program. If a student allows the six-month period to go by without passing all state exams and applying for certification, additional coursework and/or state exams will be required for recommendation for certification. Additional coursework will be determined by the appropriate Program Director in consultation with the faculty.

#### **PRINCIPAL OR SUPERINTENDENT**

Before you apply for certification as a Principal or Superintendent, please make sure you have completed the following requirements (subject to verification by the Assistant Dean for Student Affairs):

1. Conferred Master's Degree (or higher);
2. Completed all courses on the certification plan;
3. Completed all appropriate TExES exams;
4. Valid Texas teaching certificate;
5. Two years of classroom teaching experience.

If you are a candidate who is applying for Principal or Superintendent certification, you must request that your school district mail a copy of your teacher service record indicating you taught for at least two years. Please request that your school district mail your teacher service record to the Assistant Dean for Student Affairs in the College of Education and Health Professions at UT Arlington. Then, apply to the State Board for Educator Certification (SBEC).

#### **MASTER'S DEGREE WITH PRINCIPAL CERTIFICATION COURSES**

The Master's Degree includes courses required for candidates seeking the Texas Principal Certification. In addition to obtaining the Master's Degree, candidates must also pass the Texas Principal Certification exam, have a valid Texas Teacher Certificate, and have at least two years of accredited classroom teaching experience. Candidates must have their school district send via U.S. mail (not fax) their official Texas Teacher Service Record to the Certification Officer in the UT Arlington College of Education and Health Professions. Courses for the Master's Degree are offered at both the UT Arlington and the Fort Worth Santa Fe campuses. The Department also offers the Master's Degree with Principal Certification courses entirely on-line through Academic Partnerships.

#### **PROBATIONARY PRINCIPAL CERTIFICATE**

A candidate who has completed (grades posted) all requirements (EDAD 5360, 5381, 5383, 5384) and has completed 5389 Practicum or is enrolled in 5399 Capstone may apply for the Probationary Principal Certificate. In order for UT Arlington to recommend a candidate for the Probationary Principal Certificate, the candidate must have a district administrative/practicum employment assignment. The Probationary Principal Certificate issued by the state is valid for one year from the date of issuance, renewable annually for 2 consecutive years for a maximum of 3 years total.

Principal certification candidates on a Probationary Principal Certificate must maintain continual enrollment in the Educational Leadership and Policy Studies department by taking EDAD 5389 or an equivalent course approved by the ELPS faculty graduate advisor. This applies to all of the three years allowed for probationary certificates.

For more information on how to apply, contact the College of Education and Health Professions Certification Office.

## SUPERINTENDENT CERTIFICATE

The Department of Educational Leadership and Policy Studies offers coursework and practicums leading to a Superintendent Certificate. Upon completion of superintendency coursework, Texas administrators seeking a Texas Superintendent Certificate must make a passing score on the Superintendent Texas Examination of Educator Standards (TExES) and provide evidence of Principal or equivalent certification before they will be recommended to the State Board for Educator Certification (SBEC) for issuance of the certificate.

Required EDAD courses for the Superintendent Certificate: 6179, 6279, 6371, 6373, 6374, and 6378. Currently, courses are offered in an online-only format through Academic Partnerships.

Out of state students will not qualify for Texas educator certification. Therefore, students should review their state's requirements to determine if completion of the Superintendent Certification program at UTA will lead to certification in their state.

Admissions requirements for superintendent certificate program:

- Certified Administrator in state of residence (if applicable)
- Currently serving in an administrative position or 2 years of administrative experience at building or district level
- Master's GPA of 3.75 or 3 recommendation forms submitted

### Superintendent Certificate

EDAD 6179	SUPERINTENDENCY PRACTICUM	1
EDAD 6279	SUPERINTENDENCY PRACTICUM	2
EDAD 6371	PERSONNEL & SCHOOL LAW	3
EDAD 6373	THE SUPERINTENDENCY	3
EDAD 6374	ADVANCED SCHOOL BUSINESS ADMINISTRATION	3
EDAD 6378	ADVANCED CURRICULUM AND PROGRAM ASSESSMENT	3
Total Hours		15

Currently, courses are offered in an online-only format through Academic Partnerships.

### PRINCIPAL CERTIFICATION PREPARATION ONLY (PCO)

For students with a Master's Degree, the Department has a Principal Certification Only (PCO) program that is 21 hours (seven courses). These candidates must also pass the Texas Principal Certification exam, have a valid Texas Teacher Certificate, and have at least two years of accredited classroom teaching experience. Candidates must have their school district send via U.S. mail (not fax) their official Texas Teacher Service Record to the Certification Officer in the UT Arlington College of Education and Health Professions. Courses for the Master's Degree are offered at both the UT Arlington and the Fort Worth Santa Fe campuses. The PCO program is not available online through Academic Partnerships.

### Principal Certification Preparation Only (for students who already have a master's degree)

#### Core Courses

EDAD 5365	Leading Learning Organizations	3
EDAD 5330	LEADERSHIP IN THE INSTRUCTIONAL SETTING	3
EDAD 5381	GOVERNANCE, POLITICAL AND LEGAL ASPECTS OF EDUCATION	3
EDAD 5383	THE PRINCIPALSHIP	3
EDAD 5384	RESOURCE MANAGEMENT IN EDUCATION	3

#### Practicum Courses

EDAD 5389	ADMINISTRATIVE PRACTICUM	3
EDAD 5399	CAPSTONE PRACTICUM IN EDUCATIONAL LEADERSHIP AND POLICY STUDIES	3
Total Hours		21

## Educational Leadership and Policy Studies - Undergraduate Programs

The Department of Educational Leadership and Policy Studies offers one undergraduate minor (18 hours) and certificate (15 hours) in Leadership.

This Leadership Minor/Certificate program prepares students to be relational, ethical and global leaders armed with the knowledge and skills to make a positive contribution in the workplace, the communities in which they live and throughout the world. The courses are designed to help students explore the dimensions of leadership so that they may engage in leadership that is constructive, purposeful, and oriented toward improving the human condition.

**Required Courses**

EDAD 2330	THEORIES IN LEADERSHIP	3
EDAD 4330	CAPSTONE IN LEADERSHIP STUDIES	3

**Elective Course**

Select a course in each area:	9
-------------------------------	---

Ethics	
--------	--

Global Issues	
---------------	--

Field Experience (Travel/trip or Service Learning course)	
---	--

Total Hours	15
-------------	----

**ADMISSION REQUIREMENTS**

The 18-hour minor is open to all degree-seeking students. The 15-hour certificate is available to degree and non-degree-seeking students enrolled at UT Arlington.

The Leadership Minor and Certificate program is a joint initiative between the Department of Educational Leadership and The Leadership Center in the Division of Student Affairs. Program management and oversight will be shared by the Chair and Director of these two areas. Interested students should initiate a request for the preparation of their program by sending an email to the following contacts:

Dr. Adrienne E. Hyle, Department of Educational Leadership and Policy Studies  
College of Education and Health Professions, 105 Trimble Hall  
817.272.0149 - [ahyle@uta.edu](mailto:ahyle@uta.edu)

Kerri Ressler, Director, The Leadership Center  
E.H.Hereford University Center, Lower Level - Suite B160  
817.272.9220 - [kerri@uta.edu](mailto:kerri@uta.edu)

For information on graduate programs in the Department of Educational Leadership and Policy Studies, see the Graduate Catalog.

# Kinesiology

## Undergraduate Degrees

- Bachelor of Arts in Physical Education Teacher Education (PETE) (p. )
- Bachelor of Science in Exercise Science - Clinical Health Professions (CHP) (p. )
- Bachelor of Science in Exercise Science - Fitness/Wellness (F/W) (p. )
- Bachelor of Science in Athletic Training with All Level Teacher Certification (p. )
- Bachelor of Science in Athletic Training (p. )
- Bachelor of Arts in Athletic Training (p. )
- Bachelor of Arts in Kinesiology (non-teaching) (p. )
- Minor in Sports Medicine (p. )

## Graduate Degrees

- Master of Science in Athletic Training (p. 213)
- Master of Science in Exercise Science (p. 213)

## Kinesiology - Graduate Programs

### Master of Science in Athletic Training - Mission, Goals, and Outcome Measures

#### PROGRAM MISSION

The mission of The University of Texas at Arlington Master of Science in Athletic Training (MSAT) program is to provide an active learning environment for students to acquire the critical thinking and clinical decision making skills necessary for a successful career in the ever evolving health care system.

The program of study leading to the Master of Athletic Training (MSAT) is designed to accomplish five major goals:

#### Program Goal #1

To prepare students to pass the Board of Certification, Inc. (BOC) exam.

Outcome measure:

1. Overall BOC passing rates for program graduates.

## **Program Goal #2**

To prepare students to pass the Texas Advisory Board of Athletic Trainers' (TABAT) state licensure exam.

Outcome measure:

1. Overall TABAT passing rates for program graduates.

## **Program Goal #3**

Prepare students to achieve competence and strive for excellence in evidence-based clinical practice.

Outcome measures:

1. Psychomotor skill evaluations
2. Didactic and laboratory final exams
3. Simulated patient assessments
4. Overall clinical performance evaluations

## **Program Goal #4**

To prepare students to recognize the value and importance of promoting the athletic training profession.

Outcome Measures:

1. Percentage of current students who are actively involved in the Maverick Society of Athletic Training Students (MSATS).
2. Percentage of current students who are members of the National Athletic Trainers' Association (NATA) and the Southwest Athletic Trainers' Association (SWATA).
3. Percentage of program alumni who maintain the membership in the NATA, SWATA, and the Texas State Athletic Trainers' Association (TSATA).
4. Percentage of program alumni who are currently involved, or have been involved in the past, in professional service (committees, task forces, volunteer projects, etc.) to the NATA, SWATA, or TSATA.

## **Program Goal #5**

To facilitate students' efforts in locating and securing an athletic training job or placement in a graduate school.

Outcome measure:

1. Annual student placement rates.

For specific information regarding graduate study in the Department of Kinesiology, please contact the Graduate Advisor at 817.272.3288 or by e-mail at [kinegradcoord@uta.edu](mailto:kinegradcoord@uta.edu).

## **Master of Science in Exercise Science - Objective**

The program of study leading to the Master of Science (M.S.) in Exercise Science is designed to accomplish two major objectives:

1. To provide students with the academic and research skills needed for doctoral study in kinesiology, exercise science, physiology of exercise, postural control, athletic training or biomechanics.
2. To prepare students for employment in clinically-oriented environments that place an emphasis on research-based practice such as cardiac rehabilitation, strength and conditioning or sports medicine.

Current departmental faculty members have been academically trained in, and are actively publishing in the areas of physiology of exercise, postural control, athletic training, biomechanics, cardiovascular physiology, physical education (pedagogy), pulmonary physiology, motor-learning, and the general areas of allied health sciences. The ongoing research in these areas provides the primary focus for the M.S. program. Program graduates will be well prepared to work as researchers in laboratories and to enroll in doctoral programs in these content areas.

Students are encouraged to present their research at state and national meetings of the following organizations: American College of Sports Medicine (ACSM), National Athletic Trainers' Association (NATA), National Strength and Conditioning Association (NSCA). The M.S. degree, combined with supervised clinical experience, will assist students in their preparation for national certification exams.

## Admission Requirements for M.S. in Athletic Training

### UNCONDITIONAL ADMISSION

- Bachelor's Degree (preferably in Kinesiology, Exercise Science or related field).
- Admission to The University of Texas at Arlington.
- Submission of GRE scores (the following scores are preferred but not required:  
Verbal - 150 [450], Math 141 [450].
- Undergraduate GPA of 3.0 or 3.0 GPA during the last 60 hours of undergraduate work.
- Completion of Graduate Athletic Training Application.
- Interview with MSAT Admissions Committee.
- Completed Technical Standards Forms.
- Physical Exam and Immunization Records (including Hepatitis B)
- Current Health Care Provider CPR Certification (AHA).3 MSAT reference forms on file.
- Submit documentation of 25 hours of clinical observation in an athletic training setting.
- Meet application deadline of February 1st (or early deadline of December 1st for following summer admission).
- International applicants must meet the Office of Graduate Studies minimum scores for admission for the TOEFL, TSE, TOEFL iBT, and IELTS test: A score of at least 550 on the paper-based TOEFL, a score of at least 213 on the computer-based TOEFL, a minimum score of 40 on the TSE, a minimum score of 6.5 on the IELTS, or a minimum TOEFL iBT total score of 79 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 16 for the listening section are required.

### PROBATIONARY ADMISSION

Applicants failing to meet the unconditional admission criteria may be considered for probationary admission, in which case the following additional criteria will also be considered by the MSAT Admissions Committee:

- Professionally relevant experience.
- A sample of technical writing may be requested.
- Maintain a 3.0 GPA in the first two long (Fall and Spring) semesters of enrollment in the graduate program.

Required Prerequisites (grade of C or better)

- Care and Prevention of Injuries
- Anatomy and Physiology I and II
- Kinesiology/Biomechanics
- Physiology of Exercise
- Sports Nutrition

Preferred Prerequisites (grade of C or better)

- Physics I
- Chemistry I
- Medical Terminology

### RETENTION CRITERIA

MSAT students' academic and clinical progress will be closely monitored each semester by the MSAT Program Director and the MSAT Clinical Education Coordinator. In order to remain in the MSAT program, students must:

1. Maintain a cumulative GPA of 3.0 or higher.
2. Maintain a 3.0 GPA or higher in athletic training core courses.
3. Adhere to the NATA Code of Ethics and to the MSAT Policies and Procedure Manual.

\* Students who fail to meet the retention criteria will be placed on probation in the MSAT program for one semester. If standards are not met by the end of the probationary period, the student will be dismissed from the program. Students who earn a grade of C or lower in any required course must repeat that course and earn a grade of B or higher in order to remain in the program. Failure to repeat the course, or earn a grade of B or better, will result in dismissal from the program.

### TRANSFER POLICY

Students may transfer up to six hours of elective graduate coursework. No transfer credit will be awarded for any of the athletic training core courses.

## WAIVER OF THE GRADUATE RECORD EXAMINATION

Upon recommendation of the Graduate Advisor, outstanding UT Arlington graduates with a degree in Kinesiology or related fields (such as Biology, Chemistry, Mathematics, Nursing, Computer Science, or Engineering) may qualify for a waiver of the requirements for the Graduate Record Examination (GRE). To qualify, the applicant must meet the following minimum requirements:

1. The student must have graduated from a commensurate bachelor's degree program at UT Arlington no more than three academic years prior to admission to the graduate program (as measured from the start of the semester for which admission is sought). A commensurate bachelor's degree program is one that is a normal feeder program for the master's degree program to which the student seeks admission. Undergraduate students in their final year of study are also eligible; in such cases, admission with the GRE waiver is contingent upon successful completion of the bachelor's degree.
2. The student's UT Arlington grade-point average must equal or exceed 3.0 in the following calculations:
  - As calculated for admission by the Office of Graduate Studies;
  - Overall;
  - In the major field; and
  - In all upper-division work.

Applicants qualifying for waiver of GRE who do not qualify for advance admission, must comply with all other requirements for admission, i.e., submitting the application, paying fees, providing official transcripts from other institutions, and meeting any requirements established by the admitting graduate program. The GRE waive must be recommended by the Graduate Advisor at the time of admission.

## Degree Requirements for M.S. in Athletic Training

All students accepted into the Master of Science in Athletic Training Program will complete 52 hours of coursework. Students then have the option of selecting 6-9 hours of electives.

### REQUIRED COURSEWORK

The following courses will be required for completion of the MSAT degree program.

Prefix and Number Required Courses SCH

KINE 5120	ATHLETIC TRAINING CLINICAL I	1
KINE 5130	Clinical Athletic Training II	1
KINE 5140	Clinical Athletic Training III	1
KINE 5150	Clinical Athletic Training IV	1
KINE 5160	Clinical Athletic Training V	1
KINE 5220	PREVENTATIVE AND ACUTE CARE TECHNIQUES IN ATHLETIC TRAINING	2
KINE 5300	RESEARCH METHODS IN KINESIOLOGY	3
KINE 5305	APPLIED STATISTICAL PRINCIPLES IN KINESIOLOGY	3
KINE 5329	STRENGTH & CONDITIONING	3
KINE 5333	Health Care Administration	3
KINE 5334	Seminar in Athletic Training	3
KINE 5420	CONCEPTS IN ATHLETIC TRAINING	4
KINE 5430	ORTHOPEDIC ASSESSMENT I	4
KINE 5431	Orthopedic Assessment II	4
KINE 5432	PATHOPHYSIOLOGY AND PHARMACOLOGY	4
KINE 5433	Therapeutic Interventions I	4
KINE 5434	Therapeutic Interventions II	4
Total Hours		46

The elective courses listed below are intended to provide MSAT students the opportunity to gain advanced knowledge in select areas related to athletic training. The independent research courses (KINE 5196 LABORATORY TECHNIQUES IN EXERCISE SCIENCE and KINE 5396 Research in Athletic Training) are specifically designed to provide students with additional research experiences, particularly those students who may be interested in pursuing a doctoral degree.

### PREFIX AND NUMBER PRESCRIBED ELECTIVE COURSES

Select two of the following:

KINE 5196	LABORATORY TECHNIQUES IN EXERCISE SCIENCE	6
-----------	---	---

KINE 5396	Research in Athletic Training
KINE 5397	INTERNSHIP ATHLETIC TRAINING
KINE 5320	ADVANCED PHYSIOLOGY OF EXERCISE
KINE 5328	NEUROMUSCULAR PHYSIOLOGY OF EXERCISE
KINE 5331	OBESITY & WEIGHT MANAGEMENT
KINE 5345	SPORT NUTRITION
KINE 5350	APPLIED BIOMECHANICS

Total Hours

6

## Admission Requirements for M.S. in Exercise Science

### UNCONDITIONAL ADMISSION

1. Minimum GRE quantitative score of 144 (500 on old scale) and verbal score of 153 (500 on old scale).
2. 3.0 GPA for the degree and/or 3.0 GPA during the last 60 hours of undergraduate work.
3. Undergraduate and/or graduate course work related to kinesiology.
4. 3.0 GPA on all graduate work.
5. 3 letters of reference on file.
6. International applicants must meet the Office of Graduate Studies minimum scores for admission for the TOEFL, TSE, TOEFL iBT, and IELTS test: A score of at least 550 on the paper-based TOEFL, a score of at least 213 on the computer-based TOEFL, a minimum score of 40 on the TSE, a minimum score of 6.5 on the IELTS, or a minimum TOEFL iBT total score of 79 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 16 for the listening section are required.
7. To be eligible for a graduate teaching assistantship, international students must submit a TSE score of at least 45, or a score on the Speaking section of the TOEFL iBT of at least 23 or a score of at least 7 on the Speaking section of the IELTS. Alternatively, students who have not taken the TSE, or who have failed to attain a score of 23 on the Speaking section of the TOEFL iBT or a score of 7 on the Speaking section of the IELTS, may achieve a score of at least 45 on the SEA examination administered by the University of Texas at Arlington's Assessment Services Office.

### PROBATIONARY ADMISSION

Applicants failing to meet the unconditional admission GRE criteria or having a GPA less than 3.0 may be considered for probationary admission, in which case the following additional criteria will also be considered by the Graduate Studies Committee:

1. Professionally relevant experience
2. A sample of technical writing may be requested

Applicants admitted on probation will be required to maintain a B or better average during their first 9 hours of graduate study. A Graduate Advisor within the Department of Kinesiology will review transcripts of prospective students to determine what prerequisites are needed prior to enrollment in courses within the proposed program. If deficiencies are identified, a pre-program of study designed to prepare the student for graduate course prerequisites will be written and signed by the prospective student and the Graduate Advisor.

Applicants seeking admission to an educator preparation program in the College of Education and Health Professions may be denied admission or readmission to those programs if they have been suspended or expelled from the University of Texas at Arlington or any other university or program for reasons other than academic reasons.

### WAIVER OF THE GRADUATE RECORD EXAMINATION

Upon recommendation of the Graduate Advisor, outstanding UT Arlington graduates with a degree in Kinesiology or related fields (such as Biology, Chemistry, Mathematics, Computer Science, or Engineering) may qualify for a waiver of the requirements for the Graduate Record Examination (GRE). To qualify, the applicant must meet the following minimum requirements:

1. The student must have graduated from a commensurate bachelor's degree program at UT Arlington no more than three academic years prior to admission to the graduate program (as measured from the start of the semester for which admission is sought). A commensurate bachelor's degree program is one that is a normal feeder program for the master's degree program to which the student seeks admission. Undergraduate students in their final year of study are also eligible; in such cases, admission with the GRE waiver is contingent upon successful completion of the bachelor's degree.
2. The student's UT Arlington grade-point average must equal or exceed 3.0 in the following calculations:
  - as calculated for admission by the Office of Graduate Studies;
  - overall;
  - in the major field; and
  - in all upper-division work.



Applicants qualifying for waiver of GRE who do not qualify for advanced admission, must comply with all other requirements for admission, i.e., submitting the application for admission, paying fees, providing official transcripts from other institutions, and meeting any requirements established by the admitting graduate program. The GRE waiver must be recommended by the Graduate Advisor at the time of admission.

## GRADUATE ASSISTANTSHIPS

The Department of Kinesiology offers graduate teaching and graduate research assistantships. Assistantships are contingent upon prior acceptance to the Graduate School. Graduate Assistant applicant evaluation begins on February 1 and continues until all positions are filled. Please direct all inquires to the graduate program director Dr. Mark Ricard at ricard@uta.edu.

## Degree Requirements for M.S. in Exercise Science

All students accepted into the Master of Science in Exercise Science program will complete 36 hours of coursework consisting of 15-18 semester hours in exercise science, which includes completing either KINE 5389 RESEARCH MANUSCRIPT SUBMISSION or KINE 5698 THESIS. Students then have the option of selecting 18-21 hours of electives. Detailed information concerning the plan of work is available on the Department of Kinesiology website: [www.uta.edu/coehp/kinesiology](http://www.uta.edu/coehp/kinesiology).

### Required Coursework

KINE 5300	RESEARCH METHODS IN KINESIOLOGY	3
KINE 5305	APPLIED STATISTICAL PRINCIPLES IN KINESIOLOGY	3
KINE 5320	ADVANCED PHYSIOLOGY OF EXERCISE	3
KINE 5323	MOTOR CONTROL AND LEARNING	3
KINE 5389 or KINE 5698	RESEARCH MANUSCRIPT SUBMISSION THESIS	3-6

### Elective Coursework

Select six to seven of the following (based on thesis or non-thesis track):		18-21
KINE 5322	METABOLISM & EXERCISE BIOCHEMISTRY	
KINE 5326	CARDIOCIRCULATORY PHYSIOLOGY OF EXERCISE	
KINE 5327	PULMONARY PHYSIOLOGY OF EXERCISE	
KINE 5328	NEUROMUSCULAR PHYSIOLOGY OF EXERCISE	
KINE 5329	STRENGTH & CONDITIONING	
KINE 5331	OBESITY & WEIGHT MANAGEMENT	
KINE 5345	SPORT NUTRITION	
KINE 5350	APPLIED BIOMECHANICS	
KINE 5390	SPECIAL TOPICS IN KINESIOLOGY	
KINE 5393	PHYSIOLOGY OF EXERCISE INTERNSHIP	
KINE 5394	RESEARCH IN KINESIOLOGY	

Total Hours		33-39
-------------	--	-------

Coursework that is more than six years old at the time of graduation or teacher/administrator certification program completion cannot be used toward meeting the requirements for a master's degree or graduate-level certification. Master's degree and graduate-level certification programs must be completed within six years (time in military service excluded) from initial registration in the Graduate School. Appropriate state exams and application to the State Board for Educator Certification for a standard certificate must be made within six months of completion of residency/practicum/program. If a candidate allows the six-month period to go by without passing all state exams and applying for certification, additional coursework and/or exams will be required.

## Kinesiology - Undergraduate Programs

### Overview

The Department of Kinesiology is committed to providing quality educational programs that emphasize scientific theory, hands-on learning in the laboratory setting and real-world application through clinical internships and other field-based experiences. The faculty's vast teaching experience and research expertise provide rich learning experiences across all of the department's academic programs.

The undergraduate studies within the Department of Kinesiology are organized into three program areas: athletic training, exercise science and physical education teacher education. Each of these academic programs share a common core of kinesiology courses that provide students with a strong foundation in the sciences of human anatomy, biomechanics and exercise physiology, as well as an introduction to research methods. In addition to the kinesiology core, each undergraduate degree plan provides a comprehensive discipline-specific program of study designed to prepare students for a specific career path.

The Department of Kinesiology also offers a minor in sports medicine, as well as two degree plan options that meet the prerequisite requirements for admission to physical therapy, occupational therapy and physician's assistant graduate programs, as well as medical and dental schools (See BS in Exercise Science - Clinical Health Professions and BS in Athletic Training).

The four undergraduate program areas and their associated degree plans are listed below. Complete descriptions and course requirements are provided on subsequent pages.

## **PHYSICAL EDUCATION TEACHER EDUCATION (PETE)**

Bachelor of Arts in Physical Education Teacher Education (PETE) for individuals who wish to teach in the PK-12 setting.

## **EXERCISE SCIENCE**

Bachelor of Science in Exercise Science - Clinical Health Professions (CHP) for individuals who plan to pursue a graduate degree in a health professions field (e.g., PT, OT, PA).

Bachelor of Science in Exercise Science - Fitness/Wellness (F/W) for individuals who wish to pursue a career in personal fitness training, strength and conditioning, cardiac rehabilitation.

## **ATHLETIC TRAINING**

Bachelor of Science in Athletic Training with All Level Teacher Certification.

Bachelor of Science in Athletic Training for those who wish to pursue a career in the health profession of athletic training, specializing in the prevention, evaluation, management and rehabilitation of musculoskeletal injuries and common illnesses.

Bachelor of Arts in Athletic Training for those who wish to pursue a career in the health profession of athletic training, specializing in the prevention, evaluation, management and rehabilitation of musculoskeletal injuries and common illnesses.

## **KINESIOLOGY**

Bachelor of Arts in Kinesiology (non-teaching) prepares individuals for physical activity program leadership in both the public and private settings.

## **Oral Communication Competencies**

All students declared as majors in the Department of Kinesiology are required to complete KINE 3325 UNDERGRADUATE RESEARCH METHODS. Embedded in this class is the task of orally presenting research findings as both a formal oral research presentation and also in support of posters presented during the Kinesiology Research Presentation Day.

## **Computer Use Competencies**

All students declared as majors in the Department of Kinesiology are required to pass the University computer competency exam or complete KINE 1400 INTRODUCTION TO EXERCISE SCIENCE early in their specialization. Embedded in this class are tasks requiring familiarity with the word processor, spreadsheet and Internet browsing programs common on personal computers. Additionally, the department's core curriculum requires the demonstration of computer use competencies for completion of the majority of assignments.

## **Physical Education Teacher Education (PETE)**

The Bachelor of Arts in Physical Education with All-Level Teacher Certification prepares individuals for teaching and coaching positions in public and private schools. This degree is specifically designed to prepare graduates for certification in teaching K-12 physical education. The program is designed to provide a scientific and pedagogical foundation with multiple public school experiences that enable students to observe, assist teachers and coaches, experiment with curriculum, create programs, and gain structured experiences in teaching. Because of the emphasis on field experiences, our graduates are well prepared when they enter the workforce. In addition, our graduates work in diverse settings and are able to plan and teach individuals with disabilities successfully. Candidates are also encouraged to earn a second teaching area concentration (such as English, History, Biology/Life Science, Math, Modern Language, Health Education, etc.).

Admission Requirements:

To ensure that all students develop a solid academic foundation, all first time, first-year freshman students (regardless of intended major) must obtain academic advising and clearance for registration from a University College academic advisor during their first year. After the first year, students should seek advisement from the PETE Advisor in the Department of Kinesiology. Transfer students must seek academic advising from the PETE Advisor in the Department of Kinesiology immediately. .

In order to qualify for admission to the Physical Education Teacher Education (PETE) program, students must:

- Satisfy the University's credit hour requirements for admission to a degree plan
- Provide transcripts from each college or university the student has attended (reflecting all current/completed semesters)
- Petition for admission into the College of Education and Health Professions prior to taking education coursework

- Meet College of Education and Health Professions requirements on the TASP: Reading-270; Writing-220; and Math-230
- Have a cumulative GPA of at least 3.0 for classes taken at UT Arlington. This GPA must also be sustained across the following education sequence:

KINE 2301	TEACHING GAMES FOR UNDERSTANDING	3
KINE 2302	DANCE AND MOVEMENT ACTIVITIES	3
KINE 3304	ADAPTED PHYSICAL EXERCISE & SPORT	3
KINE 3388	THEORY AND APPLICATION IN MOTOR DEVELOPMENT	3
KINE 4319	FITNESS AND OUTDOOR ADVENTURE ACTIVITIES EDUCATION	3
KINE 4193	PHYSICAL EDUCATION TEACHER CERTIFICATION PRACTICUM	1
KINE 4320	TEACHING SECONDARY PHYSICAL EDUCATION	3
KINE 4321	TEACHING ELEM PHYSICAL EDUCATION	3
EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
LIST 4343	CONTENT AREA READING AND WRITING	3
EDUC 4352	TEACHING DIVERSE POPULATIONS	3
Total Hours		31

- Students who have been suspended or expelled from The University of Texas at Arlington or any other university or program for reasons other than academic reasons may be denied admission or readmission to an educator preparation program in the College of Education and Health Professions.

Maintaining Major Status in the Physical Education Teacher Education (PETE) program: If a student falls below a 3.0 GPA at any time prior to petitioning for admission into the College of Education and Health Professions, the student will be on departmental probation for one semester. If the student is unable to make up the deficiency in the semester immediately following the probation, the student will lose status as a Bachelor of Arts in Kinesiology with All-Level Certification major and be moved to the Bachelor of Arts in Kinesiology (non-teaching) major. Courses to make up a GPA deficiency must be taken at UT Arlington. If the student is able to make up the GPA deficiency in the semester immediately following loss of major status, she or he will be eligible to apply for reinstatement as a major by making application to the Departmental Advisor when grades are released. No courses on the degree plan may be taken as pass/fail.

Each candidate in the College of Education and Health Professions of UT Arlington will be evaluated on Professional Dispositions by faculty and staff. These dispositions have been identified as essential for a highly-qualified professional. Instructors and program directors will work with candidates rated as "unacceptable" in one or more stated criteria. The candidate will have an opportunity to develop a plan to remediate any digressions.

Application for Student Teaching: Students must apply to the Director of Field Experience in the College of Education and Health Professions by the appropriate deadline to begin . Students must also submit any applicable background checks at registration. The student teaching will be performed in both elementary and high school or middle school levels.

## Bachelor of Arts in Physical Education with All Level Teacher Certification (PETE)

### Pre-Professional Courses

General Core Requirements (p. 93) 39

#### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
MATH 1302	COLLEGE ALGEBRA	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	

#### Program Requirements

BIOL 2458 HUMAN ANATOMY AND PHYSIOLOGY II 4

### Professional Courses

#### Education Sequence

KINE 4320	TEACHING SECONDARY PHYSICAL EDUCATION	3
KINE 4321	TEACHING ELEM PHYSICAL EDUCATION	3
EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
LIST 4343	CONTENT AREA READING AND WRITING	3

EDUC 4352	TEACHING DIVERSE POPULATIONS	3
KINE 4647	ALL-LEVEL TEACHER PREPARATION STUDENT TEACHING FOR PHYSICAL EDUCATION	6
Kinesiology Academic Core		
KINE 1315	INTRODUCTION TO TEACHING PHYSICAL EDUCATION	3
KINE 1400	INTRODUCTION TO EXERCISE SCIENCE	4
KINE 2301	TEACHING GAMES FOR UNDERSTANDING	3
KINE 2302	DANCE AND MOVEMENT ACTIVITIES	3
KINE 3300	FUNCTIONAL ANATOMY	3
KINE 3301	BIOMECHANICS OF HUMAN MOVEMENT	3
KINE 3302	SPORT AND EXERCISE PSYCHOLOGY	3
or KINE 3307	SPORT AND SOCIETY: ISSUES AND DEBATES	
KINE 3304	ADAPTED PHYSICAL EXERCISE & SPORT	3
KINE 3315	PHYSIOLOGY OF EXERCISE	3
KINE 3325	UNDERGRADUATE RESEARCH METHODS	3
KINE 3388	THEORY AND APPLICATION IN MOTOR DEVELOPMENT	3
KINE 4193	PHYSICAL EDUCATION TEACHER CERTIFICATION PRACTICUM	1
KINE 4319	FITNESS AND OUTDOOR ADVENTURE ACTIVITIES EDUCATION	3
Second Concentration Area Electives		
15 hours from second teaching field area		15
Total Hours		117

## Exercise Science

The Exercise Science program is designed to prepare students for health-related fields such as physical therapy, occupational therapy, cardiac rehabilitation and physician's assistant as well as in preparation for medical or dental school. The Exercise Science program is also designed for students interested in careers in the commercial and corporate fitness industry as personal fitness trainers or health club and fitness directors, as well as for students interested in pursuing a graduate degree in exercise science.

Exercise Science majors can choose from one of two degree plan options: the Clinical Health Professions (CHP) and the Fitness/Wellness (F/W) Track. The Clinical Health Professions Track incorporates the science prerequisites required of most physical therapy, occupational therapy, and physician's assistant graduate programs. The Health and Fitness Track is designed according to the guidelines established by the American College of Sports Medicine. Its purpose is to prepare students for the American College of Sports Medicine (ACSM) Health Fitness Specialist (HFS) certification program, as well as the certification offered by the National Strength and Conditioning Association (NSCA), the Certified Strength and Conditioning Specialist (CSCS).

### Admission Requirements:

To ensure that all students develop a solid academic foundation, all first time, first-year freshman students (regardless of intended major) must obtain academic advising and clearance for registration from a **University College academic advisor** during their first year. After the first year, students should seek advisement from the Exercise Science Advisor in the Department of Kinesiology prior to each semester and summer sessions. Transfer students must seek academic advising from the Exercise Science Advisor in the Department of Kinesiology immediately. All incoming freshmen and transfer students wishing to major in Exercise Science are initially classified as Exercise Science pre-majors (EXSS\_Int).

Students who have been suspended or expelled from The University of Texas at Arlington or any other university or program for reasons other than academic reasons may be denied admission or readmission to an educator preparation program in the College of Education and Health Professions.

To be classified as an Exercise Science major, students must satisfy the following requirements:

#### Clinical Health Professions Track

- Completion of 12 hours at UT Arlington
- Completion of KINE 1400 INTRODUCTION TO EXERCISE SCIENCE with grade of B or better
- Overall GPA of 3.00 and KINE GPA of 3.00

#### Fitness/Wellness Track

- Completion of 12 hours at UT Arlington
- Completion of KINE 1400 INTRODUCTION TO EXERCISE SCIENCE with grade of C or better
- Overall GPA of 2.5 and KINE GPA of 2.5

**Maintaining Major Status:** Students accepted as Bachelor of Science in Exercise Science majors in the Department of Kinesiology must maintain the minimum GPAs as indicated above or they will be on departmental probation. In order to take additional Kinesiology courses, approval must be granted by the Department Chair. If the student is unable to make up the deficiency in the semester immediately following the probation, the student will lose status as a Bachelor of Science in Exercise Science major. Courses to make up the GPA deficiency must be taken at UT Arlington. If the student is able to make up the GPA deficiency in the semester immediately following loss of major status, he or she can be reinstated as a major by making application to the Departmental Advisor when grades are released. No courses on the degree plan may be taken as pass/fail.

Each student in the College of Education and Health Professions of UT Arlington will be evaluated on Professional Dispositions by faculty and staff. These dispositions have been identified as essential for a highly-qualified professional. Instructors and program directors will work with candidates rated as "unacceptable" in one or more stated criteria. The candidate will have an opportunity to develop a plan to remediate any digressions.

## Bachelor of Science Degree in Exercise Science

### CLINICAL HEALTH PROFESSIONS TRACK

This track is designed for individuals who plan to attend graduate school to pursue degrees in the health professions of physical therapy, occupational therapy, physician's assistant or exercise physiology.

#### Pre-Professional Courses

General Core Requirements (p. 93)	39
Recommended Core Requirements	

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	
CHEM 1441	GENERAL CHEMISTRY I	
PHYS 1441	GENERAL COLLEGE PHYSICS I	
Select one of the following:		
MATH 1302	COLLEGE ALGEBRA	
MATH 1303	TRIGONOMETRY	
MATH 1426	CALCULUS I	

#### Program Requirements

BIOL 2458	HUMAN ANATOMY AND PHYSIOLOGY II	4
CHEM 1442	GENERAL CHEMISTRY II	4

Science Electives (including 3 advanced hours) sufficient to complete degree requirements <sup>1</sup> 12

General Electives (sufficient to bring total to 120 hours)

#### Professional Courses

##### Clinical Health Professions Major Core

KINE 1400	INTRODUCTION TO EXERCISE SCIENCE	4
KINE 3300	FUNCTIONAL ANATOMY	3
KINE 3301	BIOMECHANICS OF HUMAN MOVEMENT	3
KINE 3315	PHYSIOLOGY OF EXERCISE	3
KINE 3325	UNDERGRADUATE RESEARCH METHODS	3
KINE 4400	APPLIED EXERCISE PHYSIOLOGY	4
KINE 4315	FITNESS ASSESSMENT/PROGRAMMING	3
KINE 4317	EXERCISE PRESCRIPTION FOR SPECIAL POPULATIONS	3
KINE 4329	STRENGTH & CONDITIONING	3
KINE 4388	EXERCISE SCIENCE INTERNSHIP	3
HEED 3301	SPORTS NUTRITION	3
KINE Elective		3
Recommended Electives		3
KINE 4323	MOTOR CONTROL AND LEARNING	3

KINE 4331	OBESITY & WEIGHT MANAGEMENT	3
Total Hours		106

- <sup>1</sup> Students planning to pursue graduate programs in physical therapy, occupational therapy or physician's assistant should meet with their advisor to determine specific elective requirements. (Example for PT: BIOL 3309 NON-MAJORS SELECTED TOPICS, BIOL 1442 STRUCTURE AND FUNCTION OF ORGANISMS, PHYS 1442 GENERAL COLLEGE PHYSICS II, PSYC 3310 DEVELOPMENTAL PSYCHOLOGY).

Many of the courses in the Kinesiology curriculum require prerequisite courses which are identified in the course description.

## FITNESS/WELLNESS TRACK

This track is designed for individuals who plan to work in corporate or commercial fitness, recreation or in wellness/health promotion.

### Pre-Professional Courses

General Core Requirements (p. 93) 39

#### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
MATH 1302	COLLEGE ALGEBRA	
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	
CHEM 1441	GENERAL CHEMISTRY I	

Science electives (may include Exercise Science classes in the Department of Kinesiology)

#### Program Requirements

BIOL 2458 HUMAN ANATOMY AND PHYSIOLOGY II 4

General Electives (sufficient to bring total to 120 hours)

### Professional Courses

#### Fitness/Wellness Major Core

KINE 1400	INTRODUCTION TO EXERCISE SCIENCE	4
KINE 2330	CARE AND PREVENTION OF ATHLETIC INJURIES	3
KINE 3300	FUNCTIONAL ANATOMY	3
KINE 3301	BIOMECHANICS OF HUMAN MOVEMENT	3
KINE 3302	SPORT AND EXERCISE PSYCHOLOGY	3
KINE 3315	PHYSIOLOGY OF EXERCISE	3
KINE 3325	UNDERGRADUATE RESEARCH METHODS	3
KINE 4315	FITNESS ASSESSMENT/PROGRAMMING	3
KINE 4317	EXERCISE PRESCRIPTION FOR SPECIAL POPULATIONS	3
KINE 4329	STRENGTH & CONDITIONING	3
KINE 4389	FITNESS MANAGEMENT INTERNSHIP	3
HEED 3301	SPORTS NUTRITION	3

#### Major Electives

#### Recommended Electives

KINE 4330	PROGRAM DESIGN & ADMINISTRATION	3
KINE 4331	OBESITY & WEIGHT MANAGEMENT	3
HEED, KINE or Science (including 3 advanced hours)		12

Total Hours 98

Many of the courses in the Kinesiology curriculum require prerequisite courses, which are identified in the course descriptions.

## Athletic Training

Important Notice:

UT Arlington has transitioned from the Bachelor of Science in Athletic Training to a post baccalaureate professional degree (Master of Science in Athletic Training). This transition occurred in summer 2013. The undergraduate degree is being phased out and the final undergraduate applications have been accepted. The program is no longer accepting undergraduate applications. However, post baccalaureate students interested in applying to the Master of Science in Athletic Training should contact Dr. Krawietz for more information (pkrawietz@uta.edu). For accreditation purposes, the information below has been retained until the final undergraduate cohort graduates in May 2016.

The Athletic Training Education Program (ATEP) is designed to prepare students for careers in the health care profession of athletic training. The classroom, laboratory and clinical components of the program are structured around the Athletic Training Educational Competencies published by the National Athletic Trainers' Association (NATA) Education Council and the Role Delineation Study conducted and published by the Board of Certification (BOC). The clinical education component of the program includes six clinical courses. These courses provide formal instruction of clinical skills within a structured laboratory environment and require students to complete clinical education rotations under the supervision of a Certified and Licensed Athletic Trainer or other health care professional. Students are evaluated on their mastery of knowledge and clinical skills through written tests, class projects, and oral practical examinations. Students are also evaluated on their ability to integrate the clinical proficiencies into their daily clinical practice and make sound clinical decisions.

The mission of the Athletic Training Education Program (ATEP) is to provide an active learning environment for students to acquire and master the knowledge, skills, clinical proficiencies, and attitudes necessary for success as an Entry-Level Athletic Trainer. The ATEP goals and objectives include:

- to prepare students to pass the BOC (Board of Certification) Exam,
- to prepare students to pass the Texas Advisory Board of Athletic Trainers' State Licensure Exam,
- to develop students' critical-thinking and decision-making skills for success in the allied health profession of athletic training,
- to instill the value of professionalism,
- to teach students the value of becoming involved in their professional associations through service work, and
- to facilitate students' efforts in locating and securing an athletic training job or placement in a graduate school.

## PROGRAM DESCRIPTION

The University's ATEP is accredited through the Commission on Accreditation of Athletic Training Education (CAATE). Students within the ATEP are able to choose from among three possible degree plans:

- BS in Athletic Training with All-Level Teaching Certificate
- BS in Athletic Training (non-teaching)
- BA in Athletic Training (non-teaching)

Students are admitted into the ATEP as Level 1, but must meet retention requirements to matriculate into the Professional Levels 2 through 4 (see admission and retention information below). In addition to formal classroom instruction, athletic training majors also receive structured clinical education to acquire and master the hands-on skills required of the Entry-Level Athletic Trainer. Both the classroom and clinical components of the program are structured around the Competencies in Athletic Training Educational Competencies published by the National Athletic Trainers' Association (NATA) Education Council and the Role Delineation Study conducted and published by the BOC. The clinical education component of the major includes six clinical courses. These courses provide formal instruction of clinical skills within a structured laboratory environment and require students to complete clinical education rotations under the supervision of a Certified and Licensed Athletic Trainer or other health care professional. Students are evaluated on their mastery of knowledge and clinical skills through written tests, class projects, and oral practical examinations. Students are also evaluated on their ability to integrate the clinical proficiencies into their daily clinical practice.

Prior to placement in a clinical education rotation, all athletic training students (Levels I-IV) must meet the following requirements:

- Provide documentation of immunization against hepatitis B<sup>1</sup>, measles, mumps, tetanus, polio, and diphtheria.
  - Complete OSHA blood borne pathogen training.
  - Provide documentation of current certification in First Aid and Cardiopulmonary Resuscitation (CPR with AED).
  - Provide proof of current liability insurance.

<sup>1</sup> The hepatitis vaccination is a series of three shots, with the first given initially, the second at one month, and the third at six months. Students must receive the first shot prior to clinical placement.

NOTE: Some clinical rotation assignments may also require students to obtain a personal background check and a tuberculosis (TB) test.

## LEVEL I PHASE OF STUDY

The Level I phase of the program is typically completed during the student's freshman spring semester at UT Arlington and includes formal classroom and laboratory instruction, as well as directed clinical experiences in a variety of athletic training settings. The Level I requirements<sup>1</sup> include:

- KINE 2420 INTRODUCTION TO ATHLETIC TRAINING (4 credit hours) [Grade of B or better].
- KINE 2130 ATHLETIC TRAINING CLINICAL PRACTICUM I (1 credit hour) [Grade of B or better].

- Completion/documentation of a minimum of 120 hours of directed clinical experience in the UT Arlington athletic training room(s) and/or other approved clinical education sites.
- Successful completion/documentation of required competencies with a score of 80% or better.

<sup>1</sup> Transfer students may complete the Level I course requirements at their current junior or senior college or complete them upon arrival to UT Arlington. Transfer students are encouraged to contact Dr. Paul Krawietz as soon as possible to determine the transferability of athletic training courses.

## LEVEL II-IV PHASES OF STUDY

Levels II-IV of the program require a minimum of three years of classroom study and clinical education. Each semester, students are assigned to an approved clinical instructor (ACI) or clinical supervisor who is responsible for providing comprehensive health care services to athletes, patients, or physically active individuals within a variety of clinical sites. Students are expected to work closely with their ACI/CI to practice and integrate their athletic training skills while also developing their clinical decision-making skills. All students are required to complete at least three off-campus clinical rotations; therefore, students will need suitable transportation. Students are required to complete a minimum of 1500 hours of clinical experience under the supervision of an ACI, CI or other licensed or certified health care professional over the course of the program. Completion of the program requirements will enable students to be eligible for the BOC Exam and the Texas Advisory Board of Athletic Trainers' Licensing Exam.

## ADMISSION CRITERIA

To ensure that all students develop a solid academic foundation, all first time, first-year freshman students (regardless of intended major) must obtain academic advising and clearance for registration from a University College academic advisor during their first year. After the first year, students should seek advisement from the Athletic Training Advisor in the Department of Kinesiology. Transfer students must seek academic advising from the Athletic Training Advisor in the Department of Kinesiology immediately.

Admission to the UT Arlington ATEP is selective and competitive. A limited number of students are admitted each year based upon the number of returning students and the number of clinical instructors. Prospective students must complete the Level I phase of study to be considered for continuance in the ATEP. The technical standards set forth by the ATEP establish the essential qualities considered necessary for students admitted to this program to achieve the knowledge, skills, and competencies of an Entry-Level Athletic Trainer, while also meeting the expectations of CAATE. The technical standards are printed in the ATEP handbook and are available on the ATEP Web site (<https://www.uta.edu/coehp/kinesiology/undergrad/athletic-training/program-description.php>).

Students who have been suspended or expelled from The University of Texas at Arlington or any other university or program for reasons other than academic reasons may be denied admission or readmission to an educator preparation program in the College of Education and Health Professions.

Admission to the Level I phase of the program is based on the following criteria<sup>1</sup>:

- Admission to UT Arlington.
- Submission of ATEP application.
- Ability to pass a physical exam.
- Ability to meet the technical standards for admission.

Continuance beyond the Level I phase of the program is based on the following criteria:

- Successful completion of the Level I requirements.<sup>1</sup>
- Overall GPA of 2.5 or higher.
- Submission of ATEP application with transcripts (for transfer students who did not complete the Level I requirements at UT Arlington).
- Submission of three recommendation forms completed by the students' clinical supervisors (ACI/CI).
- Completion of a personal interview with the ATEP Continuance Committee, which will consist of the Program Director, Clinical Education Coordinator, at least one staff athletic trainer and three upper-level athletic training students.

<sup>1</sup> Completion of the Level I requirements does not guarantee continuance to Levels II-IV of the ATEP.

## RETENTION CRITERIA

Students must maintain an overall GPA of 2.5. Additionally, students must earn a C or better in all athletic training courses (athletic training courses with an earned grade of D or lower must be repeated) and maintain an athletic training GPA of 3.0. If a student fails to maintain either of the GPA requirements, they will be placed on probation. A student will be afforded two semesters, at most, to raise their GPA to the required 2.5 overall and 3.0 within the major. During the first probationary semester, the student will be allowed to continue accruing clinical experience hours; however, he/she will be required to attend mandatory study sessions. Should a second probationary semester be necessary, the student will be removed from the clinical aspect of the program, preventing him/her from accruing any clinical experience hours. Should the student fail to raise their GPA during the second probationary semester, he/she will be removed from the ATEP.



Each student in the College of Education and Health Professions of UT Arlington will be evaluated on Professional Dispositions by faculty and staff. These dispositions have been identified as essential for a highly-qualified professional. Instructors and program directors will work with candidates rated as “unacceptable” in one or more stated criteria. The candidate will have an opportunity to develop a plan to remediate any digressions.

## GRADUATION REQUIREMENTS

To receive a degree in athletic training, students must:

- Complete all classroom and clinical education requirements
- Complete all athletic training courses with a C or better
- Complete a minimum of 1500 hours of clinical education/field experience
- Earn a minimum cumulative GPA of 2.5
- Earn a minimum GPA of 3.0 within the athletic training core courses
- Successfully take and pass the UT Arlington ATEP Capstone examination with a score of 70% or higher

## Requirements for a Bachelor of Science Degree in Athletic Training (All-Level Teacher Certification)

### Pre-Professional Courses

General Core Requirements (p. 93) 39

#### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
MATH 1302	COLLEGE ALGEBRA	
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	

#### Program Requirements

COMS 2304	GROUP COMMUNICATION PRINCIPLES	3
or COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	
BIOL 2458	HUMAN ANATOMY AND PHYSIOLOGY II	4

### Professional Courses

#### Athletic Training Academic Core

KINE 1400	INTRODUCTION TO EXERCISE SCIENCE	4
KINE 2420	INTRODUCTION TO ATHLETIC TRAINING	4
KINE 3300	FUNCTIONAL ANATOMY	3
KINE 3301	BIOMECHANICS OF HUMAN MOVEMENT	3
KINE 3315	PHYSIOLOGY OF EXERCISE	3
KINE 3320	LOWER EXTREMITY EVALUATION	3
KINE 3324	UPPER EXTREMITY EVALUATION	3
KINE 3330	PATHOLOGY AND PHARMACOLOGY	3
KINE 3333	THERAPEUTIC INTERVENTION II	3
KINE 4293	SEMINAR IN ATHLETIC TRAINING	2
KINE 4233	ATHLETIC TRAINING ORGANIZATION & ADMINISTRATION	2
KINE 4336	THERAPEUTIC INTERVENTION I	3

#### Athletic Training Practicum

KINE 2130	ATHLETIC TRAINING CLINICAL PRACTICUM I	1
KINE 3130	ATHLETIC TRAINING CLINICAL PRACTICUM II	1
KINE 3131	ATHLETIC TRAINING CLINICAL PRACTICUM III	1
KINE 4130	ATHLETIC TRAINING CLINICAL PRACTICUM IV	1

KINE 4131	ATHLETIC TRAINING CLINICAL PRACTICUM V	1
KINE 4132	ATHLETIC TRAINING CLINICAL PRACTICUM VI	1
Additional Required Courses		
KINE 3325	UNDERGRADUATE RESEARCH METHODS	3
KINE 4329	STRENGTH & CONDITIONING	3
HEED 3301	SPORTS NUTRITION	3
Education Sequence <sup>1</sup>		
KINE 2301	TEACHING GAMES FOR UNDERSTANDING	3
KINE 3304	ADAPTED PHYSICAL EXERCISE & SPORT	3
KINE 3388	THEORY AND APPLICATION IN MOTOR DEVELOPMENT	3
KINE 4320	TEACHING SECONDARY PHYSICAL EDUCATION	3
KINE 4321	TEACHING ELEM PHYSICAL EDUCATION	3
KINE 4647	ALL-LEVEL TEACHER PREPARATION STUDENT TEACHING FOR PHYSICAL EDUCATION	6
EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
EDUC 4352	TEACHING DIVERSE POPULATIONS	3
LIST 4343	CONTENT AREA READING AND WRITING	3
Total Hours		127

<sup>1</sup> Students interested in Texas Teacher Certification should consult the College of Education and Health Professions section of this catalog for the most recent changes in requirements regarding admission to teacher education, completion of University programs in preparation for certification, and eligibility for certification after graduation.

## Requirements for a Bachelor of Science Degree in Athletic Training (Non-Teaching)

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
MATH 1302	COLLEGE ALGEBRA	
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	
PHYS 1441	GENERAL COLLEGE PHYSICS I	
CHEM 1441	GENERAL CHEMISTRY I	

### Program Requirements

COMS 2304	GROUP COMMUNICATION PRINCIPLES	3
or COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	
BIOL 2458	HUMAN ANATOMY AND PHYSIOLOGY II	4

Electives sufficient to complete degree requirements <sup>1</sup>

### Professional Courses

#### Athletic Training Academic Core

KINE 1400	INTRODUCTION TO EXERCISE SCIENCE	4
KINE 2420	INTRODUCTION TO ATHLETIC TRAINING	4
KINE 3300	FUNCTIONAL ANATOMY	3
KINE 3301	BIOMECHANICS OF HUMAN MOVEMENT	3
KINE 3315	PHYSIOLOGY OF EXERCISE	3
KINE 3320	LOWER EXTREMITY EVALUATION	3

KINE 3324	UPPER EXTREMITY EVALUATION	3
KINE 3330	PATHOLOGY AND PHARMACOLOGY	3
KINE 3333	THERAPEUTIC INTERVENTION II	3
KINE 4293	SEMINAR IN ATHLETIC TRAINING	2
KINE 4233	ATHLETIC TRAINING ORGANIZATION & ADMINISTRATION	2
KINE 4336	THERAPEUTIC INTERVENTION I	3
Athletic Training Practicum		
KINE 2130	ATHLETIC TRAINING CLINICAL PRACTICUM I	1
KINE 3130	ATHLETIC TRAINING CLINICAL PRACTICUM II	1
KINE 3131	ATHLETIC TRAINING CLINICAL PRACTICUM III	1
KINE 4130	ATHLETIC TRAINING CLINICAL PRACTICUM IV	1
KINE 4131	ATHLETIC TRAINING CLINICAL PRACTICUM V	1
KINE 4132	ATHLETIC TRAINING CLINICAL PRACTICUM VI	1
Additional Required Courses		
KINE 3325	UNDERGRADUATE RESEARCH METHODS	3
KINE 4329	STRENGTH & CONDITIONING	3
HEED 1301	NUTRITION	3
Total Hours		97

<sup>1</sup> Students planning to pursue graduate programs in physical therapy, occupational therapy or physician's assistant should meet with their advisor to determine elective requirements.

## Requirements for a Bachelor of Arts Degree in Athletic Training (Non-Teaching)

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
MATH 1302	COLLEGE ALGEBRA	
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	

### Program Requirements

COMS 2304	GROUP COMMUNICATION PRINCIPLES	3
or COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	
BIOL 2458	HUMAN ANATOMY AND PHYSIOLOGY II	4
Modern and Classical Languages: 1441, 1442, 2313, 2314 (with a total of 14 hours)		
Electives sufficient to complete degree requirements		7

### Professional Courses

#### Athletic Training Academic Core

KINE 1400	INTRODUCTION TO EXERCISE SCIENCE	4
KINE 2420	INTRODUCTION TO ATHLETIC TRAINING	4
KINE 3300	FUNCTIONAL ANATOMY	3
KINE 3301	BIOMECHANICS OF HUMAN MOVEMENT	3
KINE 3315	PHYSIOLOGY OF EXERCISE	3
KINE 3320	LOWER EXTREMITY EVALUATION	3
KINE 3324	UPPER EXTREMITY EVALUATION	3

KINE 3330	PATHOLOGY AND PHARMACOLOGY	3
KINE 3333	THERAPEUTIC INTERVENTION II	3
KINE 4293	SEMINAR IN ATHLETIC TRAINING	2
KINE 4233	ATHLETIC TRAINING ORGANIZATION & ADMINISTRATION	2
KINE 4336	THERAPEUTIC INTERVENTION I	3
Athletic Training Practicum		
KINE 2130	ATHLETIC TRAINING CLINICAL PRACTICUM I	1
KINE 3130	ATHLETIC TRAINING CLINICAL PRACTICUM II	1
KINE 3131	ATHLETIC TRAINING CLINICAL PRACTICUM III	1
KINE 4130	ATHLETIC TRAINING CLINICAL PRACTICUM IV	1
KINE 4131	ATHLETIC TRAINING CLINICAL PRACTICUM V	1
KINE 4132	ATHLETIC TRAINING CLINICAL PRACTICUM VI	1
Additional Required Courses		
KINE 3325	UNDERGRADUATE RESEARCH METHODS	3
KINE 4329	STRENGTH & CONDITIONING	3
HEED 3301	SPORTS NUTRITION	3
Total Hours		104

## Kinesiology - Bachelor of Arts in Kinesiology

The Bachelor of Arts in Kinesiology prepares individuals for physical activity program leadership in both the public and private settings. The program is designed to provide a scientific and pedagogical foundation with multiple experiences that enable students to observe, assist, coach and create programs that encourage physical activity across the age spectrum.

### ADMISSION REQUIREMENTS

To ensure that all students develop a solid academic foundation, all first time, first-year freshman students (regardless of intended major) must obtain academic advising and clearance for registration from a University College academic advisor during their first year. After the first year, students should seek advisement from the BA Kinesiology Advisor in the Department of Kinesiology. Transfer students must seek academic advising from the BA Kinesiology Advisor in the Department of Kinesiology immediately.

### MAINTAINING MAJOR STATUS

Students must maintain an overall GPA of 2.5 and KINE GPA of 2.5. Each student in the College of Education and Health Professions of UT Arlington will be evaluated on Professional Dispositions by faculty and staff. These dispositions have been identified as essential for a highly-qualified professional. Instructors and program directors will work with candidates rated as "unacceptable" in one or more stated criteria. The candidate will have an opportunity to develop a plan to remediate any digressions. Students who have been suspended or expelled from The University of Texas at Arlington or any other university or program for reasons other than academic reasons may be denied admission or readmission to an educator preparation program in the College of Education and Health Professions.

## BA Kinesiology Degree Program

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
MATH 1302	COLLEGE ALGEBRA	
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
BIOL 1441	CELL AND MOLECULAR BIOLOGY	
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	

### Program Requirements

BIOL 2458	HUMAN ANATOMY AND PHYSIOLOGY II	4
Modern and Classical Languages: 1441, 1442, 2313, 2314 (with a total of 14 hours)		

General Electives (Sufficient to bring total to 120 hours, 12 must be upper level [3000/4000])

**Professional Courses**

Kinesiology Academic Core

KINE 1315	INTRODUCTION TO TEACHING PHYSICAL EDUCATION	3
KINE 1400	INTRODUCTION TO EXERCISE SCIENCE	4
KINE 2301	TEACHING GAMES FOR UNDERSTANDING	3
KINE 2302	DANCE AND MOVEMENT ACTIVITIES	3
KINE 3300	FUNCTIONAL ANATOMY	3
KINE 3301	BIOMECHANICS OF HUMAN MOVEMENT	3
KINE 3302	SPORT AND EXERCISE PSYCHOLOGY	3
or KINE 3307	SPORT AND SOCIETY: ISSUES AND DEBATES	
KINE 3304	ADAPTED PHYSICAL EXERCISE & SPORT	3
KINE 3315	PHYSIOLOGY OF EXERCISE	3
KINE 3325	UNDERGRADUATE RESEARCH METHODS	3
KINE 3388	THEORY AND APPLICATION IN MOTOR DEVELOPMENT	3
KINE 4319	FITNESS AND OUTDOOR ADVENTURE ACTIVITIES EDUCATION	3
Total Hours		80

# College of Engineering

---

## Overview

Engineering combines science and mathematics to economically use information, materials and forces of nature to solve real world problems that improve the world around us and touch the lives of all of humanity. Engineers are able to take an abstract thought or idea and make it a reality. Students in the College of Engineering are changing the world as they work with award-winning faculty in state-of-the-art facilities to acquire the knowledge and skills they'll need to start tackling important problems and developing innovative technology.

For more than 50 years, the College of Engineering at UT Arlington has helped set the standard for educational excellence. With 7 departments, 9 bachelor's, 19 master's and 9 doctoral degrees and nearly 5,000 students and 24,000 alumni, it is the fourth-largest college of engineering in the state, providing the local, regional, and national workforce with motivated and highly skilled graduates. UT Arlington is classified as a Research University/High Activity by the Carnegie Foundation for the Advancement of Teaching. Faculty research expenditures are more than \$40 million per year. The College has active research grants from the National Science Foundation, National Institutes of Health, the U.S. Departments of Defense and Energy, NASA, DARPA, and the American Heart Association, among others, in key areas such as healthcare, security, energy, and environment. The University recently invested \$160 million to construct an additional 295,000 square feet of engineering facilities. This brings the college's total footprint to 417,359 square feet in more than 16 buildings, including the new 234,000-square-foot Engineering Research Building.

## Undergraduate Education:

The College of Engineering provides the opportunity for study in a wide variety of engineering disciplines under the guidance of an excellent faculty. Baccalaureate degree programs are offered in aerospace engineering, bioengineering, civil engineering, computer engineering, computer science, electrical engineering, industrial engineering, mechanical engineering, and software engineering. The programs in aerospace engineering, civil engineering, computer engineering, electrical engineering, industrial engineering, mechanical engineering, and software engineering are accredited by the Engineering Accreditation Commission (EAC) of ABET, <http://www.abet.org>. The program in computer science is accredited by the Computing Accreditation Commission (CAC) of ABET. Graduate degrees are offered in each of these disciplines and in another area of specialization: materials science and engineering. (All of these graduate programs offer both master's and doctoral degrees except software engineering, engineering management, logistics, and systems engineering, which offer a master's degree only.) A combined BS (Biology)/MS (Biomedical Engineering) degree is available for students interested in tissue engineering and biotechnology; see the Other Engineering Subject Areas section and the Biology section of the Undergraduate Catalog and the Biomedical Engineering section of the UT Arlington Graduate Catalog for details. There are several Fast Track Programs in the college of engineering where seniors with outstanding academic background may begin taking graduate classes for dual credit while still being undergraduates. More details on the Fast Track Programs (p. ) are provided in a later section.

## Preparation in High School for Admission to the College of Engineering

For students intending to pursue a major in engineering, the recommended curriculum is defined by the "Recommended Texas High School Program Graduation Requirements" approved by the State Board of Education beginning with School Year 2004-2005. This listing below reflects the current State Board recommendation and expands upon the University requirements stated earlier in this catalog:

<b>English</b>	
English	4
<b>Mathematics</b>	
Algebra I, II	2
Geometry	1
Additional Advanced Mathematics <sup>1</sup>	1
<b>Science</b>	
Chemistry	1
Physics	1
Other Science Courses	2
<b>Computer Science</b>	
Computer Science <sup>2</sup>	1
<b>Single Foreign Language</b>	
Single Foreign Language <sup>3</sup>	2
<b>Social Science</b>	
U.S. History	1
World History Studies	1
World Geography	1
U.S. Government	.5

Economics	.5
Other Courses	5
Total Hours	24

- 1 For the College of Engineering, this must explicitly include trigonometry
- 2 Most desirable syllabus would include computer programming in C, C++ or Java, and instruction in computer applications including word processing, spreadsheets, and database management.
- 3 For the College of Engineering, two levels of the same language are required.

In addition to the above, an additional year of advanced mathematics such as calculus is strongly recommended. Further, students planning careers in the health professions or biomedical engineering should take one year of biology. In all areas, students are urged to take advantage of advanced placement opportunities and honors programs. A student who enrolls without having completed the above courses will not be optimally prepared, and the duration of the student's undergraduate program will likely be extended. In particular, the engineering programs offered by the college are based upon a student being fully prepared to begin study with the following courses:

MATH 1426	CALCULUS I	4
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4

Prerequisites for the above courses are considered deficiencies and are not counted toward an engineering degree.

## Admission to the College of Engineering

Admission to the College of Engineering is based on the University's undergraduate admission requirements plus the following additional admission criteria for the College of Engineering.

### STUDENTS ENTERING DIRECTLY FROM HIGH SCHOOL

Students entering directly from high school or with less than 24 hours of transfer credit will be evaluated on the basis of the following admission criteria:

- meeting the UT Arlington admissions requirements.
- presenting a satisfactory SAT or ACT score (successful applicants typically have an SAT score of 1200 or higher or a composite ACT score of 27 or higher).
- completing the prerequisites necessary to enroll in MATH 1426 CALCULUS I.

Students for whom English is the primary language must present a minimum of two high school units in a single foreign language. Students otherwise qualified, but not presenting such credit, will be admitted with a foreign language deficiency that must be removed prior to graduation.

Students entering directly from high school or with less than 24 hours of transferrable credit will initially be advised by the University College. Transitioning to advisement by the College of Engineering advisors will occur as the student accomplishes certain GPA and course completion milestones.

### STUDENTS ENTERING WITH TRANSFER CREDIT

Transfer students include those from other units within UT Arlington as well as those from other educational institutions. Transfer students from outside UT Arlington must furnish an official transcript (or copy) to the Dean of Engineering and/or department to which they are applying to permit an evaluation of all college level work completed. Transfer students with less than 24 hours of transferable credit are admitted under the criteria for students entering directly from high school.

Transfer students with 24 hours or more of transferable credit will be evaluated on the basis of the following admission criteria:

- meeting the UT Arlington admissions requirements.
- completing at least the prerequisites necessary to enroll in MATH 1426 CALCULUS I.
- having a GPA of 3.0 or above calculated on transferred credits applicable to the degree they are seeking.
- complying with the C-grade rule. (See Academic Regulation 5 below.) Consequently, the student must be prepared to repeat any such courses until a grade of C or higher is obtained prior to enrolling in any course for which such courses are a prerequisite. Note: this applies to all transfer students whether from other educational institutions or from within UT Arlington.

Students for whom English is the primary language must present a minimum of two high school units in a single foreign language. Students otherwise qualified, but not presenting such credit, will be admitted with a foreign language deficiency that must be removed prior to graduation

## Advising

Students entering directly from high school and those with less than 24 hours of transferrable credit are advised initially in the University College. Students are transitioned to advising in the College of Engineering as they progress successfully in their degree programs.

Students with 24 hours or more of transferrable credit are advised in the College of Engineering. New transfer students who are undecided about their engineering major or who are conditionally admitted are advised in Engineering Student Services; others are advised in their major department. New students, when reporting for advising, must have a transcript (original or copy) of high school work, a transcript (original or copy) of any college transfer credit applicable to an engineering degree, and a copy of SAT or ACT scores that have been used as a basis for admission. New students will not be able to register for classes without first being advised and obtaining an approval to register.

Continuing students in all engineering majors must receive advising by their major departments before registering. One period in October and another in March are designated for preregistration advising. Students must be cleared (showing that they have been advised) before proceeding with registration.

The advising goal for students who have not yet attained professional program status is to strengthen their academic background sufficiently so that they are able to subsequently complete courses in their engineering degree plans. To this end, a student's advisor may require him or her to enroll in fewer courses than specified by the University and may require him or her to take courses for which credit has already been received. See individual department program descriptions for requirements.

The College of Engineering's Engineering Student Services, located in 242 Nedderman Hall, houses the Co-op program and coordinated tutoring, assessment, and academic advising for engineering students.

## Admission into the Professional Program

Students who have successfully completed the initial program of studies may apply to their department for advancement to the professional program. Prior to admission to the professional program, students are required to demonstrate their intellectual talent, work habits, and professional ethics to warrant acceptance for study toward an engineering or computer science degree.

Hereafter, the term "pre-professional courses" is used for courses required in the first two years of the degree program as specified by the department, and the term "professional courses" is used for courses required in the third and fourth years of the degree program. The professional program includes students who have been accepted by an engineering department into the professional program course sequence. An official degree plan is filed upon acceptance into this category. For advancement to a department's professional program, students must meet the following requirements:

- 1. Academic performance:** Students must have completed all pre-professional courses with a grade of C or better, complied with the Three-Attempt Rule, and achieved a minimum three-calculation GPA as specified by the department. Refer to the College of Engineering Academic Regulations and individual department program descriptions for specific requirements in the desired program.
- 2. Limitations on Enrollment:** The University and the College of Engineering reserve the right to limit enrollment in any program, based on the availability of facilities and staff. To achieve such limitations, grade point averages and other measures of student potential beyond the minimum stated above may be applied.

## Competence in Oral Communication and Computer Use

Students in engineering satisfy the oral communication requirement by successfully completing COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING. The various programs in the College of Engineering have different requirements for demonstrating computer literacy. Students should consult their particular degree program for details.

## College of Engineering Academic Regulations

All students pursuing a degree in one of the College's academic programs must abide by the academic regulations of the University and the following additional rules established by the College of Engineering:

### REGULATIONS REGARDING WORK AT OTHER INSTITUTIONS

- 1. Enrollment in Other Institution(s):** To ensure adequate coverage of needed material, once enrolled at UT Arlington as an engineering major, a student must obtain written permission from the department before enrolling in courses intended to be transferred to UT Arlington for credit toward a UT Arlington engineering degree.
- 2. Transfer Courses:** Only equivalent courses in a program accredited by ABET, Inc. (formerly the Accreditation Board for Engineering and Technology) or those freshman and sophomore courses accepted by the College of Engineering or the student's major department can be counted toward an engineering degree.
- 3. Validation of Transfer Credit:** Transfer credit that constitutes a part of a continuing course sequence in the same area will be validated only upon satisfactory completion of the succeeding course in the sequence at UT Arlington. Students whose performance in the subsequent courses at UT Arlington is poor may be required to repeat courses taken elsewhere.



## REGULATIONS REGARDING WORK AT UT ARLINGTON

**4. Academic Honesty:** The College of Engineering takes academic honesty and ethical behavior very seriously. Engineers are entrusted with the safety, health, and well being of the public. Students found guilty of academic dishonesty will be punished to the full extent permitted by the rules and regulations of UT Arlington. In particular, a student found guilty of a second offense by the Office of Student Judicial Affairs will be subject to dismissal from the College of Engineering.

**5. C-Grade Rule:** A grade of D or lower in a pre-professional course indicates unsatisfactory preparation for further engineering education. Any such course in which a D or lower is received must be repeated before enrolling in any course for which it is a prerequisite. This requirement is subject to the Three-Attempt Rule. A student unable to raise his or her grade to at least a C in a pre-professional course within three enrollments (attempts) shall be required to change his or her major to a field outside of the College of Engineering.

**6. English as a Foreign Language:** Courses in English as a foreign language will not substitute for either ENGL 1301 RHETORIC AND COMPOSITION I or ENGL 1302 RHETORIC AND COMPOSITION II.

**7. Foreign Language Deficiency Removal:** Students admitted to the College of Engineering with a deficiency in foreign language must remove that deficiency prior to graduation by taking two courses in a single modern or classical language totaling not less than six semester hours credit (eight semester hours are required in the current UT Arlington introductory modern and classical languages sequence).

**8. Academic Load:** A student may not enroll in more than the University's maximum permitted academic load without receiving the permission of the student's department and the Dean of Engineering. The College of Engineering considers 12 semester hours in the fall and spring terms and nine semester hours in the 11-week summer term to be a minimum "full load" for undergraduates.

**9. Three-Attempt Rule:** A student may not attempt a course (at UT Arlington and/or at any other institution) more than three times and apply that course toward an engineering degree. Enrollment in a course for a period of time sufficient for assignment of a grade, including a grade of W, is considered an attempt.

## REGULATIONS REGARDING ACADEMIC STANDING

**10. Three-Calculation GPA:** The College of Engineering uses three GPA calculations to evaluate students for admission and continuation. These calculations employ only the grades received in courses that are applicable to the engineering degree being sought. Any references in this catalog to the three-calculation GPA requirement mean that the student's GPA must meet or exceed the requirement in each of the following three categories:

- all courses
- all math, science, and engineering courses, and
- all courses, if any, taken in the major subject. (The college will use the University's current grade-repeat policy or grade-exclusion policy in determining the three-GPA calculations.)

**11. Satisfactory Academic Standing:** An engineering student is in satisfactory academic standing if the student is not on University probation and at the same time meets the GPA requirements of his/her major program. (See the major department section of the catalog for the requirement.)

**12. College of Engineering Probation:** Students in an engineering pre-major or classified Undecided Engineering (UENG) will be placed on College of Engineering probation if any of the three parts of their three-calculation GPA falls below their program's requirement for advancement to the professional program. Students in an engineering major will be placed on College of Engineering probation if their major GPA or overall GPA falls below their program's requirement for graduation (2.0 for all programs). A student's academic standing is determined as soon as grades are reported by the Registrar at the end of each semester. Depending on the circumstances, a student on College of Engineering probation may have restrictions on course load or course selection, may be given specific course grade requirements, and ultimately may be required to change his/her major to one outside of the College of Engineering.

## Fees

In addition to fees applicable to the entire University, each engineering course carries a "designated tuition" charge (authorized by the Board of Regents per statute 54.0513) detailed under Description of Tuition and Fees (<http://www.uta.edu/uta/tuition>).

## Minors in the College of Engineering

A number of the undergraduate programs in the college of engineering offer students in other disciplines the opportunity to earn a minor. In most cases the a student has to complete 18 hours of course work as designated by the program to earn a minor. In many cases some of the courses in the minor may be used as an elective in the program the student is majoring in. The following departments in the college of engineering offer minors: Mechanical and Aerospace Engineering Department offers minors in Aerospace Engineering (<http://www.uta.edu/engineering/future-students/undergraduate/programs/aerospace-engineering-minor.php>) and Mechanical Engineering (<http://www.uta.edu/engineering/future-students/undergraduate/programs/mechanical-engineering-minor.php>). Computer Science and Engineering Department offers a minor in Computer Science (<http://www.uta.edu/engineering/future-students/undergraduate/programs/computer-science-minor.php>). Electrical Engineering Department offers a minor Electrical Engineering (<http://www.uta.edu/engineering/future-students/undergraduate/programs/electrical-engineering-minor.php>). Industrial and Manufacturing Systems Engineering Department offers a minor in Industrial Engineering (<http://www.uta.edu/engineering/future-students/undergraduate/programs/industrial-engineering-minor.php>). Materials Science and Engineering Department offers a minor in Materials Science and Engineering (<http://www.uta.edu/engineering/future-students/undergraduate/programs/materials-science-and-engineering-minor.php>).

[www.uta.edu/engineering/future-students/undergraduate/programs/materials-science-and-engineering.php](http://www.uta.edu/engineering/future-students/undergraduate/programs/materials-science-and-engineering.php)). The College of Engineering offers a minor in Nuclear Engineering and a minor in Sustainable Engineering, as detailed in the following section

## Requirements for a Minor in Nuclear Engineering

To receive a minor in Nuclear Engineering, a student must complete the following courses with a grade of C or better in each:

NE 3301	INTRODUCTION TO NUCLEAR ENGINEERING	3
NE 4302	NUCLEAR REACTOR THEORY/ANALYSIS	3
NE 4303	REACTOR THERMAL HYDRAULICS	3
Select three of the following (with a grade of C or better in each):		9
MAE 3311	THERMODYNAMICS II	
MAE 3309	THERMAL ENGINEERING	
MAE 3314	HEAT TRANSFER	
MAE 4347	HEAT EXCHANGER DESIGN	
MAE 4310	INTRODUCTION TO AUTOMATIC CONTROL	
EE 3302	FUNDAMENTALS OF POWER SYSTEMS	
EE 4314	CONTROL SYSTEMS	
PHYS 3446	NUCLEAR AND PARTICLE PHYSICS	
Total Hours		18

## Requirements for a Minor in Sustainable Engineering

To receive a minor in Sustainable Engineering, a student must complete the following courses with a grade of C or better in each:

ENGR 2300	INTRODUCTION TO SUSTAINABLE ENGINEERING	3
IE 3315	OPERATIONS RESEARCH I	3
ENGR 4395	SUSTAINABLE ENGINEERING DESIGN PROJECT	3
Select 1 of the following Societal Context Electives (3 hours)		
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
IE 2308	ECONOMICS FOR ENGINEERS	3
Select 2 of the following Sustainable Engineering Electives (6-7 hours)		
CE 3334	PRINCIPLES OF ENVIRONMENTAL ENGINEERING	3
CE 4323	LANDFILL DESIGN	3
CE 4350	INTRODUCTION TO AIR POLLUTION	3
CE 4351	PHYSICAL UNIT PROCESSES	3
CE 4353	WATER CHEMISTRY	3
CE 4354	INTRODUCTION TO SOLID AND HAZARDOUS WASTE MANAGEMENT	3
CE 4355	DESIGN OF WATER AND WASTEWATER TREATMENT FACILITIES	3
CE 5338	SYSTEM EVALUATION	3
EE 4328	CURRENT TOPICS IN ELECTRICAL ENGINEERING	3
EE 2403	ELECTRONICS I	4
MAE 4301	SPECIAL TOPICS IN MECHANICAL AND AEROSPACE ENGINEERING	3
MSE 4390	SPECIAL TOPICS IN MATERIALS SCIENCE & ENGINEERING	3

## Requirements for an "Engineering Math Minor"

The Mathematics Department supports an "Engineering Math Minor" available to students with a major in the College of Engineering. For specific requirements, please see the departmental advisor in the major program.

## Undergraduate Certificates in the College of Engineering

Undergraduate certificates in areas of specializations are offered in the College of Engineering. These certificates include a Certificate in Nanotechnology and a Certificate in Unmanned Vehicle Systems. Typically students have to complete between 12 to 15 hours of course work as detailed in the requirements for specific programs to earn a certificate. These certificates can be earned by either students who are currently pursuing their undergraduate degree at UT Arlington or by students who are enrolled in other institutions or students who have already completed a degree

in another institution and wish to specialize in a new field. More information about the certificates offered in the College of Engineering is provided in individual department sections of the catalog as well as in the web pages of the respective departments offering the certificates.

## Honors Degrees in Engineering

College of Engineering students who wish to graduate with an Honors Degree in Engineering must be members of the Honors College in good standing. They must complete the major degree requirements and the requirements of the Honors College, which include at least 24 hours of Honors course work while maintaining an overall GPA of 3.0 or greater. Honors Degree requirements are compatible with all departmental and college requirements, but specific requirements vary with each engineering department's program. It is particularly important that students pursuing an Honors Degree in Engineering consult carefully with an advisor in the College of Engineering and also in the Honors College before each registration to be sure all requirements are met.

## Fast Track Master's Degrees in Engineering

The Fast Track Program enables outstanding UT Arlington senior undergraduate students in several disciplines to satisfy degree requirements leading to a master's degree in that discipline while completing their undergraduate studies. When senior-level students are within 15 hours of completing their undergraduate degree requirements, they may take up to nine hours of graduate level coursework designated by the program to satisfy both undergraduate and graduate degree requirements. Interested UT Arlington undergraduate students should discuss this option with their advisors. Information is provided in the department section of this catalog, with details available in departmental offices.

At this time, there are Fast Track programs in the following undergraduate programs:

- Aerospace Engineering leading to a Master's Degree in Aerospace Engineering
- Computer Engineering leading to a Master's Degree in Computer Engineering
- Industrial Engineering leading to a Master's Degree in Industrial Engineering
- Mechanical Engineering leading to a Master's Degree in Mechanical Engineering
- Physics leading to a Master's Degree in Materials Science and Engineering
- Electrical Engineering leading to a Master's Degree in Electrical Engineering
- Civil Engineering leading to a Master of Engineering Degree in Civil Engineering
- Physics leading to a Master's Degree in Biomedical Engineering
- Biochemistry leading to a Master's Degree in Biomedical Engineering

## Professional Engineering Licensure

The protection of the public welfare requires that those who practice engineering do so ethically and competently. Professional licensure requires an individual to meet examination and practice requirements defined by the laws of the state or states in which he or she intends to practice.

The first step toward licensure as a Professional Engineer (P.E.) is to pass the Fundamentals of Engineering (FE) examination. Graduating seniors are permitted to take the FE examination during their final year. The FE examination is offered by the Texas Board of Professional Engineers in both the fall and spring semesters. Since this examination is over topics common to all engineering degree programs, students are strongly urged to avail themselves of this opportunity at a time when their academic preparation is at a peak.

## Pre-med and Pre-law Studies

Students graduating with degrees in engineering occasionally choose to go on to medical schools or law schools. Those students are advised to consult early with the pre-med or pre-law advisors at UT Arlington so that additional requirements can be taken in a timely way. For example, a minimum set of additional courses for an engineer planning to apply to medical school consists of 4 chemistry courses (2 in general chemistry, 2 in organic chemistry), and 4 biology courses (2 in general biology plus genetics and animal physiology).

## Cooperative Education

The Cooperative Education Program (Co-op Program) at UT Arlington is a partnership between the University and various organizations of businesses, government, and industries that provides students with an opportunity to obtain experience in their chosen engineering discipline by alternating periods of formal study with periods of work or through a parallel program which allows students to work part time while taking courses at UT Arlington. This program enhances a student's education through work-related experiences and by association with participating professional engineers, and provides a competitive salary when working, as well.

Students who successfully complete the Co-op Program will receive cooperative education certificates and have this accomplishment entered on their transcripts. Co-op Program students are expected to register each work term in an engineering course (ENGR 2100 SUPERVISED ENGINEERING WORK EXPERIENCE, ENGR 3100 SUPERVISED ENGINEERING WORK EXPERIENCE, ENGR 4100 SUPERVISED ENGINEERING WORK EXPERIENCE, ENGR 3000 SUPERVISED ENGINEERING WORK EXPERIENCE) specified by the Director of the Co-op Program. For enrollment reporting purposes only, students registered for one of these four courses will be considered full-time students. Students classified as full-time students under the Co-op Program are not eligible for financial aid, but can use this designation for enrollment reporting for insurance purposes. Students requiring financial aid must meet state and federal enrollment guidelines for enrollment in the required minimum semester credit hours each semester

where aid is sought. The College of Engineering provides assistance in placing students with companies that are related to their specific needs and program of study.

Information on prerequisites for application and requirements for acceptance are available in the Cooperative Education Office, 242 Nedderman Hall, and on the College of Engineering Web site (<http://www.uta.edu/engineering>).

## **Graduate Education:**

The seven departments in the College of Engineering offer 9 doctoral degrees and 19 master's degrees in engineering, with over 1300 Masters students and almost 500 doctoral students. In addition to 6 Organized Research Centers of Excellence (<http://www.uta.edu/engineering/research/centers.php>), there are more than 40 research centers, laboratories and groups (<http://www.uta.edu/engineering/research/department-labs-centers-groups.php>) producing more than \$40 million in research for government and private industry.

The college is a leader in distance education, providing a convenient way for working engineers to pursue a master's degree. Starting with TAGER, a dedicated microwave communications link in 1975, courses are now distributed on the Internet in streaming video, providing a very convenient access to students. More information can be found at Engineering Online (<http://www.uta.edu/engineering/future-students/engineering-online>).

## **RESEARCH INTERESTS OF THE FACULTY IN DIFFERENT DEPARTMENTS**

### **Bioengineering** (<http://www.uta.edu/bioengineering>)

Biological signal processing; biosensors; neuroscience engineering; soft- and hard-tissue mechanics; tissue engineering; artificial- and hybrid-organ design; biomaterials; medical imaging with ultrasound, magnetic resonance imaging, electron and confocal microscopy, stem cell research, acousto-optical imaging, regenerative medical engineering.

### **Civil Engineering** (<http://www.uta.edu/ce>)

Environmental engineering; construction; infrastructure; transportation planning; hazardous- and toxic-waste abatement; hydrology; structural analysis; analytical methods in structural dynamics; steel structures and marine riser mechanics; bridge design and rehabilitation; disaster mitigation; biological and chemical processes in water quality control; water reclamation and reuse; natural systems for wastewater treatment; structural analysis and design of reinforced concrete, steel, timber, and masonry systems; soil mechanics; soil stabilization; foundation engineering; traffic flow theory; traffic engineering; highway capacity analysis; transportation systems analysis; operations research; properties and behavior of structural concrete; experimental stress analysis.

### **Computer Science and Engineering** (<http://cse.uta.edu>)

Computer system architecture and modeling, interconnection networks, simulation and performance evaluation, mobile computing, telecommunications, computer security, parallel processing, distributed systems, databases, big data analysis, cloud computing, knowledge-based systems, artificial intelligence, multi-agent systems, image processing, robotics, neural networks, machine learning, object-oriented systems, software engineering, software testing, object-oriented testing, software development methodologies, software and hardware systems specification, distributed multimedia and video processing, data mining, embedded systems, pervasive computing, image databases, bioinformatics, instrumentation and sensors, assistive technologies, human-center computing.

### **Electrical Engineering** (<http://www.uta.edu/ee>)

Nanotechnology, quantum optics, electron-device modeling, power electronics, holography, integrated optics, quantum well devices, microwave and millimeter-wave integrated circuits, molecular beam epitaxy, electrooptics, power systems, industrial power electronics, renewable energy and vehicular technology, remote sensing and wave scattering, robotics, robust control, signal processing, flight simulation, utility deregulation issues, neural networks, computer vision, telecommunications, fiber optics, microwave communications, instrumentation, modeling and simulation, photovoltaics, nanoelectronics, MEMS, mixed signals.

### **Industrial & Manufacturing Systems Engineering** (<http://www.uta.edu/ie>)

Design for producibility and reliability, manufacturing systems, automation, CAD/CAM, robotics, engineering design and development process, ergonomics, computer-integrated enterprise, enterprise design and analysis, statistical process control, manufacturing error analysis, linear models, work sampling, discrete event computer simulation, economic decision making, production and inventory control, project control, manufacturing, logistics, enterprise engineering, operations research, statistics.

### **Materials Science and Engineering** (<http://www.uta.edu/mse>)

Nanomaterials; nanoelectronics, single electron and carbon nanotube devices; semiconductor processing; optoelectronics; piezoelectric materials; solar cells; biomaterials and bio-sensors; thin films, coatings and surface engineering; tribology; corrosion, fatigue and fracture mechanics; mechanical and thermal properties of advanced composites; structural materials; intermetallic systems; electrically conductive polymers; materials for energy applications including solar cells, fuel cells, battery technology; environmental degradation of materials.

## Mechanical & Aerospace Engineering (<http://www.uta.edu/mae>)

Computational and experimental fluid dynamic, flight dynamics and controls, supersonic and hypersonic aerodynamics, pulse detonation engines, smart structures/materials. Dynamic systems and controls, design and manufacturing, fluid mechanics, heat transfer, sprays, and combustion, solid mechanics and structures, electronic packaging, biomedical applications of heat and mass transfer. Composites: Damage Tolerance, Fatigue and Fracture Analysis

There are two formal research centers, the University of Texas at Arlington Research Institute (UTARI) and the Nanotechnology Research and Teaching Facility (NRTF), where a significant amount of the ongoing research is related to engineering and a number of the graduate students and faculty from the College of Engineering participate.

Many College of Engineering faculty members collaborate with professors and researchers in other colleges at UT Arlington and other institutions in the state, around the U.S., and around the world. Therefore, for those interested in doing research as part of graduate training, there are many opportunities to work on research projects that are either within the home department or interdisciplinary with other departments.

## PROGRAMS

Graduate work in engineering at UT Arlington may lead to the master of science, master of engineering or doctor of philosophy in the following programs:

- Aerospace Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/mechanical-and-aerospace-engineering/msae.php>), ME (<http://www.uta.edu/engineering/future-students/programs-masters/mechanical-and-aerospace-engineering/meae.php>) and Ph.D. (<http://www.uta.edu/engineering/future-students/programs-phd/aerospace-engineering-phd.php>))
- Biomedical Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/bioengineering/msb.php>) and Ph.D. (<http://www.uta.edu/engineering/future-students/programs-phd/biomedical-engineering-phd.php>))
- Civil Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/civil-engineering/msce.php>), ME (<http://www.uta.edu/engineering/future-students/programs-masters/civil-engineering/mece.php>) and Ph.D. (<http://www.uta.edu/engineering/future-students/programs-phd/civil-engineering-phd.php>))
- Computer Science (MS (<http://www.uta.edu/engineering/future-students/programs-masters/computer-science-and-engineering/mscs.php>) and Ph.D. (<http://www.uta.edu/engineering/future-students/programs-phd/computer-science-phd.php>))
- Computer Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/computer-science-and-engineering/msce.php>) and Ph.D. (<http://www.uta.edu/engineering/future-students/programs-phd/computer-engineering-phd.php>))
- Electrical Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/electrical-engineering/msee.php>), ME (<http://www.uta.edu/engineering/future-students/programs-masters/electrical-engineering/meee.php>) and Ph.D. (<http://www.uta.edu/engineering/future-students/programs-phd/electrical-engineering-phd.php>))
- Industrial Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/industrial-and-manufacturing-systems-engineering/msie.php>), ME (<http://www.uta.edu/engineering/future-students/programs-masters/industrial-and-manufacturing-systems-engineering/meie.php>) and Ph.D. (<http://www.uta.edu/engineering/future-students/programs-phd/industrial-engineering-phd.php>))
- Materials Science and Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/materials-science-and-engineering/msmse.php>), ME (<http://www.uta.edu/engineering/future-students/programs-masters/materials-science-and-engineering/memse.php>) and Ph.D. (<http://www.uta.edu/engineering/future-students/programs-phd/materials-science-and-engineering-phd.php>))
- Mechanical Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/mechanical-and-aerospace-engineering/msme.php>), ME (<http://www.uta.edu/engineering/future-students/programs-masters/mechanical-and-aerospace-engineering/meme.php>) and Ph.D. (<http://www.uta.edu/engineering/future-students/programs-phd/mechanical-engineering-phd.php>))

In addition master's degree programs are also available in:

- Logistics (MS (<http://www.uta.edu/engineering/future-students/programs-masters/industrial-and-manufacturing-systems-engineering/msl.php>))
- Engineering Management (MS (<http://www.uta.edu/engineering/future-students/programs-masters/industrial-and-manufacturing-systems-engineering/msem.php>))
- Software Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/computer-science-and-engineering/msse.php>))
- Systems Engineering (MS (<http://www.uta.edu/engineering/future-students/programs-masters/industrial-and-manufacturing-systems-engineering/msse.php>))

Graduate work leading to a practice-oriented master's degree usually requires a design project, report, internship or additional coursework. Details are given in the individual program descriptions that follow.

Biomedical Engineering is a joint program of the UT Arlington Bioengineering Department in association with The University of Texas Southwestern Medical Center at Dallas. The Master of Science in Logistics and Master of Science in Engineering Management are offered in partnership with the College of Business Administration.

In addition to specific graduate degrees, students currently enrolled in degree earning graduate programs as well as applicants who have earned undergraduate degrees elsewhere may also enroll in an earn Graduate Certificates in different areas of specialization. Typically the graduate certificates

require the completion of 12-15 hours of graduate course work in a specified set of courses to earn a Graduate Certificate. Details of the different Graduate Certificates are provided in individual departmental sections of the catalog.

Please visit the graduate program Web Site <http://www.uta.edu/engineering/future-students/index.php> for detailed information.

## Bioengineering

### Undergraduate Degrees

- Bachelor of Science in Biomedical Engineering (p. )
- Fast Track for Master of Science in Biomedical Engineering and Bachelor of Science in Physics (p. )
- Fast Track for Master of Science in Biomedical Engineering and Bachelor of Science in Biochemistry (p. )
- Bachelor of Science in Biology and Master of Science in Biomedical Engineering (p. )

### Graduate Degrees

- Biomedical Engineering, M.S. (p. )
- Biomedical Engineering, B.S. to Ph.D.
- Biomedical Engineering, Ph.D. (p. )

## Bioengineering - Graduate Programs

### Objectives

The Biomedical Engineering Program is jointly offered by The University of Texas at Arlington and The University of Texas Southwestern Medical Center at Dallas (UT Southwestern). Research and teaching efforts of various departments in the biological, engineering, mathematical, physical, and medical sciences of both institutions are coordinated through the Committee on Graduate Studies in Bioengineering. The goal of the program is to prepare students for bioengineering careers requiring skills in research, development, and teaching in a variety of settings in industry, in hospitals, in research facilities of educational and medical institutions and in government regulatory agencies. Internships are aimed to further prepare students for careers in the bioengineering industry.

The program includes coursework and research in medical imaging, biosensors, physiological control systems, biomedical signal processing, biomedical instrumentation, rehabilitation, orthopedics, biomechanics, biomaterials and tissue engineering and neurosciences. Specifically, during the first year of their studies, students in the master's and doctoral programs must select one of the concentration tracks in Bioengineering:

1. Bioinstrumentation
2. Biomaterials/Tissue Engineering
3. Biomechanics
4. Medical Imaging

A track advisor is available to advise students on the relevant courses and the research opportunities in each track.

### MASTER'S PROGRAM

The master's program is based upon graduate level work in Bioengineering, life sciences and related physical sciences.

### DOCTORAL PROGRAM

The doctoral program is based upon graduate level work in Bioengineering, and extensive graduate training in the life sciences and related physical sciences. The program is aimed at the development of professional biomedical engineers capable of independent research.

### COMBINED DEGREE PLAN: BACHELOR OF SCIENCE IN BIOLOGY AND MASTER OF SCIENCE IN BIOENGINEERING

This five-year curriculum prepares students for careers in the fast growing biotechnology and Bioengineering industries. The curriculum also prepares students for medical school and advanced study. Students are required to take courses from engineering, life sciences and liberal arts, culminating in a five-year Master of Science Degree in Biomedical Engineering, including a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Engineering and the College of Science.

### FAST TRACK PROGRAMS FOR A MASTER'S DEGREE IN BIOMEDICAL ENGINEERING

The Fast Track program enables outstanding undergraduate Physics or Biochemistry students to receive dual undergraduate and graduate course credit leading to receiving both a Bachelor of Science Degree in either Physics or Biochemistry and a Master's Degree in Biomedical Engineering. See the departmental advisors for additional information on these programs.

## Description

Bioengineers use quantitative methods and innovation to analyze and to solve problems in biology and medicine. Students choose the Bioengineering field to serve people, to partake in the challenge and excitement of working with living systems, and to apply advanced technology to complex problems of medical care. Through this program, students learn the essentials of life science, engineering theory, and the analytical and practical tools that enable them to be successful in the biotechnology and Bioengineering industries. The program includes coursework in the basic sciences, core engineering, Bioengineering, and advanced biotechnology disciplines. Both didactic classroom lectures and hands-on laboratory experience are emphasized. Additionally, students are required to take general educational courses in literature, fine arts, history, political science, and social science.

## Career Opportunities

The program prepares students as biomedical engineers for careers in industry, in hospitals, in research facilities of educational and medical institutions, and in government regulatory agencies. It also provides a solid foundation for those wishing to continue for advanced degrees. For those planning to pursue a medical degree, this cross-disciplinary curriculum offers a solid foundation in engineering, which is an advantage in preparing for a medical career.

See the UT Arlington Undergraduate Catalog (<http://www.uta.edu/catalog>) for a more detailed description of this program.

## Continuation

The Biomedical Engineering Graduate Program has established certain policies to fulfill its responsibility to graduate highly qualified professional engineers. In addition to the requirements of the Graduate School listed in this catalog under Advanced Degrees and Requirements, each bioengineering graduate student who wants to continue in the program must:

1. Maintain at least a B (3.0) overall GPA in all coursework, and
2. Demonstrate suitability for professional engineering practice.

At such time as questions are raised by bioengineering graduate faculty regarding either of the above, the student will be notified and will be provided the opportunity to respond to the Committee on Graduate Studies in Bioengineering. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

## Master's Admission

Application for admission should be made at either UT Arlington or U.T. Southwestern. Normally, the institution through which the student applies and is admitted is the student's home institution.

In addition to admission requirements of the Graduate School, the bachelor's degree held by applicants to the program may be in engineering, biological, physical, or mathematical sciences. Depending on the applicant's background, some preparatory coursework may be required, prior to admission into the program. The UT Arlington Biomedical Engineering Program uses the following guidelines in the admission review process:

### UNCONDITIONAL ADMISSION

1. Minimum undergraduate GPA of 3.0 in the last 60 hours of undergraduate work in an engineering discipline as calculated by the Graduate School.
2. GRE Total (quantitative plus verbal) must be greater than 301 with a verbal score of 146 or better.
3. A minimum total TOEFL score of 575 for Paper-based testing and a score of 90 for Internet-based testing or better for international applicants whose native language is not English.

### PROBATIONARY ADMISSION

1. If the applicant meets any two of the above items 1, 2, and 3.
2. A minimum total TOEFL score of 575 for Paper-based testing and a score of 90 for Internet-based testing or better for international applicants whose native language is not English.

### PROVISIONAL ADMISSION

An applicant who is unable to supply all required documents prior to the admission deadline, but who otherwise appears to meet admission requirements may be granted provisional admission.

### DEFERRAL

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until admission records are complete or the requirements are met.

### DENIAL

A candidate may be denied admission if he/she has less than satisfactory performance in two out of the three admission criteria, excluding TOEFL.

## Degree Requirements

### MASTER OF SCIENCE DEGREE PLANS

Students in the Thesis Degree plan must take a minimum of 31 credit hours, and students in the Thesis-Substitute Degree plan must take a minimum of 34 credit hours as specified below.

#### Required Bioengineering

BE 5101	SEMINAR IN BIOENGINEERING	1
BE 5382	LABORATORY PRINCIPLES	3
One additional laboratory course in Bioengineering approved by the graduate advisor such as BE 5324, BE 5365 or BE 5373 (Two additional laboratory courses required for students under the Thesis Substitute Degree Plan)		3-6

#### Bioengineering

Select four of the following (consistent with the student's track of study and approval of the Graduate Advisor):

BE 5300	SELECTED TOPICS IN BIOENGINEERING	3
BE 5324	Biomedical Optics Laboratory	3
BE 5325	FLUORESCENCE MICROSCOPY	3
BE 5327	TISSUE OPTICS	3
BE 5329	NEURAL ENGINEERING	3
BE 5331	POLYMERS IN BIOMEDICAL ENGINEERING	3
BE 5333	NANOBIMATERIALS	3
BE 5335	BIOLOGICAL MATERIALS, MECHANICS, & PROCESSES	3
BE 5337	TRANSPORT PHENOMENA IN BIOMEDICAL ENGINEERING	3
BE 5344	BIOINSTRUMENTATION I	3
BE 5346	MEDICAL IMAGING	3
BE 5352	DIGITAL PROCESSING OF BIOLOGICAL SIGNALS	3
BE 5361	BIOMATERIALS AND BLOOD COMPATIBILITY	3
BE 5364	TISSUE ENGINEERING LECTURE	3
BE 5365	TISSUE ENGINEERING LAB	3
BE 5366	PROCESS CONTROL IN BIOTECHNOLOGY	3
BE 5370	BIOMATERIAL - LIVING SYSTEMS INTERACTION	3
BE 5373	DRUG DELIVERY LAB	3

#### Engineering

Select one course from Bioengineering or other engineering departments, with the approval of the Graduate Advisor

		3
--	--	---

#### Required Life Sciences

BE 5309	HUMAN PHYSIOLOGY IN BIOENGINEERING	3
One Three-Credit-Hour approved Life Science course.		3

#### Thesis Plan

BE 5698	THESIS (at the semester in which the student expects to submit and defend the thesis)	6
---------	---	---

#### Thesis Substitute Plan

One Three-Credit-Hour BE elective course		3
One Three-Credit-Hour Biostatistics Course		3

After completion, the student will receive his or her Masters Degree in Biomedical Engineering.

## Doctoral Admission

In addition to admission requirements of the Graduate School, the bachelor's degree held by applicants to the program may be in engineering, biological, physical, or mathematical sciences. Depending on the applicant's background, some preparatory coursework may be required, prior to admission into the program. The UT Arlington Biomedical Engineering Program uses the following guidelines in the admission review process:

### UNCONDITIONAL ADMISSION

1. Minimum GPA of 3.4 in the last 60 hours taken in the major field of study of engineering or physical sciences as calculated by the Graduate School.
2. GRE Total (quantitative plus verbal) must be greater than 308 with a verbal score of 146 or better.
3. Three favorable letters of recommendation.



4. A minimum total TOEFL score of 575 for Paper-based testing and a score of 90 for Internet-based testing or better for international applicants whose native language is not English.

## PROBATIONARY ADMISSION

1. If an applicant meets any two of the above items 1, 2, and 3.
2. A minimum total TOEFL score of 575 for Paper-based testing and a score of 90 for Internet-based testing or better for international applicants whose native language is not English.

## PROVISIONAL ADMISSION

An applicant who is unable to supply all required documents prior to the admission deadline, but who otherwise appears to meet admission requirements may be granted provisional admission.

## DEFERRAL

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until admission records are complete or the requirements are met.

## DENIAL

A candidate may be denied admission if he/she has less than satisfactory performance in two out of the three admission criteria, excluding TOEFL.

## FELLOWSHIP

No additional requirements besides the information published by the Graduate School.

## Degree Requirements

### DOCTOR OF PHILOSOPHY DEGREE PLAN

The Ph.D. degree program consists of a minimum of 47 credit hours beyond the bachelor's degree level and includes the courses as specified below.

#### Required Bioengineering

BE 5101	SEMINAR IN BIOENGINEERING	1
Ph.D. Seminar for at least two semesters:		
BE 6103	PhD SEMINAR IN BIOENGINEERING	1
BE 6103	PhD SEMINAR IN BIOENGINEERING	1
Laboratory Course (BE 5324, BE 5365, BE 5373 or BE 5382)		3

#### Elective Bioengineering

Select five of the following:

BE 5300	SELECTED TOPICS IN BIOENGINEERING	3
BE 5324	Biomedical Optics Laboratory	3
BE 5325	FLUORESCENCE MICROSCOPY	3
BE 5327	TISSUE OPTICS	3
BE 5329	NEURAL ENGINEERING	3
BE 5331	POLYMERS IN BIOMEDICAL ENGINEERING	3
BE 5333	NANOBOMATERIALS	3
BE 5335	BIOLOGICAL MATERIALS, MECHANICS, & PROCESSES	3
BE 5337	TRANSPORT PHENOMENA IN BIOMEDICAL ENGINEERING	3
BE 5344	BIOINSTRUMENTATION I	3
BE 5346	MEDICAL IMAGING	3
BE 5347	PRINCIPLES OF FUNCTIONAL MAGNETIC RESONANCE IMAGING	3
BE 5352	DIGITAL PROCESSING OF BIOLOGICAL SIGNALS	3
BE 5361	BIOMATERIALS AND BLOOD COMPATIBILITY	3
BE 5364	TISSUE ENGINEERING LECTURE	3
BE 5365	TISSUE ENGINEERING LAB	3
BE 5366	PROCESS CONTROL IN BIOTECHNOLOGY	3
BE 5370	BIOMATERIAL - LIVING SYSTEMS INTERACTION	3

Other courses with the approval of the Graduate Advisor

#### Elective (3 credit hours)

One Three-Hour-Course from other engineering departments or a life science course with the approval of the Graduate Advisor 3

#### **Life Sciences (9 Credit Hours)**

BE 5309 HUMAN PHYSIOLOGY IN BIOENGINEERING 3

Select one of the following: 3

Cell Physiology

Neuroscience

Tumor Physiology

Select one of the following: 3

Biochemistry

Molecular Biology

Immunology

#### **Mathematics, Statistics, Computer and Physical Sciences**

One Three-Credit-Hour Biostatistics course as approved by the Graduate Advisor.

#### **Ph.D. Examinations and Dissertation**

All doctoral students must satisfactorily complete the following exams at the semester in which the student expects to submit and defend the dissertation:

BE 6194 DOCTORAL DIAGNOSTIC EXAMINATION 1

BE 6195 DOCTORAL COMPREHENSIVE EXAMINATION 1

BE 6999 DISSERTATION 9

Although qualified applicants may be accepted into the Ph.D. program without earning the Master of Science in Biomedical Engineering, all students must satisfactorily pass BE 6194 DOCTORAL DIAGNOSTIC EXAMINATION. This examination will cover all relevant coursework taken by the student. The examination may be written, oral, or both and consists of a timed, written analysis of a major problem in the student's general area of research interest, followed by an oral examination covering the same material. Elements of engineering, physical and biological science, mathematics, computer science and statistics may be included in this examination.

For additional information, applicants and students should contact the BE Graduate Advisor for a copy of the "Information Brochure" for related and amplified information about the graduate program. The information can also be found at <http://www.uta.edu/bioengineering/>.

After completion, the student will receive his or her PhD in Biomedical Engineering.

## **Bioengineering - Undergraduate Programs**

### **Overview**

The Department of Bioengineering offers a Bachelor of Science (BS) degree in Biomedical Engineering (BS BME). The goal of the program is to prepare students for bioengineering careers requiring skills in research, development, and teaching in a variety of setting in industry, hospitals, research facilities of educational and medical institutions and government regulatory agencies. Graduates may also pursue their continuing education in the medical and dental field or graduate studies in bioengineering.

BS BME degree offers two areas for concentration: Biomaterials and Tissue Engineering; and Medical Imaging.

### **Educational Objectives of the Undergraduate Program**

The purpose of the Bioengineering Department is to advance the cause of the profession through teaching and research and to produce technically knowledgeable, well rounded graduates who have the capability of developing into professionally competent engineers pursuing lifelong learning and assuming leadership roles in the profession. The BE Department supports the University and College of Engineering mission by offering a broad-based undergraduate education leading to a degree of bachelor of science in Biomedical Engineering with emphasis on technical, professional, ethical, and societal responsibilities associated with the practice of engineering. Advanced masters and doctoral degrees are offered with emphasis on technical specialization and the advancement of knowledge in several areas of bioengineering.

The overall goal of the Biomedical Engineering undergraduate program is to promote intellectual development of those interested in the bioengineering profession, and to produce graduates who possess the knowledge, tools and traits necessary for a successful career, and for assuming a leadership role in the bioengineering profession. More specifically, the educational program objectives are to produce graduates who:

- Possess a broad-based bioengineering education to successfully obtain professional positions, and practice bioengineering in a wide range of professional settings including industries, healthcare facilities, and consulting firms.
- Exhibit professional growth throughout their careers by taking on increasing professional responsibilities, and pursue life-long learning by participation in job-related advanced training activities, and/or attending graduate school, or professional school (medical or dental school).

- Demonstrate success and leadership in practice of engineering by contributing to the economic well-being of their employers and society, and by dedicated service to professional societies.

## Student Outcomes of the Undergraduate Program

From these Program Educational Objectives, the department designed its baccalaureate program to offer its graduates:

- an understanding of professional and ethical responsibility
- an ability to apply knowledge of mathematics, physical and life science, and engineering, especially bioengineering
- an ability to design and conduct in-vitro and in-vivo experiments
- an ability to analyze and interpret data
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- an ability to function on multi-disciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of bioengineering solutions in a global, economic, environmental, and societal context
- a recognition of the need for, and an ability to engage in life-long learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills, and modern engineering tools necessary for bioengineering practice

## Minor Field of Study

The Bioengineering program does not currently offer the option of pursuing a minor in Bioengineering by other engineering or non-engineering majors.

## Admission Requirements

Requirements for admission as a Biomedical Engineering major are governed by the requirements stated under the College of Engineering section of this catalog. Biomedical Engineering majors are only allowed to enroll in pre-professional courses until they meet the requirements for the professional program as outlined below. They must register only for courses approved by their faculty advisor and obtain their advisor's authorization for add/drops.

## Undergraduate Advising

Students entering directly from high school and those with less than 24 hours of transferrable credit are advised initially in the University College. Students are transitioned to advising in the College of Engineering as they progress successfully in their degree programs.

Biomedical Engineering majors are required to be advised by an assigned advisor during the period set aside each semester by the College of Engineering for this purpose. Students are responsible for meeting with their advisors during the advising period. Periods set aside for advising and registration may be different, and students who do not meet with their advisors during the regular advising period may not be able to complete registration. All students should consult the departmental bulletin board for advisors' names and periods set aside for advising.

Biomedical Engineering students who have not been admitted to the professional program must register only for courses approved by their faculty advisor and obtain their advisor's authorization for add/drops. Failure to do so is grounds for dismissal from the Biomedical Engineering program. Students, including those in the professional program, who enroll in courses before taking the proper prerequisites or co-requisites, will be subject to dismissal from the Biomedical Engineering program.

Transfer students registering for the first time are advised separately prior to the beginning of the semester they enroll in courses. They should contact the department to set up an appointment for advising with a departmental undergraduate advisor prior to registration.

## Admission to the Professional Program

Requirement for admission to the professional program in Biomedical Engineering are in accordance with those of the College of Engineering and additional requirements as follows.

- Application to the professional program is to be submitted to the BE Department after completion of all the pre-professional required courses and prior to taking any Bioengineering 3000 level course.
- No 3000 level Bioengineering course may be taken until the student is admitted into the professional program or obtains the written consent for the BE Department Chair.
- Each student must complete all the courses in the pre-professional required courses with a minimum grade of C in each course and a minimum GPA of 2.25

- a. in all courses,
  - b. in math, science, and engineering courses.
- Upon receipt of the application, a student's record is individually reviewed including grades, academic and personal integrity, record of drops and course withdrawals, the order in which courses have been taken, the number of times a student has attempted a course for credit, and any other aspect of the student's record that may be deemed pertinent to admission.

The student must be admitted to the professional program and have an approved degree plan on file in order to graduate. The degree plan is generated upon entry to the professional program. Graduating seniors should apply to graduate during the next-to-last semester.

## Prior Preparation and Course Requirements

The undergraduate baccalaureate degree in Biomedical Engineering is a four-year program and requirements for the degree are based upon prior high school preparation through either an honors or college track program. Students who have not had the appropriate prior preparation should contact the departmental advising office for a curriculum guide that will assist them in structuring a study plan that will include leveling courses. Students requiring leveling courses may require a period of time greater than four years to complete their undergraduate degree.

## Academic Requirements

Academic performance requirements establishing satisfactory progress and grade point requirements are given in the College of Engineering section of this catalog.

### GRADE REQUIREMENTS FOR BE COURSE PREREQUISITES

Biomedical Engineering majors (BE-Intended or BE) may not attempt a BE course until they have earned a grade of C or better in the prerequisite course(s).

### REPEATING COURSES

Biomedical Engineering majors (BE-Intended or BE) may not attempt any course more than three times and apply that course toward a degree in Biomedical Engineering. Enrollment in a course for a period of time sufficient for assignment of a grade, including a grade of W, is considered an attempt.

### FOUNDATIONS FOR DISMISSAL FROM THE BE PROGRAM

Requirements for grounds for dismissal as a Biomedical Engineering major are governed by the requirements stated under the College of Engineering section of this catalog.

## Requirements for a Bachelor of Science Degree in Biomedical Engineering

### Pre-Professional Courses

#### Recommended Core Requirements

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
MATH 1426	CALCULUS I <sup>1</sup>	4
MATH 2425	CALCULUS II	4
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
	A course on Creative Arts chosen by the student.	3
	A course on Language, Philosophy, & Culture (for Biomedical Engineering majors, PHIL 1304 must be used to satisfy this requirement.)	3
	A course on Social and Behavioral Sciences chosen by the student.	3
	A course on Communication (for Biomedical Engineering majors, COMS 2302 must be used to satisfy this requirement)	3

#### Program Requirements

BE 1104	INTRODUCTION TO ENGINEERING	1
BE 1225	INTRODUCTION TO BIOENGINEERING	2
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4

CHEM 2321 & CHEM 2181	ORGANIC CHEMISTRY and ORGANIC CHEMISTRY I LABORATORY	4
CHEM 2322 & CHEM 2182	ORGANIC CHEMISTRY and ORGANIC CHEMISTRY II LABORATORY	4
CHEM 4311	BIOCHEMISTRY I	3
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	3
MATH 2326	CALCULUS III	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
<b>Professional Courses</b>		
BE 3301	CELL PHYSIOLOGY FOR BIOENGINEERS	3
BE 3320	MEASUREMENT LABORATORY	3
BE 3380	HUMAN PHYSIOLOGY IN BE	3
BE 4325	FUNDAMENTALS OF BIOENGINEERING	3
BE 4350	SENIOR DESIGN PROJECT I	3
BE 4355	SENIOR DESIGN PROJECT II	3
BE 4382	LABORATORY PRINCIPLES	3
IE 3301 or MATH 3316	ENGINEERING PROBABILITY STATISTICAL INFERENCE	3
Total Hours		109

<sup>1</sup> The Mathematics Department requires MATH 1323 PRECALCULUS II or passing a placement test provided by the Mathematics Department before enrolling in MATH 1426 CALCULUS I.

### Biomaterials and Tissue Engineering Concentration

BE 3310	FLUID FLOW, CELLULAR MECHANICS WITH LABORATORY	3
BE 3367	CELL CULTURE AND DRUG DELIVERY LABORATORY	3
BE 4334	INTRODUCTORY NANO AND BIOPOLYMER MATERIALS	3
BE 4337	TRANSPORT PHENOMENA IN BIOMEDICAL ENGINEERING	3
BE 4368	AN INTRODUCTION TO TISSUE ENGINEERING AND DRUG DELIVERY	3
Choose one additional course from list available at BE Advising Office.		3

### Medical Imaging Concentration

BE 3344	BIOINSTRUMENTATION	3
BE 3346	MEDICAL IMAGING	3
BE 3352	DIGITAL PROCESSING OF BIOLOGICAL SIGNALS	3
BE 4324	BIOMEDICAL OPTICS LABORATORY	3
EE 2440	CIRCUIT ANALYSIS WITH LAB	4
Choose one additional course from list available at BE Advising Office.		3

More hours may be required to strengthen student's program or demonstrate proficiency. See Prior Preparation and Course Requirements.

Note: Total hours will depend upon prior preparation and academic qualifications. Also, students who do not have two units of high school foreign language will be required to take modern and classical languages courses in addition to the previously listed requirements.

Refer to the College of Engineering section of this catalog for information concerning the following topics: Admission into Engineering, Admission into Pre-Engineering, Admission into the Professional Program, Counseling or Advising, Transfer and Change of Major Policies, Honors Program, Academic Regulations, Professional Engineering Registration, Cooperative Education, Academic Probation, Repeating Course Policy and Academic Dishonesty.

### Pre-Med or Pre-Dental Option

For those who plan to pursue degrees in medicine or dental science, the following additional course are required in preparation for taking MCAT or DAT

BIOL 3312	IMMUNOBIOLOGY	3
BIOL 3315	GENETICS	3
BIOL 3442	PRINCIPLES OF ANIMAL PHYSIOLOGY	4
BIOL 3444	GENERAL MICROBIOLOGY	4

CHEM 4312	BIOCHEMISTRY II	3
Beginning 2015 MCAT includes:		
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	3
SOCI 1311	INTRODUCTION TO SOCIOLOGY	3
One of the above two can be taken under Social and Behavioral Science of General Core Requirement.		
For details, please visit Health Professions Advisor, UT Arlington College of Science ( <a href="http://www.uta.edu/cos/hp.php">http://www.uta.edu/cos/hp.php</a> )		

## Transfer Students and Transfer Credit

When a student transfers to the Bioengineering Department from another department or institution or vice versa, a loss of credit can occur and his/her academic plans may have to be changed. Courses that appear to be similar may be different in either content or level of difficulty and, as a result, cannot be used for degree credit. When a student's record indicates weakness in certain areas of study, he/she will be required to retake courses or to take additional courses. Transfer students should contact the Department of Bioengineering after admission and prior to registration.

Transfer students with 24 hours or more of transferable credit must meet the following requirements:

- Completed prerequisites necessary to enroll in MATH 1426 CALCULUS I and PHYS 1443 GENERAL TECHNICAL PHYSICS I
- Students for whom English is a primary language must present two high school units in a single foreign language or will be admitted with a foreign language deficiency that must be removed prior to graduation.
- A GPA of 3.0 or above calculated on transferred credits which include at least 15 hours of applicable math, science, and engineering courses.
- Students must be prepared to repeat any transferred courses below a C until a grade of C or higher is obtained prior to enrolling in any course for which such courses are prerequisite. To transfer bioengineering course credits, the limitation on the number of times a course can be repeated is three.

Students who do not meet these criteria will be reviewed and considered on individual merits for admission into the BE Intended (or Pre) Major.

Prior to advising, a transfer student should present to an undergraduate advisor a transcript (official or copy) from each school previously attended. Only the equivalent courses in a program accredited by ABET or equivalent freshman and sophomore courses accepted by the department can be counted toward a degree in Biomedical Engineering. To be acceptable as an equivalent course, it must be equivalent to our corresponding course in credit value and course content. Junior and senior level courses taken at a college or university which does not have a Bioengineering program accredited by ABET cannot be used to satisfy the requirements for a degree in Biomedical Engineering.

A student in the Department of Bioengineering at UT Arlington who wishes to enroll in courses at another college or university for transfer credit toward a degree in Biomedical Engineering should, first, consult with an undergraduate advisor to verify that the course can be used in the student's Biomedical Engineering degree plan.

## Competence in Oral Communication and Computer Use

Completion of COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING, with a grade of C or better, is required to earn a degree in Biomedical Engineering. Also, successful completion of COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING meets the University's oral communication requirement.

All Bioengineering students are required to complete BE 1104 INTRODUCTION TO ENGINEERING, and BE 1225 INTRODUCTION TO BIOENGINEERING, with a grade of C or better. Successful completion of these courses satisfies the University's computer proficiency requirement.

## Bioengineering Degree Programs at UT Arlington

At the undergraduate level, the department offers a Bachelor of Science in Biomedical Engineering degree with two concentrations for the undergraduate program:

1. Biomaterials and Tissue Engineering and,
2. Medical Imaging.

Descriptions of BE degree options are available in the BE Advising Office. All degree options are designed to provide a strong foundation in science, mathematics, and engineering science; technical competence in multiple areas of Bioengineering practice; and an understanding of the importance of ethics, safety, professionalism, and socioeconomic concerns in resolving technical problems through synthesis, planning, and design. Elements of design are introduced at the freshman level. This is followed by an analysis and design component in professional program courses, culminating in a comprehensive design experience.

At the graduate level, the Master of Engineering, Master of Science, and Doctor of Philosophy degrees are offered. Graduate bioengineering degrees are concentrated in one of the areas of specialization available within the department: Bioinstrumentation, Biomaterial/Tissue Engineering, Biomechanics/Orthopedics, Medical Imaging, or Protein Engineering (Doctor of Philosophy only)

The Department of Bioengineering has active student chapters associated with the Biomedical Engineer Student Society (BMESS). Students are encouraged to participate in the activities of the organization. Membership is by election and is limited to students in the upper third of the junior and senior classes who satisfy other requirements listed in the society's bylaws.

## Fast Track Programs for a Master of Science in Biomedical Engineering and a Bachelor of Science in Physics or Biochemistry

The Department of Bioengineering also offers Fast Track dual degree program in collaboration with the Chemistry and Biochemistry, and Physics departments at UT Arlington. These programs offer the interested students an opportunity to earn a Master's Degree in Biomedical Engineering (MS) and a Bachelor of Science Degree in Biochemistry, or Physics. The Fast Track Program enables outstanding senior undergraduate Physics or Biochemistry students to receive dual undergraduate and graduate course credits leading to receiving both a Bachelor of Science Degree in either Physics or Biochemistry and a Master's Degree in Biomedical Engineering. See the departmental advisors for additional information on these programs.

Further, undergraduate students in other engineering disciplines may develop a fundamental knowledge of the field of bioengineering. Student having permission from their department's undergraduate advisor may enroll in the courses listed below and obtain an emphasis in bioengineering. Ordinarily, the student will take these courses as technical elective, free electives and science electives. Interested students should contact the undergraduate advisor of the Department of Bioengineering for additional information.

Elective courses for students who wish to obtain an emphasis in bioengineering:

BE 1225	INTRODUCTION TO BIOENGINEERING	2
BE 4325	FUNDAMENTALS OF BIOENGINEERING	3

At the graduate level, the Department of Bioengineering offers a program of studies leading to masters and doctoral degree in Biomedical Engineering.

## Combined Degree Plan: Bachelor of Science in Biology and Master of Science in Biomedical Engineering

This five-year curriculum prepares students for careers in the fast growing biotechnology and bioengineering industries. The curriculum also prepares students for medical school and advanced study. Students are required to take courses from engineering, life sciences and liberal arts, culminating in a five-year Master of Science Degree in Biomedical Engineering and a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Engineering and the College of Science. In this program, two areas of emphasis are offered: Medical Imaging, and Biomaterials and Tissue Engineering.

### DESCRIPTION

Bioengineers use quantitative methods and innovation to analyze and to solve problems in biology and medicine. Students choose the bioengineering field to be of service to people, to partake in the excitement of working with living systems, and to apply advanced technology to complex problems of medical care.

Through this program, students learn the essentials of life science, engineering theory, and the analytical and practical tools that enable them to be successful in the biotechnology and bioengineering industries. The program includes course work in the basic sciences, core engineering, biomedical engineering, and advanced biotechnology disciplines. Both didactic classroom lectures and hands-on laboratory experience are emphasized. Additionally, students are required to take general educational courses in literature, fine arts, history, political science, and social science.

### CAREER OPPORTUNITIES

The program prepares students as bioengineers for careers in industry, in hospitals, in research facilities of educational and medical institutions, and in government regulatory agencies. It also provides a solid foundation for those wishing to continue for advanced degrees. For those planning to pursue a medical degree, this cross-disciplinary curriculum offers a solid foundation in engineering, which is an advantage in preparing for a medical career.

### REQUIREMENTS

Regardless whether a student chooses Medical Imaging or Biomaterials and Tissue Engineering emphasis, after completion of 120 semester credit hours of the undergraduate courses from the list for the emphasis (below) and prior to taking any graduate course, the student must apply to the UT Arlington Graduate School for admission to the Bioengineering Department. A minimum grade point average of 3.0 in the 120 semester credit hours as well as a minimum average of 3.0 in the required English courses and a minimum average of 3.0 in the required Mathematics courses is required for admission to the Bioengineering Department.

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3

MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
Total Hours		20

The student should also submit two letters of recommendation, one from the Bioengineering five-year program advisor or a faculty member and one from the Biology undergraduate advisor.

### Medical Imaging Emphasis Courses

#### Pre-Professional Courses

##### Recommended Core Requirements

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
CHEM 1441	GENERAL CHEMISTRY I	4
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
A course on Creative Arts chosen by the student.		3
A course on Language, Philosophy, & Culture chosen by the student.		3
A course on Social and Behavioral Sciences chosen by the student.		3

##### Program Requirements

BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 3301	CELL PHYSIOLOGY	3
BIOL 3305	SCIENTIFIC AND TECHNICAL WRITING	3
or COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
BIOL 3315	GENETICS	3
BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 4365	TISSUE ENGINEERING LAB	3
BIOL 5314	BIOMETRY	3
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	4
& CHEM 2181	and ORGANIC CHEMISTRY I LABORATORY	
CHEM 2322	ORGANIC CHEMISTRY	4
& CHEM 2182	and ORGANIC CHEMISTRY II LABORATORY	
CHEM 4311	BIOCHEMISTRY I	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3

##### Professional Courses

###### Core Engineering

CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	3
EE 2347	MATHEMATICAL FOUNDATIONS OF ELECTRICAL ENGINEERING	3
EE 2440	CIRCUIT ANALYSIS WITH LAB	4
EE 3317	LINEAR SYSTEMS	3
EE 3318	DISCRETE SIGNALS AND SYSTEMS	3
EE 3407	ELECTROMAGNETICS	4
MAE 3319	DYNAMIC SYSTEMS MODELING AND SIMULATION	3

###### Bioengineering

BE 1225	INTRODUCTION TO BIOENGINEERING	2
BE 3344	BIOINSTRUMENTATION	3



BE 3346	MEDICAL IMAGING	3
BE 3352	DIGITAL PROCESSING OF BIOLOGICAL SIGNALS	3
BE 4324	BIOMEDICAL OPTICS LABORATORY	3
BE 4325	FUNDAMENTALS OF BIOENGINEERING	3
BE 5309	HUMAN PHYSIOLOGY IN BIOENGINEERING	3
BE 5325	FLUORESCENCE MICROSCOPY	3
BE 5326	TISSUE ULTRASOUND OPTICAL IMAGING	3
BE 5327	TISSUE OPTICS	3
BE 5347	PRINCIPLES OF FUNCTIONAL MAGNETIC RESONANCE IMAGING	3
BE 5382	LABORATORY PRINCIPLES	3
ME 5331	ANALYTIC METHODS ENGINEERING	3
or ME 5332	ENGINEERING ANALYSIS	
One BE Elective (approved by 5 year advisor)		3
Total Hours		159

### Biomaterials and Tissue Engineering Emphasis Courses

#### Pre-Professional Courses

##### Recommended Core Requirements

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
CHEM 1441	GENERAL CHEMISTRY I	4
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
A course on Creative Arts chosen by student.		3
A course on Language, Philosophy, & Culture chosen by the student.		3
A course on Social and Behavioral Sciences chosen by the student.		3

#### Program Requirements

BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 3301	CELL PHYSIOLOGY	3
BIOL 3305	SCIENTIFIC AND TECHNICAL WRITING	3
or COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
BIOL 3312	IMMUNOBIOLOGY	3
BIOL 3315	GENETICS	3
BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 4329	NEURAL ENGINEERING	3
BIOL 4365	TISSUE ENGINEERING LAB	3
BIOL 5314	BIOMETRY	3
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	4
& CHEM 2181	and ORGANIC CHEMISTRY I LABORATORY	
CHEM 2322	ORGANIC CHEMISTRY	4
& CHEM 2182	and ORGANIC CHEMISTRY II LABORATORY	
CHEM 4311	BIOCHEMISTRY I	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3

#### Professional Courses

**Core Engineering**

CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	3
EE 2320	CIRCUIT ANALYSIS	3
EE 3317	LINEAR SYSTEMS	3
MAE 2314	FLUID MECHANICS I	3
MAE 2381	EXPERIMENTAL METHODS AND MEASUREMENTS	3
MAE 3310	THERMODYNAMICS I	3

**Bioengineering**

BE 1225	INTRODUCTION TO BIOENGINEERING	2
BE 4325	FUNDAMENTALS OF BIOENGINEERING	3
BE 4331	POLYMERS IN BIOMEDICAL ENGINEERING	3
BE 4333	NANOBIMATERIALS	3
BE 5309	HUMAN PHYSIOLOGY IN BIOENGINEERING	3
BE 5335	BIOLOGICAL MATERIALS, MECHANICS, & PROCESSES	3
BE 5337	TRANSPORT PHENOMENA IN BIOMEDICAL ENGINEERING	3
BE 5361	BIOMATERIALS AND BLOOD COMPATIBILITY	3
BE 5364	TISSUE ENGINEERING LECTURE	3
BE 5366	PROCESS CONTROL IN BIOTECHNOLOGY	3
BE 5372	DRUG DELIVERY	3
BE 5382	LABORATORY PRINCIPLES	3

Two BE Electives (approved by 5 year advisor)

6

Total Hours

160

## Civil Engineering

### Undergraduate Degree

- Bachelor of Science in Civil Engineering (p. )

### Graduate Degrees

- Civil Engineering, M.Engr. (p. 252)
- Civil Engineering, M.Engr. Fast Track (p. 252)
- Civil Engineering, M.S. (p. 250)
- Civil Engineering, Ph.D. (p. 254)

## Civil Engineering - Graduate Programs

### Objective

The objective of the graduate program in civil engineering is to prepare students for continued professional and scholarly development consistent with their technical interests. Students, with the assistance of a faculty advisor in their area of interest, plan their programs of study in one of the technical areas in civil engineering. Typical program and research areas are:

1. Environmental (water and air quality control, and solid and hazardous materials control);
2. Geotechnical (soil mechanics and foundations);
3. Infrastructure Systems Engineering and Management;
4. Structures and Applied Mechanics;
5. Transportation (traffic planning, highways, airports and transit);
6. Water Resources (hydrology and hydraulics);
7. Construction Engineering and Management

The department provides the student an opportunity to study advanced and special topics that are on the forefront of technology. These courses carry CE 5300 TOPICS IN CIVIL ENGINEERING or CE 6300 ADVANCED TOPICS IN CIVIL ENGINEERING numbers and are identified on a student's academic record by both number and course title. Examples of topics offered in the typical program areas are:

**Construction Engineering and Management**-Engineering, Technical, and Managerial Aspects of Construction Projects; Productivity of Construction Operations; Cost Estimating, Project Scheduling, Job Costing, Contracts, Specifications and Legal Aspects of Construction; Equipment Utilizations and Field Operations; Design of Construction Operations; Environmental and Sustainability Aspects of Construction Projects; Computer Applications.

**Environmental** - Advanced Physical/ Chemical Processes

**Geotechnical**- Expansive Clays, Soil Chemical Stabilization;

**Infrastructure Systems Engineering and Management** - Civil Engineering Infrastructure Systems to Transport People, Goods, Water, Waste Water, Solid Waste, Energy and Information;

**Structures and Applied Mechanics** - Earthquake Engineering, Finite Elements and Mechanics, Bridge Design, Advanced Design with Timber, Masonry, Steel and Concrete;

**Transportation** - Intelligent Transportation Systems, Network Modeling, Urban Operations Research, Vehicular Energy Consumption and Emissions, Transit and Paratransit, Intermodal Systems;

**Water Resources** - Kinematic Wave Theory, Urban Hydrology, Distributed Modeling, Physical Modeling, and Boundary Layer Theory.

## MASTERS (M.S. AND M.ENGR.) STUDENT LEARNING OUTCOMES

1. *Fundamental Knowledge*: Graduates will have extensive basic and applied knowledge in their selected Civil Engineering Program (CEP) interest area.
2. *Independent Abilities*: Graduates will have the ability to conduct independent and original study ranging from gathering of information to application, analysis, creation, documentation of the study, and its resolution.
3. *Critical Thinking*: Graduates will have extensive breadth and ability to critique and synthesize literature, review results and to apply this knowledge in developing new ideas, in designing and evaluating scientific investigations, and in assessing, interpreting and understanding data relating to their selected CEP interest area.
4. *Advanced Knowledge*: Graduates will demonstrate extensive mastery of the subject matter at a deeper theoretical and applied level beyond the fundamental knowledge gained in his/her undergraduate course sequence.
5. *Effective Communication*: Graduates will have the ability to present scientific results in both written and oral format in various forums including thesis defense, master's defense, project reports, manuscripts, professional society meetings, journals, and performing class lectures, presentations, and reports.
6. *Professional Development*: A student graduating with a master's degree in civil engineering is expected to demonstrate interest in pursuing lifelong learning by attaining professional licenses, and obtaining professional development hours by attendance at conferences, higher educational classes, short courses and seminars, conducting classes, and publishing.

## PH.D. STUDENT LEARNING OUTCOMES

1. *Fundamental Knowledge*: Graduates will command profound basic and applied knowledge in their specialty area within their Civil Engineering Program (CEP) interest area.
2. *Independent Abilities*: Graduates will have the ability to conduct a major independent and original research study that includes gathering of information, gaining an understanding of the process of academic or commercial exploitation of research results, demonstrating an understanding of contemporary research issues, effective project management, synthesis and evaluation, and appropriate dissemination of research findings.
3. *Critical Thinking*: Graduates will have a profound ability to critique and synthesize literature, review results and to apply knowledge gained from literature to develop new ideas, to design and evaluate scientific investigations, and to assess, interpret and understand data related to their specialty area within their CEP interest area.
4. *Advanced Knowledge*: Graduates will demonstrate profound mastery of the subject matter at a deeper theoretical and applied level well beyond fundamental knowledge gained in the undergraduate course sequence and the higher-level knowledge gained in the master's level course sequence.
5. *Effective Communication*: Graduates will have the ability to construct coherent arguments and articulate ideas clearly to an audience, through a variety of techniques, constructively defend research outcomes, justify their research to the profession and promote the public understanding of their research fields.
6. *Professional Development*: A student graduating with a doctoral degree in civil engineering is expected to demonstrate interest in pursuing life long learning by attaining professional licenses, and obtaining professional development hours by attendance at conferences, higher educational classes, short courses and seminars, conducting classes, and publishing.

## Grade Requirements and Continuation

The Civil Engineering Graduate Program has established rules, regulations, policies, and procedures for continuation in the graduate program and fulfilling graduation requirements. These can be found in the Civil Engineering Graduate Handbook available in the Civil Engineering Office. In addition to the requirements of the Graduate Studies listed elsewhere, to continue in the program each civil engineering graduate student must:

- For the M.S. program maintain an overall GPA 3.00 or higher.
- For the M.E. program maintain an overall GPA for 3.00 or higher and GPA of 3.00 or higher in core courses.
- A Ph.D. or a BS- Ph.D. student must maintain a minimum GPA of 3.50 or higher in their Ph.D. Civil Engineering coursework and a 3.25 GPA outside of the CE average to take the comprehensive examination and to graduate from the Civil Engineering Ph.D. program BS- Ph.D. program.

No organized course in which a grade of P is received can be used to satisfy course requirements for a graduate degree in civil engineering.

## Degree Requirements

The responsibility rests with each student for knowing the rules, regulations, and filing deadlines of the Graduate School and the Civil Engineering Committee on Graduate Studies (see Civil Engineering Graduate Handbook available in Civil Engineering Office). Requirements of the Graduate Studies and the Civil Engineering Committee on Graduate Studies must be met. The degrees offered and minimum course requirements are identified in the Master's (p. 252) and Doctoral (p. 254) tabs in the Civil Engineering section of this catalog.

## Undergraduate Coursework Credit

A limited number (not to exceed a total of nine semester hours) of the following courses may be applicable toward a graduate degree if approved in advance by the Civil Engineering Graduate Advisor.

CE 4305	TRENCHLESS TECHNOLOGY METHODS	3
CE 4306	INFRASTRUCTURE ASSET MANAGEMENT	3
CE 4311	URBAN TRANSPORTATION INFRASTRUCTURE PLANNING	3
CE 4312	STREET AND HIGHWAY DESIGN	3
CE 4313	TRAFFIC ENGINEERING	3
CE 4320	EARTH STRUCTURES DESIGN	3
CE 4321	FOUNDATION ENGINEERING	3
CE 4322	APPLICATIONS WITH GEOSYNTHETICS	3
CE 4323	LANDFILL DESIGN	3
CE 4324	MECHANICS OF MATERIALS II	3
CE 4325	FUNDAMENTALS OF FINITE ELEMENT METHOD	3
CE 4332	CONSTRUCTION EQUIPMENT, METHODS, & MANAGEMENT	3
CE 4330	HYDRAULIC DESIGN	3
CE 4336	HOT MIX ASPHALT DESIGN & CONSTRUCTION	3
CE 4337	PORTLAND CEMENT CONCRETE PAVEMENTS	3
CE 4348	STRUCTURAL DESIGN IN STEEL	3
CE 4350	INTRODUCTION TO AIR POLLUTION	3
CE 4351	PHYSICAL UNIT PROCESSES	3
CE 4353	WATER CHEMISTRY	3
CE 4354	INTRODUCTION TO SOLID AND HAZARDOUS WASTE MANAGEMENT	3
CE 4355	DESIGN OF WATER AND WASTEWATER TREATMENT FACILITIES	3
CE 4358	OPEN CONDUIT SYSTEM	3
CE 4360	DESIGN OF STRUCTURAL MASONRY	3
CE 4361	ADVANCED REINFORCED CONCRETE DESIGN	3
CE 4363	FUNDAMENTALS OF PRESTRESSED CONCRETE	3
CE 4365	STRUCTURAL WOOD DESIGN	3
CE 4366	FUNDAMENTALS OF FIBER REINFORCED COMPOSITES	3
CE 4368	ADVANCED STRUCTURAL ANALYSIS	3
CE 4369	LOADS ON STRUCTURES	3

## Admission Requirements

Performance on the GRE will not be the sole criterion for admitting applicants or the primary criterion to deny admission to either the Master's or Ph.D. program. In cases where GRE performance is relatively poor all other qualifications presented by the applicant will be carefully evaluated for evidence of potential for success.

### UNCONDITIONAL ADMISSION

A student must meet the following requirements for unconditional admission:

1. A Bachelor's Degree in Civil Engineering (Applicant with an appropriate Bachelor's Degree in another discipline is considered, subject to satisfactory completion of deficiency courses for area of interest.)
2. An undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School, is typical of a successful applicant.
3. A Graduate Record Exam (GRE) Quantitative score of 700 (old score system) or 155 (new score system) or higher is typical of a successful applicant.
4. A Graduate Record Exam Verbal score of 390 (old score system) or 146 (new score system) or higher is typical of a successful applicant.
5. For applicants whose native language is not English, a minimum score of 550 on the written Test of English as a Foreign Language (TOEFL), 213 on the computer TOEFL, 79 on TOEFL iBT, 40 on the TSE-A, 50 on the SPEAK, 400 on Verbal GRE, 85 on METLAB (Michigan English Language Assessment Battery), or 6.5 on the IELTS (International English Language Testing System). (METLAB and IELTS are used only when other tests are not available in the applicant's country.)
6. Optional - Recommended if seeking financial aid.

## **PROBATIONARY ADMISSION**

If applicants do not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission may require that the applicant receive a B or better in at least their first 9 hours of graduate coursework applicable to their degree being sought at UT Arlington, take additional English courses, and/or deficiency courses as required.

## **PROVISIONAL ADMISSION**

An applicant unable to supply all required documentation prior to the admission deadline, but whom otherwise appears to meet admission requirements may be granted provisional admission.

## **DEFERRED ADMISSION**

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate.

## **DENIAL OF ADMISSION**

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

## **WAIVER OF GRE ADMISSION**

A waiver of the GRE may be considered for a UT Arlington graduate who has completed an undergraduate degree within the past 3 years from normal undergraduate feeder program for CE degree. Students must complete the last 60 hours of study and in all undergraduate coursework completed at UT Arlington. The student must comply with all other requirements for admission to the Graduate School, i.e., submitting application, paying fees, providing required transcripts, letters of reference, etc. The applicant's record will be assessed for evidence of strengths relevant to success in the Civil Engineering graduate program. Meeting the minimum GPA requirement shall not be the sole determinant or the primary criterion for granting a waiver.

## **FACILITATED ADMISSION OF OUTSTANDING UT ARLINGTON UNDERGRADUATES**

Facilitated Admission may be considered for a student who has graduated from UT Arlington no more than one academic year prior to proposed entrance to the graduate program. Students must complete the last 60 hours of study at UT Arlington. The student's UT Arlington GPA must equal or exceed 3.5 in the last 60 hours of undergraduate study and all undergraduate coursework completed at UT Arlington. The applicant's record will be assessed for evidence of strengths relevant to success in the Civil Engineering graduate program. Meeting the minimum GPA requirement shall not be the sole determinant or the primary criterion for granting facilitated admission.

## **FAST TRACK PROGRAM FOR MASTER'S DEGREE IN CIVIL ENGINEERING**

The Fast Track Program enables outstanding senior undergraduate Civil Engineering students to receive undergraduate and graduate credit for up to six hours of coursework. Technical electives which are dual-listed as graduate courses will satisfy both bachelor's and master's degree requirements. Students pursuing an MECE degree may take up to two courses for dual credit.

Interested undergraduate Civil Engineering students should apply to the Graduate School for admission to the Fast Track Program when they are within 30 hours of completing their bachelor's degree (and before graduation). For admission consideration, they must have completed at least 30 hours at UT Arlington and have an overall and College of Engineering GPA of at least 3.0 (in both). Additionally, they must have completed a set of three basic undergraduate foundation courses with a grade of B or higher in each course and a GPA of at least 3.30 in these three courses. The specific foundation courses vary according to the student's desired specialty area for the master's degree.

In their final semester as an undergraduate, Fast Track students in good standing will be automatically admitted to graduate school with consent of the Graduate Advisor. No fees, transcripts, or test scores will be required. For further information about this program, contact an undergraduate advisor or the Graduate Advisor in Civil Engineering.

## **DEPARTMENTAL SCHOLARSHIPS**

Students that are unconditionally admitted will be eligible for available scholarships. Award of scholarships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must have a GPA of 3.0 in their last 60 undergraduate credit hours (if entering

Graduate School within one year of being granted a Bachelor Degree) plus any graduate credit hours as calculated by the Graduate School. Recipients must maintain at least a 3.0 overall GPA, and must be enrolled in a minimum of 9 hours of coursework in both long semesters to retain their scholarship. Additional requirements may be imposed by the department selection committee.

## Master's Degree Requirements

The Master of Science degree is a research-oriented program in which completion of a thesis is mandatory. The program consists of a minimum of 24 credit hours of coursework and an acceptable thesis (six credit hours). The Master of Engineering degree is an engineering practice-oriented program requiring a minimum of 36 credit hours. A maximum of six hours may be a special project. A final program examination is required of all master's degree candidates. Thesis degree candidates will be required to present an oral defense of the thesis.

## Dual Program Degree

Students in the Civil Engineering program may participate in a dual degree program whereby they can earn a Master's Degree in Civil Engineering and a Master of City and Regional Planning. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours required to earn both degrees separately. The number of hours that may be jointly applied ranges from six to 18 hours, subject to the approval of each program's Committee on Graduate Studies and Graduate Advisor. Those interested in the dual degree program should consult the appropriate graduate programs for further information on course requirements, including information regarding which courses are suitable for joint application of credit hours.

To participate in the dual degree program, students must make a separate application to each program, be accepted by each program, and must submit separate Programs of Work for each degree showing only courses that meet requirements for the specified degree, including those joint courses that meet requirements for both degrees. A student must be admitted to the second program before completing more than 15 semester hours in the first, exclusive of leveling, deficiency, or foundation courses, and must complete the second degree within one academic year following completion of the first. See also the statement on "Dual Degree Programs" in the general admission section of this catalog.

## Admissions Requirements

Performance on the GRE will not be the sole criterion for admitting applicants or the primary criterion to deny admission to either the Master's or Ph.D. program. In cases where GRE performance is relatively poor all other qualifications presented by the applicant will be carefully evaluated for evidence of potential for success.

### UNCONDITIONAL ADMISSION

A student must meet the following requirements for unconditional admission:

1. A Master's Degree or at least 30 hours of graduate coursework in Civil Engineering. (Applicant with a Master's Degree in another discipline is considered, subject to satisfactory completion of deficiency courses for the CE area of interest.)
2. No specific GPA requirement (application considered as a whole). However, a graduate coursework GPA of 3.5 on a 4.0 scale, as calculated by the Graduate School, is typical of a successful applicant.
3. A Graduate Record Exam (GRE) Quantitative score of 740 (old score system) or 158 (new score system) or higher is typical of a successful applicant.
4. A competitive Graduate Record Examination Verbal score. A successful applicant typically has a Verbal score of 420 (old score system) or 148 (new score system).
5. For applicants whose native language is not English, a minimum score of 550 on the written Test of English as a Foreign Language (TOEFL), 213 on the computer TOEFL, 79 on TOEFL iBT, 40 on the TSE-A, 50 on the SPEAK, 425 on Verbal GRE, 86 on METLAB (Michigan English Language Assessment Battery), or 6.5 on the IELTS (International English Language Testing System). (METLAB and IELTS are used only when other tests are not available in the applicant's country.)
6. Favorable letters of recommendation from people familiar with the applicant's academic work and/or professional work.

### PROBATIONARY ADMISSION

If applicants do not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission may require that the applicant receive a B or better in at least their first 9 hours of graduate coursework applicable to their degree being sought at UT Arlington, take additional English courses, and/or deficiency courses as required.

### PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admission deadline, but whom otherwise appears to meet admission requirements may be granted provisional admission.

### DEFERRED ADMISSION

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate.

## DENIAL OF ADMISSION

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

## DEPARTMENTAL SCHOLARSHIPS AND FELLOWSHIPS

Students that are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible for a departmental scholarship, candidates must have a GPA of 3.5 in their graduate credit hours. Recipients must maintain at least a 3.5 overall graduate GPA in courses taken as a doctoral student and enroll in a minimum of 9 hours of coursework in both long semesters to retain their scholarship. To be eligible for fellowship consideration, candidates must be first-year doctoral or PhD-bound student, must hold an assistantship of at least 25% time, must have a GPA of 3.25 in their last 60 undergraduate credit hours plus a GPA of 3.25 in any graduate credit hours. Recipients must maintain at least a 3.25 overall graduate GPA in courses taken as a doctoral student and enroll in a minimum of 6 hours of coursework in both long semesters to retain their fellowship. Students who hold a 50% assistantship must maintain full-time enrollment of at least 9 hours. Additional requirements may be imposed by the department selection committee.

## CE BS-PH.D. PROGRAM

### Unconditional Admission

A student must meet the following requirements for unconditional admission:

1. No Specific GPA requirement (application considered as a whole). However, an undergraduate coursework GPA of 3.5 on a 4.0 scale, as calculated by the Graduate School, is typical of a successful applicant.
2. A Graduate Record Exam (GRE) Quantitative score of 740 (old score system) or 158 (new score system) or higher is typical of a successful applicant.
3. A competitive Graduate Record Examination Verbal score. A successful applicant typically has a Verbal score of 420 (old score system) or 148 (new score system).
4. For applicants whose native language is not English, a minimum score of 550 on the written Test of English as a Foreign Language (TOEFL) 213 on the computer TOEFL, 79 on the TOEFL iBT, 40 on the TSE-A, 50 on the SPEAK, 86 on METLAB (Michigan English Language Assessment Battery), or 6.5 on the IELTS (International English Language Testing System). (METLAB and IELTS are used only when other tests are not available in the applicant's country.)
5. Favorable letters of recommendation from people familiar with the applicant's academic work and/or professional work.

### Probationary Admission

If applicants do not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission may require that the applicant receive a B or better in at least their first 9 hours or graduate coursework applicable to their degree being sought at UT Arlington, take additional English courses, and/or deficiency courses as required.

## Doctoral Degree Requirements

The Ph.D. degree is a research degree and, as such, requires the candidate to successfully carry out original, independent research in an area acceptable to the civil engineering faculty. Normally, a minimum of one year of advanced coursework beyond the master's degree is required. The student must pass diagnostic comprehensive, and dissertation defense exams administered by his/her committee.

The BS-Ph.D. degree is a research degree and, as such, requires the candidate to successfully carry out original, independent research in an area acceptable to the civil engineering faculty. Normally, a minimum of 48 credits of coursework beyond the bachelor's degree is required.

## Civil Engineering - Undergraduate Programs

### Educational and Professional Career Paths

Civil engineering is the oldest and broadest of the engineering disciplines. A civil engineer works with a wide spectrum of individuals in both the public and private sectors to meet today's challenges of pollution, infrastructure rehabilitation, traffic congestion, floods, earthquakes, and urban development. Civil engineers plan, design, construct, maintain, manage, and operate facilities essential to modern, civilized human life. Projects requiring civil engineering expertise vary widely in nature, size, and scope, such as: bridges, tunnels, transportation systems, airports, storm water drainage systems, dams, buildings, foundations, water treatment and distribution, wastewater collection and treatment, hazardous waste treatment, environmental remediation, environmental protection, and air pollution control.

Civil engineering graduates are prepared for advanced graduate degrees and a wide range of career paths in civil engineering including consulting, governmental agencies, and industry. In addition to the traditional careers in civil engineering, graduates may take advantage of their strong, broad-based engineering education to pursue careers in professions such as medicine, law, business, or teaching.

## Fast Track Program for Master's Degrees in Civil Engineering

The Fast Track Program enables outstanding senior undergraduate Civil Engineering students to receive undergraduate and graduate credit for up to six hours of coursework. Technical electives which are dual-listed as graduate courses will satisfy both bachelor's and master's degree requirements. Students pursuing an MECE or MSCE degree may take up to two courses for dual credit.

Interested undergraduate Civil Engineering students should apply to the Graduate School for admission to the Fast Track Program when they are within 30 hours of completing their bachelor's degree (and before graduation). For admission consideration, they must have completed at least 30 hours at UT Arlington and have an overall and College of Engineering GPA of at least 3.00 (in both) for the MECE option and at least 3.50 (in both) for the MSCE option. Additionally, they must have completed a set of three basic undergraduate foundation courses with a grade of B or higher in each course and a GPA of at least 3.30 in these three courses. The specific foundation courses vary according to the student's desired specialty area for the master's degree.

In their final semester as an undergraduate, Fast Track students in good standing will be automatically admitted to graduate school with consent of the Graduate Advisor. No fees, transcripts, or test scores will be required. For further information about this program, contact an undergraduate advisor or the Graduate Advisor in Civil Engineering. Descriptions of CE Fast Track degree options are also available in the CE Advising Office.

## Minor Field of Study

The Civil Engineering program does not support the option of pursuing a minor in Civil Engineering by other engineering or non-engineering majors.

## Advising

Students entering directly from high school and those with less than 24 hours of transferrable credit are advised initially in the University College. Students are transitioned to advising in the College of Engineering as they progress successfully in their degree programs.

Transfer students registering for the first time are advised separately prior to the beginning of the semester they enroll in courses. They should contact the department to set up an appointment for advising with a departmental undergraduate advisor prior to registration.

Civil engineering majors are required to be advised by an assigned advisor during the period set aside each semester by the College of Engineering for this purpose. Students are responsible for meeting with their advisors during the advising period. Periods set aside for advising and registration may be different, and students who do not meet with their advisors during the regular advising period may not be able to complete registration. All students should consult the departmental bulletin board for advisors' names and periods set aside for advising.

Civil engineering students who have not been admitted to the professional program must register only for courses approved by their faculty advisor and obtain their advisor's authorization for add/drops. Failure to do so is grounds for dismissal from the civil engineering program. Students, including those in the professional program, who enroll in courses before taking the proper prerequisites or co-requisites, will be .

## Transfer Students and Transfer Credit

When a student transfers, a loss of credit can occur and his/her academic plans may have to be changed. Courses that appear to be similar may be different in either content or level of difficulty and, as a result, cannot be used for degree credit. When a student's record indicates weakness in certain areas of study, he/she will be required to retake courses or to take additional courses. Transfer students should contact the Department of Civil Engineering after admission and prior to registration.

Prior to advising, a transfer student should present to an undergraduate advisor a transcript (official or copy) from each school previously attended. Only the equivalent courses in a program accredited by ABET or equivalent freshman and sophomore courses accepted by the department can be counted toward a degree in civil engineering. To be acceptable as an equivalent course, it must be equivalent to our corresponding course in credit value and course content. Junior and senior level courses taken at a college or university which does not have a civil engineering program accredited by ABET cannot be used to satisfy the requirements for a degree in civil engineering.

A student in the Department of Civil Engineering at UT Arlington who wishes to enroll in courses at another college or university for transfer credit toward a degree in civil engineering should, first, consult with an undergraduate advisor to verify that the course can be used in the student's CE degree plan.

## Educational Objectives of the Undergraduate Program

Most alumni of the CE program will attain the following Program Educational Objectives (PEOs) within a few years after graduation:

- Obtain professional position and practice civil engineering, or pursue graduate studies.
- Be involved in continuing education and professional development activities.
- Obtain PE licensure or other professional certification.



## Student Outcomes of the Undergraduate Program

In order to produce graduates who will achieve the Program Educational Objectives a few years after graduation, it is expected that the undergraduate students will attain the following Student Outcomes by the time of graduation:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and conduct experiments
- an ability to analyze and interpret data
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- an ability to function on multi-disciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- a recognition of the need for, and an ability to engage in life-long learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

## Civil Engineering BS Degree at UT Arlington

At the undergraduate level, the department offers a Bachelor of Science in Civil Engineering degree designed to provide a strong foundation in science, mathematics, and engineering science; technical competence in multiple areas of civil engineering practice; and an understanding of the importance of ethics, safety, professionalism, and socioeconomic concerns in resolving technical problems through synthesis, planning, and design. Elements of design are introduced at the freshman level. This is followed by an analysis and design component in professional program courses, culminating in a comprehensive design experience.

The UT Arlington Civil Engineering BS degree has been accredited since October 1967 by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. ABET is recognized by the U.S. Department of Education as the sole agency responsible for accreditation of educational programs leading to degrees in engineering. Graduation from an ABET accredited program is an important factor in attaining registration as a Professional Engineer in the State of Texas and other states.

## Requirements for a Bachelor of Science Degree in Civil Engineering

### Courses Fulfilling the University General Core Requirements (minimum 42 hours required)

46

#### Communication (minimum 6 hours required)

ENGL 1301	RHETORIC AND COMPOSITION I
ENGL 1302	RHETORIC AND COMPOSITION II

#### Creative Arts (minimum 3 hours required)

Any course which satisfies the University Core Curriculum requirement for Creative Arts is accepted.

#### Government/Political Science (minimum 6 hours required)

POLS 2311	GOVERNMENT OF THE UNITED STATES
POLS 2312	STATE AND LOCAL GOVERNMENT

#### Language, Philosophy & Culture (minimum 3 hours required)

Any course which satisfies the University Core Curriculum requirement for Language, Philosophy & Culture is accepted.

#### Mathematics (minimum 6 hours required)

MATH 1426	CALCULUS I <sup>1</sup>
MATH 2425	CALCULUS II

#### Life & Physical Sciences (minimum 6 hours required)

PHYS 1443	GENERAL TECHNICAL PHYSICS I
PHYS 1444	GENERAL TECHNICAL PHYSICS II

#### Social & Behavioral Sciences (minimum 3 hours required)

IE 2308	ECONOMICS FOR ENGINEERS
---------	-------------------------

#### US History (minimum 6 hours required)

HIST 1311	HISTORY OF THE UNITED STATES TO 1865
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT

#### Foundational Component Area Option (minimum 3 hours required)

MATH 2326	CALCULUS III	
<b>Other Pre-Professional Program Courses</b>		<b>35</b>
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING <sup>2</sup>	
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	
CHEM 1465	CHEMISTRY FOR ENGINEERS	
GEOL 3340	GEOLOGY FOR ENGINEERS	
CE 1104	INTRODUCTION TO ENGINEERING <sup>3</sup>	
CE 1105	INTRODUCTION TO CIVIL ENGINEERING <sup>3</sup>	
CE 1252	COMPUTER TOOLS - AUTOCAD	
CE 2152	COMPUTER TOOLS - MATHCAD	
CE 2221	DYNAMICS	
CE 2311	STATICS	
CE 2313	MECHANICS OF MATERIALS I	
CE 2331	ENGINEERING MEASUREMENT AND COMPUTER MODELING	
CE 3301	STOCHASTIC MODELS FOR CIVIL ENGINEERING	
or IE 3301	ENGINEERING PROBABILITY	
CE 3305	BASIC FLUID MECHANICS	
<b>CE Professional Program Courses</b>		<b>49</b>
CE 3110	CIVIL ENGINEERING COMMUNICATIONS	
CE 3131	ENVIRONMENTAL ANALYSIS	
CE 3142	APPLIED FLUID MECHANICS LAB	
CE 3143	PROPERTIES AND BEHAVIOR OF SOILS	
CE 3161	CIVIL ENGINEERING MATERIALS LABORATORY	
CE 3261	PROPERTIES AND BEHAVIOR OF CIVIL ENGINEERING MATERIALS	
CE 3302	TRANSPORTATION ENGINEERING	
CE 3309	INTRODUCTION TO HYDROLOGY	
CE 3311	CONSTRUCTION ENGINEERING	
CE 3334	PRINCIPLES OF ENVIRONMENTAL ENGINEERING	
CE 3341	STRUCTURAL ANALYSIS	
CE 3343	SOIL MECHANICS	
CE 4347	REINFORCED CONCRETE DESIGN	
CE 4352	PROFESSIONAL PRACTICE	
CE 4383	SENIOR PROJECT	
15 hours of senior technical electives		
Twelve hours of CE technical electives to be selected from four of the following six areas: Construction, Environmental, Geotechnical, Structures, Transportation or Water Resources. One of these four courses must be either CE 4328 or CE 4348. The remaining three hours may be from any CE technical elective area.		
<b>Total Hours</b>		<b>130</b>

<sup>1</sup> The Mathematics Department requires MATH 1323 PRECALCULUS II or passing a placement test provided by the Mathematics Department before enrolling.

<sup>2</sup> Completion of COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING satisfies the University's communication requirement.

<sup>3</sup> Completion of CE 1105 INTRODUCTION TO CIVIL ENGINEERING satisfies the University's computer proficiency requirement.

More hours may be required to strengthen student's program or demonstrate proficiency. See Prior Preparation and Course Requirements.

Total hours will depend upon prior preparation and academic qualifications. Also, students who do not have two units of high school foreign language will be required to take modern and classical languages courses in addition to the previously listed requirements.

Refer to the College of Engineering section of this catalog for information concerning the following topics: Admission to the College of Engineering, Advising, Admission into the Professional Program, College of Engineering Academic Regulations, Honors Degrees in Engineering, Fast Track Master's Degrees in Engineering, Professional Engineering Licensure, and Cooperative Education.

## SUGGESTED COURSE SEQUENCE

A suggested course sequence for the Pre-Professional (first two years) and Professional Program courses (final two years) is available on the CE Department's web site.

## Admission Requirements

Requirements for admission as a Civil Engineering major are governed by the requirements stated under the College of Engineering section of this catalog.

### ADMISSION TO THE PROFESSIONAL PROGRAM

Requirements for admission to the professional program in Civil Engineering are in accordance with those of the College of Engineering with the following added stipulations:

- Application to the professional program is to be made to the CE Department during the semester that the advancement requirements are being completed.
- No professional civil engineering courses may be taken until the student is admitted into the professional program or obtains the written consent of the Department Chair.
- Each student must complete all pre-professional courses stipulated under "Requirements for a Bachelor of Science Degree in Civil Engineering" with a minimum grade of C in each course and a minimum GPA of 2.25 in:
  - a. all courses,
  - b. in all math, science, and engineering courses, and
  - c. in all CE courses.
- Upon receipt of the application, a student's record is individually reviewed including grades, academic and personal integrity, record of drops and course withdrawals, the order in which courses have been taken, the number of times a student has attempted a course for credit, and any other aspect of the student's record that may be deemed pertinent to admission.

The student must be admitted to the professional program and have an approved degree plan on file in order to graduate. The degree plan is generated upon entry to the professional program. Graduating seniors should apply to graduate during the next-to-last semester.

## Prior Preparation and Course Requirements

The undergraduate baccalaureate degree in civil engineering is a four-year program and requirements for the degree are based upon prior high school preparation through either an honors or college track program. Students who have not had the appropriate prior preparation should contact the departmental advising office for a curriculum guide that will assist them in structuring a study plan that will include leveling courses. Students requiring leveling courses may require a period of time greater than four years to complete their undergraduate degree.

## Academic Requirements

Academic performance requirements establishing satisfactory progress and grade point requirements are given in the College of Engineering section of this catalog.

### GRADE REQUIREMENTS FOR CE COURSE PREREQUISITES

Civil Engineering majors (CE-Intended or CE) may not attempt a CE course until they have earned a grade of C or better in the prerequisite course(s).

### REPEATING COURSES

Civil Engineering majors (CE-Intended or CE) may not attempt any course more than three times and apply that course toward a degree in civil engineering. Enrollment in a course for a period of time sufficient for assignment of a grade, including a grade of W, is considered an attempt.

### GROUND FOR DISMISSAL FROM THE CE PROGRAM

Civil Engineering majors (CE-Intended or CE) who the UTA Office of Student Conduct has found to have violated the UTA Code of Student Conduct a second time are subject to dismissal from the CE program.

## Computer Science and Engineering

### Undergraduate Degrees (p. 263)

- Bachelor of Science in Computer Science (p. 263)
- Bachelor of Science in Computer Engineering (p. 263)
- Bachelor of Science in Software Engineering (p. 263)
- Minor in Computer Science (p. 263)

## Graduate Degrees (p. 260)

- Master of Science in Computer Science (thesis and non-thesis) (p. 260)
- Master of Science in Computer Engineering (thesis and non-thesis) (p. 260)
- B.S. to Ph.D. in Computer Science / Computer Engineering (p. 261)
- Ph.D. in Computer Science (p. 261)
- Ph.D. in Computer Engineering (p. 261)

# Computer Science and Engineering - Graduate Programs

## Objective

The purpose of the graduate programs in Computer Science (CS) and Computer Engineering (CpE) is to facilitate the student's continued professional and scholarly development. The Master of Science (M.S.) programs are designed to extend the student's knowledge and emphasize a particular area of concentration. The Master of Software Engineering (SwE.) program is designed to provide the student with the opportunity for professional development in the software engineering field. Students who have completed a bachelor's degree in CS, CpE or closely related fields wishing to pursue a doctoral degree may apply for admission in the B.S. to Ph.D. track. The admission requirements to this highly competitive track are the same as those for "advanced admission" (see B.S. to Ph.D. Accelerated Programs). The Doctor of Philosophy (Ph.D.) programs are designed to prepare the student to conduct research and development in an area of concentration.

Typical areas of concentration include

1. **Systems and Architecture:** parallel processing, cloud computing, distributed systems, scheduling and load balancing, computer architecture, tools for parallel programming, performance evaluation, fault-tolerant computing, real-time systems, embedded systems;
2. **Intelligent Systems:** machine learning, robotics, pattern recognition, multi-agent environments, assistive technologies, human-centered computing, decision support, health informatics, bioinformatics;
3. **Software Engineering:** software life cycles, agile methodologies, formal specifications, object-oriented software engineering, design methodologies, software testing, software evolution, software re-engineering, software processes;
4. **Database and Data Analysis:** spatio-temporal data, data mining, big data analysis, database models and languages, indexing and hashing techniques, conceptual modeling, data security, query optimization, user interfaces, ontologies, Web search and ranking, social networks;
5. **Networking and Security:** sensor networks, wireless networks, information security, secure programming, mobile and distributed computing, multimedia systems, pervasive computing, networking architectures.

For a complete list of graduate programs and disciplines please refer to <http://cse.uta.edu/graduate/>

## Admission

The CSE graduate admission committee bases its decision for graduate admission on the following criteria (in no specific order):

- An overall GPA of 3.0 or higher in undergraduate coursework.
- A GPA of 3.2 or higher on CS/CpE/SwE related coursework in the last two years of undergraduate degree.
- Relevance of the student's degree (background) to the CS/CpE/SwE curriculum.
- Rigor of the student's bachelor's degree. A four-year degree is considered more rigorous than a three-year degree.
- Reputation of the university/college that the student has received his/her previous degrees from.
- GRE Test: Admitted students typically earn the following scores on the GRE
  - GRE quantitative score of at least 155 for MS and 160 for PhD
  - GRE verbal score of at least 145 for MS and 150 for PhD
  - A sum of verbal and quantitative GRE scores of at least 300 for MS and 310 for Ph.D. applicants.
  - International applicants test of English as a Foreign Language (TOEFL) score of 90 or higher on the IBT or a score of 7.0 or higher on the IELTS.

Applicants for the MS degree with (or completing in the near future) a BS in CS, CpE or SwE from UT Arlington and a GPA of at least 3.2 should contact the graduate advisor regarding a GRE waiver. Those with a GPA of at least 3.5 should contact the graduate advisor regarding nomination for Advanced Admission (i.e. admission without application and fee). The GRE waiver may be extended to include non-UT Arlington candidates that have undergraduate degrees in CS, CpE or SwE (with GPA of 3.2 or above) from reputable universities with an ABET accredited program or other select universities subject to graduate advisor's approval.

The above criteria are used as follows in relevance to the three possible admission decisions, i.e., *Unconditional Status*; *Probationary Status*; and *Denied*.

- *Unconditional Status:* Applies to an applicant who meets the first six criteria above to a degree satisfactory to the graduate admissions committee.
- *Probationary Status:* Applies to an applicant who meets at least five of the six criteria to a degree satisfactory to the graduate admissions committee and whose record shows promise for success in the program or to an applicant who does not fulfill all the deficiency course requirements.
- *Denied:* Applies to an applicant who does not meet five of the first six criteria to a degree satisfactory to the graduate admissions committee.

## WAIVER OF GRADUATE RECORD EXAMINATION

Upon recommendation of the Graduate Advisor, outstanding UT Arlington graduates may qualify for waiver of the requirements for the Graduate Record Examination (GRE). To qualify, the applicant must meet the following minimum requirements:

- The student must have graduated from a commensurate bachelor's degree program at UT Arlington no more than three academic years prior to admission to the graduate program (as measured from the start of the semester for which admission is sought). A commensurate bachelor's degree program is one that is a normal feeder program for the master's degree program to which the student seeks admission. Undergraduate students in their final year of study are also eligible; in such cases, admission with the GRE waiver is contingent upon successful completion of the bachelor's degree.
  - as calculated for admission to the Graduate School ;
  - overall;
  - in the major field; and
  - in all upper-division work.
- The student's UT Arlington grade-point average must equal or exceed 3.0 in the following calculations:

Applicants qualifying for waiver of GRE who do not qualify for advanced admission, must comply with all other requirements for admission, i.e., submitting the application for admission, paying fees, providing official transcripts from other institutions, and meeting any requirements established by the admitting graduate program. The GRE waiver must be recommended by the Graduate Advisor at the time of admission. The waiver of GRE program applies to applicants for master's degree programs only. Some programs may require higher grade-point averages to qualify and some will not waive the GRE under any circumstances.

Additionally, some programs may waive the GRE requirement for non-UT Arlington graduates who seek admission as a master's student and meet qualifications listed in those programs' specific admission requirements. Such waivers are not offered by all graduate programs.

## Degree Requirements

### MASTER OF SCIENCE IN COMPUTER SCIENCE - THESIS

The Master of Science in Computer Science degree program is designed to develop the scholarship and research skills of the student. Thirty-one credit hours, which include one orientation seminar credit and six thesis credits, are required.

### MASTER OF SCIENCE IN COMPUTER ENGINEERING - THESIS

The Master of Science in Computer Engineering, which is intended for students with a baccalaureate degree in engineering, requires 31 credit hours of which one is orientation seminar and six are thesis credits, and is designed to develop the scholarship and research skills of the student.

### MASTER OF SCIENCE IN COMPUTER SCIENCE - NON THESIS

The Master of Science in Computer Science non-thesis options provide professional development in computer science. The structured option requires 37 credit hours of which one is orientation seminar.

### MASTER OF SCIENCE IN COMPUTER ENGINEERING - NON THESIS

The Master of Science in Computer Engineering non-thesis options are intended for students with an engineering baccalaureate degree. The structured option requires 37 credit hours of which one is orientation seminar.

## Admission

The CSE graduate admission committee bases its decision for graduate admission on the following criteria (in no specific order):

- An overall GPA of 3.0 or higher in undergraduate coursework.
- A GPA of 3.2 or higher on CS/CpE/SwE related coursework in the last two years of undergraduate degree.
- Relevance of the student's degree (background) to the CS/CpE/SwE curriculum.
- Rigor of the student's bachelor's degree. A four-year degree is considered more rigorous than a three-year degree.
- Reputation of the university/college that the student has received his/her previous degrees from.
- GRE General Test: Admitted students typically earn the following scores on the GRE

- GRE quantitative score of at least 160 for PhD
  - GRE verbal score of at least 150 for PhD
  - A sum of verbal and quantitative GRE scores of at least 310 for Ph.D. applicants.
- For Ph.D. students, the following are optional. Meeting these criteria will improve both a student's chances of securing admission and receiving financial support.
    - Publication in scholarly conferences/journals.
    - A percentile of 80 score or higher on the Computer Science subject GRE.

The above criteria are used as follows in relevance to the three possible admission decisions, i.e., *Unconditional Status*; *Probationary Status*; and *Denied*.

- *Unconditional Status*: Applies to an applicant who meets the first six criteria above to a degree satisfactory to the graduate admissions committee.
- *Probationary Status*: Applies to an applicant who meets at least five of the six criteria to a degree satisfactory to the graduate admissions committee and whose record shows promise for success in the program or to an applicant who does not fulfill all the deficiency course requirements.
- *Denied*: Applies to an applicant who does not meet five of the first six criteria to a degree satisfactory to the graduate admissions committee.

## REQUIREMENTS FOR BS TO PHD ACCELERATED PROGRAM

- An undergraduate degree in CS or CpE or closely related field.
- An overall GPA of 3.0 or higher in undergraduate coursework.
- A 3.2 grade point average (on a 4.0 scale) on the last two years of undergraduate course-work. In particular, performance on CS/CpE related courses are emphasized.
- Rigor of the student's Bachelors degree. A three-year degree is not considered rigorous enough.
- Reputation of the University/College that the student has received his/her previous degrees from.
  - GRE quantitative score - 160 or higher
  - GRE verbal score - 150 or higher
  - A sum of verbal and quantitative scores of 310 or more on the GRE<sup>1</sup> :
  - (International Applicants)  
A Test of English as a Foreign Language (TOEFL) score - 90 or higher (iBT)

## CONTINUATION

To fulfill its responsibility to graduate highly qualified professionals, the Department has established certain requirements that must be met by students continuing in the graduate programs. In addition to the requirements of the Graduate School listed elsewhere in the catalog, the Computer Science and Engineering Department has established additional requirements detailed in its Guide to Graduate Programs.

## ASSISTANTSHIPS

Students admitted without any probation may qualify for financial support of the following forms:

- Graduate Teaching Assistant (GTA)
- Graduate Research Assistant (GRA)
- Priority is given to PhD students.

## Degree Requirements

### B.S. TO PH.D. TRACK

The B.S. to Ph.D. track in Computer Science or Computer Engineering requires 30 credit hours with 21 hours of diagnostic requirements and nine hours of advanced research-oriented coursework. This is in addition to the Ph.D. requirements.

### PH.D. (COMPUTER SCIENCE)

The Ph.D. in Computer Science continues the development of the student's research capability for students who already have an MS degree. Coursework selection in each student's program is designed to support the dissertation area selected by the student.

### PH.D. (COMPUTER ENGINEERING)

The Ph.D. in Computer Engineering is available to students with a prior degree in engineering. It contains essentially the same requirements as the Ph.D. (Computer Science) degree except that it permits interdisciplinary research between Computer Science and one or more of the various engineering disciplines.

For all programs, a minimum of two semesters of full-time study is required during the dissertation phase. There is no foreign language requirement.

# Computer Science and Engineering - Undergraduate Programs

The Department of Computer Science and Engineering offers three programs of study leading to the bachelor's degree: the Bachelor of Science in Computer Science, the Bachelor of Science in Computer Engineering, and the Bachelor of Science in Software Engineering.

In all three programs of study, design experiences are included throughout the first three years of the curriculum and culminate in a major team-oriented project in the senior year that approximates an industrial work experience. All programs strive to provide students with opportunities to interface with the profession through avenues such as cooperative education programs, professional society activities, plant trips, special projects, and industry speakers programs.

## Bachelor of Science in Computer Science (BSCS)

The BSCS program has been formulated so that graduates may:

1. enter the computing profession or advanced studies supported by their knowledge of computing and mathematics, along with abilities in computational problem-solving and software system construction;
2. advance in this profession supported by their ability to work in teams, consider trade-offs in the design of computer-based systems, design solutions to meet desired needs and implement these solutions using current computer software tools and technologies; and
3. demonstrate success and leadership while advancing the practice of computing by contributing to the growth of their employers, communities, and professional societies through their proficiency in communication, understanding of professional issues and the broad impact of computing, and the ability to engage in continuing professional development.

The BSCS program has been accredited since 2002 by the Computing Accreditation Commission of ABET, <http://www.abet.org>.

## Bachelor of Science in Computer Engineering (BSCpE)

The BSCpE program has been formulated so that graduates may:

1. enter the engineering profession or advanced studies supported by their fundamental knowledge of mathematics, basic science, engineering principles, computing systems and science;
2. advance in the engineering profession supported by their ability to work in teams, analyze complex computing systems, design solutions and engineer these solutions using computer software and hardware tools and technologies; and
3. demonstrate success and leadership while advancing the practice of engineering by contributing to the growth of their employers, communities, and professional societies through their proficiency in communication, understanding of professional ethics, and the need for life-long learning.

The BSCpE program has been accredited since 1983 by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

## Bachelor of Science Degree in Software Engineering (BSSE)

The BSSE program has been formulated so that graduates will:

1. pursue the software engineering profession or advanced studies supported by their abilities to apply knowledge of mathematics, science, computer science and supporting disciplines, and software engineering;
2. advance in the software engineering profession supported by their abilities to effectively communicate and work in one or more significant application domains, function in multi-disciplinary teams, analyze, design, verify, validate, implement, and maintain software systems using software engineering technologies and tools; and
3. demonstrate success and leadership while advancing the practice of software engineering by contributing to the growth of their employers, communities, and professional societies through life-long learning, understanding professional ethics and responsibilities, and the impact of engineering solutions in a global and societal context.

The BSSE program has been accredited since 2002 by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

## Student Learning Outcomes

From the educational objectives of the BSCS program (described above), the department designed the program to develop in its graduates:

- an ability to apply knowledge of computing and mathematics appropriate to the discipline
- an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- an ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- an ability to function effectively on teams to accomplish a common goal
- an understanding of professional, ethical, legal, security, and social issues and responsibilities
- an ability to communicate effectively with a range of audiences
- an ability to analyze the impact of computing on individuals, organizations, and society

- a recognition of the need for and an ability to engage in continuing professional development
- an ability to use current techniques, skills, and tools necessary for computing practice
- an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs in design choices
- an ability to apply design and development principles in the construction of software systems of varying complexity

From the educational objectives of the BSCpE and BSSE programs (described above), the department designed these programs to develop in their graduates:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and construct experiments, as well as to analyze and interpret data
- an ability to design a system, component, or process to meet desired needs
- an ability to function on multidisciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global and societal context
- a recognition of the need for, and the ability to engage in, lifelong learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

## Admission Requirements

Requirements for admission as a CS, CpE or SE pre-major or major are governed by the requirements stated under the College of Engineering section of this catalog. CS, CpE or SE pre-majors become majors upon completion of required pre-professional English, science, mathematics, and CSE courses, with a 2.25 or better grade point average.

All entering students majoring in computer science, computer engineering, or software engineering are permitted to enroll in general education and pre-professional courses for which they are qualified. Students completing these pre-professional courses must meet the academic requirements specified by the College of Engineering prior to applying for admission to the professional program. The Computer Science and Engineering Department requires a 2.25 overall grade point average on a 4.0 scale in each of three categories: (1) overall, (2) required science, mathematics, and engineering courses, and (3) required CSE courses. Students not in the professional program must have permission from the department chairperson to receive credit for courses listed in the professional program category. Application for admission to the professional program is made to the Department of Computer Science and Engineering.

## Prior Preparation

The BSCS, BSCpE, and BSSE are four-year programs and requirements for the degrees are based upon prior high school preparation through either an honors or college track. More specifically, entering students are expected to have a background in mathematics through precalculus, high school chemistry, and programming in a high-level language such as C, C++, Java or Python.

Students who have not had the appropriate preparation should contact the departmental advising office for assistance in structuring a degree plan that will include leveling courses. Students requiring leveling courses may require a longer period of time to complete their undergraduate program.

## Readiness Examinations

Students will be required to pass readiness examinations before enrolling in the courses listed below unless the course prerequisite was taken at UT Arlington and passed with a C or better grade. Students not passing the readiness examination must take the prerequisite course. A readiness examination may be taken only once per course and only before enrolling in any CSE courses. Additional information is available in the departmental office.

CSE 1320	INTERMEDIATE PROGRAMMING	3
CSE 1325	OBJECT-ORIENTED PROGRAMMING	3

## Student Advising

CS, CpE, and SE pre-majors and majors are required to be advised by a departmental advisor each semester. Consult the departmental bulletin boards or Web site for advising hours. New and transfer students must also be advised prior to the beginning of the semester in which they first enroll.

## Transfer Students and Transfer Credit

After admission and prior to registration, transfer students should contact the Department of Computer Science and Engineering for advising. At the time of advising, a transfer student must present to the undergraduate advisor an official transcript (or copy) from each school previously attended. Only the



equivalent courses in a program accredited by ABET or equivalent freshman, sophomore, or general education courses accepted by the department chairperson can be counted toward a degree in computer science and engineering.

A student, once admitted to The University of Texas at Arlington and enrolled in the CS, CpE or SE program, cannot enroll in courses at another college or university and transfer those courses for credit toward a CS, CpE or SE degree without having obtained prior written permission from the chairperson of the Department of Computer Science and Engineering.

## Cooperative Education Program

Cooperative education or Co-op programs are arrangements where students alternate periods of full-time employment with periods of full-time study, usually during the last two years of a degree program. The employment is directly related to the student's major and pays an attractive salary. Thus, Co-op students gain valuable career related experience before graduating, while earning a meaningful income. Cooperative education opportunities are plentiful for CS, CpE, and SE students.

## Honors Programs

The Computer Science and Engineering Department encourages qualified CS, CpE, and SE majors to participate in the Honors College described elsewhere in this catalog. Projects may be pursued in any one of the areas of concentration within the Department of Computer Science and Engineering.

## Graduate Degree Paths

Computing is a rapidly changing discipline requiring lifelong learning by its professionals. Completing a graduate degree enhances an individual's ability to assimilate and apply their knowledge and skills to meet on the job challenges and the needs of society. Pursuing a graduate degree on a full-time basis immediately after completing the baccalaureate is an attractive option for many students. Students are encouraged to discuss possibilities with a Graduate Advisor upon advancement to a Bachelor of Science professional program.

### FAST TRACK PROGRAM FOR MASTER'S DEGREE IN COMPUTER ENGINEERING

The Fast Track Program enables outstanding UT Arlington senior undergraduate students in Computer Engineering to satisfy degree requirements leading to a master's degree in Computer Engineering while completing their undergraduate studies. When senior-level students are within 15 hours of completing their undergraduate degree requirements, they may take up to nine hours of graduate level coursework designated by the Computer Engineering Program to satisfy both undergraduate and graduate degree requirements. In the limiting case, a student completing the maximum allowable hours (9) while in undergraduate status would have to take only 21 additional hours to meet minimum requirements for graduation in a 30-hour thesis master's degree program (M.S.) or 27 additional hours for a non-thesis master's degree program (M.S.)

Interested UT Arlington undergraduate Computer Engineering students should apply to the Computer Engineering Program when they are within 30 hours of completing their bachelor's degrees. They must have completed at least 30 hours at UT Arlington, achieving a GPA of at least 3.0 in those courses, and have an overall GPA of 3.0 or better in all college courses. Additionally, they must have completed at least 11 hours of specified undergraduate foundation courses with a minimum GPA of 3.3 in those courses. Contact the Undergraduate Advisor or Graduate Advisor in Computer Science and Engineering for more information about the program.

### DIRECT ACCEPTANCE TO DOCTORAL PROGRAMS FROM BACHELOR'S DEGREE PROGRAM

Excellent undergraduate students may qualify for acceptance to doctoral studies without the intermediate completion of a masters degree. Students should discuss the expected level of commitment and possibilities for long-term support with a Graduate Advisor.

## Oral Communication and Computer Competency Requirement

CS, CpE, and SE students will satisfy the oral competency requirement by completing COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING. They will satisfy the computer use competency requirement by completing CSE 1105 INTRODUCTION TO COMPUTER SCIENCE AND ENGINEERING.

## Course Offerings

All 1000- and 2000-level CSE courses are typically offered each semester and in the 11-week summer session. All 3000-level courses and required 4000-level courses are typically offered at least twice per year. Other 4000-level courses are typically offered only once per year unless there is a high demand. Refer to the CSE department bulletin boards or Web site for more specific and current information. The CSE department reserves the right to move students among equivalent sections of the same course.

## Requirements for a Bachelor of Science Degree in Computer Science

### General Education Courses

COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING
HIST 1311	HISTORY OF THE UNITED STATES TO 1865
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT

POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (IE 2308 or ECON 2305)		
Approved Language, Philosophy and Culture elective <sup>2</sup>		
Approved Creative Arts elective <sup>2</sup>		
Program Requirements		
<b>Pre-Professional Courses <sup>1</sup></b>		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
MATH 1426	CALCULUS I (fulfills common core)	4
MATH 2425	CALCULUS II	4
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
CSE 1104	INTRODUCTION TO ENGINEERING	1
CSE 1105	INTRODUCTION TO COMPUTER SCIENCE AND ENGINEERING	1
CSE 1320	INTERMEDIATE PROGRAMMING	3
CSE 1325	OBJECT-ORIENTED PROGRAMMING	3
CSE 2312	COMPUTER ORGANIZATION & ASSEMBLY LANGUAGE PROGRAMMING	3
CSE 2315	DISCRETE STRUCTURES	3
CSE 2320	ALGORITHMS & DATA STRUCTURES	3
<b>Professional Courses <sup>3</sup></b>		
IE 3301	ENGINEERING PROBABILITY	3
CSE 3302	PROGRAMMING LANGUAGES	3
CSE 3310	FUNDAMENTALS OF SOFTWARE ENGINEERING	3
CSE 3315	THEORETICAL CONCEPTS IN COMPUTER SCIENCE AND ENGINEERING	3
CSE 3320	OPERATING SYSTEMS	3
CSE 3330	DATABASE SYSTEMS AND FILE STRUCTURES	3
CSE 3380	LINEAR ALGEBRA FOR CSE	3
or MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	
CSE 4314	PROFESSIONAL PRACTICES	3
CSE 4316	COMPUTER SYSTEM DESIGN PROJECT I	3
CSE 4317	COMPUTER SYSTEM DESIGN PROJECT II	3
CSE 4344	COMPUTER NETWORK ORGANIZATION	3
Select one of the following:		3
CSE 4303	COMPUTER GRAPHICS	
CSE 4305	COMPILERS FOR ALGORITHMIC LANGUAGES	
CSE 4308	ARTIFICIAL INTELLIGENCE I	
Approved Science elective <sup>2</sup>		4
Approved Mathematics elective <sup>2</sup>		3
Approved Technical electives <sup>2</sup>		15
<b>Total Hours</b>		<b>121</b>

<sup>1</sup> All pre-professional courses must be completed with a C or better before enrolling in professional courses

<sup>2</sup> A list of acceptable electives is available from the departmental office or Web site.

<sup>3</sup> All prerequisites for professional courses must be completed with a C or better

**Note:** Total hours will depend upon prior preparation and academic qualifications. Also, students who do not have two units of high school foreign language will be required to take modern and classical language courses in addition to the previously listed requirements.

Refer to the College of Engineering section (p. 230) of this catalog for information concerning the following topics: Preparation in High School for Admission to the College of Engineering, Admission to the College of Engineering, Admission to the Professional Program, Counseling, College of Engineering Academic Regulations, Transfer Policies, College of Engineering Probation, Repeating Course Policy and Academic Honesty.

## Recommended Core Curriculum

Computer Science and Engineering students will satisfy the university core curriculum requirement by completing all General Education courses specified under "Requirements for a Bachelor of Science Degree in Computer Science" along with ENGL 1301, ENGL 1302, MATH 1426, MATH 2425, PHYS 1443 and PHYS 1444, which are within the Pre-Professional Program. The university core curriculum allows each degree plan to designate a component area to satisfy three hours of the core requirement. For the Computer Science degree plan, the designated component area is Communication and COMS 2302 is selected to satisfy the requirement.

## Requirements for a Bachelor of Science Degree in Computer Engineering

## General Education Courses

24

COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (IE 2308 or ECON 2305)		
Approved Language, Philosophy and Culture elective <sup>2</sup>		
Approved Creative Arts elective <sup>2</sup>		

## Program Requirements

**Pre-Professional Courses** <sup>1</sup>

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
CSE 1104	INTRODUCTION TO ENGINEERING	1
CSE 1105	INTRODUCTION TO COMPUTER SCIENCE AND ENGINEERING	1
CSE 1320	INTERMEDIATE PROGRAMMING	3
CSE 1325	OBJECT-ORIENTED PROGRAMMING	3
CSE 2312	COMPUTER ORGANIZATION & ASSEMBLY LANGUAGE PROGRAMMING	3
CSE 2315	DISCRETE STRUCTURES	3
CSE 2320	ALGORITHMS & DATA STRUCTURES	3
CSE 2441	INTRODUCTION TO DIGITAL LOGIC	4
EE 2440	CIRCUIT ANALYSIS WITH LAB	4

**Professional Courses** <sup>3</sup>

IE 3301	ENGINEERING PROBABILITY	3
CSE 3310	FUNDAMENTALS OF SOFTWARE ENGINEERING	3
CSE 3313	INTRODUCTION TO SIGNAL PROCESSING	3
CSE 3320	OPERATING SYSTEMS	3
CSE 3323	ELECTRONICS FOR COMPUTER ENGINEERING	3
CSE 3380	LINEAR ALGEBRA FOR CSE	3
or MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	
CSE 3442	EMBEDDED SYSTEMS I	4
CSE 4314	PROFESSIONAL PRACTICES	3
CSE 4316	COMPUTER SYSTEM DESIGN PROJECT I	3
CSE 4317	COMPUTER SYSTEM DESIGN PROJECT II	3
CSE 4323	QUANTITATIVE COMPUTER ARCHITECTURE	3
CSE 4340	MOBILE SYSTEMS ENGINEERING	3
or CSE 4342	EMBEDDED SYSTEMS II	
CSE 4344	COMPUTER NETWORK ORGANIZATION	3

Approved Mathematics elective <sup>2</sup>

3

Approved Science elective <sup>2</sup>	4
Approved Technical elective <sup>2</sup>	3
<b>Total Hours</b>	<b>121</b>

<sup>1</sup> All pre-professional courses must be completed with a C or better before enrolling in professional courses

<sup>2</sup> A list of acceptable electives is available from the departmental office or Web site.

<sup>3</sup> All prerequisites for professional courses must be completed with a C or better

**Note:** Total hours will depend upon prior preparation and academic qualifications. Also, students who do not have two units of high school foreign language will be required to take modern and classical language courses in addition to the previously listed requirements.

Refer to the College of Engineering section (p. 230) of this catalog for information concerning the following topics: Preparation in High School for Admission to the College of Engineering, Admission to the College of Engineering, Admission to the Professional Program, Counseling, College of Engineering Academic Regulations, Transfer Policies, College of Engineering Probation, Repeating Course Policy and Academic Honesty.

#### Recommended Core Curriculum

Computer Science and Engineering students will satisfy the university core curriculum requirement by completing all General Education courses specified under "Requirements for a Bachelor of Science Degree in Computer Engineering" along with ENGL 1301, ENGL 1302, MATH 1426, MATH 2425, PHYS 1443 and PHYS 1444, which are within the Pre-Professional Program. The university core curriculum allows each degree plan to designate a component area to satisfy three hours of the core requirement. For the Computer Engineering degree plan, the designated component area is Communication and COMS 2302 is selected to satisfy the requirement.

## Requirements for a Bachelor of Science Degree in Software Engineering

General Education Courses 24

COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
Social & Behavioral Sciences (IE 2308 or ECON 2305)		
Approved Language, Philosophy and Culture elective <sup>2</sup>		
Approved Creative Arts elective <sup>2</sup>		

#### Program Requirements

##### Pre-Professional Courses <sup>1</sup>

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
CSE 1104	INTRODUCTION TO ENGINEERING	1
CSE 1105	INTRODUCTION TO COMPUTER SCIENCE AND ENGINEERING	1
CSE 1320	INTERMEDIATE PROGRAMMING	3
CSE 1325	OBJECT-ORIENTED PROGRAMMING	3
CSE 2312	COMPUTER ORGANIZATION & ASSEMBLY LANGUAGE PROGRAMMING	3
CSE 2315	DISCRETE STRUCTURES	3
CSE 2320	ALGORITHMS & DATA STRUCTURES	3

##### Professional Courses <sup>3</sup>

IE 3301	ENGINEERING PROBABILITY	3
CSE 3302	PROGRAMMING LANGUAGES	3
CSE 3310	FUNDAMENTALS OF SOFTWARE ENGINEERING	3
CSE 3311	OBJECT-ORIENTED SOFTWARE ENGINEERING	3
CSE 3315	THEORETICAL CONCEPTS IN COMPUTER SCIENCE AND ENGINEERING	3

CSE 3320	OPERATING SYSTEMS	3
CSE 3330	DATABASE SYSTEMS AND FILE STRUCTURES	3
CSE 3380	LINEAR ALGEBRA FOR CSE	3
or MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	
CSE 4314	PROFESSIONAL PRACTICES	3
CSE 4316	COMPUTER SYSTEM DESIGN PROJECT I	3
CSE 4317	COMPUTER SYSTEM DESIGN PROJECT II	3
CSE 4321	SOFTWARE TESTING & MAINTENANCE	3
CSE 4322	SOFTWARE PROJECT MANAGEMENT	3
CSE 4361	SOFTWARE DESIGN PATTERNS	3
Approved Mathematics elective <sup>2</sup>		3
Approved Science elective <sup>2</sup>		4
Approved Technical electives <sup>2</sup>		9
Total Hours		121

<sup>1</sup> All pre-professional courses must be completed with a C or better before enrolling in professional courses

<sup>2</sup> A list of acceptable electives is available from the departmental office or Web site.

<sup>3</sup> All prerequisites for professional courses must be completed with a C or better

**Note:** Total hours will depend upon prior preparation and academic qualifications. Also, students who do not have two units of high school foreign language will be required to take modern and classical language courses in addition to the previously listed requirements

Refer to the College of Engineering section (p. 230) of this catalog for information concerning the following topics: Preparation in High School for Admission to the College of Engineering, Admission to the College of Engineering, Admission into the Professional Program, Advising, College of Engineering Academic Regulations, Transfer Policies, College of Engineering Probation, Repeating Course Policy and Academic Honesty.

#### Recommended Core Curriculum

Computer Science and Engineering students will satisfy the university core curriculum requirement by completing all General Education courses specified under "Requirements for a Bachelor of Science Degree in Software Engineering" along with ENGL 1301, ENGL 1302, MATH 1426, MATH 2425, PHYS 1443 and PHYS 1444, which are within the Pre-Professional Program. The university core curriculum allows each degree plan to designate a component area to satisfy three hours of the core requirement. For the Software Engineering degree plan, the designated component area is Communication and COMS 2302 is selected to satisfy the requirement.

## Minor in Computer Science

To receive a minor in Computer Science, a student must not be receiving his/her major degree from the department and must complete all courses listed with a grade of C or better in each course. Any substitutions must be approved in advance by the department chairperson.

### REQUIREMENTS FOR A MINOR IN COMPUTER SCIENCE

To receive a minor in Computer Science, a student must complete the following courses with a grade of C or better in each:

CSE 1320	INTERMEDIATE PROGRAMMING	3
CSE 1325	OBJECT-ORIENTED PROGRAMMING	3
CSE 2315	DISCRETE STRUCTURES	3
CSE 2320	ALGORITHMS & DATA STRUCTURES	3
Any two 3000 or 4000 level courses with a grade of C or better in each as well as all required prerequisites for the chosen courses		6
Total Hours		18

<sup>1</sup> Grade of C or better in each, as well as all required prerequisites for the chosen courses.

## Electrical Engineering

### Undergraduate Degrees

- Bachelor of Science in Electrical Engineering (p. 275)
- Minor in Electrical Engineering (p. 275)

## Graduate Degrees

- Electrical Engineering, M.Engr. Non-Thesis (p. 270)
- Electrical Engineering, M.S. (p. 270)
- Electrical Engineering, M.S. Fast Track (p. 270)
- Electrical Engineering, B.S. to Ph.D. (p. 273)
- Electrical Engineering, Ph.D. (p. 273)

## Electrical Engineering - Graduate Programs

### Objective

The course offerings provide the student with an opportunity to broaden as well as to intensify his or her knowledge in a number of areas of electrical engineering. The student, with the aid of a faculty adviser, may plan a program in any one of a number of fields of specialization within electrical engineering or from the offerings of related departments in science and engineering.

Graduate study and research are offered in the areas of:

1. Digital and Microprocessor/Controller Systems: Digital Signal Processors, Embedded Microcontrollers, Microprocessors, Advanced Microprocessor Systems
2. Solid-State Devices, Circuits and Systems: Semiconductor Theory, Microwave Devices and Circuits, Analog Electronics.
3. Systems and Controls: Systems, Controls, Manufacturing, Discrete Event Control, Neural and Fuzzy Control, Nonlinear Modern Control, Biomedical Signal Processing and Instrumentation
4. Electromagnetic Fields and Applications: Remote Sensing, Electromagnetic Fields, Propagation, Scattering, Radiation, and Microwave Systems.
5. Digital Signal and Image Processing: Vision Systems, Neural Networks, Statistical Signal Processing, Nonlinear Image Processing, Virtual Prototyping, and Virtual Environments.
6. Telecommunications and Information Systems: Information Transmission and Communication Systems
7. Power Systems: Efficient Operation, Generation, Transmission, Distribution, Deregulation
8. Optical Devices and Systems: Optics, Electro-optics, Diffractive Optics, Nonlinear Optics, and Lasers
9. Nanotechnology and MEMS - Materials and Devices: Quantum Electronic Devices, Semiconductor Surfaces and Interfaces, Single Electron Devices, Sensors and Detectors, Carbon Nanotube Devices, Noise and Reliability in Nano-Electronic Devices, Microactuators, RF MEMS, Polymer Electronics, and Nanophotonics
10. Renewable Energy Systems and Vehicular Technology: Power Electronics Engineering, Motor Drives, Renewable Energy Systems, Grid-Integration, and Vehicular Power Structure

The program is designed to satisfy the needs of students pursuing master's and doctoral degrees and to provide for the student seeking to increase knowledge in areas of electrical engineering related to engineering practice. The courses offered will provide practicing engineers with advanced, up-to-date education in electrical engineering.

### Continuation

The Electrical Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified engineers, has established certain policies and procedures. In addition to the requirements of the Graduate School listed elsewhere, to continue in the program each electrical engineering graduate student must maintain at least a B (3.0) GPA in all electrical engineering coursework and at least a B (3.0) GPA in all coursework for M.S. students. A student working toward a Ph.D. must maintain a 3.5 GPA in all electrical engineering coursework and at least a 3.5 GPA in all coursework.

### Admission Criteria

The admission process considers all of the application material including official transcripts, GRE scores, letters of recommendation, and the statement of purpose. No single objective factor is used to finalize the decision for admission or to deny admission. It is expected that an applicant have background in such areas as linear systems, dc and ac electronics circuits, static and dynamic electromagnetic fields, microprocessors, among the courses completed in a typical electrical engineering curriculum. Students with a BS in other fields are encouraged to apply, but they may be required to remedy a lack of required EE courses by taking some undergraduate EE courses. An attempt will be made to match the technical aspirations of the potential graduate students with the departmental resources in order to provide a stimulating academic environment for the students and their graduate education.

Criteria concerning (1) unconditional admission, (2) provisional admission, (3) deferred admission, (4) denial of admission, and (5) fellowship, are given below.

1. Admission with Unconditional Status: A typical applicant who is "admitted" will have met the following admission requirements.
  - The minimum undergraduate GPA requirement
    - i For MSEE admission 3.25 (on a 4.0 scale) based on upper division coursework (junior and senior level or equivalent)
  - Relevance of the student's undergraduate degree (background) to the EE curriculum.
  - Rigor of the student's Bachelor's degree.
  - Reputation of the University/College that the student received his/her previous degrees
  - Three recommendation letters from individuals who can judge the probability of success of the student's graduate study.
  - GRE scores of at least the following:
    - Quantitative score
      - = 720 (new scale: 156) for M.S.
      - or
      - = 750 (new scale: 159) for Ph.D.
    - Verbal score = 400 (new scale: 146)
    - Analytical Writing = 3 for M.S. or =3.5 for Ph.D
  - For an International student, an additional requirement beyond those stated above:
    - TOEFL = 560 for the paper and pencil test, 220 for the computer-based test and 83 for the internet based test. A minimum of 19 in each of the four categories.
2. Admission with Provisional status: An applicant unable to supply all required official documentation prior to the admission deadline, but whose available documentation otherwise appears to meet admission requirements may be granted provisional admission.
3. Deferred status: A deferred decision may be granted when a file is incomplete.
4. Denied Status: An applicant that does not meet categories 1, 2 or 3 above will be denied admission.
5. Fellowships: Award of a fellowship will be based on the criteria required by the sponsor agency (including the graduate school) on a competitive basis.

## Master's Degree Requirements

Master's degree requirements are described in the general catalog section titled Requirements for the Master's Degree/Degree Plans and Hours Required. The MSEE degree options available are thesis option, thesis substitute option and non-thesis option. The courses taken for all degrees must be distributed over three of the nine areas given in the Objective section. The MSEE program of work in electrical engineering may include up to nine graduate level semester hours of supporting courses outside the Electrical Engineering Department in math, science and engineering. The Graduate Advisor must approve supporting courses that are permitted on a degree plan. The courses approved outside electrical engineering may be used in lieu of one of the three distribution areas. The thesis option requires 24 semester hours plus six semester hours of thesis (). The thesis substitute option requires 33 semester hours of which three semester hours must be in the thesis substitute project. The non-thesis option requires 36 semester hours. may not be used to satisfy course requirements in either the Thesis or Thesis-substitute degree plans. may be used one time as part of the non-Thesis degree plan. may not be used toward the MSEE or MENGGR degrees. The M.Engr. emphasizes design engineering and management. This program requires 36 semester hours distributed in the same manner as the MSEE program, except that up to 12 semester hours outside the department may be included.

## Technical Areas, Courses, and Technical Proficiency Courses

MSEE students must take courses from three Technical Areas. Non-thesis students must take one technical proficiency course from each of three areas, and earn at least a 3.3 GPA in those three courses.

Technical Areas	Courses	Technical Proficiency Courses
1. Digital and Microprocessor/Controller Systems	EE 5313	EE 5313 - Microprocessor Systems
	EE 5314	Approved Substitution: EE
	EE 5315	
	EE 6313	
	EE 6314	
2. Solid State Devices, Circuits and Systems	EE 5305	EE 5305 - Advanced Electronics
	EE 5310	EE 5310 - Digital VLSI Design
	EE 5311	EE 5340 - Semiconductor Device Theory
	EE 5312	EE 5341 - Fundamentals for Semiconductor Devices
	EE 5316	Approved Substitution: EE
	EE 5317	

	EE 5318	
	EE 5340	
	EE 5341	
	EE 5342	
	EE 5346	
	EE 5347	
	EE 5348	
	EE 6318	
	EE 6341	
3. Systems and Controls	EE 5307	EE 5307 - Linear Control Systems Theory
	EE 5320	EE 5320 - Control System Design
	EE 5321	EE 5328 - Instrumentation and Measurement
	EE 5322	Approved Substitution: EE
	EE 5323	
	EE 5324	
	EE 5325	
	EE 5326	
	EE 5327	
	EE 5328	
	EE 5329	
4. Electromagnetic Fields and Applications	EE 5306	EE 5306 - Electromagnetic Theory
	EE 5331	EE 5331 - Microwave Systems Engineering
	EE 5332	Approved Substitution: EE
	EE 5333	
	EE 5334	
	EE 5335	
	EE 5337	
	EE 5338	
5. Digital Signal and Image Processing	EE 5302	EE 5302 - Random Signals and Noise
	EE 5350	EE 5350 - Digital Signal Processing
	EE 5351	EE 5356 - Digital Image Processing
	EE 5352	Approved Substitution: EE
	EE 5353	
	EE 5354	
	EE 5355	
	EE 5356	
	EE 5357	
	EE 5358	
	EE 6356	
6. Telecommunications and Information Systems	EE 5360	EE 5360 - Data Communication Engineering
	EE 5361	EE 5362 - Digital Communications
	EE 5362	Approved Substitution: EE
	EE 5363	
	EE 5364	
	EE 5365	
	EE 5366	
	EE 5367	
	EE 5368	
	EE 6362	
	EE 6363	
	EE 6364	
	EE 6365	



	EE 6367	
	EE 6368	
7. Power Systems	EE 5308	EE 5308 - Power System Modeling and Analysis
	EE 5371	EE 5371 - Power System Transmission I
	EE 5372	Approved Substitution: EE
	EE 5373	
	EE 5374	
	EE 5375	
	EE 5376	
	EE 5377	
	EE 5378	
	EE 6372	
8. Optical Devices and Systems	EE 5380	EE 5380 - Principals of Photonics and Optical Engineering
	EE 5382	Approved Substitution: EE
	EE 5383	
	EE 5384	
	EE 5385	
	EE 5386	
	EE 5387	
	EE 5388	
9. Nanotechnology and MEMS - Materials and Devices	EE 5343	EE 5343 - Silicon IC Fab Technology
	EE 5344	EE 5344 - Introduction to MEMS
	EE 5345	EE 5381 - Foundations in Semiconductors
	EE 5381	Approved Substitution: EE
	EE 6342	
	EE 6343	
	EE 6344	
	EE 6345	
10. Renewable Energy Systems and Vehicular Technology	EE 5309 (Grid-Integration of Renewable Energy Systems)	EE 6375 - Power Electronics Engineering
	EE 5309 (Renewable Energy Systems)	
	EE 5309 (Electric Motor Drive)	
	EE 5309 (Hybrid Electric Drive)	
	EE 6375	

## Admission Criteria

The admission process considers all of the application material including official transcripts, GRE scores, letters of recommendation, and the statement of purpose. No single objective factor is used to finalize the decision for admission or to deny admission. It is expected that an applicant have background in such areas as linear systems, dc and ac electronics circuits, static and dynamic electromagnetic fields, microprocessors, among the courses completed in a typical electrical engineering curriculum. Students with a BS in other fields are encouraged to apply, but they may be required to remedy a lack of required EE courses by taking some undergraduate EE courses. An attempt will be made to match the technical aspirations of the potential graduate students with the departmental resources in order to provide a stimulating academic environment for the students and their graduate education.

Criteria concerning (1) unconditional admission, (2) provisional admission, (3) deferred admission, (4) denial of admission, and (5) fellowship, are given below.

1. Admission with Unconditional Status: A typical applicant who is "admitted" will have met the following admission requirements.

- The minimum undergraduate GPA requirement
  - i For Ph.D. admission 3.5 based on MSEE or equivalent
- Relevance of the student's undergraduate degree (background) to the EE curriculum.
- Rigor of the student's Bachelor's degree.
- Reputation of the University/College that the student received his/her previous degrees

- The publications in scholarly conferences/journals are optional but will improve both a student's chances of securing admission and receiving financial support.
- Three recommendation letters from individuals who can judge the probability of success of the student's graduate study.
- GRE scores of at least the following:
  - Quantitative score  
= 720 (new scale: 156) for M.S.  
or  
= 750 (new scale: 159) for Ph.D.
  - Verbal score = 400 (new scale: 146)
  - Analytical Writing = 3 for M.S. or =3.5 for Ph.D
- For an International student, an additional requirement beyond those stated above:

TOEFL = 560 for the paper and pencil test, 220 for the computer-based test and 83 for the internet based test. A minimum of 19 in each of the four categories.

2. Admission with Provisional status: An applicant unable to supply all required official documentation prior to the admission deadline, but whose available documentation otherwise appears to meet admission requirements may be granted provisional admission.
3. Deferred status: A deferred decision may be granted when a file is incomplete.
4. Denied Status: An applicant that does not meet categories 1, 2 or 3 above will be denied admission.
5. Fellowships: Award of a fellowship will be based on the criteria required by the sponsor agency (including the graduate school) on a competitive basis.

## Doctoral Degree Requirements

The Ph.D. is a degree with emphasis on research. Requirements for the doctoral degree are described elsewhere in the general catalog section on Degree Offerings/Requirements. Permission to continue beyond the master's degree will be based on the grade point average and GRE scores as described above. Approval to continue in the doctoral program is given by satisfactory completion of the following procedure:

1. Obtaining the approval of a dissertation adviser, and
2. Passing the Diagnostic Examination. This exam will be over the three Technical Proficiency areas selected by the student.

Review courses for the Diagnostic Examination should be completed during the M.S. degree or during the first 30 graduate hours required for entrance into the Ph.D. program.

This procedure must be completed within the year of coursework toward the Ph.D. A student not having attempted the Diagnostic Examination by this time will be allowed one more opportunity to take the examination during the next full semester.

The program of work is expected to include a minimum of 15 semester hours of advanced graduate level coursework beyond the master's degree and sufficient dissertation semester hours as required to complete the dissertation. All graduate level courses are counted in the 15 hour minimum. Among the 15 hour minimum, a minimum of 6 semester hours of advanced graduate level coursework is required. In addition, 2 semesters of 1 semester hour seminar course (EE 5190 ELECTRICAL ENGINEERING GRADUATE SEMINAR) are required. The seminar course is not counted in the 15 hour minimum. The supervising professor may require additional coursework beyond the 15 hour minimum if deemed necessary to accomplish the research required for the dissertation. These courses may include graduate level mathematics, science, or engineering relevant to the student's dissertation program, but only with approval of the Graduate Advisor.

For the direct PhD program, the program of work is expected to include a minimum of 30 semester hours of graduate level coursework beyond the bachelor's degree and sufficient dissertation semester hours as required to complete the dissertation. Among the 30 hour minimum, a minimum of 6 semester hours of advanced graduate level coursework is required. In addition, 2 semesters of 1 semester hour seminar course (EE 5190 ELECTRICAL ENGINEERING GRADUATE SEMINAR) are required. The seminar course is not counted in the 30 hour minimum.

The status of a doctoral candidate is approved for students who have passed an oral Comprehensive Examination (a comprehensive dissertation proposal) and submitted a Final Program of Work. The Comprehensive Examination will be required by the time the student has completed the required coursework. If the student fails the examination, he/she would be given one more chance to pass it no later than during the following semester. Upon completion of the Comprehensive Examination, the candidate should enroll in the dissertation course EE 6699 DISSERTATION or EE 7399 DOCTORAL DEGREE COMPLETION. The student can only enroll in EE 7399 DOCTORAL DEGREE COMPLETION one time. If the student does not graduate in the semester EE 7399 is used, all future semesters the student must enroll in EE 6699 DISSERTATION until the dissertation is defended. 9 semester hours of Dissertation is required to graduate.

## Ph.D. Supervisory Committee

A doctoral student's committee shall consist of at least five members of the Graduate Faculty, a majority of whom must be in Electrical Engineering.

# Electrical Engineering - Undergraduate Programs

501 Nedderman Hall · Student Advising Office

## Accreditation

Accreditation is an assurance that the professionals that serve us have a solid educational foundation and are capable of leading the way in innovation, emerging technologies, and in anticipating the welfare and safety needs of the public. The Electrical Engineering Department at the University of Texas at Arlington has been continuously accredited since 1965 by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

## Overview of Electrical Engineering

Electrical Engineering is a broad field that includes power systems, control systems, microelectronics and nanoelectronics, microprocessors and computer networks, telecommunications (wire, wireless, satellite and fiber optic), remote sensing, signal processing, neural networks, medical devices, optics (electro-optics, optoelectronics and photonics) and other emerging technologies.

Electrical engineers must be prepared to apply fundamental concepts in the applications of new technologies and to contribute to the growth of these technologies. They must also have the skills to communicate their ideas and to manage projects within a schedule and budget. Because of the broad nature of the field, electrical engineers are involved in a wide range of engineering design projects and they must be able to employ knowledge from other disciplines in electrical engineering designs. They must also be prepared to support engineers in other disciplines.

Engineering designs are a team effort and require good communication skills, both oral and written. Therefore it is important that each student develops these necessary communication skills.

The benefit of having an education in electrical engineering is that the student is prepared for a career not only in technical areas but also for further training in other disciplines such as medicine, law, public policy, business, economics, management, and teaching.

## Educational Objectives of the Undergraduate Program

The Program Educational Objectives are to produce graduates who:

- Advance the mission of their organization by significantly contributing to any of the following disciplines: component and/or system design, R&D, manufacturing, customer support, technical training, sales and marketing.
- Demonstrate leadership in one or more significant roles since graduation, as evidenced for example by successful entrepreneurship in a start-up, significant promotions and awards in a company or engineering firm.
- Successfully build on the BSEE degree from UTA by: completing a graduate degree; or taking professional course(s); or earning professional certificate(s).

## Student Outcomes of the Undergraduate Program

From these Program Educational Objectives, the department designed its baccalaureate program to offer its graduates the following student learning outcomes:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- an ability to function on multi-disciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- a recognition of the need for, and an ability to engage in life-long learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice
- an ability to apply probability and statistics, including applications appropriate to electrical engineering

The program has been continuously accredited since 1965 by the Engineering Accreditation Commission (EAC) of ABET, <http://www.abet.org>.

## Admission Requirements

Requirements for admission as an EE major are governed by the requirements as stated in the College of Engineering section of this catalog. EE majors are only allowed to enroll in pre-professional courses until they meet the requirements for the professional program as outlined below.

## Undergraduate Advising

General academic advising for new students (excluding transfer course evaluation) is done during the scheduled orientation period prior to registration. Academic advising for continuing students will be done during each semester prior to registration. The dates for advising new and continuing students will be listed in the appropriate schedule of classes. Personal academic advising is available in the office of the Undergraduate Advisor during the semester by appointment. To graduate, the student must have an approved degree plan on file in the Registrar's Office.

The students can use the course sequences described above to plan their studies. Recommended electives are listed in the advising office and on the Web site at [www.uta.edu/engineering/ee](http://www.uta.edu/engineering/ee). A supplemental EE Undergraduate Program Guide is available in the Advising Office; it provides more details of the different areas of specialization in Electrical Engineering as well as on other matters relevant to completing the BSEE degree.

## Admission to the Professional Program

Requirements for admission to the professional program in Electrical Engineering are in accordance with those of the College of Engineering with the following added stipulations:

- Application to the professional program is to be made to the Undergraduate Advisor during the semester that the advancement requirements are being completed.
- No professional electrical engineering courses may be taken until the student is admitted into the professional program or obtains the written consent of the Undergraduate Advisor.
- Each student must complete all pre-professional courses stipulated under "Requirements for a Bachelor of Science Degree in Electrical Engineering" with a minimum grade of C in each course and a minimum GPA of 2.25 in:
  - a. all courses,
  - b. in all math, science, and engineering courses, and
  - c. in all EE courses.

To graduate, the student must be admitted to the professional program and have an approved degree plan on file in the Registrar's office. The degree plan is generated upon entry to the professional program. Graduating seniors should apply to graduate during the next-to-last semester. Each student must complete all professional level electrical engineering courses stipulated under "Requirements for a Bachelor of Science Degree in Electrical Engineering" with a minimum grade of C in each course. All engineering courses used on the BSEE degree plan must be C or better.

## Program Features

The pre-professional program reflects a concentration of preliminary science, mathematics, and engineering courses to prepare the student for the professional engineering program. EE students are admitted to the professional program as described above. The pre-professional program consists of core courses in electronics; digital systems, microprocessors, and computer programming; electromagnetics; power systems and energy conversion; continuous and discrete time systems; controls; and communications. The core curriculum provides the needed foundation for a variety of technical areas in electrical engineering. The design experience is emphasized throughout the program, with particular emphasis on the team concept in the engineering design courses. Through careful selection of technical electives, the student may specialize in certain fields of electrical engineering. Information on these areas is available in the Electrical Engineering Department Advising Office. In addition, there are opportunities to participate in ongoing research projects of the faculty in Electrical Engineering. Independent study credit can be obtained through EE 4391 ADVANCED PROBLEMS IN ELECTRICAL ENGINEERING.

## Cooperative Education Program

Cooperative education opportunities are plentiful for EE students. Interested students should contact the Cooperative Education Office in the College of Engineering.

## Master's Degree Path

The electrical engineering field is continually evolving in all areas from power systems to optics. To stay current in technical areas requires a commitment to lifelong learning. Completing a master's degree certainly gives the student a head start on this.

Those students graduating with a GPA of 3.0 or higher and GRE scores of 350 Verbal or higher and 700 quantitative or higher can be admitted to the EE master's program upon application. Interested students should contact the graduate advisor. Students can take a project course, EE 4391 ADVANCED PROBLEMS IN ELECTRICAL ENGINEERING, as one of their technical electives to begin their studies on a topic that they may use for their MS research and thesis. Also, students that require less than 12 hours to graduate can dual enroll in the graduate program in the last semester of their BS program.

## Competence in Oral Communication and Computer Use

Electrical Engineering students will satisfy the University Competence in Oral Presentations requirement by completing the course COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING. They will satisfy the University Competence in Computer Use requirement by completing EE 2347 MATHEMATICAL FOUNDATIONS OF ELECTRICAL ENGINEERING.

## Requirements for a Bachelor of Science Degree in Electrical Engineering

<b>Pre-Professional Courses</b> <sup>1</sup>		
General Core Requirements (p. 93)		39
Recommended Core Requirements		
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
MATH 1426	CALCULUS I <sup>2</sup>	
MATH 2425	CALCULUS II	
MATH 2326	CALCULUS III	
PHYS 1443	GENERAL TECHNICAL PHYSICS I	
PHYS 1444	GENERAL TECHNICAL PHYSICS II	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
English literature elective: Any English or modern and classical languages literature that meets the 3 University Core Curriculum requirement for Language, Philosophy and Culture is accepted.		
Communication: COMS 2302		
Creative arts elective: any course which satisfies the University Core Curriculum requirements for Creative Arts is accepted. <sup>3</sup>		
Social/behavioral elective: ECON 2305		
Program Requirements		
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
Select one of the following:		4-8
CHEM 1465	CHEMISTRY FOR ENGINEERS	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
CE 2312	STATICS AND DYNAMICS FOR NON-CE MAJORS	3
EE 2347	MATHEMATICAL FOUNDATIONS OF ELECTRICAL ENGINEERING	3
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	3
EE 1104	INTRODUCTION TO ENGINEERING	1
EE 2415	CIRCUIT ANALYSIS I	4
EE 2403	ELECTRONICS I	4
EE 2441	DIGITAL LOGIC AND MICROPROCESSORS 1	4
<b>Professional Courses</b>		
EE 3407	ELECTROMAGNETICS	4
EE 3417	CONTINUOUS SIGNALS AND SYSTEMS	4
EE 3318	DISCRETE SIGNALS AND SYSTEMS	3
EE 3330	PROBABILITY AND RANDOM SIGNALS	3
EE 3446	CIRCUIT ANALYSIS II	4
EE 4340	CONCEPTS & EXERCISES IN ENGINEERING PRACTICE	3
EE 4349	ENGINEERING DESIGN PROJECT	3
Select two of the following Electrical Engineering Core Electives:		6-7
EE 3302	FUNDAMENTALS OF POWER SYSTEMS	
EE 3310	DIGITAL LOGIC AND MICROPROCESSORS II	
EE 3444	ELECTRONICS II	
EE 4314	CONTROL SYSTEMS	
EE 4330	FUNDAMENTALS OF TELECOMMUNICATIONS SYSTEMS	
Select two Electrical Engineering Senior Elective courses		6
Select one Engineering Elective course (also includes Electrical Engineering) <sup>3</sup>		3
3000/4000 courses in Mathematics or Science Elective <sup>3</sup>		3

MAE 3309	THERMAL ENGINEERING	3
Total Hours		113-118

The **Total Hours** listed above is reflective of **Professional Courses** only and does not include the **General Core Requirement** total. Please consult with the EE Dept. advising office for specific total hours.

- 1 All pre-professional courses must be completed before enrolling in professional program courses
- 2 The Mathematics Department requires MATH 1323 PRECALCULUS II or passing a placement test provided by the Mathematics Department before enrolling.
- 3 A list of acceptable electives is available in the EE Dept. advising office.

Note: Total hours will depend upon prior preparation and academic qualifications. Also, students who do not have two units of high school foreign language will be required to take two courses of foreign language in addition to the previously listed requirements.

## RECOMMENDED CORE CURRICULUM

Electrical Engineering students will satisfy the university core curriculum requirement by completing all General Education courses specified under "Requirements for a Bachelor of Science Degree in Electrical Engineering" along with ENGL 1301, ENGL 1302, MATH 1426, MATH 2425, MATH 2326, MATH 3319, PHYS 1443 and PHYS 1444, which are also part of the Pre-Professional Program. For more information, see [University Core Curriculum](#).

Refer to the College of Engineering section of this catalog for information concerning the following topics: Admission into Engineering, Admission into Pre-Engineering, Admission into the Professional Program, Counseling or Advising, Transfer and Change of Major Policies, Honors Program, Academic Regulations, Professional Engineering Registration, Cooperative Education, Academic Probation, Repeating Course Policy, and Academic Dishonesty.

The program is divided into a pre-professional program and a professional engineering program, with the division essentially occurring between the sophomore and junior years.

Refer to the Electrical Engineering Department website for the suggested course sequence (<http://www.uta.edu/ee>).

## Requirements for a Minor in Electrical Engineering

To receive a minor in Electrical Engineering, a student must complete the following five courses with a grade of C or better in each:

EE 2415	CIRCUIT ANALYSIS I	4
EE 2403	ELECTRONICS I	4
EE 2441	DIGITAL LOGIC AND MICROPROCESSORS 1	4
EE 3407	ELECTROMAGNETICS	4
EE 3417	CONTINUOUS SIGNALS AND SYSTEMS	4
Total Hours		20

# Industrial and Manufacturing Systems Engineering

## Undergraduate Degree

- Bachelor of Science in Industrial Engineering (p. 284)

## Graduate Degrees

- Engineering Management, M.S. (p. 282)
- Industrial Engineering, M.Engr. (p. 280)
- Industrial Engineering, M.S. (p. 279)
- Logistics, M.S. (p. 282)
- Systems Engineering, M.S. (p. 281)
- Industrial Engineering, Ph.D. (p. 283)

# Industrial and Manufacturing Systems Engineering - Graduate Programs

## Programs in Industrial Engineering

The graduate program in industrial engineering is designed to provide the student with fundamental knowledge in the various areas of industrial engineering and with the opportunity to emphasize in a particular area. A student pursuing a master's or doctoral degree may concentrate in any area of

industrial engineering such as General Industrial Engineering, Operations Research and Applied Statistics, Manufacturing Systems, Logistics, Enterprise Systems, Enterprise Management, and Ergonomics.

In addition, the department offers the Master of Science in Systems Engineering Program. The Department also participates in a college-wide Manufacturing Certificate program. The Master of Science in Logistics Program and the Master of Science in Engineering Management Program are offered in partnership with the College of Business Administration.

## Program in Systems Engineering

The Systems Engineering program is designed to provide students with both the fundamental and applied management and technical knowledge to support the development of complex systems. Systems Engineering is that branch of engineering that develops systems, where a system is a collection of elements that work together as a unit.

Systems Engineering considers the total systems life-cycle from customer requirements and concept through design and development, system use, system maintenance, and system disposal. A Systems Engineering curriculum must encourage a broad view rather than a focus on individual system elements or phases of development. This broad view, a systems view, enables better system performance and reduces the likelihood of unintended consequences.

Students may obtain a Master of Science in Systems Engineering and then pursue a PhD in Industrial Engineering with a focus on Systems Engineering.

## Program in Engineering Management

The Engineering Management Program is offered as an interdisciplinary program that integrates engineering and business concepts. The curriculum prepares an experienced professional engineer or scientist for a leadership role in planning, developing and managing firm's technological resources including people, technology and processes. Graduates acquire an understanding how to use the technical base to accomplish the organization's operational, strategic and competitive objectives.

## Program in Logistics

The Logistics Program is designed to meet an increasing state, national, and international demand for professionals with technical or business education and experience in the area of logistics and supply chain. Such professionals will need a unique combination of technical and business knowledge and skills and will have technical experience and degrees in engineering, mathematics or business.

Logistics is an interdisciplinary field of study which comprises the entire set of functions associated with the flow of goods, information, and payments among suppliers and consumers from organization of raw material to final recycling or disposal of finished goods. The integration of engineering and business content is done in a fashion that prepares an experienced professional engineer or manager for a leadership role in planning, developing, implementing and managing the firm's logistics and supply chain capabilities in the global marketplace. The overall purpose of the Logistics Program at UT Arlington is to provide graduates with the understanding needed to manage the firm's logistics and supply chain systems and infrastructure and to accomplish the organization's operational, strategic and competitive objectives.

## Admission Criteria for Master's Program in Industrial Engineering

Applicants for the master's degree who hold a baccalaureate degree in engineering must meet the general minimum requirements described below. Applicants not meeting all criteria may be admitted on a probationary basis.

For applicants with no prior training in engineering, the same minimum admission criteria will apply. In addition, their records will be reviewed in relation to the intended program of study, and specific remedial work may be required.

The acceptance of applicants who have already received a master's degree in engineering, other than industrial engineering, will be based on the above-mentioned minimum criteria and results of graduate work.

Performance on the GRE will not be the sole criterion for admitting applicants or the primary criterion to deny admission to the master's program. In cases where GRE performance does not meet the minimum requirements, all other qualifications presented by the applicant will be carefully evaluated for evidence of potential for success.

### UNCONDITIONAL ADMISSION CRITERIA

Unconditional Admission into the M.S. Industrial Engineering program is granted if all of the following conditions are met.

- A GPA of at least 3.0 in the last 60 hours of undergraduate coursework.
- A GPA of at least 3.0 in all prior graduate work.
- A minimum score of 148 on the GRE Quantitative section and 146 on the GRE Verbal section (600 and 400, respectively, on the old scale).
- A minimum score of 500 on the handwritten TOEFL (213 on the computer-based version, or 79 on the TOEFL iBT, or 6.5 on the IELTS) if English is not the applicant's native language.

- Adequate preparation in mathematics, science, and industrial engineering.

## **PROBATIONARY ADMISSION CRITERIA**

Prospective students not meeting the conditions for unconditional admission may be granted probationary admission if their GPA is at least 2.6 and if their qualifications indicate a potential for success. Deficiency coursework in IE, mathematics, or other courses relevant to the IE degree program may be required, at the discretion of the graduate advisor. Probationary status may be cleared by satisfying all deficiency requirements and achieving a GPA of at least 3.0 in the first two semester of graduate work.

## **PROVISIONAL ADMISSION**

An applicant unable to supply all required official documentation prior to the admission deadline, but whose available documentation otherwise appears to meet admission requirements may be granted provisional admission.

## **DEFERRAL**

The admission decision is deferred if sufficient information is not available to make an admission decision.

## **DENIAL**

Prospective master's students with a GPA below 2.6 may be denied admission at the discretion of the Graduate Advisor. The Graduate Advisor may grant probationary admission if other factors suggest a potential for success in the graduate program.

## **CONTINUATION**

The Industrial Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified professional engineers, has established certain policies and procedures. In addition to requirements of the Graduate School listed elsewhere, to continue in the program toward graduation each industrial engineering graduate student must:

1. Maintain at least a B (3.0) overall GPA in all coursework taken as a graduate student and in the MSIE program , and
2. Demonstrate suitability for professional engineering practice.

At such time as questions are raised by industrial engineering graduate faculty regarding either of the above, the student will be notified and will be provided the opportunity to respond to the Committee on Graduate Studies in Industrial Engineering. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

## **Degree Requirements for Master's Program in Industrial Engineering**

The MS degree in Industrial Engineering requires 36 hours of coursework beyond the baccalaureate degree in Industrial Engineering for the non-thesis option, and 24 hours plus a thesis for the thesis option.

Engineering students without a baccalaureate industrial engineering degree must take seven or eight courses (21 or 24 credit hours) for the industrial engineering core curriculum. The remaining 12 or 15 hours will be IE electives. For the thesis option, these students must satisfy all core course requirements, in addition to the thesis. The core curriculum is as follows:

1. Three hours of of introductory Industrial Engineering coursework for students without a baccalaureate industrial engineering degree.
2. Three hours of coursework in engineering statistics approved by the graduate advisor.
3. Three hours of coursework in operations research approved by the graduate advisor.
4. Three hours of coursework in engineering economy approved by the graduate advisor.
5. Twelve hours of industrial engineering design approved by the graduate advisor.

A final comprehensive examination is required for each master's candidate. For the thesis option, the examination will be oral and will cover the thesis. For the non-thesis option, the examination will be written.

## **MASTER OF SCIENCE**

The Master of Science Degree is a 36 credit hour research-oriented program which consists of a thesis option, thesis-substitute option, and a non-thesis option. M.S. degree requirements are given under the catalog section entitled "Advanced Degrees and Requirements."

## **MASTER OF ENGINEERING**

The Master of Engineering Degree is an engineering practice-oriented program. The degree is a 36 credit-hour program in which a maximum of six credit hours may be earned by an acceptable design project report, internship, or additional coursework. Applicants for this degree must have a baccalaureate degree in an engineering discipline. M.E. degree requirements are given under the catalog section entitled "Advanced Degrees and Requirements."



## Fast Track Program for a Master's Degree in Industrial Engineering

The Fast Track Program enables outstanding UT Arlington senior undergraduate students in Industrial Engineering to satisfy degree requirements leading to a master's degree in Industrial Engineering while completing their undergraduate studies. When senior-level students are within 15 hours of completing their undergraduate degree requirements, they may take up to 9 hours of coursework designated by the Industrial Engineering Program to satisfy both undergraduate and graduate degree requirements. In the limiting case, a student completing the maximum allowable hours (9) while in undergraduate status would have to take only 27 additional hours to meet minimum requirements for graduation.

Interested UT Arlington undergraduate Industrial Engineering students should apply to the Industrial Engineering Program when they are within 30 hours of completing their bachelor's degrees. They must have completed at least 30 hours at UTA, achieving an overall GPA of 3.0 or better in all work done at UTA and in the last 30 hours. Additionally, they must have completed 9 hours of specified foundation courses with a minimum GPA of 3.3 in those courses. Contact the Undergraduate Advisor or Graduate Advisor in Industrial Engineering for more information about the program.

## Admission Criteria for M.S. in Systems Engineering

### UNCONDITIONAL ADMISSION

Unconditional admission into the M.S. Systems Engineering program is granted if all of the following conditions are met.

- A GPA of at least 3.0 in the last 60 hours of undergraduate coursework or prior graduate work.
- A minimum score of 148 on the GRE Quantitative section and 146 on the GRE Verbal section (600 and 400, respectively, on the old scale).
- A minimum score of 500 on the handwritten TOEFL (213 on the computer-based version, or 79 on the TOEFL iBT, or 6.5 on the IELTS) if English is not the applicant's native language.
- Adequate preparation in mathematics, science, and engineering, or other appropriate field.
- A minimum of two years of industry experience.

### PROBATIONARY ADMISSION CRITERIA

Prospective students who do not meet the conditions for unconditional admission are granted probationary admission if their GPA is 2.6 or greater. Students granted probationary admission must achieve a GPA of at least 3.0 for the first two semesters completed at UTA. Unconditional admission may then be granted. Other conditions, such as deficiency courses, may be specified by the Graduate Advisor.

### PROVISIONAL ADMISSION

An applicant unable to supply all required official documentation prior to the admission deadline, but whose available documentation otherwise appears to meet admission requirements may be granted provisional admission.

### DEFERRAL

The admission decision is deferred if sufficient information is not available.

### DENIAL

Prospective students with a GPA below 2.6 may be denied admission at the discretion of the Graduate Advisor. The Graduate Advisor may grant probationary admission if other factors suggest a potential for success in the graduate program. Denial will not be based solely or primarily on GRE performance. In cases where test performance is relatively poor, all other qualifications presented by the applicant will be carefully evaluated for evidence of potential for success in the program.

## Degree Requirements for M.S. in Systems Engineering

The M.S. degree in Systems Engineering requires 36 hours of coursework. The coursework is in the Department of Industrial and Manufacturing Systems Engineering. The program includes such courses as:

- Introduction to Systems Engineering
- Systems Engineering I
- Systems Engineering II
- Systems Engineering III
- Advanced Operations Research
- Advanced Engineering Statistics
- Simulation and Optimization
- Enterprise Engineering Methods
- Enterprise Architectures and Frameworks
- Engineering Management I
- Engineering Management II

- Project Management
- Advanced Engineering Economy
- Management of Knowledge and Technology

## **Admission Requirements for M.S. in Engineering Management**

Applicants must hold a baccalaureate degree in science, mathematics, engineering or other appropriate field.

### **UNCONDITIONAL ADMISSION**

Unconditional admission into the Engineering Management Program is granted if all of the following conditions are met.

- A GPA of at least 3.0 in the last 60 hours of undergraduate coursework or and in all prior graduate work.
- A minimum score of 148 on the GRE Quantitative section and 146 on the GRE Verbal section (600 and 400, respectively, on the old scale).
- A minimum score of 500 on the handwritten TOEFL (213 on the computer-based version, or 79 on the TOEFL iBT, or 6.5 on the IELTS) if English is not the applicant's native language.
- Adequate preparation in mathematics, science, and engineering or other appropriate field. Industrial experience is preferred.

### **PROBATIONARY ADMISSION CRITERIA**

Prospective Engineering Management students not meeting the conditions for unconditional admission may be granted probationary admission if their GPA is 2.6 or greater. Students granted probationary admission must maintain a GPA of at least 3.0 for the first two semesters completed at UT Arlington. Other conditions, such as deficiency courses, may be specified by the Graduate Advisor.

### **PROVISIONAL ADMISSION**

An applicant unable to supply all required official documentation prior to the admission deadline, but whose available documentation otherwise appears to meet admission requirements may be granted provisional admission.

### **DEFERRAL**

The admission decision is deferred if insufficient information is available.

### **Denial**

Prospective students with a GPA below 2.6 may be denied admission at the discretion of the Graduate Advisor. The Graduate Advisor may grant probationary admission if other factors suggest a potential for success in the graduate program.

## **Degree Requirements for M.S. in Engineering Management**

The M.S. degree in Engineering Management requires 36 hours of coursework. The coursework is divided between the Department of Information Systems and Operations Management and the Department of Industrial and Manufacturing Systems Engineering. The program includes such courses as:

- Accounting Analysis
- Engineering Management
- Engineering Economics
- Management Sciences
- Quality Management
- Product Management
- Project Management
- Management of Knowledge and Technology
- Simulation and Optimization
- Technology Development and Deployment

## **Admission Requirements for M.S. in Logistics**

### **UNCONDITIONAL ADMISSION**

Unconditional admission into the M.S. Logistics program is granted if all of the following conditions are met.

- A GPA of at least 3.0 in the last 60 hours of undergraduate coursework or prior graduate work.
- A minimum score of 148 on the GRE Quantitative section and 146 on the GRE Verbal section (600 and 400, respectively, on the old scale) or 500 on the GMAT.

- A minimum score of 500 on the handwritten TOEFL (213 on the computer-based version, or 79 on the TOEFL iBT, or 6.5 on the IELTS) if English is not the applicant's native language.
- Adequate preparation in mathematics, science, and engineering or other appropriate field, and three years of experience.

## PROBATIONARY ADMISSION CRITERIA

Prospective students not meeting the conditions for unconditional admission may be granted probationary admission if their GPA is 2.6 or greater. Students granted probationary admission must maintain a GPA of at least 3.0 for the first two semesters completed at UT Arlington. Other conditions, such as deficiency courses, may be specified by the Graduate Advisor.

## PROVISIONAL ADMISSION

An applicant unable to supply all required official documentation prior to the admission deadline, but whose available documentation otherwise appears to meet admission requirements may be granted provisional admission.

## DEFERRAL

The admission decision is deferred if insufficient information is available.

## DENIAL

Prospective students with a GPA below 2.6 may be denied admission at the discretion of the Graduate Advisor. The Graduate Advisor may grant probationary admission if other factors suggest a potential for success in the graduate program.

## Degree Requirements for M.S. in Logistics

The M.S. degree in Logistics requires 36 hours of coursework. The coursework is divided between the Department of Industrial and Manufacturing Systems Engineering and the Department of Information Systems and Operations Management. The program includes such courses as:

- Probability and Statistics
- Operations Research
- Production and Inventory Control
- Production Systems Design
- Enterprise Modeling
- Logistics Information Systems
- Logistics Transportation Systems Design
- Logistics Distribution Systems Design
- Business Logistics
- Purchasing and Materials Management
- Supply Chain Management Approved Electives

## Doctor of Philosophy

The Ph.D. degree should normally require approximately four years or less of full-time study after completion of the BS degree. A student's program will consist of coursework, independent study, and a dissertation in a field pertinent to the student's areas of interest. The program for each student will be planned by the student and a committee of faculty members. There is no foreign language requirement for the Ph.D. degree.

Students with undergraduate degrees in fields other than engineering will be required to take necessary courses to establish a background in science, mathematics, and engineering. Students with non-IE engineering degrees may be required to take deficiency IE courses. Ph.D. requirements are listed in the catalog section entitled "Advanced Degrees and Requirements."

## UNCONDITIONAL ADMISSION CRITERIA

Unconditional Admission into the Ph.D. programs in Industrial Engineering is granted if all of the following conditions are met.

- A GPA of at least 3.0 in the last 60 hours of undergraduate coursework.
- A GPA of at least 3.3 in all prior graduate work for Ph.D. students.
- A minimum score of 155 on the GRE Quantitative section and 150 on the Verbal section (700 and 450, respectively, on the old scale).
- A minimum score of 500 on the handwritten TOEFL (213 on the computer-based version, or 79 on the TOEFL iBT, or 6.5 on the IELTS) if English is not the applicant's native language.
- Adequate preparation in mathematics, science, and industrial engineering.

## PROBATIONARY ADMISSION CRITERIA

Prospective students not meeting the conditions for unconditional admission, but whose records otherwise indicate adequate preparation for starting the Ph.D. degree, may be granted probationary admission. Students granted probationary admission must achieve a GPA of at least 3.0 for the first two semesters as a doctoral student, after which unconditional admission may be granted, providing all other requirements for unconditional admissions are met. Other conditions, such as deficiency courses, may be specified by the Graduate Advisor.

## PROVISIONAL ADMISSION

An applicant unable to supply all required official documentation prior to the admission deadline, but whose available documentation otherwise appears to meet admission requirements may be granted provisional admission.

## DEFERRAL

The admission decision is deferred if sufficient information is not available.

## DENIAL

Applicants who do not satisfy the conditions for any of the above categories of admission will be denied admission.

## CONTINUATION

The Industrial Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified professional engineers, has established certain policies and procedures. In addition to requirements of the Graduate School listed elsewhere, to continue in the program each industrial engineering graduate student must:

1. Maintain at least a B (3.0) overall GPA in all coursework taken as a graduate student and in all IE courses taken , and
2. Demonstrate suitability for professional engineering practice.

At such time as questions are raised by industrial engineering graduate faculty regarding either of the above, the student will be notified and will be provided the opportunity to respond to the Committee on Graduate Studies in Industrial Engineering. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

## BS to PhD Program

In addition to the basic PhD requirements, the BS to PhD track in Industrial Engineering requires 30 credit hours including 18 hours of diagnostic coursework, a three credit hour elective and 9 credit hours of research coursework.

# Industrial and Manufacturing Systems Engineering - Undergraduate Program

## Overview

Industrial Engineering students will be prepared for engineering practice through a curriculum culminating in a major design experience based on the knowledge and skills in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints. The curriculum will prepare graduates to design, develop, implement, and improve integrated systems that include people, materials, information, equipment and energy. The curriculum includes in-depth instruction to accomplish the integration of systems using appropriate analytical, computational, and experimental practices.

## Program Educational Objectives

Industrial engineers analyze, design, and transform complex systems of people, processes, and technology to accomplish organizational goals. To this end, the program educational objectives of the Industrial Engineering program are what we expect our students to attain within three to five years of graduation.

The graduates of the UTA industrial engineering program:

- enter industrial engineering or other professions and make contributions that benefit society, their employers, and themselves.
- broadly apply knowledge of:
  - a. the mathematical, physical and social sciences;
  - b. economic, operational, and engineering analysis, and
  - c. the principles and practices of engineering design.
- analyze, design, and transform the complex systems of people, processes and technology that enable the extended enterprise.
- continue to expand their capabilities through professional development and advanced education.

The following student outcomes prepare graduates to attain the program educational objectives:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- an ability to function on multi-disciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- a recognition of the need for, and an ability to engage in, life-long learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Students will be prepared for engineering practice through a curriculum culminating in a major design experience based on the knowledge and skills in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints. The curriculum will prepare graduates to design, develop, implement, and improve integrated systems that include people, materials, information, equipment and energy. The curriculum includes in-depth instruction to accomplish the integration of systems using appropriate analytical, computational, and experimental practices.

## ABET Accreditation

Accreditation is an assurance that the professionals that serve us have a solid educational foundation and are capable of leading the way in innovation, emerging technologies, and in anticipating the welfare and safety needs of the public. The program in Industrial Engineering has been accredited since 1967 by the Engineering Accreditation Commission (EAC) of ABET, <http://www.abet.org>.

## Admission to Industrial Engineering Program

For admission to the industrial engineering program, all students must meet the requirements for admission to the College of Engineering. A grade point average of 2.25 in science, mathematics, and engineering courses is required for unconditional transfer into the department.

## Advancement into Industrial Engineering Professional Program

Requirements for advancement into the Professional Program in Industrial Engineering are in accordance with those in the College of Engineering with the added stipulations that:

- Application to the Professional Program is to be made to the Undergraduate Advisor during the semester following completion of the last pre-professional course.
- No professional Industrial Engineering course may be taken unless the student is admitted into the professional program or obtains the consent of the Undergraduate Advisor. Professional courses may be taken to fill out a schedule in the semester that the last pre-professional course is taken.
- Each student must complete all pre-professional courses stipulated under "Requirements for a Bachelor of Science Degree in Industrial Engineering" with a minimum grade of C in each course and a minimum GPA of 2.25 in each of three categories: (1) overall, (2) required math, science, and engineering courses, and (3) required IE courses.

Most professional Industrial Engineering courses are offered only once a year. Students are urged to plan their course sequence schedules carefully to avoid delaying their graduation

## Advising

The advising process is designed to assist students as they make important decisions related to their academic progress at UTA and career goals in general.

Specifically, the purpose of advising is:

- To empower students to clarify and achieve their educational goals by providing timely and accurate information about degree requirements, as well as College and University policies and procedures.
- To provide every student with the opportunity to develop a relationship with a knowledgeable advisor in order to obtain sound academic advising with a degree of continuity.
- To provide students with information about additional services, programs, and support systems available within the College and University as appropriate.

Ultimately, the student is responsible for seeking academic advice, making decisions regarding goals, meeting degree requirements, and enrolling in appropriate courses. The academic advisor is to provide assistance in these decisions. Each student is responsible for understanding and complying with University and College practices and procedures.

During each long semester, the Industrial and Manufacturing Systems Engineering Department conducts pre-enrollment advising weeks. All students must receive this pre-enrollment advising prior to registering for classes.

## Oral Communication and Computer Use Competency Requirements

Students majoring in Industrial Engineering may use COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING, to demonstrate oral communication competency. Students majoring in Industrial Engineering are required to take IE 1105 INTRODUCTION TO INDUSTRIAL ENGINEERING LAB and IE 3343 METRICS AND MEASUREMENT. A computer competency examination will be administered in IE 1105 INTRODUCTION TO INDUSTRIAL ENGINEERING LAB. For transfer students and others who do not take IE 1105 INTRODUCTION TO INDUSTRIAL ENGINEERING LAB, the computer literacy test will be administered in IE 3343 METRICS AND MEASUREMENT.

## Academic Honesty

The College of Engineering takes academic honesty and ethical behavior very seriously. Engineers are entrusted with the safety, health, and well being of the public. Students found guilty of academic dishonesty will be punished to the full extent permitted by the rules and regulations of UT Arlington. In particular, any student found guilty of a second offense by the Office of Student Judicial Affairs will be subject to dismissal from the College of Engineering.

## Other Provisions

Refer to the College of Engineering section of this catalog for information concerning the following topics: Preparation in High School for Admission to the College of Engineering, Admission to the College of Engineering, Admission to the Professional Program, Counseling, College of Engineering Academic Regulations, Transfer Policies, College of Engineering Probation, Repeating Course Policy, Academic Honesty, and Modern and Classical Languages Requirement.

## Requirements for a Bachelor of Science Degree in Industrial Engineering

### General Education Courses

HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	3
Language, Philosophy, or Culture Elective		3
Creative Arts Elective		3

### Pre-Professional Courses <sup>1</sup>

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
MATH 1426	CALCULUS I <sup>2</sup>	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	8
Or:		
CHEM 1465	CHEMISTRY FOR ENGINEERS	
& Approved Science Elective		
MAE 1351	ENGINEERING GRAPHICS AND INDUSTRIAL PRACTICES	3
IE 1104	INTRODUCTION TO ENGINEERING	1
IE 1105	INTRODUCTION TO INDUSTRIAL ENGINEERING LAB	1
IE 2305	COMPUTER APPLICATIONS IN INDUSTRIAL ENGINEERING (or approved alternative)	3
IE 2308	ECONOMICS FOR ENGINEERS	3

IE 3301	ENGINEERING PROBABILITY	3
IE 3315	OPERATIONS RESEARCH I	3
<b>Professional Courses</b>		
IE 3314	ENGINEERING RESEARCH METHODS	3
IE 3343	METRICS AND MEASUREMENT	3
IE 4302	ENGINEERING ADMINISTRATION AND ORGANIZATION	3
IE 4303	PRODUCTION AND INVENTORY CONTROL	3
IE 4308	QUALITY SYSTEMS	3
IE 4315	OPERATIONS RESEARCH II	3
IE 4318	ENTERPRISE DESIGN	3
IE 4322	ENTERPRISE SIMULATION	3
IE 4325	AUTOMATION AND ROBOTICS I	3
IE 4339	PRODUCT DEVELOPMENT, PRODUCIBILITY AND RELIABILITY DESIGN	3
IE 4343	FACILITIES PLANNING AND DESIGN	3
IE 4344	HUMAN FACTORS ENGINEERING	3
IE 4345	KNOWLEDGE AND TECHNOLOGY MANAGEMENT	3
IE 4350	INDUSTRIAL ENGINEERING CAPSTONE DESIGN	3
Technical Electives		12
Total Hours		128

<sup>1</sup> All pre-professional courses must be completed before enrolling in professional courses.

<sup>2</sup> Placement in MATH 1426 CALCULUS I is based on prior preparation, SAT scores, and UT Arlington math placement scores.

Note: Total hours will depend upon prior preparation and academic qualifications. Also, students who do not have two units of high school foreign language will be required to take modern and classical languages courses in addition to the previously listed requirements.

The Industrial and Manufacturing Systems Engineering Department conducts academic advising each semester. Each student must make an appointment to meet with the undergraduate advisor.

## Recommended Core Curriculum

Industrial Engineering students will satisfy the university core curriculum requirement by completing all General Education courses specified under "Requirements for a Bachelor of Science Degree in Industrial Engineering" along with ENGL 1301, ENGL 1302, MATH 1426, MATH 2425, PHYS 1443, PHYS 1444, and IE 2308, which are within the Pre-Professional Program. The university core curriculum allows each degree plan to designate a component area to satisfy three hours of the core requirement. For the industrial engineering degree plan, the designated component area is Communication and COMS 2302 is selected to satisfy the requirement. For more information, see <https://nextcatalog.uta.edu/degree/requirements/generalcorerequirements/>.

## Suggested Course Sequence

For a suggested course sequence see the departmental website.

## Requirements for a Minor in Industrial Engineering

To receive a minor in Industrial Engineering, a student must complete the following courses with a grade of C or better in:

IE 2308	ECONOMICS FOR ENGINEERS	3
IE 3301	ENGINEERING PROBABILITY	3
IE 3315	OPERATIONS RESEARCH I	3
Three upper division IE courses for which the prerequisites are satisfied		9
Total Hours		18

## Fast Track Program for a Master's Degree in Industrial Engineering

The Fast Track Program enables outstanding UT Arlington senior undergraduate students in Industrial Engineering to satisfy degree requirements leading to a master's degree in Industrial Engineering while completing their undergraduate studies. When senior-level students are within 15 hours of completing their undergraduate degree requirements, they may take up to nine hours of coursework designated by the Industrial Engineering Program to satisfy both undergraduate and graduate degree requirements. In the limiting case, a student completing the maximum allowable hours (9) while in undergraduate status would have to take only 27 additional hours to meet minimum requirements for graduation.

Interested UT Arlington undergraduate Industrial Engineering students should apply to the Industrial Engineering Program when they are within 30 hours of completing their bachelor's degrees. They must have completed at least 30 hours at UT Arlington, achieving an overall GPA of 3.0 or better in all work done at UT Arlington and in the last 30 hours. Additionally, they must have completed nine hours of specified foundation courses with a minimum GPA of 3.3 in those courses. Contact the Undergraduate Advisor or Graduate Advisor in Industrial Engineering for more information about the program.

## BS to PhD Program

The BS to PhD track in Industrial Engineering requires 30 credit hours including 18 hours of diagnostic coursework, a three credit hour elective and nine credit hours of research coursework. This is in addition to the PhD requirements.

## Materials Science and Engineering

The Materials Science and Engineering Department is the oldest, largest and most diversified program in North Texas. It is a university-wide, highly-interdisciplinary graduate program with eight core materials faculty and approximately 25 affiliated faculty spanning from physics and chemistry to electrical, mechanical, aerospace, civil and bio engineering. It offers minor, masters and doctoral degree programs in Materials Science and Engineering. It has courses in nanoscale materials and nanotechnology, magnetic, optical and energy materials, bio/nano materials and surface engineering and thin film technology. The department's growth is aided by high levels of research funding from NSF, DOE, ONR, NASA, DOD and other federal, industrial and state sources in the areas of micro/nano electronic devices, self-assembled nanomaterials, multifunctional, nanocomposite thin films, bio/nanomagnets, optoelectronics, solar cells and materials for clean energy, advanced lubricants, and coatings.

## Undergraduate Degree

- Minor in Materials Science and Engineering (p. 293)

## Graduate Degrees

- Materials Science and Engineering, M.Engr. (p. 288)
- Materials Science and Engineering, M.S. (p. 288)
- Materials Science and Engineering, B.S. to Ph.D. (p. 290)
- Materials Science and Engineering, Ph.D. (p. 290)
- Materials Science and Engineering - Physics Fast Track (p. )

## Materials Science and Engineering - Graduate Programs

### Objective

The graduate program in materials science and engineering is designed to provide students with a fundamental understanding of phenomena occurring in materials and their associated chemical, electrical, mechanical, and physical properties. The master's program prepares students for professional careers in materials science and engineering or for additional studies at the doctoral level.

Candidates for a master's or doctoral degree may elect programs emphasizing metals, polymers, ceramics, composite materials, or electronic materials, as well as a number of other areas. Although the program is administered through the College of Engineering, it is broadly interdisciplinary, actively involving faculty in both the College of Science and the College of Engineering. In addition to materials science and engineering courses, applicable courses are in the disciplines of aerospace engineering, biomedical engineering, chemistry, civil engineering, computer science engineering, electrical engineering, mechanical engineering, and physics.

### Continuation

The Materials Science and Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified professional engineers and scientists, has established certain policies and procedures. In addition to the requirements of the Graduate School listed elsewhere in this catalog, to continue in the program each materials science and engineering graduate student must:

1. Maintain at least a B (3.0) overall GPA in all coursework, and
2. Demonstrate suitability for professional practice.

At such time as questions are raised by materials science and engineering graduate faculty regarding either of the above, the student will be notified and will be given the opportunity to respond to the Committee on Graduate Studies for Materials Science and Engineering. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

## Admission Requirements

Applicants for the master's degree must have either a baccalaureate or master's degree in engineering or science. Applicants who have completed a bachelor's degree and wish to pursue a doctoral degree without completing a master's degree may apply for admission into the B.S. to Ph.D. Track



(p. 290). All applicants must meet the general requirements of the University as stated in the Graduate Admissions (p. 23) section of the catalog. Applicants not meeting all criteria may be admitted on a provisional or probationary basis.

For applicants with no prior training in engineering or with insufficient undergraduate materials coursework, the same minimum criteria will apply. Additionally, their records will be reviewed in relation to their materials backgrounds, and probationary status with specific remedial work required may be a basis for acceptance of such applicants.

The UT Arlington Materials Science and Engineering Program uses the following guidelines in the admission review process:

## **UNCONDITIONAL ADMISSION**

Unconditional admission into the Materials Science and Engineering Program requires the submission of items 1 through 5 below for each degree program. A typical successful applicant will have met the following admission requirements:

1. Minimum undergraduate GPA of 3.0 in the last 60 hours of undergraduate work in an appropriate engineering or science discipline. (For some international applicants where GPA calculation based on a 4.0 scale is not performed, a minimum performance level of 70 percentile is expected. This minimum expectation may be higher for some countries, where less stringent grading criteria are used.) Performance in core materials-related courses is of particular importance.
2. A GRE score of at least 400 (verbal) and 700 (quantitative). For those applicants whose GRE verbal score falls below 400, high TOEFL scores may be considered to offset the GRE verbal score.
3. Three favorable, veracious recommendations, via the university's recommendation form or via recommendation letter.
4. A Statement of Purpose detailing the applicant's background, education, professional goals, technical interests, and research interests.
5. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: paper-based TOEFL score of 550 with a TWE of 3.5, computer-based TOEFL score of 223, TSE-A score of 45, IELTS score of 6.5, or TOEFL iBT total score of 84 with sectional scores of 22 for writing, 21 for speaking, 20 for reading, and 20 for listening.

## **PROBATIONARY ADMISSION**

Probationary admission into the Materials Science and Engineering Program may be permitted under the following conditions for each degree program:

1. If an applicant meets any two of the items 1, 2, and 3 above for the master's program.
2. A Statement of Purpose detailing the applicant's background, education, professional goals, technical interests, and research interests.
3. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: paper-based TOEFL score of 550 with a TWE of 3.5, computer-based TOEFL score of 223, TSE-A score of 45, IELTS score of 6.5, or TOEFL iBT total score of 84 with sectional scores of 22 for writing, 21 for speaking, 20 for reading, and 20 for listening.

## **PROVISIONAL ADMISSION**

An applicant who is unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

## **DEFERRED**

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until admission records are complete or the requirements are met.

## **DENIAL OF ADMISSION**

A candidate may be denied admission if he/she has less than satisfactory performance in two out of three of the first three admission criteria.

## **WAIVER OF GRADUATE RECORD EXAM**

A waiver of the Graduate record Exam may be considered for a UT Arlington graduate who graduated within the past three years and has completed an engineering or science degree closely related to materials science and engineering. The student's GPA must equal or exceed 3.0 in each of two calculations:

1. in the last 60 hours of study and
2. in all undergraduate coursework completed at UT Arlington.

The GRE waiver may be extended to include non-UT Arlington candidates that have undergraduate degrees (with GPA of 3.3 or above) from U.S. universities with an ABET accredited engineering program or other select U.S. universities subject to graduate advisor's approval. The waiver of the GRE applies only to applicants for the master's degree programs. Interested applicants should contact the Materials Science and Engineering Graduate Advisor.

## ELIGIBILITY FOR SCHOLARSHIPS/FELLOWSHIPS

Students that are admitted will be eligible for available scholarship or fellowship support. Award of scholarships or fellowships will be based on the student's relative standing with respect to other qualified applicants.

## Master's Degree Requirements

The **Master of Science** degree options available are: thesis option and thesis substitute option.

**The thesis option** is a research-oriented degree in which completion of a thesis is mandatory. The program consists of a minimum of 24 credit hours of coursework (a minimum of 18 credit hours in MSE courses) and an acceptable thesis (minimum of six credit hours).

**The thesis-substitute option** must take a minimum of 33 credit hours as specified below:

27 credit hours of coursework (a minimum of 18 credit hours in MSE courses);

1 credit hour MSE 5193 SEMINAR IN MATERIALS SCIENCE AND ENGINEERING;

3 credit hour MSE 5394 Master's Research Project in Materials Science and Engineering I;

2 credit hour Master's Comprehensive Examination (MSE 5293) at the semester in which the student expects to graduate.

### Master of Engineering in Materials Science and Engineering:

The Master of Engineering degree is an engineering practice-oriented program requiring a minimum of 36 credit hours (A minimum of 24 credit hours of coursework must be in MSE courses.). A maximum of six hours may be a special project (MSE 5394 Master's Research Project in Materials Science and Engineering I and MSE 5395 Master's Research Project in Materials Science and Engineering II).

MSE 5300 INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING: This course must be taken by any students whose academic backgrounds are different from Materials Science and Engineering. An exemption may be granted by the Graduate Advisor if it is determined that the student has a solid foundation for Materials Science and Engineering. The credit for MSE 5300 INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING will not be counted towards the total credits required for graduation. However, the grade of MSE 5300 INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING will be counted in calculating the GPA.

The M.S. and M. Engr. degree programs require successful completion of the following three of four core courses:

MSE 5304	ANALYSIS OF MATERIALS	3
MSE 5305	SOLID STATE PHYSICS AND THERMODYNAMICS OF MATERIALS	3
MSE 5312	MECHANICAL BEHAVIOR OF MATERIALS	3
MSE 5321	PHASE TRANSFORMATIONS OF MATERIALS	3

## Admission Requirements

Applicants for the master's or doctoral degrees must have either a baccalaureate or master's degree in engineering or science. Applicants who have completed a bachelor's degree and wish to pursue a doctoral degree without completing a master's degree may apply for admission into the B.S. to Ph.D. Track. The minimum admission requirements to this highly competitive track are the same as those for all doctoral applicants. Doctoral candidates shall also demonstrate through previous academic preparation the potential to carry out independent research in materials science and engineering. All applicants must meet the general requirements of the University as stated in the Graduate Admissions (p. 23) section of this catalog. Applicants not meeting all criteria may be admitted on a provisional or probationary basis.

For applicants with no prior training in engineering or with insufficient undergraduate materials coursework, the same minimum criteria will apply. Additionally, their records will be reviewed in relation to their materials backgrounds, and probationary status with specific remedial work required may be a basis for acceptance of such applicants.

The UT Arlington Materials Science and Engineering Program uses the following guidelines in the admission review process:

### UNCONDITIONAL ADMISSION

Unconditional admission into the Materials Science and Engineering Program requires the submission of items 1 through 5 below for each degree program. A typical successful applicant will have met the following admission requirements:

1. Minimum undergraduate GPA of 3.3 in the last 60 hours of undergraduate work in an appropriate engineering or science discipline. (For some international applicants where GPA calculation based on a 4.0 scale is not performed, a minimum performance level of 75 percentile is expected. This minimum expectation may be higher for some countries, where less stringent grading criteria are used.) Performance in core materials-related courses is of particular importance.

2. A GRE score of at least 425 (verbal) and 750 (quantitative). For those applicants whose GRE verbal score falls below 425, high TOEFL scores may be considered to offset the GRE verbal score.
3. Three favorable, veracious recommendations, via the university's recommendation form or via recommendation letter.
4. A Statement of Purpose detailing the applicant's background, education, professional goals, technical interests, and research interests.
5. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: paper-based TOEFL score of 550 with a TWE of 3.5, computer-based TOEFL score of 223, TSE-A score of 45, IELTS score of 6.5, or TOEFL iBT total score of 84 with sectional scores of 22 for writing, 21 for speaking, 20 for reading, and 20 for listening.

## PROBATIONARY ADMISSION

Probationary admission into the Materials Science and Engineering Program may be permitted under the following conditions for each degree program:

1. If an applicant meets any two of the items 1, 2, and 3 above for the doctoral program.
2. A Statement of Purpose detailing the applicant's background, education, professional goals, technical interests, and research interests.
3. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: paper-based TOEFL score of 550 with a TWE of 3.5, computer-based TOEFL score of 223, TSE-A score of 45, IELTS score of 6.5, or TOEFL iBT total score of 84 with sectional scores of 22 for writing, 21 for speaking, 20 for reading, and 20 for listening.

## PROVISIONAL ADMISSION

An applicant who is unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

## DEFERRED

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until admission records are complete or the requirements are met.

## DENIAL OF ADMISSION

A candidate may be denied admission if he/she has less than satisfactory performance in two out of three of the first three admission criteria.

## WAIVER OF GRADUATE RECORD EXAM

A waiver of the Graduate record Exam may be considered for a UT Arlington graduate who graduated within the past three years and has completed an engineering or science degree closely related to materials science and engineering. The student's GPA must equal or exceed 3.0 in each of two calculations:

1. in the last 60 hours of study and
2. in all undergraduate coursework completed at UT Arlington.

The GRE waiver may be extended to include non-UT Arlington candidates that have undergraduate degrees (with GPA of 3.3 or above) from U.S. universities with an ABET accredited engineering program or other select U.S. universities subject to graduate advisor's approval. The waiver of the GRE applies only to applicants for the master's degree programs. Interested applicants should contact the Materials Science and Engineering Graduate Advisor.

## ELIGIBILITY FOR SCHOLARSHIPS/FELLOWSHIPS

Students that are admitted will be eligible for available scholarship or fellowship support. Award of scholarships or fellowships will be based on the student's relative standing with respect to other qualified applicants.

## Doctoral Degree Requirements

### B.S. TO PH.D. TRACK

In addition to the requirements listed below for the Ph.D. degree, a B.S.-Ph.D. Track student will be required to enroll in at least three hours of research each semester during the student's first two years, receiving a pass/fail grade (no R grade) in these hours. A B.S.-Ph.D. student must have a faculty research (dissertation) advisor prior to the start of the student's second full semester. A B.S.-Ph.D. student must take the Ph.D. diagnostic examinations prior to the start of the student's third full semester.

### DOCTOR OF PHILOSOPHY

The Ph.D. degree program involves an interdisciplinary and multidisciplinary approach which requires students to complete a set of Materials Science and Engineering core courses augmented by elective offerings in aerospace engineering, biomedical engineering, chemistry, civil engineering, electrical engineering, materials science, mechanical engineering and physics. The degree is a research degree which requires the candidate successfully to carry out independent research in an area acceptable to the Committee on Graduate Studies for Materials Science and Engineering. A student's research is directed by a faculty member from any of the departments or programs participating in the Materials Science and Engineering Program.

The Ph.D. degree program requires successful completion of the following curriculum components:

1. A minimum of 24 semester hours of graduate coursework is expected for students entering with an appropriate master's degree or, for highly qualified students, a minimum of 42 semester hours of graduate coursework is expected for student's entering with a bachelor's degree, as approved by the Committee on Graduate Studies for Materials Science and Engineering. The 42 semester hours may include MSE 5392 Research Project in Materials Science and Engineering I and MSE 5393 Research Project in Materials Science and Engineering II Additional coursework may be required by the student's doctoral dissertation committee.

2. Four core courses or their equivalent are required for all doctoral students:

MSE 5304	ANALYSIS OF MATERIALS	3
MSE 5305	SOLID STATE PHYSICS AND THERMODYNAMICS OF MATERIALS	3
MSE 5312	MECHANICAL BEHAVIOR OF MATERIALS	3
MSE 5321	PHASE TRANSFORMATIONS OF MATERIALS	3
Total Hours		12

3. One of these two courses is required for all doctoral students:

MSE 5345	CERAMIC MATERIALS	3
MSE 5347	POLYMER MATERIALS SCIENCE	3
Total Hours		6

4. Three of the following supplemental elective courses must be taken by all doctoral students, as approved by the Committee on Graduate Studies for Materials Science and Engineering. Courses from other disciplines may also be taken, which requires permissions from the Graduate Advisor and student's Supervising Advisor.

MSE 5315	FATIGUE OF ENGINEERING MATERIALS	3
MSE 5316	TRIBOLOGY AND LUBRICATION	3
MSE 5320	NANOSCALE MATERIALS	3
MSE 5330	CORROSION	3
MSE 5333	MAGNETIC PROPERTIES OF MATERIALS	3
MSE 5336	ELECTRICAL PROPERTIES OF MATERIALS	3
MSE 5341	TRANSMISSION ELECTRON MICROSCOPY IN MATERIALS SCIENCE	3
MSE 5345	CERAMIC MATERIALS	3
MSE 5347	POLYMER MATERIALS SCIENCE	3
MSE 5351	CURRENT TOPICS IN NANOTECHNOLOGY	3
MSE 5352	SOLAR ENERGY MATERIALS AND DEVICES	3
MSE 5353	FUNDAMENTALS OF SUSTAINABLE ENERGY	3
MSE 5354	SOLID STATE ELECTRONIC DEVICES	3
MSE 5355	Materials for Energy	3
Total Hours		42

- Elective courses will be taken by all doctoral students which will allow specialization within a particular academic discipline. Graduate courses in chemistry, physics and engineering will be selected for this purpose in consultation with the student's research advisor, subject to approval by the Committee on Graduate Studies for Materials Science and Engineering.
- MSE 5300 INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING: This course must be taken by any students whose academic backgrounds are different from Materials Science and Engineering. An exemption may be granted by the Graduate Advisor if it is determined that the student has a solid foundation for Materials Science and Engineering. The credit for MSE 5300 INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING will not be counted towards the total credits required for graduation. However, the grade of MSE 5300 INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING will be counted in calculating the GPA.

After completion of the first year's coursework (i.e., core courses), students must satisfactorily complete diagnostic examinations which may be written or oral or written and oral with a supplemental interview with faculty members, as determined by the Committee on Graduate Studies in Materials Science and Engineering.

Upon completion of all or nearly all of the coursework requirements and after having demonstrated research ability through partial completion of dissertation research, a student must satisfactorily complete a comprehensive examination.

The dissertation research will be formulated in conjunction with the student's faculty research advisor who may be associated with any of the following academic disciplines participating in the Materials Science and Engineering Program: aerospace engineering, biomedical engineering, chemistry, civil

engineering, electrical engineering, materials science, mechanical engineering, and physics. The dissertation research represents the culmination of the student's academic efforts and is expected to demonstrate original and independent research activity and be a significant contribution to knowledge in the field.

## Materials Science and Engineering - Undergraduate Programs

### Overview

The interdisciplinary field of materials science and engineering has become critical to many emerging areas of science and advanced technology. As a result, there is a growing demand for engineers and scientists with education and training in materials science and engineering. The Materials Science and Engineering Department provides students with such education and training through its graduate master's and doctoral degree programs. Additionally, the department offers undergraduate courses for use as electives in science and engineering, in Fast Track Programs in Materials Science and Engineering, in minor programs in this discipline and in Certificate in Nanotechnology.

### Minor Program in Materials Science and Engineering

#### OUTCOMES AND GOALS

The goal of the minor program in Materials Science and Engineering is to give students a foundation in the governing principles of materials science which complements their major field of study, as well as an understanding of the latest trends. As such, the program is flexible in coursework requirements and can be tailored to each student's interest.

#### ADMISSION TO THE MINOR PROGRAM IN MATERIALS SCIENCE AND ENGINEERING

Admission to the minor program in Materials Science and Engineering requires GPA of 2.0 or higher and approval by the Materials Science and Engineering Department undergraduate advisor as well as the student's home department. Information on admissions and course requirements can be obtained from the Materials Science and Engineering undergraduate program advisor. The minor will be conferred at the same time the degree is conferred and the degree and minor will be recorded on the student's transcript. The minor will not be on the diploma. Minors may not be conferred retroactively upon students who have graduated.

#### SCHOLARSHIPS AND RESEARCH EXPERIENCE

Scholarships may be available for students who meet the academic requirements set by the Materials Science and Engineering minor program. Minor program students may also work as undergraduate research assistants for Materials Science and Engineering faculty.

#### REQUIREMENTS FOR A MINOR IN MATERIALS SCIENCE AND ENGINEERING

To receive a minor in Materials Science and Engineering, a student must complete 18 hours of the following courses with a grade of C or better in each course. Courses must be approved in advance by the MSE undergraduate program advisor. A student must complete:

MSE 3300	MATERIALS SCIENCE (MAE 2321 for MAE majors)	3
MSE 3324	STRUCTURE & MECHANICAL BEHAVIOR OF MATERIALS (MAE 3324 for MAE majors)	3
MSE 4320	NANOSCALE MATERIALS	3
Select three of the following courses for which the prerequisites are satisfied:		9
MSE 4310	POLYMER MATERIALS SCIENCE	
MSE 4315	INTRODUCTION TO COMPOSITES (MAE 4315 for MAE majors)	
MSE 4336	ADVANCED MECHANICAL BEHAVIOR OF MATERIALS (MAE 4336 for MAE majors)	
MSE 4337	FATIGUE OF ENGINEERING MATERIALS (MAE 4390 for MAE majors)	
MSE 4338	FAILURE ANALYSIS (MAE 4338 for MAE majors)	
MSE 4339	FRACTURE MECHANICS (MAE 4339 for MAE majors)	
MSE 4390	SPECIAL TOPICS IN MATERIALS SCIENCE & ENGINEERING (e.g., electrical, optical and magnetic properties of materials)	
CHEM 3307	INTRODUCTION TO POLYMER CHEMISTRY	
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	
CHEM 3321	PHYSICAL CHEMISTRY I	
CHEM 4318	INORGANIC CHEMISTRY	
CHEM 4346	ADVANCED SYNTHETIC METHODS	
MAE 3344	INTRODUCTION TO MANUFACTURING ENGINEERING	
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	
PHYS 3455	ELECTRONICS	
PHYS 4324	ADVANCED ELECTRICITY AND MAGNETISM	

PHYS 4325

SOLID STATE PHYSICS

PHYS 4326

INTRODUCTION TO QUANTUM MECHANICS

Total Hours

18

## Mechanical and Aerospace Engineering

The Department of Mechanical and Aerospace Engineering (MAE) offers baccalaureate, masters and doctoral degree programs in Mechanical Engineering and Aerospace Engineering, and Certificate Programs in Automotive Engineering, Electronic Packaging, and Unmanned Vehicle Systems. The Mechanical and Aerospace Engineering programs have been accredited since 1967 and 1968, respectively, by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. Major focus areas within the Department include Design, Manufacturing and Multidisciplinary Optimization; Dynamic Systems and Controls; Fluid Mechanics, Aerodynamics and Propulsion; Structural Mechanics and Structural Optimization; and Thermal Sciences and Energy Systems.

### Undergraduate (p. )

- Bachelor of Science in Aerospace Engineering
- Bachelor of Science in Mechanical Engineering
- Double Major in Mechanical and Aerospace Engineering
- Minor in Aerospace Engineering
- Minor in Mechanical Engineering
- Undergraduate Certificate in Automotive Engineering
- Undergraduate Certificate in Unmanned Vehicle Systems

### Graduate (p. 294)

- Aerospace Engineering, M.Engr.
- Aerospace Engineering, M.S.
- Mechanical Engineering, M.Engr.
- Mechanical Engineering, M.S.
- Aerospace Engineering, B.S. to Ph.D.
- Aerospace Engineering, Ph.D.
- Mechanical Engineering, B.S. to Ph.D.
- Mechanical Engineering, Ph.D.
- Graduate Certificate in Automotive Engineering|
- Graduate Certificate in Electronic Packaging

## Mechanical and Aerospace Engineering - Graduate Programs

### Objective - Aerospace Engineering

The overall objective of the graduate program in Aerospace Engineering is to develop in a student the ability to define a technical problem, establish an appropriate mathematical or experimental model based on a firm understanding of the physical nature of the problem, analyze the problem by theoretical, numerical, or experimental techniques, and evaluate the results. Although this ability is developed in the context of aerospace problems, it is applicable to the engineering of any physical system. The program is designed for a student with any of the following specific objectives:

1. A sound foundation in advanced mathematics, science, and engineering which will equip the student well for research and development work or for further advanced study toward a doctoral degree in engineering.
2. A program of advanced study which allows specialization in one of the following areas:
  - Fluid dynamics, aerodynamics and propulsion (theoretical and applied aerodynamics, gas dynamics, viscous fluid mechanics, turbulence, computational and experimental fluid dynamics, bio-fluidics, hypersonic flow theory, high-temperature gas dynamics, V/STOL and rotorcraft aerodynamics, air-breathing and rocket propulsion);
  - Structural mechanics and structures (solid mechanics, aerospace structures, structural dynamics, composite structures and material characterization, damage tolerance and durability, smart structures, structure optimization, sensor technology, high-temperature structures and materials, aeroelasticity);
  - Flight mechanics and controls (atmospheric and space flight mechanics, orbital mechanics, guidance, navigation and control);
  - Vehicle design (conceptual aircraft design, atmospheric flight vehicle design, spacecraft design, computer-aided engineering).
3. A balanced but non-specialized program of advanced study in aerodynamics, astronautics, flight dynamics, structural analysis, propulsion, and fluid mechanics, with emphasis on experimental techniques and modern mathematical analysis.

## Objective - Mechanical Engineering

The graduate program provides opportunities for professional development in such forms as: instructional courses to enhance technical competence in areas of mechanical engineering practice; training through a variety of experiences in design, development, research, experimentation, and/or analysis in joint efforts with faculty and peers; specialized courses of study required for entry into career fields allied to the mechanical engineering discipline; guided individual study under faculty supervision; and supportive coursework for programs leading to careers that require interdisciplinary competence.

A student with aid from a faculty advisor plans a program that will be consistent with his or her technical interests and the available facilities and course offerings. Typically, programs are classified as:

- Thermal Science
- Fluid Science
- Mechanical Design and Manufacturing
- Solid Mechanics and Structures
- Controls and Systems

## Admission Requirements for Master's Program in Aerospace Engineering

Applicants for the master's degrees must have a baccalaureate degree in engineering or science. Applicants who have completed a bachelor's degree and wish to pursue a doctoral degree without completing a master's degree may apply for admission in the Bachelor of Science (B.S.) to Ph.D. Track. The minimum admission requirements to this highly competitive track are the same as those for all doctoral applicants. All applicants must meet the general requirements of the Graduate School as stated in the section of this catalog entitled "Admission Requirements and Procedures". Applicants not meeting all criteria may be admitted on a provisional or probationary basis.

For applicants with no prior training in engineering or with insufficient undergraduate Aerospace Engineering coursework, the same minimum criteria will apply. Additionally, their records will be reviewed in relation to their mathematics, engineering, and science backgrounds, and probationary status may be a basis for acceptance of such applicants, with specific undergraduate remedial work required.

The UT Arlington Aerospace Engineering Program uses the following guidelines in the admission review process:

### UNCONDITIONAL ADMISSION FOR MASTER'S PROGRAM IN AEROSPACE ENGINEERING

Unconditional admission into the Aerospace Engineering Program requires the submission of items 1 through 5 below for each degree program. To be unconditionally admitted, an applicant must at least meet conditions 1, 2, 3, and 4.

1. Minimum undergraduate GPA of 3.0 in the last 60 hours of undergraduate work in an appropriate engineering or science discipline. (For some international applicants where GPA calculations based on a 4.0 system are not performed, a minimum performance level of 65 percentile is expected. This minimum expectation may be higher for some countries, where less stringent grading criteria are used.) Performance in core Aerospace Engineering courses is of particular importance.
2. A GRE score of at least 146 (verbal) and 155 (quantitative). For those applicants whose GRE verbal score falls below 400, high TOEFL scores may be considered to offset the GRE verbal score.
3. Three favorable recommendations, via the university's recommendation form or via recommendation letter.
4. A Statement of Purpose detailing the applicant's background, education, professional goals, technical interests, and research interests.
5. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: paper-based TOEFL-PBT score of 550 with a TWE of 3.5, IELTS score of 6.5, or TOEFL-iBT total score of 84 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 20 for the listening section.

### PROBATIONARY ADMISSION FOR MASTER'S PROGRAM IN AEROSPACE ENGINEERING

Probationary admission into the Aerospace Engineering Program may be permitted under the following conditions for each degree program:

1. If the applicant meets any three of the items 1, 2, 3, and 4 above for the master's program.
2. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: paper-based TOEFL score of 550 with a TWE of 3.5, computer-based TOEFL score of 223, TSE-A score of 45, IELTS score of 6.5, or TOEFL iBT total score of 84 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 20 for the listening section.

### PROVISIONAL ADMISSION FOR MASTER'S PROGRAM IN AEROSPACE ENGINEERING

An applicant who is unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

## DEFERRED FOR MASTER'S PROGRAM IN AEROSPACE ENGINEERING

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until admission records are complete or the requirements are met.

## DENIAL OF ADMISSION FOR MASTER'S PROGRAM IN AEROSPACE ENGINEERING

A candidate may be denied admission if he/she has less than satisfactory performance in two out of the first three admission criteria.

## WAIVER OF THE GRADUATE RECORD EXAMINATION FOR MASTER'S PROGRAM IN AEROSPACE ENGINEERING

A waiver of the Graduate Record Examination may be considered for a UT Arlington graduate who has completed a BSAE degree within the past 3 years. The student's GPA must equal or exceed 3.0 in each of two calculations:

1. in the last 60 hours of study and
2. in all undergraduate coursework completed at UT Arlington.

The GRE waiver may be extended to include non-UT Arlington candidates that have undergraduate degrees in Aerospace Engineering (with GPA of 3.25 or above) from U.S. universities with an ABET accredited engineering program or other select U.S. universities subject to graduate advisor's approval. The waiver of the GRE applies only to applicants for the masters degree programs. Interested applicants should contact the Aerospace Engineering Graduate Advisor.

## CRITERIA FOR AWARD OF FELLOWSHIPS AND ASSISTANTSHIPS

Applicants who demonstrate skills, experience or interests that meet the needs of the AE Graduate Program will be considered for fellowships or assistantships.

## FAST TRACK PROGRAM FOR MASTER'S DEGREE IN AEROSPACE ENGINEERING

The Fast Track Program enables outstanding UT Arlington senior undergraduate students in Aerospace Engineering to satisfy degree requirements leading to a master's degree in Aerospace Engineering while completing their undergraduate studies. When senior-level students are within 15 hours of completing their undergraduate degree requirements, they may take up to 9 hours of graduate level coursework designated by the Aerospace Engineering Program to satisfy both undergraduate and graduate degree requirements. In the limiting case, a student completing the maximum allowable hours (9) while in undergraduate status would have to take only 24 additional hours to meet minimum requirements for graduation in a 33 hour thesis master's degree program (M.S.) or 28 additional hours for a 37 hour non-thesis master's degree program (M. Engr.)

Interested UT Arlington undergraduate Aerospace Engineering students should apply to the Aerospace Engineering Program when they are within 30 hours of completing their bachelor's degrees. They must have completed at least 30 hours at UT Arlington, achieving a GPA of at least 3.0 in those courses, and have an overall GPA of 3.0 or better in all college courses. Additionally, they must have completed at least 16 hours of specified undergraduate foundation courses with a minimum GPA of 3.3 in those courses. Program details are provided in the UT Arlington Undergraduate Catalog. Contact the Undergraduate Advisor or Graduate Advisor in Aerospace Engineering for more information about the program.

## Master's Degree Requirements

### MASTER OF SCIENCE OR MASTER OF ENGINEERING DEGREES

The Department of Mechanical and Aerospace Engineering offers both the Master of Science and the Master of Engineering degrees in Aerospace Engineering.

### CORE AREAS IN THE AEROSPACE ENGINEERING PROGRAM

The four core areas in the Aerospace Engineering program along with the recommended courses in each core area are listed below:

#### 1. Fluid Mechanics, Aerodynamics and Propulsion

AE 5313	FLUID DYNAMICS	3
AE 5326	AIR-BREATHING PROPULSION	3
AE 5342	GAS DYNAMICS	3

#### 2. Solid Mechanics and Structures

AE 5310	FINITE ELEMENT METHODS	3
AE 5311	STRUCTURAL DYNAMICS	3
AE 5339	STRUCTURAL ASPECTS OF DESIGN	3

#### 3. Flight Mechanics and Controls

AE 5302	ADVANCED FLIGHT MECHANICS	3
AE 5362	GUIDANCE, NAVIGATION, AND CONTROL OF AEROSPACE VEHICLES	3



**4. Flight Vehicle Design**

AE 5368	FLIGHT VEHICLE SYNTHESIS AND SYSTEMS ENGINEERING	3
Total Hours		27

**Requirements for the Master of Science Degree in Aerospace Engineering**

The Master of Science (M.S.) Degree in Aerospace Engineering is a research-oriented program in which completion of a thesis is mandatory. A minimum of 33 credit hours is required as follows:

Two Core Courses:		6
One course from either core areas one or two		
One course from another of the four core areas		
Two Math or Engineering Analysis courses		6
Four courses related to a specialty in Aerospace Engineering		12
Thesis:		6
The student must enroll in AE 5398 or AE 6297 every semester in which the student is actively involved in thesis preparation or research, except that the student must enroll in AE 5698 in the semester of graduation.		
Graduate Seminar (minimum of three credit hours):		3
AE 5101	GRADUATE SEMINAR	
Total Hours		33

**Requirements for the Masters of Engineering Degree in Aerospace Engineering**

The Master of Engineering (M.Engr.) Degree in Aerospace Engineering is an engineering practice-oriented program. A minimum of 37 credit hours is required as follows:

Three Core Courses:		9
One course each from core areas one and two		
A third course from either areas three or four		
Two Math/Engineering Analysis courses		6
Seven elective courses in Engineering, Mathematics, and/or Science relating to the student's interest areas:		21
The elective courses must include a minimum of one hour and no more than six hours of special project courses:		
AE 5191	ADVANCED STUDIES IN AEROSPACE ENGINEERING	
AE 5291	ADVANCED STUDIES IN AEROSPACE ENGINEERING	
AE 5391	ADVANCED STUDIES IN AEROSPACE ENGINEERING	
AE 5101	GRADUATE SEMINAR (minimum one credit hour)	
Total Hours		36

For both the M.S. and the M. Engr. degrees, the balance of the required coursework hours may be chosen in consultation with the Supervising Professor to meet the student's needs and interests. Normally these additional elective courses should be selected from the offerings of the Program in Aerospace Engineering or the Program in Mechanical Engineering. Courses taken outside the two programs require approval of the student's Supervising Professor as well as the Graduate Advisor.

**Admission Requirements for Master's Program in Mechanical Engineering**

Admission to the graduate program in ME is based on equal weighting of the following five criteria:

1. An overall GPA, as calculated by the Graduate School, of 3.0 or higher in undergraduate coursework is required for admission to the M.S. program. (For some international applicants where GPA calculations based on a 4.0 system are not performed, a minimum performance level of 65 percentile. This minimum expectation may be higher for some countries, where less stringent grading criteria are used.) Performance in core Mechanical Engineering courses is of particular importance.
2. A GRE score of at least 146 (400 in old scaling) (verbal) and 155 (700 in old scaling) (quantitative) for M.S. applicants.
3. Three satisfactory written recommendation forms from prior professors or supervisors.
4. A written essay on the student's goals and reasons for pursuing graduate studies.
5. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. For M.S. applicants, minimum performance levels expected for each test are: TOEFL iBT total score of 84 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 20 for the listening section, paper-based TOEFL score of 550 with a TWE of 3.5, computer-based TOEFL score of 223, TSE-A score of 45, or IELTS score of 6.5.

## ADMISSION STATUS FOR MASTER'S PROGRAM IN MECHANICAL ENGINEERING

1. Unconditional Admission: To be unconditionally admitted, an applicant must at least meet conditions 1, 2, 3, and 4.
2. Probationary Admission: M.S. applicants who fail to meet the conditions for unconditional admission, but satisfy any three of items 1, 2, 3 and 4, will be considered for probationary admission.
3. Provisionary Admission: Applicants who are unable to supply all of the required documentation prior to the admission deadline, but who otherwise appear to meet the admission criteria, may be granted provisional admission.
4. Denial: Applicants who fail to meet at least two of the first four admission criteria will normally be denied admission.
5. Deferral: A deferred decision may be granted when an application file is incomplete or when a denied decision is not appropriate.

## PROBATIONARY ADMISSION FOR MASTER'S PROGRAM IN MECHANICAL ENGINEERING

Probationary admission into the Mechanical Engineering Program may be permitted under the following conditions for each degree program:

## PROVISIONAL ADMISSION FOR MASTER'S PROGRAM IN MECHANICAL ENGINEERING

An applicant who is unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

## WAIVER OF THE GRADUATE RECORD EXAM FOR MASTER'S PROGRAM IN MECHANICAL ENGINEERING

A waiver of the Graduate Record Examination may be considered for a UT Arlington graduate who has completed a BSME degree within the past 3 years. The student's GPA must equal or exceed 3.0 in each of two calculations: (a) in the last 60 hours of study and (b) in all undergraduate coursework completed at UT Arlington. The GRE waiver may be extended to include non-UT Arlington candidates that have undergraduate degrees in mechanical engineering (with GPA of 3.25 or above) from U.S. universities with an ABET accredited engineering program or other select U.S. universities subject to graduate advisor's approval. The waiver of the GRE applies only to applicants for the master's degree programs. Interested applicants should contact the Mechanical Engineering Graduate Advisor.

## CORE COURSES

### Thermal Science

ME 5316	THERMAL CONDUCTION	3
ME 5317	CONVECTION HEAT TRANSFER	3
ME 5318	RADIATIVE HEAT TRANSFER	3
ME 5321	ADVANCED CLASSICAL THERMODYNAMICS	3

### Fluid Science

ME 5313	FLUID DYNAMICS	3
ME 5342	GAS DYNAMICS	3
ME 5344	VISCOUS FLOWS	3

### Design, Mechanics and Manufacturing

ME 5310	FINITE ELEMENT METHODS	3
ME 5337	INTRODUCTION TO ROBOTICS	3
ME 5339	STRUCTURAL ASPECTS OF DESIGN	3
ME 5311	STRUCTURAL DYNAMICS	3

### Controls and Systems

ME 5303	CLASSICAL METHODS OF CONTROL SYSTEMS ANALYSIS AND SYNTHESIS	3
ME 5305	DYNAMIC SYSTEMS MODELING	3
ME 5341	CONTROL SYSTEM COMPONENTS	3

### Analysis Courses

ME 5331	ANALYTIC METHODS ENGINEERING	3
ME 5332	ENGINEERING ANALYSIS	3

Approved Mathematics courses

## Requirements for the Master of Science Degree in Mechanical Engineering

The Master of Science degree is a research-oriented program in which completion of a thesis is mandatory. A minimum of 30 credit hours is required as follows: three core courses (one course each in three of the four areas) and the two analysis courses listed above; three graduate courses (nine credit hours) related to a specialty in mechanical engineering (registration in elective courses outside the ME department requires prior approval of the ME graduate advisor and the students committee chair otherwise they will not count towards graduation requirements); and six credit hours of thesis. In addition, all GTA/GRA Master of Science students are required to enroll in ME 5101 GRADUATE SEMINAR course. The student must enroll in ME 5398

THESIS or ME 6397 RESEARCH IN MECHANICAL ENGINEERING every semester in which the student is actively involved in thesis preparation or research, except that the student must enroll in ME 5698 THESIS in the semester of graduation.

## Requirements for the Master of Engineering Degree in Mechanical Engineering

The Master of Engineering degree is an engineering practice-oriented program. A minimum of 36 credit hours is required as follows: four core courses (one in each area) and the two analysis courses listed above; six courses (18 credit hours) of elective graduate courses in engineering, mathematics, and/or science relating to the student's interest areas. The elective courses may include as many as three hours of special project courses (ME 5391 ADVANCED STUDIES IN MECHANICAL ENGINEERING). Registration in elective courses outside the ME department requires prior approval of the ME graduate advisor and student's committee chair otherwise they will not count towards graduation requirements.

## Admission Requirements for Ph.D. in Aerospace Engineering

Applicants for the doctoral degree must have either a baccalaureate or master's degree in engineering or science. Applicants who have completed a bachelor's degree and wish to pursue a doctoral degree without completing a master's degree may apply for admission in the Bachelor of Science (B.S.) to Ph.D. Track. The minimum admission requirements to this highly competitive track are the same as those for all doctoral applicants. Doctoral candidates shall also demonstrate through previous academic preparation the potential to carry out independent research in Aerospace Engineering. All applicants must meet the general requirements of the Graduate School as stated in the section of this catalog entitled "Admission Requirements and Procedures". Applicants not meeting all criteria may be admitted on a provisional or probationary basis.

For applicants with no prior training in engineering or with insufficient undergraduate Aerospace Engineering coursework, the same minimum criteria will apply. Additionally, their records will be reviewed in relation to their mathematics, engineering, and science backgrounds, and probationary status may be a basis for acceptance of such applicants, with specific undergraduate remedial work required.

The UT Arlington Aerospace Engineering Program uses the following guidelines in the admission review process:

### UNCONDITIONAL ADMISSION FOR PH.D. IN AEROSPACE ENGINEERING

Unconditional admission into the Aerospace Engineering Program requires the submission of items 1 through 5 below for each degree program. To be unconditionally admitted, an applicant must at least meet conditions 1, 2, 3, and 4.

1. Minimum GPA of 3.3 in the last 60 hours taken in the major field of study in an appropriate engineering or science discipline. (For some international applicants where GPA calculations based on a 4.0 system are not performed, a minimum performance level of 70 percentile is expected. This minimum expectation may be higher for some countries, where less stringent grading criteria are used.) Performance in core Aerospace Engineering courses is of particular importance.
2. A GRE score of at least 150 (verbal) and 159 (quantitative). For those applicants whose GRE verbal score falls below 150, high TOEFL scores may be considered to offset the GRE verbal score.
3. Three favorable recommendations via the university's recommendation form or via recommendation letter.
4. A Statement of Purpose detailing the applicant's background, education, professional goals, technical interests, and research interests.
5. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: TOEFL-PBT score of 560 with a TWE of 3.5, IELTS score of 7.0, or TOEFL-iBT total score of 89 with sectional scores that meet or exceed 23 for the writing section, 21 for the speaking section, 24 for the reading section, and 21 for the listening section.

### PROBATIONARY ADMISSION FOR PH.D. IN AEROSPACE ENGINEERING

Probationary admission into the Aerospace Engineering Program may be permitted under the following conditions for each degree program:

1. If an applicant meets any three of the items 1, 2, 3, and 4 above for the doctoral program.
2. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: paper-based TOEFL score of 560 with a TWE of 3.5, computer-based TOEFL score of 230, TSE-A score of 45, IELTS score of 7.0, or TOEFL iBT total score of 89 with sectional scores that meet or exceed 23 for the writing section, 21 for the speaking section, 24 for the reading section, and 21 for the listening section.

### PROVISIONAL ADMISSION FOR PH.D. IN AEROSPACE ENGINEERING

An applicant who is unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

### DEFERRED FOR PH.D. IN AEROSPACE ENGINEERING

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until admission records are complete or the requirements are met.

### DENIAL OF ADMISSION FOR PH.D. IN AEROSPACE ENGINEERING

A candidate may be denied admission if he/she has less than satisfactory performance in two out of the first three admission criteria.

## WAIVER OF THE GRADUATE RECORD EXAMINATION FOR PH.D. IN AEROSPACE ENGINEERING

A waiver of the Graduate Record Examination may be considered for a UT Arlington graduate who has completed a BSAE degree within the past 3 years. The student's GPA must equal or exceed 3.0 in each of two calculations:

1. in the last 60 hours of study and
2. in all undergraduate coursework completed at UT Arlington.

The GRE waiver may be extended to include non-UT Arlington candidates that have undergraduate degrees in Aerospace Engineering (with GPA of 3.25 or above) from U.S. universities with an ABET accredited engineering program or other select U.S. universities subject to graduate advisor's approval. The waiver of the GRE applies only to applicants for the masters degree programs. Interested applicants should contact the Aerospace Engineering Graduate Advisor.

## CRITERIA FOR AWARD OF FELLOWSHIPS AND ASSISTANTSHIPS

Applicants who demonstrate skills, experience or interests that meet the needs of the AE Graduate Program will be considered for fellowships or assistantships.

## B.S. to Ph.D. Program

The B.S. to Ph.D. Program is an accelerated program in which the student bypasses the M.S. thesis and proceeds directly to the Ph.D. dissertation research. Requirements for unconditional admission to the B.S. to Ph.D. Degree Program include:

- An overall GPA, as calculated by the Graduate School, of 3.3 or higher in undergraduate coursework.
- Relevance of the student's previous degrees to the AE curriculum.
- Reputation of the universities or colleges the student has attended.
- A GRE score of at least 153 (verbal) and 159 (quantitative).
- Three satisfactory written recommendation forms from prior professors or supervisors.
- A written essay on the student's goals and reasons for pursuing graduate studies.

## Doctoral Degree Requirements

### Degree Requirements for Ph.D. in Aerospace Engineering

#### DOCTOR OF PHILOSOPHY

- The Ph.D. degree requires a minimum of 24 hours of graduate-level course work beyond the Master's degree, and will include a scholarly dissertation that provides a significant original contribution to Aerospace Engineering.
- The Ph.D. degree course requirement can be tailored to satisfy the individual student's aspirations in choice of the area of specialization. However, to meet the educational goals of a broad-based technical background in Aerospace Engineering, it is expected that each student will take sufficient course work to obtain in-depth knowledge in at least two core areas of Aerospace Engineering.
- Students whose background is in a field other than Aerospace Engineering must satisfy the Master's degree core requirements.
- There is no foreign language requirement for the Ph.D.
- **Diagnostic Exam:** All students entering the Ph.D. program are required to take the Ph.D. Diagnostic Exam. Students admitted into AE Ph.D. program with MS degree in Aerospace Engineering or equivalent must take the diagnostic exam at the end of the 1st semester. This exam is offered twice per year, during the week preceding the start of classes for the fall and spring semesters. Possible outcomes of this evaluation are:
  - a. continuation in the doctoral program,
  - b. approval to continue with certain specified remedial work,
  - c. failure with approval to retake,
  - d. termination in the program.
- **Comprehensive Exam:** Students are eligible to take the comprehensive examination after satisfying all requirements stipulated by the Diagnostic Exam Committee and giving evidence to their doctoral committee of adequate academic achievement by having completed all or most coursework requirements. The comprehensive examination is used to determine if the student has the necessary background and specialization required for the dissertation research and if the student can organize and conduct the research. *An applicant must pass this examination to be admitted to candidacy for the Ph.D. degree.*

#### B.S. TO PH.D. TRACK

- In addition to the requirements listed above for the Ph.D. degree, a B.S.-Ph.D. Track student will be *required to enroll in at least three hours of research each semester during the student's first two years, receiving a pass/fail grade (no R grade) in these hours.*
- A student may be exempted from enrolling in research hours in the student's initial semester.
- A B.S.-Ph.D. Track student must have a faculty research (dissertation) advisor prior to the start of the student's second full semester.

- Students in the BS-Ph.D. program must take the Ph.D diagnostic exam within the first year from the start of their Ph.D.

## Admission Requirements for Ph.D. in Mechanical Engineering

### ADMISSION STATUS

1. Unconditional Admission: To be unconditionally admitted, an applicant must at least meet conditions 1, 2, 3, and 4.
2. Probationary Admission: Ph.D. applicants who fail to meet the conditions for unconditional admission, but satisfy any three of items 1, 2, 3 and 4, will be considered for probationary admission.
3. Provisional Admission: Applicants who are unable to supply all of the required documentation prior to the admission deadline, but who otherwise appear to meet the admission criteria, may be granted provisional admission.
4. Denial: Applicants who fail to meet at least two of the first four admission criteria will normally be denied admission.
5. Deferral: A deferred decision may be granted when an application file is incomplete or when a denied decision is not appropriate.

### ADMISSION REQUIREMENTS FOR B.S. TO PH.D. TRACK

1. An overall GPA, as calculated by the Graduate School, of 3.3 or higher in undergraduate coursework.
2. A GRE score of at least 150 (450 in old scaling) (verbal) and 159 (750 in old scaling) (quantitative).
3. Three satisfactory written recommendation forms from prior professors or supervisors.
4. A written essay on the student's goals and reasons for pursuing graduate studies.
5. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: TOEFL iBT total score of 89 with sectional scores that meet or exceed 23 for the writing section, 21 for the speaking section, 24 for the reading section and 21 for the listening section, paper-based TOEFL score of 560 with a TWE of 3.5, computer-based TOEFL score of 230, TSE-A score of 45, or IELTS score of 7.0.

### PROBATIONARY ADMISSION

Probationary admission into the Mechanical Engineering Program may be permitted under the following conditions for each degree program:

Doctoral Program and BS to PhD track

1. If an applicant meets any three of the items 1, 2, 3, and 4 above for the doctoral program or BS to PhD track.
2. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: TOEFL iBT total score of 89 with sectional scores that meet or exceed 23 for the writing section, 21 for the speaking section, 24 for the reading section and 21 for the listening section, paper-based TOEFL score of 560 with a TWE of 3.5, computer-based TOEFL score of 230, TSE-A score of 45, or IELTS score of 7.0.

### PROVISIONAL ADMISSION

An applicant who is unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

### DEFERRED ADMISSION

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until admission records are complete or the requirements are met.

### DENIAL OF ADMISSION

A candidate may be denied admission if he/she has less than satisfactory performance in two out of the first three admission criteria.

## Admission Requirements for B.S. to Ph.D. Track

The B.S. to Ph.D. program is an accelerated program in which a student proceeds directly to the Ph.D. dissertation research and bypasses the M.S. thesis. Requirements for unconditional admission to this program include the following:

1. Minimum GPA of 3.3 in the last 60 hours taken in the major field of study in an appropriate engineering or science discipline. (For some international applicants where GPA calculations based on a 4.0 system is not performed, a minimum performance level of 70 percentile is expected. This minimum expectation may be higher for some countries, where less stringent grading criteria are used.) Performance in core mechanical engineering courses is of particular importance.
2. A GRE score of at least 150 (450 in old scaling) (verbal) and 159 (750 in old scaling) (quantitative).
3. Three favorable, veracious recommendations, via the university's recommendation form or via recommendation letter.
4. A Statement of Purpose detailing the applicant's background, education, professional goals, technical interests, and research interests.
5. An applicant whose native language is not English must submit TOEFL, TSE, or IELTS English proficiency test scores. Minimum performance levels expected for each test are: TOEFL iBT total score of 89 with sectional scores that meet or exceed 23 for the writing section, 21 for the speaking

section, 24 for the reading section and 21 for the listening section, paper-based TOEFL score of 560 with a TWE of 3.5, computer-based TOEFL score of 230, TSE-A score of 45, or IELTS score of 7.0.

## WAIVER OF THE GRADUATE RECORD EXAM

There is no GRE waiver for Ph.D. applicants.

## CRITERIA FOR AWARD OF FELLOWSHIPS AND ASSISTANTSHIPS

Applicants who demonstrate skills, experience or interests that meet the needs of the ME Graduate Program will be considered for fellowships or assistantships.

## Degree Requirements for Ph.D. in Mechanical Engineering

### DOCTOR OF PHILOSOPHY

There is no foreign language requirement for the Ph.D. degree.

### B.S.-PH.D. TRACK STUDENTS

To meet the educational goal of a broad-based technical background in Mechanical Engineering, it is expected that each student will take sufficient graduate coursework to obtain in-depth knowledge in at least two areas of Mechanical Engineering. Students whose background is in a field other than Mechanical Engineering must satisfy the BS core requirements. Note that registration in elective courses outside the ME department requires prior approval of the ME graduate advisor and student's committee chair. Otherwise they will not count towards the graduation requirements. The doctoral degree program consists of a minimum of 42 credit hours of coursework beyond the bachelor's degree level plus 9 hours of dissertation and 2 hours of seminar and requires the successful completion of the following requirements:

ME 5331	ANALYTIC METHODS ENGINEERING	3
ME 5332	ENGINEERING ANALYSIS	3

Or other approved mathematics courses

1. Three core courses (9 credit hours) from at least two different areas, as listed below:

ME 5316	THERMAL CONDUCTION	3
ME 5317	CONVECTION HEAT TRANSFER	3
ME 5318	RADIATIVE HEAT TRANSFER	3
ME 5321	ADVANCED CLASSICAL THERMODYNAMICS	3
ME 5313	FLUID DYNAMICS	3
ME 5342	GAS DYNAMICS	3
ME 5344	VISCOUS FLOWS	3
ME 5310	FINITE ELEMENT METHODS	3
ME 5337	INTRODUCTION TO ROBOTICS	3
ME 5339	STRUCTURAL ASPECTS OF DESIGN	3
ME 5311	STRUCTURAL DYNAMICS	3
ME 5303	CLASSICAL METHODS OF CONTROL SYSTEMS ANALYSIS AND SYNTHESIS	3
ME 5305	DYNAMIC SYSTEMS MODELING	3
ME 5341	CONTROL SYSTEM COMPONENTS	3

a. **Thermal Science:**

b. **Fluid Science:**

c. **Design, Mechanics and Manufacturing:**

d. **Controls and Systems:**

- One additional course (3 credit hours) at the graduate level in one of the broad areas of Mechanical Engineering outside the student's major area of specialization. A core course is also acceptable for meeting this requirement.
- Eight additional courses (24 credit hours) in the student's major area of research
- Two courses (6 credit hours) of engineering analysis:
- Two credit hours of seminar
- Nine credit hours for Dissertation

ME 6299	DISSERTATION	2
ME 6399	DISSERTATION	3
ME 6699	DISSERTATION	6
ME 6999	DISSERTATION	9

- Doctoral students must register for a minimum total of 9 hours of dissertation research over the course of their programs of work. These hours may be accumulated over several terms or completed in a single term. The course hours of ME 6299 DISSERTATION, ME 6399 DISSERTATION, ME 6699 DISSERTATION, ME 6699 DISSERTATION, and/or ME 7399 DOCTORAL DEGREE COMPLETION are all counted towards this nine-hour requirement.
- Doctoral students must be enrolled in 9 hours while completing organized coursework and 6 hours while exclusively enrolled in dissertation research in order to be considered full time except in the term they designate as their "completion term." The completion term is typically the term in which a student successfully defends his or her dissertation, fully completes all degree requirements and graduates. Students may designate only one term as the completion term.
- Doctoral students must enroll in a minimum of 3 dissertation hours (ME 7399 DOCTORAL DEGREE COMPLETION) in the term designated as their completion term. Alternatively, students may complete and defend their dissertation while enrolled in 6 or 9-hour dissertation courses:
- Doctoral students who do not graduate at the end of their completion term will receive a grade of R, W, or F and must enroll in a minimum of 6 hours of dissertation research (ME 6299 DISSERTATION, ME 6399 DISSERTATION, ME 6699 DISSERTATION or ME 6999 DISSERTATION) every term until graduation.
- Students enrolled in the completion term meet enrollment requirements for holding fellowships awarded by the Office of Graduate Studies and GTA or GRA positions by enrolling in the required 3-hour completion term dissertation course.
- Students who wish to remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours each term as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Students should consult with the Office of Financial Aid and other funding agencies to be certain they enroll in sufficient hours to retain support.

Final course requirements are determined by the student's supervising committee.

## M.S.-PH.D. TRACK MECHANICAL STUDENTS

To meet the educational goal of a broad-based technical background in Mechanical Engineering, it is expected that each student will take sufficient graduate coursework to obtain in-depth knowledge in at least two areas of Mechanical Engineering. Students whose background is in a field other than Mechanical Engineering must satisfy the Masters of Science core requirements. Note that registration in elective courses outside the ME department requires prior approval of the ME graduate advisor and student's committee chair. Otherwise they will not count towards the graduation requirements. The doctoral degree program consists of a minimum of 24 credit hours of coursework beyond the Master's degree level plus 9 hours of dissertation and 2 hours of seminar and requires the successful completion of the following requirements:

ME 5331	ANALYTIC METHODS ENGINEERING	3
ME 5332	ENGINEERING ANALYSIS	3

Or other approved mathematics courses

- Three core courses (9 credit hours) from at least two different areas, as listed below:

ME 5316	THERMAL CONDUCTION	3
ME 5317	CONVECTION HEAT TRANSFER	3
ME 5318	RADIATIVE HEAT TRANSFER	3
ME 5321	ADVANCED CLASSICAL THERMODYNAMICS	3
ME 5313	FLUID DYNAMICS	3
ME 5342	GAS DYNAMICS	3
ME 5344	VISCOUS FLOWS	3
ME 5310	FINITE ELEMENT METHODS	3
ME 5337	INTRODUCTION TO ROBOTICS	3
ME 5339	STRUCTURAL ASPECTS OF DESIGN	3
ME 5311	STRUCTURAL DYNAMICS	3
ME 5303	CLASSICAL METHODS OF CONTROL SYSTEMS ANALYSIS AND SYNTHESIS	3
ME 5305	DYNAMIC SYSTEMS MODELING	3
ME 5341	CONTROL SYSTEM COMPONENTS	3

- a. **Thermal Science:**
- b. **Fluid Science:**
- c. **Design, Mechanics and Manufacturing:**
- d. **Controls and Systems:**

- 2. One additional course (3 credit hours) at the graduate level in one of the broad areas of Mechanical Engineering outside the student's major area of specialization. A core course is also acceptable for meeting this requirement.
- 3. Three additional courses (9 credit hours) in the student's major area of research
- 4. One course (3 credit hours) of engineering analysis:
- 5. Two credit hours of seminar
- 6. Nine credit hours (ME 6999 DISSERTATION) for Dissertation.

ME 6299	DISSERTATION	2
ME 6399	DISSERTATION	3
ME 6699	DISSERTATION	6
ME 6999	DISSERTATION	9

- a. Doctoral students must register for a minimum total of 9 hours of dissertation research over the course of their programs of work. These hours may be accumulated over several terms or completed in a single term. The course hours of ME 6299 DISSERTATION, ME 6399 DISSERTATION, ME 6699 DISSERTATION, ME 6999 DISSERTATION, and/or ME 7399 DOCTORAL DEGREE COMPLETION are all counted towards this nine-hour requirement.
- b. Doctoral students must be enrolled in 9 hours while completing organized coursework and 6 hours while exclusively enrolled in dissertation research in order to be considered full time except in the term they designate as their "completion term." The completion term is typically the term in which a student successfully defends his or her dissertation, fully completes all degree requirements and graduates. Students may designate only one term as the completion term.
- c. Doctoral students must enroll in a minimum of 3 dissertation hours (ME 7399 DOCTORAL DEGREE COMPLETION) in the term designated as their completion term. Alternatively, students may complete and defend their dissertation while enrolled in 6 or 9-hour dissertation courses:
- d. Doctoral students who do not graduate at the end of their completion term will receive a grade of R, W, or F and must enroll in a minimum of 6 hours of dissertation research (ME 6299 DISSERTATION, ME 6399 DISSERTATION, ME 6699 DISSERTATION or ME 6999 DISSERTATION) every term until graduation.
- e. Students enrolled in the completion term meet enrollment requirements for holding fellowships awarded by the Office of Graduate Studies and GTA or GRA positions by enrolling in the required 3-hour completion term dissertation course.
- f. Students who wish to remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours each term as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Students should consult with the Office of Financial Aid and other funding agencies to be certain they enroll in sufficient hours to retain support

Final course requirements are determined by the student's supervising committee. In addition, a student must pass three examinations before being awarded the Ph.D. degree: the Diagnostic Exam, the Comprehensive Exam, and the Final Exam (or Dissertation Examination).

A Diagnostic Examination will be administered to the student prior to the start of the student's second long semester. The Diagnostic Exam is a written test of the student's capability to pursue successfully the doctorate degree, and it aids in developing the program of study for the student. The Diagnostic Examination tests fundamental knowledge in two technical areas of mechanical engineering. The student and the student's research advisor jointly choose the technical areas from the following five:

- 1. thermal science,
- 2. fluid science,
- 3. mechanical design and manufacturing,
- 4. solid mechanics and structures, and
- 5. controls and systems.

The exam topics for the technical areas are given in the ME Ph.D. Diagnostic Exam handout. The diagnostic examination is normally offered twice a year the week prior to the beginning of the Fall and/or Spring semesters. A student should inform the ME graduate advisor in advance and no later than the middle of the long semester prior to the planned time of taking the exam and consult with the ME graduate advisor for the time and place of the diagnostic examination.

A comprehensive examination will be administered to the student after the successful completion of all phases of the diagnostic examination and before the student's research work for the dissertation. The comprehensive examination is used to determine if the student has the necessary background and specialization required for the dissertation research and if the student can organize and conduct the research. An applicant must pass this examination to be admitted to candidacy for the Ph.D. degree.



The student must enroll in at least three hours of dissertation courses (ME 6399 DISSERTATION - ME 6999 DISSERTATION) or research courses (ME 6397 RESEARCH IN MECHANICAL ENGINEERING - ME 6999 DISSERTATION) every semester in which the student is actively involved in dissertation preparation or research, except that the student must enroll in ME 6999 DISSERTATION in the semester of graduation.

The student must submit the Application for Candidacy and Final Program of Work to the Mechanical Engineering Committee on Graduate Studies immediately after completion of the Comprehensive Examination. Coursework taken for the Master's degree at this institution may be used to meet these requirements; however, courses listed for the Master's degree or any other degree cannot be listed as the actual course requirement on the Final Program of Work. Transfer work is not accepted in doctoral programs; however, such courses may provide a basis for waiving some course requirements.

The student must file the Request for Dissertation Defense form with the Graduate School at least two weeks prior to the defense. At the same time of requesting the exam, the student must also announce the exam to the members of the university community by posting fliers on the departmental bulletin boards and by providing an electronic statement to the ME graduate advisor to be posted on the departmental web page indicating details (title, abstract, advisor, time and place) of the exam. Approval of the dissertation by the members of the Dissertation Committee is required.

Please see the section entitled General Graduate School Regulations and Information in this Catalog for further details.

The grade of R (research in progress) is a permanent grade; completing course requirements in a later semester cannot change it. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of I) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded I. To receive credit for a course in which the student earned an I, the student must complete the course requirements. Enrolling again in the course in which an I was earned cannot change a grade of I. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only. The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six-hour thesis or nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## **B.S. TO PH.D. TRACK**

In addition to the requirements listed below for the Ph.D. degree, a B.S.-Ph.D. Track student will be required to enroll in at least three hours of research each semester during the student's first two years, receiving a pass/fail grade (no R grade) in these hours. A B.S.-Ph.D. student must have a faculty research (dissertation) advisor prior to the start of the student's second full semester. A B.S.-Ph.D. student must take the Ph.D. diagnostic examination prior to the start of the student's third long semester.

## **Fast Track Program for Master's Degree in Aerospace Engineering**

The Fast Track Program enables outstanding UT Arlington senior undergraduate students in Aerospace Engineering to satisfy degree requirements leading to a master's degree in Aerospace Engineering while completing their undergraduate studies. When senior-level students are within 15 hours of completing their undergraduate degree requirements, they may take up to 9 hours of graduate level coursework designated by the Aerospace Engineering Program to satisfy both undergraduate and graduate degree requirements. In the limiting case, a student completing the maximum allowable hours (9) while in undergraduate status would have to take only 24 additional hours to meet minimum requirements for graduation in a 33 hour thesis master's degree program (M.S.) or 28 additional hours for a 37 hour non-thesis master's degree program (M. Engr.)

Interested UT Arlington undergraduate Aerospace Engineering students should apply to the Aerospace Engineering Program when they are within 30 hours of completing their bachelor's degrees. They must have completed at least 30 hours at UT Arlington, achieving a GPA of at least 3.0 in those courses, and have an overall GPA of 3.0 or better in all college courses. Additionally, they must have completed at least 16 hours of specified undergraduate foundation courses with a minimum GPA of 3.3 in those courses. Program details are provided in the UT Arlington Undergraduate Catalog. Contact the Undergraduate Advisor or Graduate Advisor in Aerospace Engineering for more information about the program.

## **Fast Track Program for Master's Degree in Mechanical Engineering**

The Fast Track Program enables outstanding UT Arlington senior undergraduate students in Mechanical Engineering to satisfy degree requirements leading to a master's degree in Mechanical Engineering while completing their undergraduate studies. When senior-level students are within 15 hours of completing their undergraduate degree requirements, they may take up to 9 hours of graduate level coursework designated by the Mechanical Engineering Program to satisfy both undergraduate and graduate degree requirements. In the limiting case, a student completing the maximum allowable hours (9) while in undergraduate status would have to take only 21 additional hours to meet minimum requirements for graduation in a 30 hour thesis master's degree program (M.S.) or 27 additional hours for a non-thesis master's degree program (M. Engr.)

Interested UT Arlington undergraduate Mechanical Engineering students should apply to the Mechanical Engineering Program when they are within 30 hours of completing their bachelor's degrees. They must have completed at least 30 hours at UT Arlington, achieving a GPA of at least 3.0 in those courses, and have an overall GPA of 3.0 or better in all college courses. Additionally, they must have completed at least 11 hours of

specified undergraduate foundation courses with a minimum GPA of 3.3 in those courses. Fast Track Program details are provided in the UT Arlington Undergraduate Catalog. Contact the Undergraduate Advisor or Graduate Advisor in Mechanical Engineering for more information about the program.

## Graduate Certificate in Automotive Engineering

### PROGRAM OBJECTIVE

The University of Texas at Arlington is pleased to offer a Graduate Certificate in Automotive Engineering through the Arnold E. Petsche Center for Automotive Engineering. This certificate confirms the student's commitment to automotive engineering and the learning experience gained from being a contributing team member of a student design competition. Students shall be awarded the Graduate Certificate for Automotive Engineering by the College of Engineering and the Graduate School upon satisfactory completion of the certificate requirements with an overall grade point average of 3.0.

### ADMISSION REQUIREMENTS

Students wishing to enroll only in the Graduate Certificate in Automotive Engineering but NOT a graduate degree program may apply for admission to UT Arlington as a non-degree seeking student. The GRE is not necessary. Admission to the certificate program allows participants to take the specific courses approved for the certificate program. Student are not allowed to take courses in excess of those required for the certificate. A Bachelor's degree in engineering with a GPA of 2.8 is required for admission through the Graduate School. Students with GPAs lower than 2.8 may be recommended for admission as special student by the Director of the Arnold E. Petsche Center for Automotive Engineering, based on the following admission enhancing factors:

1. the applicant's work experience and level of responsibility;
2. two letters of recommendation.

Students already enrolled in a Master's degree program at TU Arlington may enroll by submitting the appropriate application form to the certificate program director and his or her academic graduate advisor. Students who have completed a Master's degree may apply for admission to UT Arlington as a non-degree seeking student. In either case, a minimum GPA of 3.0 in Master's degree work is required.

### ACADEMIC REQUIREMENTS

Participants must satisfactorily complete 12 hours of required courses according to the following criteria:

9 hours from the following list:

ME 5340	AUTOMOTIVE ENGINEERING	9
ME 5358	Racecar Engineering	
ME 5359	Applied Automotive Engineering <sup>1</sup>	

No more than 3 hours from the following list: <sup>2</sup>

ME 5341	CONTROL SYSTEM COMPONENTS	3
EE 5313	MICROPROCESSOR SYSTEMS	

Total Hours 12

<sup>1</sup> May be taken twice for credit toward the certificate.

<sup>2</sup> Or other graduate level engineering course approved by the Director of the Arnold E. Petsche Center for Automotive Engineering.

Students can take ME 5010 AUTOMOTIVE ENGINEERING PRACTICUM (no credit hours) to be recognized as full team members on a competition team such as Formula SAE.

## Graduate Certificate in Electronic Packaging

### PROGRAM OBJECTIVE AND REQUIREMENTS

The Certificate in Electronic Packaging program provides graduate-level knowledge in the field of electronic packaging, with a concentration on numerical and experimental characterization of thermo/mechanical issues. Courses are taught by faculty of the departments of Mechanical and Aerospace Engineering and Materials Science and Engineering, plus other UT Arlington faculty and adjunct faculty as needed. Technical material covered in the classroom will be complemented by a number of seminars by industry leaders in the packaging field. Completion of the certificate program will provide a head start for UT Arlington students when joining industry and skills-enhancement opportunities for current industry employees.

There are two enrollment options: as a student pursuing a graduate degree or as a non-degree-seeking special student. The special student avenue is tailored for individuals currently employed in an electronics-related industry. Students will receive the certificate after completing 12 credit hours of packaging courses, as advised by the certificate program director, and must have a cumulative GPA of 3.0 in the four selected courses. The time limit for completion of the Certificate in Electronic Packaging program is six years.

Applicants on a degree track must be admitted to the Master's degree program. Non-degree students must have a BS degree and a minimum GPA of 2.5. Special students who decide that they want to pursue a graduate degree after starting as a special student may transfer up to 12 credit hours of graduate level courses.

ME 5314	FRACTURE MECHANICS IN STRUCTURAL DESIGN	3
ME 5317	CONVECTION HEAT TRANSFER	3
ME 5346	COOLING OF ELECTRONIC PACKAGES	3
ME 5352	FUNDAMENTALS IN ELECTRONIC PACKAGING	3
ME 5353	APPLICATION OF COMPUTATIONAL TECHNIQUES TO ELECTRONIC PACKAGING	3
ME 5354	FAILURES AND THEIR PREVENTION IN ELECTRONIC PACKAGES	3
ME 5355	MECHANICAL FAILURE OF ELECTRONIC PACKAGES	3
ME 5356	CHIPSCALE PACKAGING	3
ME 5390	SPECIAL TOPICS IN MECHANICAL ENGINEERING	3
MSE 5336	ELECTRICAL PROPERTIES OF MATERIALS	3
EE 5343	SILICON INTEGRATED CIRCUIT FABRICATION TECHNOLOGY	3
EE 5344	INTRODUCTION TO MICROELECTROMECHANICAL SYSTEMS (MEMS) AND DEVICES	3

## Mechanical and Aerospace Engineering - Undergraduate Programs

### Overview

The Department of Mechanical and Aerospace Engineering (MAE) offers three programs of study leading to the bachelor's degree. They are the Bachelor of Science in Aerospace Engineering, the Bachelor of Science in Mechanical Engineering, and a double degree of Bachelor of Science in Aerospace Engineering and Bachelor of Science in Mechanical Engineering. Both Aerospace Engineering and Mechanical Engineering degree programs offer a Fast Track option which enables outstanding undergraduate students to receive dual undergraduate/ graduate course credit for up to nine hours of coursework. Minor degrees are also offered in Aerospace Engineering and Mechanical Engineering. The Aerospace and Mechanical Engineering programs have been accredited since 1968 and 1967, respectively, by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

This section contains Department policies governing admission and academic progress which are common to both aerospace and mechanical degree programs.

### Admission

For admission to the aerospace engineering and mechanical engineering programs, students must meet the requirements for admission to the College of Engineering. A grade point average of 2.25 in science, mathematics and engineering courses is required for unconditional transfer into the department.

### Advising

The advising process is designed to assist students as they make important decisions related to their academic progress at UT Arlington and career goals in general.

Specifically, the purpose of advising is:

- To empower students to clarify and achieve their educational goals by providing timely and accurate information about degree requirements, as well as College and University policies and procedures.
- To provide every student with the opportunity to develop a relationship with a knowledgeable advisor in order to obtain sound academic advising with a degree of continuity.
- To provide students with information about additional services, programs, and support systems available within the College and University as appropriate.

Ultimately, the student is responsible for seeking academic advice, making decisions regarding goals, meeting degree requirements, and enrolling in appropriate courses. The academic advisor is to provide assistance in these decisions. Each student is responsible for understanding and complying with University and College policies and procedures.

During each long semester, the Mechanical and Aerospace Engineering Department conducts pre-enrollment advising weeks. Returning students (i.e., students who are or have previously been students at The University of Texas at Arlington) shall meet with their assigned advisors during advising weeks and complete a Registration Advising Form. Returning students who are unable to be present for advising during advising weeks should contact their advisor at the earliest opportunity. New students may receive pre-enrollment advising following advising weeks during normal advising hours.

## Goal of the Undergraduate Program

The overall goal of the undergraduate program is to provide the graduate an educational background for lifelong learning and the ability to assume a leadership role in the mechanical or aerospace engineering professions. The programs are broad-based and designed to provide a strong foundation in science, mathematics, and engineering science; technical competence in multiple areas of mechanical or aerospace engineering practice; and an understanding of the importance of ethics, safety, professionalism, and socioeconomic concerns in resolving technical problems.

## Educational Objectives and Student Outcomes

### Degree Programs

#### EDUCATIONAL OBJECTIVES

A primary goal of the mechanical engineering and aerospace engineering degree programs is to provide an educational experience and training that will prepare graduates to excel within the broad scope of the mechanical and aerospace engineering professions. Our Program Educational Objectives are to enable our graduates to attain the following professional and career accomplishments during the first few years following graduation:

- Be employed in a professional mechanical, aerospace or related engineering organization, or be admitted to graduate programs in engineering or other professional areas,
- Become an active participant in professional society activities,
- Demonstrate the initiative, motivation and ability to grow professionally in their chosen endeavor.

#### STUDENT OUTCOMES

Mechanical engineering and aerospace engineering student outcomes established to accomplish the educational objectives are as follows.

- an ability to apply knowledge of mathematics, science and engineering
- an ability to design and construct experiments, as well as to analyze and interpret data
- an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- an ability to understand through a broad education, the impact of engineering solutions in a global, economic, environmental and societal context
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- a recognition of the need for, and the ability to engage in, lifelong learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

The mechanical engineering and aerospace engineering programs offer broad technical backgrounds for students who may choose other engineering fields for advanced study.

## Academic Regulations

#### ACADEMIC HONESTY

The College of Engineering takes academic honesty and ethical behavior very seriously. Engineers are entrusted with the safety, health, and well being of the public. Students found guilty of academic dishonesty will be punished to the full extent permitted by the rules and regulations of UT Arlington. In particular, a student found guilty of a second offense by the Office of Student Judicial Affairs will be subject to dismissal from the College of Engineering

#### ADVANCEMENT INTO MECHANICAL AND AEROSPACE ENGINEERING PROFESSIONAL PROGRAMS

Requirements for advancement into the Professional Programs in Mechanical Engineering and Aerospace Engineering are in accordance with those in the College of Engineering with the added stipulation that:

- Each student must complete all pre-professional courses stipulated under "Requirements for a Bachelor of Science Degree in Aerospace Engineering" or "Requirements for a Bachelor of Science Degree in Mechanical Engineering" with a minimum grade of C in each course and a minimum GPA of 2.25 on a 4.0 scale in each of three categories:
  - a. overall,
  - b. required math, science, and engineering courses, and
  - c. required MAE courses.

- Application to the Professional Program is to be made to the Undergraduate Advisor during the semester following completion of the last pre-professional course.
- No professional Mechanical and Aerospace Engineering course may be taken unless the student is admitted into the professional program or obtains the consent of the Undergraduate Advisor. Professional courses may be taken to fill out a schedule in the semester that the last pre-professional course is taken.
- Some professional Mechanical and Aerospace Engineering courses are offered only once a year. Students are urged to plan their course sequence schedules carefully to avoid delaying their graduation.

## ADDITIONAL REQUIREMENTS

Requirements for the bachelor of science in mechanical engineering and bachelor of science in aerospace engineering are in accordance with those of the University and the College of Engineering with the added stipulation that:

- Each student must complete all professional courses stipulated under "Requirements for a Bachelor of Science Degree in Aerospace Engineering" or "Requirements for a Bachelor of Science Degree in Mechanical Engineering" with a minimum grade of C in each course.
- Each student must have a minimum UTA cumulative GPA of 2.0, and a minimum major GPA of 2.0. The major GPA includes all MAE courses in the degree plan.
- The College of Engineering requires that students who do not have two units of high school foreign language take six hours of modern and classical languages courses in addition to the previously listed requirements.
- Mechanical Engineering and Aerospace Engineering students will satisfy the university core curriculum requirement by completing all General Education courses specified under "Requirements for a Bachelor of Science Degree in Aerospace Engineering" or "Requirements for a Bachelor of Science Degree in Mechanical Engineering" along with Engl 1301, Engl 1302, Math 1426, Math 2425, Phys 1443 and Phys 1444, which are also required in the Pre-Professional program.

## ORAL COMMUNICATION AND COMPUTER USE COMPETENCY REQUIREMENTS

Mechanical Engineering and Aerospace Engineering students will satisfy the Oral Communication Competency requirement by completing COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING, and the Computer Use Competency requirement by completing MAE 2360 NUMERICAL ANALYSIS & PROGRAMMING.

## Other Provisions

Refer to the College of Engineering section of this catalog for information concerning the following topics: (p. 230)

- Preparation in High School for Admission to the College of Engineering
- Admission to the College of Engineering
- Advising in the College of Engineering
- Admission into the Professional Program
- College of Engineering Academic Regulations
- Course Transfer Policies
- College of Engineering Probation
- Repeating Course Policy
- Modern and Classical Languages Requirement

## Bachelor of Science in Aerospace Engineering (BSAE)

Academic requirements governing the bachelor of science in aerospace engineering. (p. 307)

Rapid advances in aerospace systems require the successful aerospace engineer to develop new concepts and bring them into reality as reliable, competitive, and environmentally acceptable products. Successful completion of a balanced study of basic science and engineering topics, further complemented by humanities, will ensure that graduates are well prepared to tackle tomorrow's challenges. The curriculum covers the broad areas of aerodynamics and fluid mechanics, propulsion and combustion, flight mechanics and controls, structural mechanics and material behavior, structural dynamics, and system design and optimization supplemented by appropriate laboratory experiences. The culmination of the curriculum is a vehicle design project. Students may broaden their education by choosing elective courses in a secondary field of interest or by taking a second bachelor's degree in mechanical engineering.

## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN AEROSPACE ENGINEERING

For a suggested course sequence, see the department web site: [www.uta.edu/mae](http://www.uta.edu/mae)

### Pre-Professional Courses

MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4

MATH 2326	CALCULUS III	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
CHEM 1465	CHEMISTRY FOR ENGINEERS	4
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
EE 2320	CIRCUIT ANALYSIS	3
MAE 1104	INTRODUCTION TO ENGINEERING	1
MAE 1105	INTRODUCTION TO MECHANICAL AND AEROSPACE ENGINEERING	1
MAE 1312	ENGINEERING STATICS	3
MAE 1351	ENGINEERING GRAPHICS AND INDUSTRIAL PRACTICES	3
MAE 2312	SOLID MECHANICS	3
MAE 2315	FLUID DYNAMICS	3
MAE 2323	DYNAMICS	3
MAE 2360	NUMERICAL ANALYSIS & PROGRAMMING	3
MAE 2381	EXPERIMENTAL METHODS AND MEASUREMENTS	3
MAE 3309	THERMAL ENGINEERING	3
MAE 3360	ENGINEERING ANALYSIS	3
<b>Professional Courses</b> <sup>1</sup>		
MAE 3181	MATERIALS AND STRUCTURES LAB	1
MAE 3182	AERODYNAMICS AND FLUIDS LAB	1
MAE 3303	AERODYNAMICS OF COMPRESSIBLE FLOWS	3
MAE 3304	ASTRONAUTICS I	3
MAE 3405	FLIGHT DYNAMICS	4
MAE 3306	FLIGHT PERFORMANCE & STABILITY	3
MAE 3315	AEROSPACE STRUCTURAL STATICS	3
MAE 3316	AEROSPACE STRUCTURAL DYNAMICS	3
MAE 3324	STRUCTURE & MECHANICAL BEHAVIOR OF MATERIALS	3
MAE 4310	INTRODUCTION TO AUTOMATIC CONTROL	3
MAE 4321	AIR-BREATHING ENGINE PROPULSION	3
MAE 4350	AEROSPACE VEHICLE DESIGN I	3
MAE 4351	AEROSPACE VEHICLE DESIGN II	3
Technical Electives: Approved engineering, science, or mathematics (3000 level or higher) <sup>2</sup>		6
<b>General Education Courses: Additional courses required for the aerospace engineering degree</b>		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture elective: any course which satisfies the University Core Curriculum requirements for Language, Philosophy and Culture is accepted.		3
Communication: COMS 2302		3
Creative arts elective: any course which satisfies the University Core Curriculum requirements for Creative Arts is accepted.		3
Social/behavioral elective: ECON 2305 or IE 2308		3
<b>Total Hours</b>		<b>130</b>

Total hours completed will depend upon prior preparation and academic qualifications.

<sup>1</sup> All pre-professional courses must be completed before enrolling in professional courses.

<sup>2</sup> Technical electives must be approved in advance by the student's academic advisor. Normally, they are selected from the senior elective 4000 level courses in Mechanical and Aerospace Engineering.

## RECOMMENDED CORE CURRICULUM

Aerospace Engineering students will satisfy the university core curriculum requirement by completing all General Education courses specified under "Requirements for a Bachelor of Science Degree in Aerospace Engineering" along with Engl 1301, Engl 1302, Math 1426, Math 2425, Phys 1443 and Phys 1444, which are within the Pre-Professional Program. The university core curriculum allows each degree plan to designate a component area to satisfy three hours of the core requirement. For the aerospace engineering degree plan, the designated component area is Communication and COMS 2302 is selected to satisfy the requirement. For more information, see University Core Curriculum. (p. 93)

## Bachelor of Science in Mechanical Engineering (BSME)

Academic requirements governing the bachelor of science in mechanical engineering. (p. 307)

The mechanical engineer needs to be extremely versatile and can be found in a large variety of private and public sector organizations. He or she may be involved in product design and development, manufacturing, project management, power generation or other operations. Therefore, the mechanical engineering curriculum is broad-based and emphasizes fundamental engineering sciences and applications. Approximately equal emphasis is given to machine design, structural analysis, thermodynamics and energy, systems and control, and materials science. Classroom lectures are supplemented by laboratories. The student completes a capstone design project as the culmination of the undergraduate program.

## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN MECHANICAL ENGINEERING

For a suggested course sequence, see the department web site: [www.uta.edu/mae](http://www.uta.edu/mae)

Pre-Professional Courses		
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
CHEM 1465	CHEMISTRY FOR ENGINEERS	4
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
EE 2320	CIRCUIT ANALYSIS	3
MAE 1104	INTRODUCTION TO ENGINEERING	1
MAE 1105	INTRODUCTION TO MECHANICAL AND AEROSPACE ENGINEERING	1
MAE 1312	ENGINEERING STATICS	3
MAE 1351	ENGINEERING GRAPHICS AND INDUSTRIAL PRACTICES	3
MAE 2312	SOLID MECHANICS	3
MAE 2323	DYNAMICS	3
MAE 2360	NUMERICAL ANALYSIS & PROGRAMMING	3
MAE 2381	EXPERIMENTAL METHODS AND MEASUREMENTS	3
MAE 3310	THERMODYNAMICS I	3
MAE 3324	STRUCTURE & MECHANICAL BEHAVIOR OF MATERIALS	3
MAE 3360	ENGINEERING ANALYSIS	3
Professional Courses <sup>1</sup>		
MAE 2314	FLUID MECHANICS I	3
MAE 3183	MEASUREMENTS LABORATORY II	1
MAE 3242	MECHANICAL DESIGN I	2
MAE 3311	THERMODYNAMICS II	3
MAE 3314	HEAT TRANSFER	3
MAE 3318	KINEMATICS AND DYNAMICS OF MACHINES	3
MAE 3319	DYNAMIC SYSTEMS MODELING AND SIMULATION	3
MAE 3344	INTRODUCTION TO MANUFACTURING ENGINEERING	3
MAE 4188	DESIGN PROJECT LABORATORY II	1
MAE 4287	DESIGN PROJECT I	2
MAE 4310	INTRODUCTION TO AUTOMATIC CONTROL	3
MAE 4342	MECHANICAL DESIGN II	3
MAE 4344	COMPUTER-AIDED ENGINEERING	3

Technical Electives: Approved engineering, science, or mathematics (3000 level or higher) <sup>2</sup>	9	
<b>General Education Courses: Additional courses required for the mechanical engineering degree</b>		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture elective: any course which satisfies the University Core Curriculum requirements for Language, Philosophy and Culture is accepted.	3	
Communication: COMS 2302	3	
Creative arts elective: any course which satisfies the University Core Curriculum requirements for Creative Arts is accepted.	3	
Social/behavioral elective: ECON 2305 or IE 2308	3	
<b>Total Hours</b>	<b>130</b>	

Total hours completed will depend upon prior preparation and academic qualifications.

- 1 All pre-professional courses must be completed before enrolling in professional courses.
- 2 Technical electives must be approved in advance by the student's academic advisor. Normally, they are selected from the senior elective 4000 level courses in Mechanical and Aerospace Engineering.

## RECOMMENDED CORE CURRICULUM

Mechanical Engineering students will satisfy the university core curriculum requirement by completing all General Education courses specified under "Requirements for a Bachelor of Science Degree in Mechanical Engineering" along with Engl 1301, Engl 1302, Math 1426, Math 2425, Phys 1443 and Phys 1444, which are within the Pre-Professional Program. The university core curriculum allows each degree plan to designate a component area to satisfy three hours of the core requirement. For the mechanical engineering degree plan, the designated component area is Communication and COMS 2302 is selected to satisfy the requirement. For more information, see University Core Curriculum. (p. 93)

## Mechanical and Aerospace Engineering Double Major

A student wishing to obtain a double major in mechanical engineering and aerospace engineering under a single degree, simultaneously prior to graduation, can integrate the courses for the double major requirement throughout his/her undergraduate career at UT Arlington. When applying for graduation, a student should note on the application that he/she will be completing an additional major. One diploma is issued and both majors are recorded on a student's transcript and diploma. The student is encouraged to consult with the Undergraduate Advisor on the appropriate course of study.

## Fast Track Program of Master's Degree in Aerospace Engineering

The Fast Track Program enables outstanding senior undergraduate Aerospace Engineering students to receive dual undergraduate/ graduate course credit for up to nine hours of coursework. These designated graduate courses satisfy both bachelor's and master's degree requirements if they are completed within the last 15 hours of the undergraduate degree program. In the limiting case, a student completing the maximum allowable hours (9) while in undergraduate status would have to take only 21 additional hours to meet minimum requirements for graduation in a 30-hour thesis master's degree program (M.S.) or 27 additional hours for a non-thesis master's degree program (M. Engr.)

Interested undergraduate students should apply to the appropriate program when they are within 30 hours of completing their bachelor's degrees. They must have completed at least 30 hours at UT Arlington, achieving a GPA of a least 3.0 in those courses, and have an overall GPA of 3.0 or better in all college courses. Additionally, they must have completed a specific set of undergraduate foundation courses that are listed below with a minimum GPA of 3.3 in these courses.

Aerospace Engineering Foundation Courses Required for Admission into the Fast Track Program:

MAE 3303	AERODYNAMICS OF COMPRESSIBLE FLOWS	3
MAE 3315	AEROSPACE STRUCTURAL STATICS	3
MAE 3316	AEROSPACE STRUCTURAL DYNAMICS	3
MAE 3405	FLIGHT DYNAMICS	4
MAE 3306	FLIGHT PERFORMANCE & STABILITY	3
<b>Total Hours</b>		<b>16</b>

Fast Track students can take two graduate core courses to serve as undergraduate elective courses. Further, students can substitute one of the core graduate courses for one required undergraduate course (AE 5326 AIR-BREATHING PROPULSION in place of MAE 4321 AIR-BREATHING ENGINE PROPULSION).



Students who successfully complete the Fast Track Program will be automatically admitted to Graduate School. They will not be required to take the Graduate Record Examination, complete an application for admission to the Graduate School or pay an application fee. For more details about the specifics of the program contact the Undergraduate Advisor or Graduate Advisor in Aerospace Engineering.

## Fast Track Program of Master's Degree in Mechanical Engineering

The Fast Track Program enables outstanding senior undergraduate Mechanical Engineering students to receive dual undergraduate/ graduate course credit for up to nine hours of coursework. These designated graduate courses satisfy both bachelor's and master's degree requirements if they are completed within the last 15 hours of the undergraduate degree program. In the limiting case, a student completing the maximum allowable hours (9) while in undergraduate status would have to take only 21 additional hours to meet minimum requirements for graduation in a 30-hour thesis master's degree program (M.S.) or 27 additional hours for a non-thesis master's degree program (M. Engr.)

Interested undergraduate students should apply to the appropriate program when they are within 30 hours of completing their bachelor's degrees. They must have completed at least 30 hours at UT Arlington, achieving a GPA of a least 3.0 in those courses, and have an overall GPA of 3.0 or better in all college courses. Additionally, they must have completed a specific set of undergraduate foundation courses that are listed below with a minimum GPA of 3.3 in these courses.

Mechanical Engineering Foundation Courses Required for Admission into the Fast Track Program:

MAE 3242	MECHANICAL DESIGN I	2
MAE 3314	HEAT TRANSFER	3
MAE 3318	KINEMATICS AND DYNAMICS OF MACHINES	3
MAE 3319	DYNAMIC SYSTEMS MODELING AND SIMULATION	3
Total Hours		11

Fast Track students can take two graduate core courses to serve as undergraduate elective courses. Further, students can substitute one of the core graduate courses for one required undergraduate course (ME 5303 CLASSICAL METHODS OF CONTROL SYSTEMS ANALYSIS AND SYNTHESIS for MAE 4310 INTRODUCTION TO AUTOMATIC CONTROL).

Students who successfully complete the Fast Track Program will be automatically admitted to Graduate School. They will not be required to take the Graduate Record Examination, complete an application for admission to the Graduate School or pay an application fee. For more details about the specifics of the program contact the Undergraduate Advisor or Graduate Advisor in Aerospace Engineering or Mechanical Engineering.

## MINOR IN AEROSPACE ENGINEERING

To receive a minor in Aerospace Engineering, a student must complete 18 hours of course work as listed below. Prerequisites must be met for all courses. All courses used to satisfy AE Minor requirements must be completed with a grade of C or better. In addition, at least 9 hours must be MAE courses taken in residence at UTA and approved in advance by the MAE undergraduate advisor.

9 hours required:		9
MAE 2312	SOLID MECHANICS	
MAE 2323	DYNAMICS	
MAE 2315 or MAE 2314	FLUID DYNAMICS FLUID MECHANICS I	
9 hours of courses selected from the following:		9
MAE 3303	AERODYNAMICS OF COMPRESSIBLE FLOWS	
MAE 3304	ASTRONAUTICS I	
MAE 3405	FLIGHT DYNAMICS	
MAE 3306	FLIGHT PERFORMANCE & STABILITY	
MAE 3315	AEROSPACE STRUCTURAL STATICS	
MAE 3316	AEROSPACE STRUCTURAL DYNAMICS	
MAE 4321	AIR-BREATHING ENGINE PROPULSION	
Total Hours		18

## MINOR IN MECHANICAL ENGINEERING

To receive a minor in Mechanical Engineering, a student must complete 18 hours of course work as listed below. Prerequisites must be met for all courses. All courses used to satisfy ME Minor requirements must be completed with a grade of C or better. In addition, at least 9 hours must be MAE courses taken in residence at UTA and approved in advance by the MAE undergraduate advisor.

9 hours required:		9
MAE 2312	SOLID MECHANICS	
MAE 2323	DYNAMICS	
MAE 3310	THERMODYNAMICS I	
9 hours of coursework selected from the following:		9
MAE 2314	FLUID MECHANICS I	
MAE 3183	MEASUREMENTS LABORATORY II	
MAE 3242	MECHANICAL DESIGN I	
MAE 3311	THERMODYNAMICS II	
MAE 3314	HEAT TRANSFER	
MAE 3318	KINEMATICS AND DYNAMICS OF MACHINES	
MAE 3319	DYNAMIC SYSTEMS MODELING AND SIMULATION	
MAE 3324	STRUCTURE & MECHANICAL BEHAVIOR OF MATERIALS	
MAE 3344	INTRODUCTION TO MANUFACTURING ENGINEERING	
MAE 4310	INTRODUCTION TO AUTOMATIC CONTROL	
MAE 4342	MECHANICAL DESIGN II	
MAE 4344	COMPUTER-AIDED ENGINEERING	
Total Hours		18

## Certificate in Automotive Engineering

### PROGRAM OBJECTIVE AND REQUIREMENTS

The University of Texas at Arlington is pleased to offer a Certificate in Automotive Engineering through the Arnold E. Petsche Center for Automotive Engineering. This certificate confirms the student's commitment to automotive engineering and the learning experience gained from being a contributing team member of a student design competition. The Certificate in Automotive Engineering will be awarded concurrently with an undergraduate degree. The completed certificate program of study will be forwarded to the Office of Admissions, Records and Registration for verification and notation on the student's transcript. A formal certificate will be prepared for the student by the university and recognition will be given at the graduation ceremonies.

The Certificate in Automotive Engineering is offered through the Mechanical and Aerospace Engineering Department.

### ADMISSION REQUIREMENT

The certificate is open to all degree-seeking students.

### ACADEMIC REQUIREMENTS

The Certificate in Automotive Engineering requires 15 credit hours of appropriate coursework as well as two semesters of practical training experience.

At least 9 hours from the following list of courses. All courses must be passed with a grade of C or better to apply to the Certificate in Automotive Engineering. 9

EE 2347	MATHEMATICAL FOUNDATIONS OF ELECTRICAL ENGINEERING	
EE 2403	ELECTRONICS I	
EE 3446	CIRCUIT ANALYSIS II	
EE 2441	DIGITAL LOGIC AND MICROPROCESSORS 1	
MAE 2312	SOLID MECHANICS	
MAE 2314	FLUID MECHANICS I	
MAE 2315	FLUID DYNAMICS	
MAE 3309	THERMAL ENGINEERING	
MAE 3310	THERMODYNAMICS I	
MAE 3315	AEROSPACE STRUCTURAL STATICS	
MAE 3318	KINEMATICS AND DYNAMICS OF MACHINES	

At least 3 hours from the following: 3

MAE 4357	AUTOMOTIVE ENGINEERING	
MAE 4358	RACECAR ENGINEERING	

Two courses from the following (courses may be repeated):<sup>1</sup> 6

MAE 2010	AUTOMOTIVE ENGINEERING PRACTICUM I	
MAE 4010	AUTOMOTIVE ENGINEERING PRACTICUM II	

Total Hours

18

<sup>1</sup> MAE 2010 and 4010 are Engineering Practicum courses that have no academic credit and do not require a tuition fee. Students must gain approval to enroll in these courses from the faculty of the Arnold E. Petsche Center for Automotive Engineering.

## Certificate in Unmanned Vehicle Systems

### PROGRAM OBJECTIVE

The Certificate in UVS (Unmanned Vehicle Systems) is offered through the Mechanical and Aerospace Engineering Department and will educate undergraduate students in the knowledge and skills required for design, development and operation of UVS including UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground Systems) and UMS (Unmanned Maritime Systems). The certificate program will emphasize the common aspects of UVS such as sensors, actuators, communications, and more importantly, decision-making capabilities (autonomy), while also covering development of domain-specific mobile platforms such as airplane, rotorcraft, Ackerman steering car and boat. This program aims at the dual goal of providing the UVS industry with a knowledgeable, locally available workforce and developing career opportunities for its participants. To this end, the Certificate in UVS will be awarded concurrently with an undergraduate degree.

### ADMISSION REQUIREMENTS

The certificate is open to all degree-seeking students. Students should see the certificate advisor for admission to the program.

### ACADEMIC REQUIREMENTS

Students must complete 15 hours of coursework as outlined below. All courses used to satisfy the certificate requirements must be passed with a grade of B or better.

Required courses:

6

MAE 4378	INTRODUCTION TO UNMANNED VEHICLE SYSTEMS
MAE 4379	UNMANNED VEHICLE SYSTEM DEVELOPMENT

Nine credit hours from the following list:

9

MAE (Mechanical and Aerospace Engineering) Courses:

MAE 2312	SOLID MECHANICS
MAE 2315 FLUID DYNAMICS or MAE 2314 FLUID MECHANICS	
MAE 3309 THERMAL ENGINEERING or MAE 3310 THERMODYNAMICS I	
MAE 3315	AEROSPACE STRUCTURAL STATICS
MAE 3318	KINEMATICS AND DYNAMICS OF MACHINES
MAE 3405	FLIGHT DYNAMICS
MAE 3306	FLIGHT PERFORMANCE & STABILITY
MAE 4315	INTRODUCTION TO COMPOSITES
MAE 3319	DYNAMIC SYSTEMS MODELING AND SIMULATION
MAE 3316	AEROSPACE STRUCTURAL DYNAMICS
MAE 4301	SPECIAL TOPICS IN MECHANICAL AND AEROSPACE ENGINEERING <sup>2</sup>
MAE 4310	INTRODUCTION TO AUTOMATIC CONTROL
MAE 3242	MECHANICAL DESIGN I
MAE 4350	AEROSPACE VEHICLE DESIGN I
MAE 4307	FINITE ELEMENT METHODS
MAE 4345	INTRODUCTION TO ROBOTICS

EE (Electrical Engineering) Courses:

EE 2441	DIGITAL LOGIC AND MICROPROCESSORS 1
EE 3318	DISCRETE SIGNALS AND SYSTEMS
EE 3317	LINEAR SYSTEMS
EE 4314	CONTROL SYSTEMS
EE 4318	DIGITAL SIGNAL PROCESSING
EE 4315	INTRODUCTION TO ROBOTICS
EE 4330	FUNDAMENTALS OF TELECOMMUNICATIONS SYSTEMS

CSE (Computer Science and Engineering) Courses:

CSE 3313	INTRODUCTION TO SIGNAL PROCESSING
CSE 3442	EMBEDDED SYSTEMS I

CSE 4342	EMBEDDED SYSTEMS II
CSE 4308	ARTIFICIAL INTELLIGENCE I
CSE 4319	MODELING AND SIMULATION
CSE 4360	AUTONOMOUS ROBOT DESIGN AND PROGRAMMING
IE (Industrial Engineering) Courses:	
IE 2305	COMPUTER APPLICATIONS IN INDUSTRIAL ENGINEERING
IE 3314	ENGINEERING RESEARCH METHODS
IE 4325	AUTOMATION AND ROBOTICS I
IE 4339	PRODUCT DEVELOPMENT, PRODUCIBILITY AND RELIABILITY DESIGN
ENGR (Engineering) Courses:	
ENGR 4302	ENGINEERING ENTREPRENEURSHIP
PHYS (Physics) Courses:	
PHYS 2321	COMPUTATIONAL PHYSICS
PHYS 3445	OPTICS
PHYS 3455	ELECTRONICS
PHYS 4315	THERMODYNAMICS AND STATISTICAL MECHANICS
PHYS 4319	ADVANCED MECHANICS
<hr/>	
Total Hours	15

<sup>2</sup> Special topics courses must be approved by the certificate advisor.

# College of Liberal Arts

---

## UNDERGRADUATE

### Overview

The mission of the College of Liberal Arts is to provide a learning community wherein students are provided both broad-based and specialized education and to vitalize the educational process by creating and transmitting knowledge through research, scholarship and creative activity.

The College of Liberal Arts offers a 21<sup>st</sup> century education by inculcating skills which students will apply throughout their lifetimes in increasingly complex and interdisciplinary ways: skills in critical thinking, oral and written communication, multilingual and multicultural competency, textual analysis, analytic reasoning and the scientific method. Faculty research scholarship and creative expertise in the visual and performing arts, humanities, and social sciences advance knowledge and contribute toward civic engagement and improvement of local and global communities through interdisciplinary and cross-disciplinary initiatives across the College of Liberal Arts and the UT Arlington academic community, and in partnership with national and international colleagues

The college is characterized by a diversity of intellectual styles and interests. Departments and programs cluster into social sciences, humanities and fine arts. Liberal Arts disciplines address the rich meanings of human experience and expression and liberate the imagination.

The traditional objectives of liberal arts in the University are:

1. to develop the tools for analysis, appreciation and communication; for written and oral expression; for comprehension, interpretation, and analysis of textual material; for analytic reasoning and scientific method; and for appreciation of aesthetic experience;
2. to prepare students for a range of careers in academia and public and private sector organizations. Graduates of the college contribute to the region, the state and the nation as college and university professors, elementary and secondary teachers, legal professionals, in government agencies, social services, international business and industry, media and advertising, health and recreation, and cultural and entertainment industries; and
3. to promote understanding and critical evaluation of the cultural milieu of the attitudes and the ideas that shape institutions and strategies in societies.

A liberal arts education prepares the student for leadership in whatever profession or vocation he or she chooses and is designed to help students live enlightened, purposeful, and effective lives in a challenging, complex, and global technological environment.

A center of learning and scholarship, the College of Liberal Arts and its departments and programs help students achieve an understanding and knowledge of the past, a comprehension of the realities of the present, and a sense of the vision and potential of the future. Our courses of study not only develop habits of mind (such as mastery in reading, communication, and critical thinking skills), but also address the meaning of human experience and expression.

The college promotes these goals in the following ways:

- By enabling students to develop the tools for analysis, appreciation and communication; for written and oral expression; for comprehension, interpretation, and analysis of textual material; for analytic reasoning and scientific method; and for appreciation of aesthetic experience;
- By enabling students to prepare for professions or careers by offering specialized major programs; and
- By enabling students to understand and evaluate critically the attitudes and ideas that shape contemporary society.

Because they deal with the meanings of human experience, the Liberal Arts are the oldest and most central study in higher education, with a past that reaches back to the origins of the university in the Middle Ages. The disciplinary units of the college provide current perspectives on the individual, society, culture, and the cosmos; the various courses of study taken together offer students a range of approaches to the human condition. Through their research and teaching, the faculty of the college seek to prepare students to achieve success in many different professions, to contribute to the community, and to lead enriched and enlightened lives.

### Departments and Programs

The College of Liberal Arts offers programs of study in 12 academic units.

- Art and Art History (<http://www.uta.edu/art>)
- Communication (<http://www.uta.edu/communication>)
- Criminology and Criminal Justice (<http://www.uta.edu/criminology>)
- English (<http://www.uta.edu/english>)
- History (<http://www.uta.edu/history>)
- Linguistics and (<http://www.uta.edu/linguistics>)TESOL
- Modern Languages (<http://www.uta.edu/modl>)

- Music (<http://www.uta.edu/music>)
- Philosophy and Humanities (<http://www.uta.edu/philosophy>)
- Political Science (<http://www.uta.edu/pols>)
- Sociology and Anthropology (<http://www.uta.edu/socio-anthro>)
- Theatre Arts (<http://www.uta.edu/theatre>)

The college also offers interdisciplinary programs of undergraduate study in the Charles T. McDowell Center for Critical Languages and Area Studies, Mexican American Studies, Southwestern Studies, Women's and Gender Studies, African American Studies and Disability Studies. Military Science offers a program that leads to a commission in the U.S. Army.

## **INTERDISCIPLINARY MINORS**

### **Medieval and Early Modern Studies** (<http://www.uta.edu/libarts/mems>)

#### **Disability Studies**

#### **Women's and Gender Studies** (<http://www.uta.edu/womens-studies>)

#### **African American Studies**

#### **Mexican American Studies**

#### **Southwestern Studies**

#### **Military Science (ROTC)**

## **Liberal Arts Advising**

Individual degree programs (<http://www.uta.edu/libarts/departments.html>) in the College of Liberal Arts have undergraduate advisors who are available to help students with academic planning, course selection, and professional career advice.

## **Admission to the College of Liberal Arts**

Admission is determined by application to the academic unit offering the degree of interest. Individual departments and programs in the College of Liberal Arts may set more specific and restrictive requirements than those stipulated in the Core Curriculum statement (See Degree Program), and may set additional requirements for admission to the major. Information may be obtained in department and program offices.

The College of Liberal Arts has a modern and classical languages requirement. Students must demonstrate proficiency at the second year college level of a foreign or classical language. This requirement for the B.A. degree at UT Arlington is designed to help students become effective members of the global community. It is not only essential for a broad education, but also provides a basis for practical benefits to students with widely varying and highly specific objectives. Proficiency may be demonstrated through the prescribed score on the CLEP test for the language, transfer of credits from another institution, completion of the second year at UT Arlington, or proof of a secondary education in a foreign language (as evidenced by a diploma from a high school in which the language is the primary language of instruction). Students who choose to fulfill the requirement through proof of secondary education in another language must complete an additional six hours of English courses in order to ensure their mastery of English.

## **COMPUTER USE AND ORAL COMMUNICATION COMPETENCIES**

Students majoring in Liberal Art disciplines are also required to demonstrate computer use proficiency and oral communication competency. Methods for demonstrating these competencies vary across departments and programs within the College of Liberal Arts and are detailed in the sections of this catalog pertaining to the various majors.

## **TRANSFER CREDITS**

Students entering the College of Liberal Arts may transfer up to 72 hours of academic credit from two-year institutions to be applied to a degree.

## **Teacher Certification**

The College of Education, in cooperation with the College of Liberal Arts, offers programs leading to elementary, secondary and all-level certification. Students interested in teacher certification should consult the advisor or his/her major department or the Advising Center of the College of Education for more information.

## **Honors Degree in Liberal Arts**

In addition to earning a disciplinary degree with Latin honors (summa, magna, cum laude), Liberal Arts students who wish to graduate with an Honors Degree in a Liberal Arts discipline must be members of the Honors College in good standing, have an overall GPA of 3.2, and complete the degree requirements in a disciplinary major. Please see the Honors College (<http://www.uta.edu/honors>) website for more information.

## Study Abroad

The College of Liberal Arts offers many opportunities for students wishing to study abroad. Programs in Mexico, Spain, France, Italy, Germany and other locations are led by faculty from different departments. Semester-long programs with affiliated institutions are also available. Start with the Office for International Education's Study Abroad site. (<http://studyabroad.uta.edu>)

## Scholarships

Scholarships for outstanding undergraduate students are available from the College of Liberal Arts. Information about scholarships and applications may be found here (<http://www.uta.edu/libarts/scholarship.html>). Students should also speak with their advisor about major-specific scholarships.

## Pass-Fail

Any student majoring in the College of Liberal Arts may, with the permission of an advisor from his/her major department and of the department or academic unit offering the course, take any course approved with a pass/fail grading option on a pass-fail basis, provided that the course is not required for the student's degree and provided the student has sophomore standing (30 hours credit). Students seeking teacher certification may not take education courses on a pass-fail basis with the exception of student teaching which is offered only on a pass-fail basis. Junior-senior level military science courses also may not be taken on a pass-fail basis.

# GRADUATE

## Mission and Philosophy

The mission of the College of Liberal Arts is to provide a learning community wherein students are provided both broad-based and specialized education and to vitalize the educational process by creating and transmitting knowledge through research, scholarship and creative activity.

The College is characterized by a diversity of intellectual styles and interests. Departments and programs cluster into social sciences, humanities and fine arts. Liberal Arts disciplines address the rich meanings of human experience and expression and liberate the imagination by producing knowledge and creating beauty.

The faculty and administration of the college address the traditional objectives of liberal arts in the University:

1. to develop the tools for analysis, appreciation and communication; for written and oral expression; for comprehension, interpretation, and analysis of textual material; for analytic reasoning and scientific method; and for appreciation of aesthetic experience;
2. to prepare students for a range of careers in academia and public and private sector organizations. Graduates of the College contribute to the region, the state and the nation as college and university professors, elementary and secondary teachers, legal professionals, in government agencies, social services, international business and industry, media and advertising, health and recreation, and cultural and entertainment industries; and
3. to promote understanding and critical evaluation of the cultural milieu and of the attitudes and the ideas that shape institutions and strategies in societies.

Accomplishing these objectives culminates in students reaping the creative, utilitarian and life enriching benefits of a liberal arts education.

## History and Overview

The University of Texas at Arlington's College of Liberal Arts acquired its first graduate degrees in 1968, with the establishment of M.A. programs in English and History. Since that time, the number of M.A. programs offered has expanded to 13. In 1974, the college established its first Ph.D. level program, Humanities. The Humanities Program was reorganized in 1997 and replaced by three new Ph.D. level programs in English (Literature and Rhetoric/Composition tracks), History (transatlantic) and Linguistics.

## Scholastic Activity and Research Interests of the Faculty

The faculty in the College of Liberal Arts excel in their roles as educators, creative scholars and researchers, and professional performers. Numerous faculty have received recognition for their work, including a Guggenheim Fellowship and two Pulitzer Prize nominations. The Jenkins and Virginia Garrett Endowed Chair in Greater Southwestern Studies and the History of Cartography was created in 1995 and is currently held by Professor Imre Demhardt. Ya'Ke Smith is the current Morgan Woodward Endowed Distinguished Professor in Film & Video. Sixteen faculty members have been members of the Academy of Distinguished Teachers, and eight faculty are Chancellor's Teaching Award recipients. Six of our faculty have won the prestigious Piper Award from the UT System. Thirteen faculty members have won the UT System Regents Outstanding Teaching Awards (instituted in 2009) and one has been inducted into the Regents Academy of Distinguished Teachers (instituted in 2013). Eighteen faculty members have won the University Outstanding Research Achievement Award and nine have been awarded the Distinguished Record of Research Award. Eight faculty from the College of Liberal Arts have been selected to be members of the Academy of Distinguished Scholars.

The scholarly activities and research of the faculty cover a range of areas represented within the 13 disciplines in the college. History faculty research interests center on transatlantic broadly defined, and research specializations of faculty include southern, western and southwestern history, frontier development, women and gender, urban and labor and public history. English faculty research strengths lie in the areas of American, British and

comparative literatures; and rhetoric, composition and criticism. Linguistics faculty specialize in experimental linguistics, field linguistics, corpus linguistics and documentation of endangered languages. Numerous faculty throughout the college also conduct research on gender and women's issues. Anthropology faculty members recently became the first foreign archaeological team to excavate in Albania in more than 50 years.

## Special Programs and Opportunities

The College of Liberal Arts provides a number of special programs and opportunities for graduate students. College lecture series and seminars, conferences, publications, academic centers, library collections and an art gallery provide a mosaic of events and resources that enrich the university community.

### LECTURE SERIES, SEMINARS AND CONFERENCES

- Each year the English Department sponsors the Hermann Lecture series, which brings scholars from UT Arlington and other universities together for discussions and master classes on an issue of general theoretical interest.
- The History Department presents the Walter Prescott Webb Memorial Lectures each March. Nationally prominent speakers make presentations on an annual topic, followed by a dinner in the University Center and a keynote address.
- Graduate students in Linguistics sponsor The UTA Conference in Linguistics and TESOL each year. This conference provides an opportunity for students to begin their professional careers by organizing the sessions, reviewing paper abstracts and presenting their own research.
- The Women's and Gender Studies Program hosts an annual, month-long Women's History Month Lecture Series during March that features a range of events from scholarly talks to film screenings to gallery exhibits to roundtable discussions. Speakers are invited from around the nation and around the globe and have included Pulitzer Prize-winners, ground-breaking scholars, and prominent female politicians.
- The Criminal Justice and Criminology Program sponsors a Brown Bag Lecture Series every spring semester, and students have the opportunity to receive credit for practicums.
- The Department of Political Science hosts the annual Haggard Lectures, bringing in nationally and internationally known scholars in the field.
- The Department of History hosts an annual student conference for the graduate students.

### PUBLICATIONS

- The History Department publishes an annual volume comprised of Webb Lecture Series papers.
- The English Department houses the online journal, "Agora: A Graduate Journal of Theory" and "Early Modern Studies Journal."
- The Center for Theory houses the online journal, "Fast Capitalism."
- Individual departments/programs publish newsletters which provide news and information about and for students, faculty and alumni.

### CENTERS

The College of Liberal Arts houses numerous centers designed to promote scholarship, research and teaching. These centers organize conferences, lecture series and workshops and provide a conduit for making faculty expertise available to the community. College of Liberal Arts centers are listed below and described in the Facilities for Advanced Studies and Research section of this catalog.

- The Center for Criminal Justice Research and Training
- The Center for Greater Southwestern Studies and the History of Cartography
- The Center for Mexican American Studies
- The Charles McDowell Center for Critical Languages and Area Studies
- The Center for African American Studies
- The Center for Social Research
- The Center for Theory
- The English Language Institute
- The Language Acquisition Center

### OTHER RESOURCES

- In support of the history M.A. and Ph.D. programs, the UT Arlington Library Special Collections houses the Jenkins Garrett Library of Texana and Mexican War historical material and the Cartographic History Library. In addition, Special Collections has material on UT Arlington's history since 1895, the history of organized labor in Texas and the Southwest, and Yucatan and Honduran archival materials.
- The Gallery at UT Arlington presents a full program of major exhibitions in its 4,000-square-foot gallery, including lectures, symposia, screenings and publications. The Gallery's program demonstrates the complementary roles of visual and verbal literacy.
- The Department of Music offers laboratory facilities and the Fine Arts Library contains an extensive collection of recordings and publications relating to musical performance and theory.
- Numerous student organizations exist on campus to provide students with the opportunity to interact with peers in their disciplines. These student groups include interdisciplinary organizations for graduate students interested in Medieval Studies and Rhetoric; and honor societies for Communication, Criminal Justice, English, History, Political Science, and Sociology, as well as specialized interest groups.



- Student awards, scholarships and teaching and research assistantships are available in many College of Liberal Arts departments and programs. Each spring the History Department awards an outstanding graduate student the Wolfskill Prize, a cash award and plaque representing superior attainment in history studies. The English Language Institute, a part of the Program in Linguistics, provides graduate teaching assistantships.
- The College also awards funds for research travel and for travel to conferences for presentation of original research.

## Graduate Teaching Assistantships, Fellowships and Scholarships

The College of Liberal Arts offers a wide variety of research, travel, fellowship and dissertation funding for deserving students. Typically, these awards are designed to encourage research or creative activity that leads to the completion of your graduate degree. The College also maintains a Graduate Studies blog ( [http://blog.uta.edu/cola\\_grad\\_studies/](http://blog.uta.edu/cola_grad_studies/) ) and a graduate listserv that regularly announces awards.

A limited number of Graduate Teaching & Research Assistantships are awarded by most departments. You are encouraged to visit with faculty on availability and requirements of departmental assistantships during the application process.

## Programs

**The College of Liberal Arts offers the following graduate degree programs:**

- Studio Art, M.F.A
- Communication, M.A.
- Criminology and Criminal Justice, M.A.
- English, M.A., Ph.D.
- History, M.A.; Transatlantic History, Ph.D.
- Linguistics, M.A., Ph.D.; TESOL, M.A.
- Modern Languages (French and Spanish), M.A.
- Music Education, M.M.
- Music Performance, M.M.
- Political Science, M.A.
- Sociology, M.A.

**The College of Liberal Arts offers the following Dual Degree Programs:**

Criminology and Criminal Justice M.A. & Social Work M.S.  
 Criminology and Criminal Justice M.A. & Political Science, M.A.  
 Criminology and Criminal Justice M.A. & Master of Public Administration  
 Political Science M.A. & Master of Public Administration

**The College of Liberal Arts offers three Graduate Certificates:**

Archival Administration  
 TESOL Certificate Program  
 Graduate Certificate in French and Spanish

## Aerospace Studies

### Overview

The United States Air Force Reserve Officer Training Corps (AFROTC) provides women and men at Texas Christian University, Texas Wesleyan University, Dallas Baptist University, The University of Texas at Arlington, Weatherford College, and Tarrant County College the education and training necessary to develop the management and leadership skills vital to professional Air Force officers.

Enrollment in the General Military Course (first two years) is voluntary for eligible students and does not obligate non-scholarship students for further military service. The Professional Officer Course (last two years) is also voluntary but competitive. Because the POC leads to a commission in the United States Air Force, those selected to continue training incur military obligation.

Aerospace studies courses are taken concurrently with other degree programs. No degree is offered in aerospace studies, but up to 24 semester hours may be earned in aerospace studies over the four-year period. Some of the classes may be used to meet major elective requirements. See your academic advisor for confirmation. Students who enroll in aerospace studies classes must attend both classroom and leadership laboratory classes located at Texas Christian University, Rickel Academic Wing (3005 Stadium Drive) Office 247, Fort Worth, Texas 76109. The laboratory classes give students firsthand experience in leadership and organizational skills while preparing them for enrollment in the Professional Officer Course.

## Program Requirements

### Four-Year Program

This program enables students to take advantage of four years of aerospace studies courses. Each semester, for the first two years, cadets take a one-credit hour academic class and a one-credit hour Pass/No-Credit Leadership Laboratory (LLab). The first two years collectively are referred to as the General Military Course (GMC). Upon successful completion of the GMC and an ensuing four-week Air Force paid field training course, qualified and selected students may elect to enroll in the final two years, referred to as the Professional Officer Course (POC). Each semester in the POC, students take a three-credit hour academic class and a one-credit hour Pass/No-Credit LLab. AFROTC uniforms and textbooks are issued by the unit.

### Aerospace Studies General Qualifications

A student enrolling in AFROTC must:

- Be a full-time student (12 semester hours or more);
- Be a U.S. citizen;
- Be in good physical condition/health;
- Have good moral character; and
- Be no older than 34 years old upon commissioning.

## Program Benefits

As Air Force ROTC cadets, students are entitled to selective benefits. Social and co-curricular activities, together with leadership and academic training, are all part of Air Force ROTC. Contracted cadets receive a nontaxable subsistence allowance each month during the school year. The detachment sponsors a Civil Air Patrol where cadets can obtain front-seat and back-seat flying time in Cessna aircraft. Drill team, honor guard and Arnold Air Honor Society are just a few social outlets for the cadets. Summer opportunities for cadets can include a paid visit to a military installation for two weeks, freefall parachuting, combat survival training, flight nurse shadowing and cadet training assistant duty at field training.

## Scholarships

Air Force ROTC offers scholarships that vary in length of award and amount based on academic major and applicant qualifications. All awarded scholarships pay a stipend for textbooks and fees, plus a monthly, nontaxable, stipend during the school year. Scholarship awards are based on specific academic majors related to the needs of the U.S. Air Force. These scholarship opportunities for in-college students are determined at the national level by Air Force ROTC and are subsequently administered by the detachment/Department of Aerospace Studies. Scholarship applicants are selected using the whole-person concept, which includes objective factors (i.e., GPA, standardized test scores (SAT/ACT), and physical fitness test) and subjective factors (i.e., personal evaluations). Students who are enrolled in Air Force ROTC generally improve their scholarship selection opportunity.

In addition to meeting the general qualifications mentioned above, scholarship applicants must be at least 17 years of age when the scholarship is activated and must be less than 31 years of age as of the end of their commissioning year. Because the scholarship program varies according to budget and needs of the Air Force, interested applicants should contact the Department of Aerospace Studies at 817.257.7461 or [www.afrotc.com](http://www.afrotc.com) for specific details.

## Commissioning

Upon successful completion of the AFROTC Program and baccalaureate or graduate degree, a student is commissioned a second lieutenant in the U.S. Air Force. In some instances, active service can be delayed by students continuing in post-baccalaureate degree programs.

## Additional Information

More detailed information about the Air Force ROTC program is available through the Department of Aerospace Studies. The department is located at Texas Christian University, Rickel Academic Wing (3005 Stadium Drive) Office 247, Fort Worth, Texas 76109.

## Art and Art History

### Undergraduate Degrees

- Bachelor of Fine Arts in Art (p. 327)
- Bachelor of Fine Arts in Art (with teacher certification) (p. 334)
- Bachelor of Arts in Art (p. 327)
- Bachelor of Arts in Art History (p. 327)
- Minor in Art (p. 334)

## Graduate Degree

- Art, M.F.A. (p. 323)

## Art + Art History - Graduate Program

### Objective

The mission of the Program in Studio Art is to:

1. Encourage and guide MFA students to successfully complete the recognized terminal degree in the practice of art.
  - a. Self discipline
  - b. Self confidence
  - c. Proficiency in their work
  - d. Open Communication
2. Enable artists, filmmakers, and designers in the program to develop habits of:
  - a. Make connections with various media and mediums to expand visual and conceptual vocabulary
  - b. Meet distinguished artists, filmmakers and designers to enhance the meaningful on-going dialogue related to their work and future.
3. Enable students to:
4. Provide studio space for students to explore methods of concept development, the exploration of time based media, reflection and development of personal work.
5. Encourage students to develop new skills and enhance existing ones. Expand the conventional concepts of the "studio" and are encouraged to develop their personal style and direction.
6. Encourage graduates to compete for professional positions in teaching, artistic fields and pursue careers as exhibiting artists, filmmakers/writers, and designers.

### Graduate Teaching Assistants

To be considered for a Graduate Teaching Assistant position, the candidate must be admitted unconditionally. Candidates whose native language is not English must submit a score 45 on the Test of Spoken English (TSE-A), a score of 23 on the TOEFL iBT Speaking subtest, or a score of 45 on UT Arlington's SEA test. GTA positions in the Department of Art and Art History are limited and are very competitive.

### Fellowships

To be considered for a Dean's Fellowship the candidate must have a favorable review in most of the evaluation criteria. Candidates must be new students coming to The University of Texas Arlington, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours of 3.0, and must be enrolled in a minimum of 6 hours in both long semesters to retain their fellowships. Fellowships in Department of Art and Art History are limited and very competitive.

### Advisement and Supervisory Committees

The Graduate Advisor will advise all incoming graduate students. After a student has selected a supervisory committee and submitted a program of work, the major professor becomes his/her advisor. Students should consult the Graduate Student Handbook for details on forming a supervisory committee, creating a program of work and other requirements.

### Admissions Requirements

A personal interview with the Graduate Advisor or members of the Studio Art faculty is recommended.

Three letters of recommendation are required, and it is suggested that at least two of the letters come from former educators or academic contact. A portfolio, transcripts, and letter of intent are also required. Please review the Art and Art History website, [www.uta.edu/art](http://www.uta.edu/art) for materials due dates.

### UNCONDITIONAL ADMISSION

Applicants must possess a bachelor's degree from an accredited college or university. Submit transcripts from all previous college or university work, and three letters of recommendation are required of all applicants. In addition, applicants should have a minimum Grade Point Average (GPA) of 3.0, as calculated by Graduate Admissions. Applicants must submit a portfolio and statement of intent. The Art and Art History faculty review all materials and positively recommend acceptance into the M. F. A. program.

### PROVISIONAL ADMISSION

Those who have submitted their applications forms, but whose packets are incomplete, can be admitted provisionally if their GPA is at least 3.0, and if the program and Graduate Admissions have received official transcripts. In this case, incomplete materials could include letters of recommendation.

## PROBATIONARY ADMISSION

Those who have weaknesses in no more than two of the Degree Requirements (letters of recommendation, portfolio, statement of intent, and GPA), can be admitted on probation, with the condition that they make no less than a B in the first 12 hours of coursework in their art concentration. Such students must complete no fewer than 9 credits during the semester in which they are on probation.

## DEFERRED ADMISSION

Those who have weaknesses in no more than two of the Degree Requirements (letters of recommendation, portfolio, statement of intent, and GPA), and/or who have not submitted all of the materials required for unconditional admission, can have their applications deferred for one semester, until outstanding requirements and criteria are met.

## INTERNATIONAL STUDENT ADMISSION

International applicants must have a bachelor's degree from a regionally accredited U.S. college or university or its foreign equivalent, a GPA of at least 3.0 as calculated by the Graduate School, 3 letters of recommendation, portfolio and letter of intent to be considered for admission. In addition, applicants whose native language is not English must demonstrate proficiency in English by earning a score of at least 550 on the paper-based Test of English as a Foreign Language (TOEFL) or a score of at least 213 on the computer-based test, or a minimum score of 40 on the Test of Spoken English (TSE). The Internet-based TOEFL examination (TOEFL iBT) will be accepted as an alternative to the paper and computer-based TOEFL for admission purposes. Students taking TOEFL iBT must attain a minimum total test score of 79 and meet or exceed the following scores on each of the sections of the test:

Writing: 22  
Speaking: 21  
Reading: 20  
Listening: 16

Those who do not meet the English proficiency requirement must satisfactorily complete courses in the ESOL area, as approved by the program and the Graduate School.

## Degree Requirements

### M.F.A. COURSE REQUIREMENTS

The graduate course requirements for the M.F.A. of 60 semester credit hours are normally distributed over six semesters of a three-year program. The student will be required to spend a minimum of three semesters in the M.F.A. program with one academic year in residency as a full time student.

### SPECIFIC COURSE REQUIREMENTS

Area of Concentration	39
Supporting Studio Courses	9
Art History	9
Free electives	3
Total Hours	60

Courses outside the area of concentration (supporting and free electives) should be taken from faculty other than the major professor. It is strongly recommended that the students study with a minimum of three additional faculty members during the course of his/her program. Students are also encouraged to take a free elective outside the Art and Art History Department.

The supervisory committee will approve the course options (work) and scholarly research. It is emphasized that this is a committee/department option, not a student option.

## STUDIO ART (ART)

### Concentration Required Courses

ART 5330	CRITICAL PERSPECTIVE IN THE VISUAL ARTS & VISUAL COMMUNICATION	3
ART 5340	RESEARCH IN INTERMEDIA (Studio)	3
or ART 5640	RESEARCH IN INTERMEDIA	
ART 5342	RESEARCH IN GLASS	3
or ART 5642	RESEARCH IN GLASS	
ART 5355	RESEARCH IN VISUAL COMMUNICATION	3
or ART 5655	RESEARCH IN VISUAL COMMUNICATION	
ART 5360	TOPICS IN THE HISTORY OF ART & DESIGN (varied)	3
ART 5383	RESEARCH IN FILM/VIDEO & SCREENWRITING	3

or ART 5683	RESEARCH IN FILM/VIDEO & SCREENWRITING	
Total Hours		18

### Prescribed Elective Courses

ART 5320	ART CRITICISM & THEORY	3
ART 5341	RESEARCH IN SCULPTURE	3
or ART 5641	RESEARCH IN SCULPTURE	
ART 5342	RESEARCH IN GLASS	3
or ART 5642	RESEARCH IN GLASS	
ART 5343	RESEARCH IN PRINTMAKING	3
or ART 5643	RESEARCH IN PRINTMAKING	
ART 5347	RESEARCH IN DRAWING	3
or ART 5647	RESEARCH IN DRAWING	
ART 5353	RESEARCH IN METALS	3
or ART 5653	RESEARCH IN METALS	
ART 5355	RESEARCH IN VISUAL COMMUNICATION	3
or ART 5655	RESEARCH IN VISUAL COMMUNICATION	
ART 5359	RESEARCH IN PHOTOGRAPHY DIGITAL IMAGING	3
or ART 5659	RESEARCH IN PHOTOGRAPHY DIGITAL IMAGING	
ART 5363	RESEARCH IN CLAY	3
or ART 5663	RESEARCH IN CLAY	
ART 5371	RESEARCH IN PAINTING	3
or ART 5671	RESEARCH IN PAINTING	
ART 5391	INDEPENDENT STUDY	3

### Example Course Sequence

#### First Year

First Semester	Hours	Second Semester	Hours
ART 5330	3	ART 5320	3
56xx Research in Concentration	6	56xx Research in Concentration	
		53xx Research in Supporting Studio	
	9		3

#### Second Year

First Semester	Hours	Second Semester	Hours
ART 5360	3	53xx Research in Supporting Studio	
56xx Research in Concentration	0	56xx Research in Concentration	
53xx Free Elective	0		
Mid-Program Review <sup>1</sup>	0		
	3		0

#### Third Year

First Semester	Hours	Second Semester	Hours
53xx Research in Supporting Studio		53xx Research in Concentration	3
56xx Research in Concentration		56xx Thesis Exhibition (Research in Concentration) <sup>2</sup>	6
	0		9

Total Hours: 24

- 1 Mid-Program review completed after 30 credits.
- 2 Thesis Exhibition, Oral Exam and research paper completed during this semester. Summer opportunities may be available to complete required course work. This is dependent upon the faculty availability.

## **GRADUATE REVIEW EXHIBITION REQUIREMENTS**

Each spring semester, the graduate students will be required to organize a summer exhibition of their recent work.

1. The number of work each student may exhibit will depend upon the number of exhibitors, size of work, etc., but we would expect that each student will be able to exhibit or screen several pieces.
2. These exhibitions and screenings will be drawn from the work done by each student in the previous spring and fall semesters-and will therefore represent each student's most recent efforts.
3. Each student will write an "artist's statement" to accompany his/her work on exhibit.

At the end of the exhibition, the graduate students will hold a formal "closing". All graduate students are expected to attend.

## **MID-PROGRAM REVIEW REQUIREMENTS**

The preliminary examination for the M.F.A. degree at the University of Texas Arlington is the Mid-Program Review.

When the student has completed one-half of her/his program of study, the supervisory committee will conduct a comprehensive review of the student's work in order to ascertain if satisfactory progress is being made toward completion of the degree. The student will present all visual work done to this point, along with an outline and preliminary draft of the written document which is part of the thesis requirement (see below).

To pass, the student must receive a unanimous vote of the committee members. A failed review may be retaken once with permission from the Director of the MFA program and the MFA Graduate Studies Committee. If the student still does not pass, the Director of the MFA program will report the failure and the termination of the student's enrollment in the M.F.A. program to the Graduate School.

## **M.F.A. THESIS REQUIREMENTS**

The thesis requirement for the M.F.A. degree consists of the following:

- The Thesis Exhibition: A substantial body of original works of art to be exhibited or screened on campus at a time announced to all graduate faculty.
- A written document in which the candidate demonstrates proficiency in conducting research and in analyzing, interpreting and organizing material, as well as demonstrating the ability to communicate perceptions, insights, and conclusions.
- During the last semester of the MFA candidates study a final oral examination coordinated by the supervising committee will be completed.
- Satisfactory completion of the visual and written portions of the thesis and the final oral examination is required for the awarding of the M.F.A. degree.

Specific requirements for the written document are found in Guidelines for the M.F.A.

## **M.A. IN HUMANITIES WITH ART HISTORY CONCENTRATION**

### **(See Program in Humanities for additional requirements)**

The graduate course offerings in art history are provided to support other graduate degree programs, for example, an art history concentration in Humanities, and to meet the express needs of students. No program leading to a graduate degree in art or art history exists at this time.

# **Art and Art History - Undergraduate Programs**

## **Overview**

The mission of the Department of Art and Art History in the College of Liberal Arts at The University of Texas at Arlington is to provide and encourage education in visual arts and art history. The curriculum provides students with an extensive education through an understanding of professional, theoretical, visual and analytical processes. To assist students in comprehending the fundamental nature of the visual arts, its boundaries, methods and technologies, the department offers a comprehensive range of media and methodologies. Students will be able to create work in a number of unique and exciting media and articulate an understanding of their work in the context of art, its history, society and culture. The Department of Art and Art History offers degrees in the following:

- Bachelor of Fine Arts (B.F.A.) in Art
- Bachelor of Fine Arts (B.F.A.) in Art Education (Teacher Certification)
- Bachelor of Arts (B.A.) in Art
- Bachelor of Arts (B.A.) in Art History

Students are constantly challenged to think in experimental and creative as well as disciplined and established ways as they take their places in a changing and increasingly complex world. They may choose among such varied options as: teaching, visual communication (graphic design), studio art, photography, curatorial studies, art historical research, film production, or a variety of Web-based or online content creation.

The Gallery at UT Arlington (<http://www.uta.edu/gallery>) is an exceptionally valuable resource for students in the department. It presents a full program of major exhibitions in its 4,900-square-foot gallery, including lectures, symposia, screenings and publications.

Situated in the center of two major metropolitan cities, each supporting a nationally significant cultural community, the Department of Art and Art History extends and enhances its programs through co-sponsorship of projects with area museums, off-campus courses and student internships. This unique blend of resources and programs gives graduates of the department a distinctive point of view and better prepares them to make the transition into a challenging professional world.

## Facilities

The Department of Art & Art History studios and classrooms are located in two facilities:

The Fine Arts Building at 502 S. Cooper Street houses Art History, Film/Video, Photography, Visual Communication, Animation, Drawing, 2-D Design, 3-D Design as well as the Digital Design foundation classes. Also included are Departmental Offices, The Gallery at UT Arlington and the Visual Resources Commons.

The Studio Arts Center at 810 S. Davis Street houses the following studios: Clay, Glass, Painting, Printmaking, Neon and Sculpture. It is also the site of Gallery West, a student-run exhibition space.

## Student Concentration Portfolio Review

The student concentration portfolio review is a method of assessing art student's progress and their preparedness to enter advanced classes in the B.F.A. program. The review will be able to recommend either acceptance into the B.F.A./B.A. programs (a pre-professional program) or placement into the B.A. degree (a more general program).

Transfer and new students would be allowed to register for the B.F.A./B.A. as "Art intended." Those students designated as "Art" would be scheduled by the Art Advising Office into a set calendar of entrance reviews, by panels of appropriate faculty members.

As 21 and 36 studio class hours are achieved, each potential B.F.A./B.A. student will be reviewed by appropriate faculty (not by a standing committee). At 21 hours, the review would have the purpose of "entrance" into the B.F.A./B.A. programs.

For more information concerning the student concentration portfolio review, visit here ([http://www.uta.edu/art/index.php/advising/concentration\\_portfolio\\_review\\_cpr](http://www.uta.edu/art/index.php/advising/concentration_portfolio_review_cpr)) or contact the Art and Art History advisor.

## Computer and Oral Competency

Students majoring in Art or Art History are required to demonstrate computer use and oral communication competency.

Computer use proficiency can be demonstrated by completion of:

- ART 2304 DIGITAL DESIGN (Required for Studio majors)
- ART 2300 METHODS FOR THE STUDY OF ART HISTORY (Required for Art History majors)
- or by completion of the University administered computer competency exam.

Oral communication competency can be demonstrated by completion of:

- ART 2300 METHODS FOR THE STUDY OF ART HISTORY (Required for Art History majors)
- ART 4100 SENIOR EXHIBITION (Required for Studio and Art History<sup>1</sup> majors) or ART 4201 PORTFOLIO PRESENTATION (Required for BA Studio majors)
- COMS 1301 FUNDAMENTALS OF PUBLIC SPEAKING, COMS 2305 BUSINESS AND PROFESSIONAL COMMUNICATION, , or COMS 3315 COMMUNICATION FOR EDUCATORS.

<sup>1</sup> Art History majors will select a specific section of ART 4100 for Senior Research Presentation.

## Degree Programs

### BACHELOR OF FINE ARTS IN ART

The B.F.A. degree program offers intensive pre-professional preparation in the field of studio art. This program is designed for those aspiring to work in their field of interest as professionals or to enter graduate school upon completion of the degree. In addition to fulfilling University and the College of Liberal Arts requirements, students planning to graduate with a B.F.A. in Art degree must complete:

ART 1305	TWO-DIMENSIONAL DESIGN	3
ART 1306	THREE-DIMENSIONAL DESIGN	3
ART 1307	DRAWING FUNDAMENTALS	3
ART 2304	DIGITAL DESIGN	3

Select two of the following: 6

One of these courses can also satisfy the Core requirement for Language, Philosophy and Culture

ART 1309	ART OF THE WESTERN WORLD I: GREECE THROUGH RENAISSANCE
ART 1310	ART OF THE WESTERN WORLD II: BAROQUE TO MODERN
ART 1317	THE ART OF NONWESTERN TRADITIONS

Select one course in each of the following areas: 9

2-D Studio

3-D Studio

Media Studio

---

Total Hours 27

- Maintain a 3.0 GPA within the major.
- Complete 8 credit hours of Modern/Classical Language, in a single language.
- Complete 27 credit hours of Art Foundation courses.
- Complete 6 credit hours of advanced Art History courses.
- Complete 6 credit hours of required Art electives, per accreditation standards, to be discussed with an advisor in support of student's interest.
- Complete 39 credit hours of advanced studio, that includes ART 4100 SENIOR EXHIBITION and ART 4200 PROFESSIONAL PRACTICES--or ART 4356 PROFESSIONAL PREPARATION for Visual Communications majors--to complete the Art Concentration requirements.

## BACHELOR OF ARTS IN ART

The B.A. program in Art is of a more general nature, and is more suited to those whose current academic interests and/or prior work are directed toward a broad overview of art and its relationship to other disciplines. In addition to fulfilling University and the College of Liberal Arts requirements, students planning to graduate with a B.A. degree in Art must complete:

ART 1305	TWO-DIMENSIONAL DESIGN	3
ART 1306	THREE-DIMENSIONAL DESIGN	3
ART 1307	DRAWING FUNDAMENTALS	3
ART 2304	DIGITAL DESIGN	3

Select two of the following: 6

One of these courses can also satisfy the Core requirement for Language, Philosophy and Culture

ART 1309	ART OF THE WESTERN WORLD I: GREECE THROUGH RENAISSANCE
ART 1310	ART OF THE WESTERN WORLD II: BAROQUE TO MODERN
ART 1317	THE ART OF NONWESTERN TRADITIONS

Select one course in each of the following areas: 9

2-D Studio

3-D Studio

Media Studio

---

Total Hours 27

- Maintain a 2.5 GPA within the major.
- Complete 14 credit hours of Modern/Classical Language, in a single language.
- Complete 27 credit hours of Art Foundation area courses.
- Complete 6 credit hours of advanced Art History courses.
- Complete 3 credit hours of a required Art elective, per accreditation standards, to be discussed with an advisor in support of student's interest.
- Complete at least 14 credit hours of advanced studio courses, that includes a portfolio presentation (ART 4201 PORTFOLIO PRESENTATION, 2 credits) to fulfill Art Concentration requirements.
- Complete 18 credit hours of coursework to earn the Minor in a non-studio or studio subject area.



## BACHELOR OF ARTS IN ART HISTORY

The B.A. program in Art History emphasizes historical research, preparing students for graduate work in art history or museum studies.

In addition to fulfilling University and the College of Liberal Arts requirements, students planning to graduate with a B.A. in Art History must also fulfill the following requirements:

Select two of the following:	6
One of these courses can also satisfy the Core requirement for Language, Philosophy and Culture	
ART 1309	ART OF THE WESTERN WORLD I: GREECE THROUGH RENAISSANCE
ART 1310	ART OF THE WESTERN WORLD II: BAROQUE TO MODERN
ART 1317	THE ART OF NONWESTERN TRADITIONS
ART 2300	METHODS FOR THE STUDY OF ART HISTORY
Total Hours	9

- Maintain a 3.0 GPA within the major.
- Complete 14 credit hours of Modern/Classical Language, in a single language.
- Complete 9 credit hours in Art History Foundation courses.
- Complete 18 credit hours of coursework to earn a Minor in a studio or non-art history academic area.
- Complete 30 credit hours in Advanced Art History and 1 credit hour Senior Research Presentation.
- Complete 3 credit hours in studio art.
- Complete 3 credit hours of a required Art elective, per accreditation standards, to be discussed with an advisor in support of student's interest.
- Electives to satisfy total degree credits.

## Requirements for a Bachelor of Fine Arts Degree in Art

Students who are interested in a B.F.A. in Art can choose from diverse studio concentrations incorporating fine arts and/or media arts components. Both expand aesthetic awareness and develop personal expression in clay, drawing, glass, metals, painting, printmaking and sculpture in addition to technology-related emphases exploring concerns related to contemporary applications in visual communication, photography and film/video.

**Regardless of which emphasis is selected, students are required to complete the Art Foundation requirements prior to beginning work in the concentration.**

### Pre-Professional Courses

General Core Requirements (p. 93)	39
Recommended Core Requirements - Please see Degree Program Requirements	
ENGL 1301	RHETORIC AND COMPOSITION I <small>Required for Degree Program</small>
ENGL 1302	RHETORIC AND COMPOSITION II <small>Required for Degree Program</small>
POLS 2311	GOVERNMENT OF THE UNITED STATES
POLS 2312	STATE AND LOCAL GOVERNMENT
HIST 1311	HISTORY OF THE UNITED STATES TO 1865
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT

Program Requirements - College of Liberal Arts Required Courses

Modern/Classical Languages, in a single language 8

### Professional Courses

Degree Program Requirements

ENGL 1301	RHETORIC AND COMPOSITION I (Will also satisfy Core Requirements.)
ENGL 1302	RHETORIC AND COMPOSITION II (Will also satisfy Core Requirements.)
ART studio support classes to satisfy accreditation standards. This will be selected with the assistance of the Art Advisor	6
Major	
Foundation	
ART 1305	TWO-DIMENSIONAL DESIGN
ART 1306	THREE-DIMENSIONAL DESIGN
ART 1307	DRAWING FUNDAMENTALS
ART 2304	DIGITAL DESIGN
Select two of the following:	6

One of these courses can also satisfy the Core requirement for Language, Philosophy and Culture

ART 1309	ART OF THE WESTERN WORLD I: GREECE THROUGH RENAISSANCE	
ART 1310	ART OF THE WESTERN WORLD II: BAROQUE TO MODERN	
ART 1317	THE ART OF NONWESTERN TRADITIONS	
Upper-level 2-D courses (2000-4000 level)		3
Upper-level 3-D courses (2000-4000 level)		3
Media courses (film/video, visual communication, photography) (2000-4000 level)		3
Advanced Art History		
Select two courses from two of the following groups:		6
Group I (Ancient to Medieval):		
ART 3302	ART OF ANTIQUITY	
ART 3304	JAPANESE ART & ARCHITECTURE	
ART 3306	BYZANTINE AND MEDIEVAL ART	
ART 3316	ANCIENT EGYPTIAN & NEAR EASTERN ART	
ART 3319	ART & ARCHITECTURE OF INDIA	
ART 3320	ART OF THE ANCIENT AMERICAS	
ART 3321	CHINESE ART & ARCHITECTURE	
Group II (Medieval to Modern):		
ART 3307	THE EARLY RENAISSANCE	
ART 3308	HIGH RENAISSANCE	
ART 3310	FILM AS ART	
ART 3312	NEO-CLASSICISM AND ROMANTICISM	
ART 3313	BACKGROUNDS OF MODERN ART	
ART 3315	IMPRESSIONISM	
ART 3319	ART & ARCHITECTURE OF INDIA	
ART 3321	CHINESE ART & ARCHITECTURE	
ART 3325	STUDIES IN THE BAROQUE	
ART 3331	BRITISH ART	
ART 3391	HISTORY OF PHOTOGRAPHY	
ART 4301	ART AND GENDER	
ART 4306	MID-RENAISSANCE	
ART 4312	TOPICS IN NINETEENTH CENTURY ART.	
ART 4330	18TH CENTURY ART	
Group III (Modern):		
ART 3310	FILM AS ART	
ART 3311	AMERICAN ART	
ART 3313	BACKGROUNDS OF MODERN ART	
ART 3314	MODERN ART	
ART 3315	IMPRESSIONISM	
ART 3331	BRITISH ART	
ART 3389	CONTEMPORARY ART	
ART 3391	HISTORY OF PHOTOGRAPHY	
ART 3392	HISTORY AND AESTHETICS OF THE VIDEO IMAGE	
ART 4301	ART AND GENDER	
ART 4308	MUSEUM PRACTICE	
ART 4310	TOPICS IN FILM STUDY	
ART 4314	TOPICS IN 20TH CENTURY ART	
ART 4315	ASPECTS OF CONTEMPORARY ART	
The following courses will have varied topics. Group placement will be determined by that topic:		
ART 4307	SPECIAL TOPICS IN ASIAN ART	
ART 4317	ART AND ISLAM	
ART 4396	SPECIAL STUDIES IN ART HISTORY	

Art Concentration 39

At least 36 hours must be advanced courses (3000/4000 level) within the specific concentration area as approved by faculty, to include:

ART 4200 PROFESSIONAL PRACTICES  
or ART 4356 PROFESSIONAL PREPARATION

ART 4356 is Required for Visual Communication majors.

ART 4100 SENIOR EXHIBITION

Total Hours

125

## Requirements for a Bachelor of Arts Degree in Art

Students who are interested in a B.A. in art can choose from diverse studio concentrations incorporating fine arts and/or media arts components. Both expand aesthetic awareness and develop personal expression in clay, drawing, glass, metals, painting, printmaking, and sculpture in addition to technology-related emphases exploring concerns related to contemporary applications in visual communication, photography, and film/video.

**Regardless of which emphasis is selected, students are required to complete the Art Foundation requirements prior to beginning work in the concentration.**

### Pre-Professional Courses

General Core Requirements (p. 93) 39

Recommended Core Requirements - Please see Degree Program Requirements

ENGL 1301 RHETORIC AND COMPOSITION I Required for Degree Program

ENGL 1302 RHETORIC AND COMPOSITION II Required for Degree Program

POLS 2311 GOVERNMENT OF THE UNITED STATES

POLS 2312 STATE AND LOCAL GOVERNMENT

HIST 1311 HISTORY OF THE UNITED STATES TO 1865

HIST 1312 HISTORY OF THE UNITED STATES, 1865 TO PRESENT

Program Requirements - College of Liberal Arts Required Courses

Modern/Classical Languages, in a single language

14

### Professional Courses

Degree Program Requirements

ENGL 1301 RHETORIC AND COMPOSITION I (Will also satisfy Core Requirements.)

ENGL 1302 RHETORIC AND COMPOSITION II (Will also satisfy Core Requirements.)

3 credit hours of ART studio support course to satisfy accreditation standards. This will be selected with the assistance of the Art Advisor.

3

Major

Foundation

ART 1305 TWO-DIMENSIONAL DESIGN

3

ART 1306 THREE-DIMENSIONAL DESIGN

3

ART 1307 DRAWING FUNDAMENTALS

3

ART 2304 DIGITAL DESIGN

3

Select two of the following:

6

One of these courses can also satisfy the Core requirement for Language, Philosophy and Culture

ART 1309 ART OF THE WESTERN WORLD I: GREECE THROUGH RENAISSANCE

ART 1310 ART OF THE WESTERN WORLD II: BAROQUE TO MODERN

ART 1317 THE ART OF NONWESTERN TRADITIONS

Upper-level 2-D courses (2000-4000 level)

3

Upper-level 3-D courses (2000-4000 level)

3

Media courses (film/video, visual communication, photography) (2000-4000 level)

3

Advanced Art History

Select two courses from two of the following groups:

6

Group I (Ancient to Medieval):

ART 3302 ART OF ANTIQUITY

ART 3304 JAPANESE ART & ARCHITECTURE

ART 3306 BYZANTINE AND MEDIEVAL ART

ART 3316 ANCIENT EGYPTIAN & NEAR EASTERN ART

ART 3319	ART & ARCHITECTURE OF INDIA	
ART 3320	ART OF THE ANCIENT AMERICAS	
ART 3321	CHINESE ART & ARCHITECTURE	
Group II (Medieval to Modern):		
ART 3307	THE EARLY RENAISSANCE	
ART 3308	HIGH RENAISSANCE	
ART 3310	FILM AS ART	
ART 3312	NEO-CLASSICISM AND ROMANTICISM	
ART 3313	BACKGROUNDS OF MODERN ART	
ART 3315	IMPRESSIONISM	
ART 3319	ART & ARCHITECTURE OF INDIA	
ART 3321	CHINESE ART & ARCHITECTURE	
ART 3325	STUDIES IN THE BAROQUE	
ART 3331	BRITISH ART	
ART 3391	HISTORY OF PHOTOGRAPHY	
ART 4301	ART AND GENDER	
ART 4306	MID-RENAISSANCE	
ART 4312	TOPICS IN NINETEENTH CENTURY ART.	
ART 4330	18TH CENTURY ART	
Group III (Modern):		
ART 3310	FILM AS ART	
ART 3311	AMERICAN ART	
ART 3313	BACKGROUNDS OF MODERN ART	
ART 3314	MODERN ART	
ART 3315	IMPRESSIONISM	
ART 3331	BRITISH ART	
ART 3389	CONTEMPORARY ART	
ART 3391	HISTORY OF PHOTOGRAPHY	
ART 3392	HISTORY AND AESTHETICS OF THE VIDEO IMAGE	
ART 4301	ART AND GENDER	
ART 4308	MUSEUM PRACTICE	
ART 4310	TOPICS IN FILM STUDY	
ART 4314	TOPICS IN 20TH CENTURY ART	
ART 4315	ASPECTS OF CONTEMPORARY ART	
The following courses will have varied topics. Group placement will be determined by that topic:		
ART 4307	SPECIAL TOPICS IN ASIAN ART	
ART 4317	ART AND ISLAM	
ART 4396	SPECIAL STUDIES IN ART HISTORY	
Art Concentration		
Advanced courses (3000/4000 level), to include ART 4201.		14
Minor		
18 hours, with at least six hours at 3000/4000 level <small>Additional 3000/4000 level may be suggested to meet total advanced requirements</small>		18
Total Hours		121

## Requirements for a Bachelor of Arts Degree in Art History

The B.A. in Art History is intended to provide a strong academic preparation for scholarly research and further study at the graduate level. In this degree program, the 18-hour minor requirement may be in studio art. Other suggested fields for the minor are history, literature, anthropology, psychology, philosophy, and modern languages. Students seeking the B.A. degree in art history must complete all the requirements established by the College of Liberal Arts for the B.A. degree and an additional three hours of a 3000/4000-level history course.

Students are advised to complete the foundation requirements (the two-part survey and ART 2300) before beginning work in 3000/4000-level art historical courses. Students are required to take at least one course in each of the three groups: Ancient to Medieval (Group I), Medieval to Modern (Group II), and Modern (Group III). One course in a studio medium is required. An additional Art supportive elective course is also required to satisfy

accreditation standards. Art history majors may take an additional studio course in their 30 hours of 3000/4000-level art historical studies, upon faculty approval. Students have a 1 credit hour open elective option to satisfy overall degree credits.

### Pre-Professional Courses

General Core Requirements (p. 93) 39

Recommended Core Requirements - Please see Degree Program Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	Required for Degree Program	
ENGL 1302	RHETORIC AND COMPOSITION II	Required for Degree Program	
POLS 2311	GOVERNMENT OF THE UNITED STATES		
POLS 2312	STATE AND LOCAL GOVERNMENT		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865		
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT		

Program Requirements - College of Liberal Arts Required Courses

Modern/Classical Languages, in a single language	14
Advanced History course	3
Elective sufficient to complete the total number of hours required for the degree	1

### Professional Courses

Degree Program Requirements

Three hours of ART support course to satisfy accreditation standards. This will be selected with the assistance of the Art Advisor. 3

Major

Select two of the following: 6

One of these courses can also satisfy the Core requirement for Language, Philosophy and Culture

ART 1309	ART OF THE WESTERN WORLD I: GREECE THROUGH RENAISSANCE	
ART 1310	ART OF THE WESTERN WORLD II: BAROQUE TO MODERN	
ART 1317	THE ART OF NONWESTERN TRADITIONS	
ART 2300	METHODS FOR THE STUDY OF ART HISTORY	3

Studio Art course 3

ART 4100 Senior Research Presentation Class 1

Advanced art history, with at least one course chosen from each of the following three groups: <sup>1</sup> 30

Group I (Ancient to Medieval):

ART 3302	ART OF ANTIQUITY	
ART 3304	JAPANESE ART & ARCHITECTURE	
ART 3306	BYZANTINE AND MEDIEVAL ART	
ART 3316	ANCIENT EGYPTIAN & NEAR EASTERN ART	
ART 3319	ART & ARCHITECTURE OF INDIA	
ART 3320	ART OF THE ANCIENT AMERICAS	
ART 3321	CHINESE ART & ARCHITECTURE	

Group II (Medieval to Modern):

ART 3307	THE EARLY RENAISSANCE	
ART 3308	HIGH RENAISSANCE	
ART 3310	FILM AS ART	
ART 3312	NEO-CLASSICISM AND ROMANTICISM	
ART 3313	BACKGROUNDS OF MODERN ART	
ART 3315	IMPRESSIONISM	
ART 3319	ART & ARCHITECTURE OF INDIA	
ART 3321	CHINESE ART & ARCHITECTURE	
ART 3325	STUDIES IN THE BAROQUE	
ART 3331	BRITISH ART	
ART 3391	HISTORY OF PHOTOGRAPHY	
ART 4301	ART AND GENDER	
ART 4306	MID-RENAISSANCE	
ART 4312	TOPICS IN NINETEENTH CENTURY ART.	

ART 4330	18TH CENTURY ART	
Group III (Modern):		
ART 3310	FILM AS ART	
ART 3311	AMERICAN ART	
ART 3313	BACKGROUNDS OF MODERN ART	
ART 3314	MODERN ART	
ART 3315	IMPRESSIONISM	
ART 3331	BRITISH ART	
ART 3389	CONTEMPORARY ART	
ART 3391	HISTORY OF PHOTOGRAPHY	
ART 3392	HISTORY AND AESTHETICS OF THE VIDEO IMAGE	
ART 4301	ART AND GENDER	
ART 4308	MUSEUM PRACTICE	
ART 4310	TOPICS IN FILM STUDY	
ART 4314	TOPICS IN 20TH CENTURY ART	
ART 4315	ASPECTS OF CONTEMPORARY ART	
The following courses will have varied topics. Group placement will be determined by that topic:		
ART 4307	SPECIAL TOPICS IN ASIAN ART	
ART 4317	ART AND ISLAM	
ART 4396	SPECIAL STUDIES IN ART HISTORY	
Minor		
18 hours, with at least six hours at 3000/4000 level		18
Total Hours		121

<sup>1</sup> An additional three hours of studio work may be included in these 30 advanced hours with the approval of Art History faculty.

## Computer and Oral Competency

Students majoring in Art or Art History are required to demonstrate computer use and oral communication competency.

Computer use proficiency can be demonstrated by completion of:

- ART 2304 DIGITAL DESIGN (Required for Studio majors)
- ART 2300 METHODS FOR THE STUDY OF ART HISTORY (Required for Art History majors)
- or by completion of the University administered computer competency exam.

Oral communication competency can be demonstrated by completion of:

- ART 2300 METHODS FOR THE STUDY OF ART HISTORY (Required for Art History majors)
- ART 4100 SENIOR EXHIBITION (Required for Studio and Art History<sup>2</sup> majors) or ART 4201 PORTFOLIO PRESENTATION (Required for BA Studio majors)
- COMS 1301 FUNDAMENTALS OF PUBLIC SPEAKING, COMS 2305 BUSINESS AND PROFESSIONAL COMMUNICATION, or COMS 3315 COMMUNICATION FOR EDUCATORS.

<sup>2</sup>Art History majors will select a specific section of ART 4100 for Senior Research Presentation.

## Minor in Art

The student's major department must approve any minor. **However, students interested in Art as a minor (Art History) must consult with the Art and Art History department's Academic Advisor to determine the selection of an approved sequence of courses and to see if there will be courses available for non-art majors.** A minor in Art History requires at least 18 semester hours in Art History, including nine semester hours of advanced work. **Interest in a studio Art minor must be discussed with an Art and Art History department's Academic Advisor to determine availability.**

## Art Education (Teacher Certification)

Texas Teacher Certification in Art entails completion of 133 credit hours earned within the Department of Art and Art History and College of Education and Health Professions academic programs. It entails earning the B.F.A. degree in Art in addition to 15 hours of College of Education coursework that

are required to fulfill minimum certification guidelines in Texas. Students earning the B.F.A. within this program are required to complete B.F.A. standard courses as well as:

ART 3322	INTRODUCTION TO ART EDUCATION (Lecture)	3
ART 3359	APPLYING AND TEACHING ART CURRICULA (Lecture/Studio)	3
ART 3323	PLANNING AND CONSTRUCTING ART CURRICULA (Lecture/Studio)	3
ART 4365	TECHNOLOGY IN ART EDUCATION (Lecture/Studio)	3
Total Hours		12
EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
EDUC 4352	TEACHING DIVERSE POPULATIONS	3
LIST 4343	CONTENT AREA READING AND WRITING	3
EDUC 4647	SECONDARY STUDENT TEACHING	6

- Maintain a 3.0 GPA within the Art major.
- Maintain a 3.0 overall GPA as required by the College of Education and Health Professions.
- Earn a minimum score of 220 on Writing and 230 on Math portion of the THEA in addition to a 270 minimum score on the English portion of the Texas Success Initiative (Texas Higher Education Assessment) test.
- Submit official transcripts for credit hours earned at ALL colleges attended prior to enrollment at UT Arlington.
- Have maintained a sufficient overall GPA at previous colleges to be considered for admission to the College of Education and Health Professions Teaching Program. Acceptance into the college may be delayed if the student's overall GPA does not meet the minimum 3.0 required by the College.
- Must complete 12 credit hours of art methods courses and a Senior Presentation class<sup>1</sup> within the Art major.
- Must complete 15 credit hours of certification coursework within the College of Education and Health Professions.

Art majors are encouraged to apply to the Teacher Education Program within the College of Education and Health Professions after one full semester of coursework has been completed at this university.

<sup>1</sup> Graduating Art Education students will be required to give a lecture open to the public based on experiences within their concentration (K-12 Education). This lecture will be structured around the student's teaching philosophy, curriculum management issues from their internship, an overview of undergraduate Art Education classroom projects and residency material, as well as examples of the student's personal portfolio.

Art Education students will still have the option to exhibit work by petitioning the media areas for faculty review in the 4100 B.F.A. Exhibition at the end of their graduating term under the same terms and conditions as established for other Studio Concentrated majors.

Consult the College of Education and Health Professions Advising Office for information concerning any additional application requirements and/or State of Texas requirements for certification.

## Classical Studies - Undergraduate Program

### Overview

Classical Studies ultimately touches upon almost every field of human inquiry. Indeed, the Western cultural tradition begins with the achievements of the ancient Greeks and Romans in a wide range of fields including politics, literature, art, and philosophy.

The Program in Classical Studies draws on the faculty of various departments in the College of Liberal Arts and acknowledges the importance of approaching the civilizations of the ancient Mediterranean world from a variety of disciplinary perspectives.

### INTS Bachelor of Arts

It is also possible to develop a customized bachelor of arts degree plan using Classical Studies component courses when majoring in UT Arlington's Interdisciplinary Studies (INTS) program. See [www.uta.edu/ints](http://www.uta.edu/ints).

### Ancient Language Courses

In addition to courses that are taught in English, the Classical Studies program also offers instruction in ancient Greek and Latin. Either of these languages satisfies the language requirement for liberal arts majors.

### Minor

The Minor in Classical Studies aims to help students expand the depth and scope of their knowledge of ancient cultures and learn about different approaches to them. It will be of particular interest to those students majoring in anthropology, art, art history, history, modern languages, music,

philosophy, political science, or theatre arts. In addition to these majors, students who intend to pursue graduate or professional studies in medicine, the law, art, classics, Biblical studies, ancient Near Eastern studies, or medieval studies will find a Minor in Classical Studies to their advantage.

Students seeking a minor in Classical Studies should first consult with advisors in their departments or programs for approval of the minor, then with the Director of Classical Studies. Students may combine courses in Classical Studies in various ways to comprise the following four minor options:

### OPTION 1: GREEK LANGUAGE

(20 hours, at least six of which must be 3000/4000 level) Required courses:

GREK 1441	GREEK LEVEL I	4
GREK 1442	GREEK LEVEL II	4
GREK 2313	GREEK LEVEL III	3
GREK 2314	GREEK LEVEL IV	3
Two upper-level courses:		6
GREK 4335	TOPICS IN GREEK LITERATURE	
GREK 4391	CONFERENCE COURSE	
Total Hours		20

### OPTION 2: LATIN LANGUAGE

(20 hours, at least six of which must be 3000/4000 level) Required courses:

LATN 1441	LATIN LEVEL I	4
LATN 1442	LATIN LEVEL II	4
LATN 2313	LATIN LEVEL III	3
LATN 2314	LATIN LEVEL IV	3
Two upper-level courses:		6
LATN 4335	TOPICS IN LATIN LITERATURE	
LATN 4391	CONFERENCE COURSE	
Total Hours		20

### OPTION 3: CLASSICAL CIVILIZATION

(20 hours, at least six of which must be 3000/4000 level) Required:

Select one of the following:		8
GREK 1441 & GREK 1442	GREEK LEVEL I and GREEK LEVEL II	
LATN 1441 & LATN 1442	LATIN LEVEL I and LATIN LEVEL II	
Select four of the following, provided that they include 6 hours at 3000/4000 level:		12
GREK 1441	GREEK LEVEL I (if requirement above is met by LATN 1441)	
GREK 1442	GREEK LEVEL II (if requirement above is met by LATN 1442)	
GREK 2313	GREEK LEVEL III	
GREK 2314	GREEK LEVEL IV	
GREK 4335	TOPICS IN GREEK LITERATURE	
GREK 4391	CONFERENCE COURSE	
LATN 1441	LATIN LEVEL I (if requirement above is met by GREK 1441 )	
LATN 1442	LATIN LEVEL II (if requirement above is met by GREK 1442)	
LATN 2313	LATIN LEVEL III	
LATN 2314	LATIN LEVEL IV	
LATN 4335	TOPICS IN LATIN LITERATURE	
LATN 4391	CONFERENCE COURSE	
CLAS 1300	INTRODUCTION TO CLASSICAL MYTHOLOGY	
CLAS 2300	HOLLYWOOD CLASSICS: THE ANCIENT WORLD IN FILM	
CLAS 2303	THE CLASSICAL ROOTS OF ENGLISH VOCABULARY	
CLAS 2307	WOMEN IN THE ANCIENT WORLD	



CLAS 3310	INTRODUCTION TO GREEK CIVILIZATION
CLAS 3320	INTRODUCTION TO ROMAN CIVILIZATION
CLAS 3323	TOPICS IN CLASSICAL MYTHOLOGY
ANTH 2339	PRINCIPLES OF ARCHAEOLOGY
ANTH 2349	HONORS PRINCIPLES OF ARCHAEOLOGY
ANTH 3370	ARCHAEOLOGY OF THE PREHISTORIC AEGEAN
ANTH 3371	ARCHAEOLOGY OF GREECE
ANTH 3372	ARCHAEOLOGY OF THE ANCIENT NEAR EAST
ANTH 3373	ARCHAEOLOGY OF EGYPT
ART 3302	ART OF ANTIQUITY
ENGL 3339	CLASSICAL BACKGROUNDS
HIST 3374	ANCIENT GREECE
HIST 3375	ANCIENT ROME
HIST 3380	HISTORY OF ANCIENT SPORT
PHIL 3301	HISTORY OF PHILOSOPHY: ANCIENT PHILOSOPHY
PHIL 3302	HISTORY OF PHILOSOPHY: ROMAN AND MEDIEVAL PHILOSOPHY
POLS 4327	POLITICAL IDEAS OF THE ANCIENT WORLD

Total Hours

20

## OPTION 4: ANCIENT STUDIES

(18 hours, at least six of which must be 3000/4000 level) This option may be satisfied using any combination of the courses listed under Option 3, provided that they include six hours at the 3000/4000 level.

## Communication

### Undergraduate Degree

- Bachelor of Arts in Communication (p. 340)

### Graduate Degree

- Master of Arts in Communication (p. 337)

### Certificates

- Certificate in Emerging Media (p. 345)

## Communication - Graduate Program

### Objective

The Master of Arts in Communication program includes the areas of Communication Studies and Mass Communication. It is designed to meet the educational needs of recent graduates and professionals.

The program's curriculum emphasizes the integrated nature of the communication discipline. For example, the program offers education in the management of media resources, the changing role of media and technology in an information society, and a theoretical and ethical framework for considering the impact of media on society.

Educational and organizational professionals can focus on working with both external and internal constituencies and communication processes of management, training and development, and human resources. A broader knowledge of communication processes at the interpersonal, organizational, and mass media levels provides the opportunity for career enhancement and/or further graduate studies.

### Admission Standards

Prospective students must apply for admission through, and supply all information required by the Graduate School. In addition, the following information will be considered in determining admission status into the program: undergraduate GPA, GRE scores, letters of recommendation and an essay. All criteria are considered together; no single factor will eliminate a prospective student from consideration.

The following table outlines specific requirements for unconditional and probationary admission.

**GRADUATE ADMISSION STANDARDS**

Admissions Criteria	Unconditional	Probationary	
GPA on last 60 hours of Undergraduate Program (as calculated by Graduate School of UT Arlington)	3.3	3.0 <sup>1</sup>	2.8-2.99
GRE	Evaluated	Evaluated	Evaluated
3 letters of recommendation	Evaluated	Evaluated	Evaluated
Essay	Evaluated	Evaluated	Evaluated

<sup>1</sup> Minimum undergraduate GPA requirement for unconditional admission is a 3.0 on a 4.0 scale.

Students not meeting unconditional criteria will be reviewed by a committee of Chair of the Department of Communication, Graduate Advisor, and Graduate Program Committee. The committee will review the following: a minimum undergraduate GPA of 2.8 (in last 60 hours of undergraduate work); GRE scores (verbal, analytical and quantitative); letters of recommendation; and essay. An applicant who performs successfully on a majority of these criteria may be admitted on probation. The committee will make a final admission decision and document that decision for the student record.

**UNCONDITIONAL ADMISSION**

Criteria for unconditional admission status are designated in the previous table. Decisions on unconditional admission are made after considering the minimum GPA noted in the graduate admission standards and all other criteria noted in the preceding paragraph.

**PROBATIONARY ADMISSION**

Criteria for probationary admission status are designated in the previous table. When on probation, students can make no grade lower than a 3.0 in their first 12 semester hours of graduate coursework.

**PROVISIONAL ADMISSION**

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements.

**DEFERRED STATUS**

Deferred decision is granted when a file is incomplete or when a denied decision is not appropriate.

**DENIAL OF ADMISSION**

An applicant will be denied admission if he or she has less than satisfactory performance on a majority of admission criteria listed in the previous table.

**FELLOWSHIP CRITERIA**

Fellowship selection will be based on the highest GPA in the last 60 hours of the bachelor's degree program. Candidates for fellowships must meet the following criteria:

1. New students coming to UT Arlington in the fall of each semester.
2. Have a GPA of at least 3.0 in their last 60 hours of their bachelor's degree program.
3. Minimum 3.0 GPA in graduate credit hours.
4. Enrolled in a minimum of 6 semester hours in the long semesters.

**Degree Requirements**

The Master of Arts in Communication degree offers non-thesis/coursework and thesis options. The non-thesis/coursework option will require 36 hours of coursework. The thesis option will require 30 hours that will include 24 credit hours of coursework and a 6-credit-hour thesis. A final comprehensive examination will be required of students in all options.

Courses required of all students in the program in the first semester:

6

COMM 5300	ADVANCED THEORIES IN COMMUNICATION
COMM 5305	COMMUNICATION RESEARCH METHODS

Course required of all students in the program in the second semester:

3

COMM 5306	QUALITATIVE RESEARCH METHODS <sup>1</sup>
-----------	---

Courses students may elect to take:

6-18

Thesis Option: Select at least two of the following communication electives:

Non-Thesis/coursework Option: Select at least six of the following communication electives:

COMM 5310	THEORIES IN PERSUASION
COMM 5316	CORPORATION COMMUNICATION STRATEGIES
COMM 5320	ADVANCED VISUAL COMMUNICATION
COMM 5321	ADVANCED INTERNET MARKETING COMMUNICATION
COMM 5323	COMPUTER-MEDIATED COMMUNICATION
COMM 5332	ADVANCED PROFESSIONAL COMMUNICATION
COMM 5335	GLOBAL COMMUNICATION
COMM 5341	MEDIA MANAGEMENT
COMM 5345	COMMUNICATION CAMPAIGNS
COMM 5346	MEDIA AND PUBLIC POLICY
COMM 5347	CRISIS COMMUNICATION
COMM 5392	SEMINAR
COMM 5391	CONFERENCE COURSE
COMM 5399	GRADUATE COMMUNICATION INTERNSHIP
The following three courses are not electives	
COMM 5398	THESIS
COMM 5698	THESIS
COMM 5301	SUPERVISED TEACHING

Total Hours

15-27

- <sup>1</sup> An advanced quantitative research methods course from another department may be substituted for this course with the permission of the communication graduate advisor.

Graduate courses outside the department may be taken with the approval of the Graduate Studies Committee. Students should submit a letter to the graduate advisor including course title, course description, and statement of value to the program of study.

*Non-Thesis Option.* (36 semester hours total) 36 semester credit hours of coursework are given. The final comprehensive examination will consist of a written and oral exam covering the coursework. Additional remedial work may be required if deemed necessary by the student's committee. Students failing the examination will not be allowed to test again.

*Thesis Option.* (30 semester hours total) 24 semester credit hours of coursework and a thesis, for which 6 semester hours are given. The final comprehensive examination will consist of an oral defense of the thesis prospectus and an oral defense of the thesis. Additional remedial work may be required if deemed necessary by the student's committee.

## Communication - Undergraduate Programs

### Overview

The degree Bachelor of Arts in Communication is offered with multiple specializations. The department curricula provide students with an overview of the role and function of communication in society. These courses present a broad academic exposure, including theories, skills, techniques, critical analysis, historical perspectives, and aesthetic appreciation.

The Department of Communication seeks to emphasize theories and techniques which give students the ability to adapt to rapid changes in communication technology.

Within the major disciplines, specializations are available in advertising, broadcasting, communication technology, journalism, public relations, organizational communication, and speech communication. Additionally, there are two specializations for teacher certification: secondary teaching level in journalism and secondary teaching level in speech communication. Contact the College of Education for more information.

All majors in the Department of Communication must complete the following core courses. COMM 2315 must be completed before taking any three or four thousand level course in the department. The department math requirement must be completed before reaching 60 hours.

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3

## Declaring a Major in the Department of Communication

### I. ADMISSION TO MAJOR

All undergraduate students seeking to declare a major in the Department of Communication (ADVT, BCMN, COMS, CTEC, JOUR, PREL) must meet the following criteria:

Completion of a minimum of 12 hours in residence at The University of Texas at Arlington with a minimum cumulative GPA of 2.25/4.0.

Students that do not meet these minimum requirements can request to be admitted as a COMM Intended major. Please see restrictions below.

### II. ADMISSION AS A COMM INTENDED MAJOR

1. Completion of a minimum of 12 hours in residence at The University of Texas at Arlington with a minimum cumulative GPA of 2.0/4.0.
2. COMM Intended majors may enroll in up to a total of 18 hours in the Department of Communication (ADVT, BCMN, COMS, CTEC, JOUR, PREL).
3. Students who do not achieve a cumulative UT Arlington GPA of 2.25/4.0 by the completion of 18 hours in the Department of Communication will not be cleared to continue in the department.

### III. DISMISSAL FROM DEPARTMENT OF COMMUNICATION COMM INTENDED STATUS

Students who do not meet the requirements for declaring a Department of Communication major after completing eighteen (18) hours of communication course work will not be allowed to take additional communication courses at UT Arlington. The student will be suspended from the Department of Communication COMM Intended status and must choose a major other than COMM Intended at that time in order to remain enrolled at UT Arlington.

## General Academic Standards in the Department of Communication

1. Graduation as a major in the Department of Communication must meet the UT Arlington graduation standard of a minimum GPA of 2.0/4.0.
2. Graduation as a major in the Department of Communication must meet the department graduation standard of a minimum cumulative GPA of 2.0/4.0 in all department courses (ADVT, BCMN, COMS, CTEC, JOUR, PREL).

## Certificate in Emerging Media

This certificate provides students with expertise in using and managing emerging media to communicate effectively to audiences in a variety of situations, across multiple platforms.

To earn this certificate students must complete the following classes with a grade of C or better:

BCMN 2370	MULTIMEDIA PRODUCTION (Broadcast majors must take BCMN 2358 )	3
PREL 3320	STRATEGIC SOCIAL MEDIA COMMUNICATION	3
CTEC 2350	WEB COMMUNICATION DESIGN AND DEVELOPMENT 1	3
COMM 3303	COMMUNICATION GRAPHICS	3
COMM 4360	EMERGING MEDIA STRATEGY	3
Total Hours		15

## Requirements for a Bachelor of Arts Degree in Communication

### Pre-Professional Courses

General Core Requirements (p. 93)		39
Program Requirements (Note: These three courses also fulfill requirements in the General Core)		
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3

Modern and Classical Languages: 1441, 1442, 2313, 2314 (with a total of 14 hours). Electives sufficient to give the total number of hours required for a degree

### Professional Courses

Major		
A minimum of 39 semester hours, with 18 at the 3000/4000 level. A student must complete the requirements for one of the departmental specializations.		39
Minor		

Students may complete an optional minor consisting of 18 hours, six of which must be at the 3000/4000 level. The minor will be selected after consulting with an advisor. Students may also complete the Certificate in Emerging Media, or the minor may be combined with the Certificate.

Total Hours 105

## Department of Communication Degree Programs

### ADVERTISING

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3
JOUR 1345	WRITING FOR MASS MEDIA <sup>1</sup>	3
ADVT 2337	INTRODUCTION TO ADVERTISING <sup>1</sup>	3
ADVT 3304	STRATEGIC COMMUNICATION I	3
ADVT 3305	ADVERTISING MEDIA	3
ADVT 3306	STRATEGIC COMMUNICATION II	3
ADVT 4300	INTEGRATED MARKETING COMMUNICATION (IMC) CASE STUDIES	3
ADVT 4301	ADVERTISING AND IMC CAMPAIGNS	3
COMM 3303	COMMUNICATION GRAPHICS	3
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	3
PREL 2338	INTRODUCTION TO PUBLIC RELATIONS	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
Total Hours		42

<sup>1</sup> A minimum grade of C (2.0/4.0 scale) or higher in JOUR 1345 WRITING FOR MASS MEDIA and ADVT 2337 INTRODUCTION TO ADVERTISING must be achieved prior to enrolling in any upper-division advertising course.

Advertising majors must meet the following math requirement: MATH 1308 ELEMENTARY STATISTICAL ANALYSIS, with a grade of C (2.0/4.0 scale) or higher.

### BROADCASTING

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3
JOUR 1345	WRITING FOR MASS MEDIA <sup>1</sup>	3
BCMN 2347	BROADCAST WRITING AND REPORTING <sup>2</sup>	3
BCMN 2357	RADIO PRODUCTION I <sup>2</sup>	3
BCMN 2358	TELEVISION PRODUCTION I <sup>2</sup>	3
BCMN 2360	INTRODUCTION TO BROADCASTING <sup>2</sup>	3
BCMN 3340	ELECTRONIC NEWS	3
BCMN 3350	TELEVISION REPORTING I	3
or BCMN 3319	BROADCAST MANAGEMENT	
BCMN 3355	BROADCAST ANNOUNCING	3
or COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	
BCMN 4350	TELEVISION REPORTING II	3
or BCMN 4320	CURRENT ISSUES IN TELECOMMUNICATIONS	
Electives in the department at the 3000/4000 level		3
Total Hours		39

<sup>1</sup> with a grade of C (2.0/4.0) or higher

<sup>2</sup> BCMN 2347 BROADCAST WRITING AND REPORTING, BCMN 2357 RADIO PRODUCTION I, BCMN 2358 TELEVISION PRODUCTION I and BCMN 2360 INTRODUCTION TO BROADCASTING must be completed with a grade of C (2.0/4.0 scale) or higher before enrolling in any upper-level BCMN courses.

**COMMUNICATION STUDIES****Organizational Communication**

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3
COMM 3303	COMMUNICATION GRAPHICS	3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
COMS 2304	GROUP COMMUNICATION PRINCIPLES	3
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	3
COMS 3309	ORGANIZATIONAL COMMUNICATION	3
COMS 4315	BUSINESS PRESENTATIONS	3
Select two of the following:		6
COMS 3310	GROUP COMMUNICATION THEORY	
COMS 3315	COMMUNICATION FOR EDUCATORS	
COMS 3316	COMMUNICATION IN HUMAN RELATIONS	
COMS 3320	INTERVIEW PRINCIPLES	
Select two of the following:		6
COMS 4300	PERSUASIVE COMMUNICATION	
COMS 4320	MANAGERIAL COMMUNICATION	
COMS 4322	COMMUNICATION TRAINING AND DEVELOPMENT	
Total Hours		39

**Speech Communication**

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3
COMM 3303	COMMUNICATION GRAPHICS	3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
COMS 2304	GROUP COMMUNICATION PRINCIPLES	3
COMS 3310	GROUP COMMUNICATION THEORY	3
COMS 3312	BACKGROUNDS OF PUBLIC ADDRESS	3
or COMS 4302	MODERN PUBLIC ADDRESS	
COMS 3315	COMMUNICATION FOR EDUCATORS	3
COMS 3316	COMMUNICATION IN HUMAN RELATIONS	3
Select one of the following:		3
COMS 3321	ORAL INTERPRETATION OF LITERATURE	
COMS 3323	ORAL INTERPRETATION OF CHILDREN'S LITERATURE	
Select two of the following:		6
COMS 4300	PERSUASIVE COMMUNICATION	
COMS 4315	BUSINESS PRESENTATIONS	
COMS 4321	READERS THEATRE	
COMS 4395	PROFESSIONAL INTERNSHIP	
Total Hours		39

<sup>1</sup> with a grade of C (2.0/4.0) or higher

**COMMUNICATION TECHNOLOGY**

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3
JOUR 1345	WRITING FOR MASS MEDIA <sup>1</sup>	3
COMM 3303	COMMUNICATION GRAPHICS	3

CTEC 2350	WEB COMMUNICATION DESIGN AND DEVELOPMENT 1	3
CTEC 3320	MULTIMODAL COMMUNICATION AND DESIGN	3
CTEC 3350	WEB COMMUNICATION DESIGN AND DEVELOPMENT 2	3
CTEC 4309	INTERNET MARKETING COMMUNICATION	3
CTEC 4350	WEB COMMUNICATION DESIGN AND DEVELOPMENT 3	3
CTEC 4321	DIGITAL COMMUNICATION MANAGEMENT	3
or CTEC 4323	USER EXPERIENCE RESEARCH AND DESIGN	
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	3
Elective in the department		3
Total Hours		39

## JOURNALISM

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3
COMM 3303	COMMUNICATION GRAPHICS	3
JOUR 1345	WRITING FOR MASS MEDIA	3
JOUR 2340	PHOTOJOURNALISM I	3
JOUR 2346	REPORTING	3
JOUR 3345	NEWS EDITING	3
JOUR 4341	DIGITAL STORYTELLING	3
JOUR 4346	PUBLIC AFFAIRS REPORTING	3
Nine hours from the following		9
JOUR 3341	PHOTOJOURNALISM II	
JOUR 4326	FEATURE WRITING	
JOUR 4327	OPINION & PERSUASIVE WRITING	
JOUR 4393	SPECIAL TOPICS (May be repeated)	
JOUR 4395	PROFESSIONAL INTERNSHIP	
Total Hours		39

Journalism majors must meet the following math requirement: MATH 1308 ELEMENTARY STATISTICAL ANALYSIS, with a grade of C (2.0/4.0 scale) or higher.

## PUBLIC RELATIONS

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3
JOUR 1345	WRITING FOR MASS MEDIA <sup>1</sup>	3
JOUR 2346	REPORTING	3
PREL 2338	INTRODUCTION TO PUBLIC RELATIONS <sup>2</sup>	3
PREL 3339	PUBLIC RELATIONS METHODS	3
PREL 3355	PUBLIC RELATIONS CASE STUDIES	3
PREL 4320	PUBLIC RELATIONS MANAGEMENT	3
PREL 4316	PUBLIC RELATIONS CAMPAIGNS	3
COMM 3303	COMMUNICATION GRAPHICS	3
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	3
ADVT 2337	INTRODUCTION TO ADVERTISING	3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
Total Hours		42

- 1 with a grade of C (2.0/4.0) or higher
- 2 PREL 2338 INTRODUCTION TO PUBLIC RELATIONS must be completed with a grade of C (2.0/4.0 scale) or higher before enrolling in any upper-level PREL courses.

Public relations majors must meet the following math requirement: MATH 1308 ELEMENTARY STATISTICAL ANALYSIS, with a grade of C (2.0/4.0 scale) or higher.

## Teacher Certification

Department specializations that provide for teacher certification are the following: secondary teaching level in journalism or speech communication. Students interested in Texas Teacher Certification should consult the College of Education section of this catalog for the most recent changes in requirements regarding admission to teacher education, completion of University programs in preparation for certification, and eligibility for certification after graduation. Students whose major is taken in the Department of Communication will complete all of the hours listed in the major field. Students seeking teacher certification with a major in a communication field should follow the sections below:

### SECONDARY CERTIFICATION, JOURNALISM MAJOR REQUIREMENTS

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3
COMM 3303	COMMUNICATION GRAPHICS	3
JOUR 1345	WRITING FOR MASS MEDIA	3
JOUR 2340	PHOTOJOURNALISM I	3
JOUR 2346	REPORTING	3
JOUR 3345	NEWS EDITING	3
JOUR 4346	PUBLIC AFFAIRS REPORTING	3
JOUR 4341	DIGITAL STORYTELLING	3
Nine hours of the following		9
JOUR 3341	PHOTOJOURNALISM II	
JOUR 4326	FEATURE WRITING	
JOUR 4327	OPINION & PERSUASIVE WRITING	
JOUR 4393	SPECIAL TOPICS (May be repeated)	
JOUR 4395	PROFESSIONAL INTERNSHIP	

Total Hours 39

### SECONDARY CERTIFICATION, SPEECH COMMUNICATION MAJOR REQUIREMENTS

COMM 2315	COMMUNICATION THEORY	3
COMM 3300	COMMUNICATION TECHNOLOGY	3
COMM 3310	COMMUNICATION LAW & ETHICS	3
COMM 3303	COMMUNICATION GRAPHICS	3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
COMS 2304	GROUP COMMUNICATION PRINCIPLES	3
COMS 3310	GROUP COMMUNICATION THEORY	3
COMS 3312	BACKGROUNDS OF PUBLIC ADDRESS	3
or COMS 4302	MODERN PUBLIC ADDRESS	
COMS 3315	COMMUNICATION FOR EDUCATORS	3
COMS 3316	COMMUNICATION IN HUMAN RELATIONS	3
Select one of the following		3
COMS 3321	ORAL INTERPRETATION OF LITERATURE	
COMS 3323	ORAL INTERPRETATION OF CHILDREN'S LITERATURE	
Select two of the following		6
COMS 4300	PERSUASIVE COMMUNICATION	
COMS 4315	BUSINESS PRESENTATIONS	
COMS 4321	READERS THEATRE	



COMS 4395

PROFESSIONAL INTERNSHIP

Total Hours

39

## Certificate in Emerging Media

This certificate provides students with expertise in using and managing emerging media to communicate effectively to audiences in a variety of situations, across multiple platforms.

To earn this certificate students must complete the classes listed below with a grade of C or better. **Broadcast majors must take BCMN 2358 instead of BCMN 2370.**

BCMN 2370	MULTIMEDIA PRODUCTION (Broadcast majors must take BCMN 2358 )	3
COMM 3303	COMMUNICATION GRAPHICS	3
PREL 3320	STRATEGIC SOCIAL MEDIA COMMUNICATION	3
CTEC 2350	WEB COMMUNICATION DESIGN AND DEVELOPMENT 1	3
COMM 4360	EMERGING MEDIA STRATEGY	3
Total Hours		15

## Criminology and Criminal Justice

### Undergraduate Degree

- Bachelor of Arts in Criminology and Criminal Justice (p. 348)
- Online Bachelor Degree in Criminology and Criminal Justice (p. 350)
- Minor in Criminology and Criminal Justice (p. 351)

### Graduate Degree

- Criminology and Criminal Justice, M.A. (p. 346)

### Certificates

- Certificate in Crime Analysis (p. 351)
- Certificate in Crime Scene Technology (p. 351)
- Certificate in Law Enforcement Administration (p. 351)
- Certificate in Legal Studies (p. 351)

## Criminology & Criminal Justice - Graduate Program

### Overview

The program leading to the MA degree in criminology and criminal justice offers a comprehensive examination of the criminal justice system, an exploration of criminal and delinquent behaviors, a foundation in research and statistics, and an opportunity to explore other relevant topics of interest to the student.

It is designed for:

1. Pre-professional students who wish to pursue a career in some aspect of criminal justice, or in a related field, and to develop the perspectives and knowledge appropriate to doing so;
2. In-service professionals who wish to enhance and broaden their knowledge in this and related areas of study;
3. Students pre-professional or in-service who wish to pursue further relevant post-graduate studies, whether academic or professional.

To meet these objectives, and to develop a broadly educated student, the program offers both thesis and non-thesis options. Both options require the student to complete 18 hours of core courses within the department.

The coursework (non-thesis) option is generally recommended for students who do not intend to pursue doctoral-level studies. It does not require applicants to have prior criminal justice employment and is designed to provide a base of knowledge and skills necessary to enter and/or administer criminal justice related programs.

The non-thesis option requires students to pass a comprehensive examination that covers three areas: criminological theory, research methods & statistics, and an area of specialization that will depend on the student's selected area (law enforcement, courts, or corrections). Students must declare their area by the second semester and must be core complete in order to attempt the examination. Students must be enrolled in the semester in which

they take the comprehensive examination. The comprehensive examination is scheduled once each long semester, typically in late October and again in late March.

Students have two opportunities to pass the comprehensive examination. Failure on the second attempt will result in dismissal from the program. If a student first attempts the examination in the Spring Term and fails it, he or she may request to retake it during the summer terms. However, the Examining Committee shall decide whether or not to allow this.

The thesis option is generally recommended for students wishing to pursue further education in professional schools or doctoral level studies. It is designed to prepare students to conduct research in criminology and criminal justice and actively participate in the development of knowledge. Students choosing the thesis option are required to take a six-hour thesis course during the semester in which the thesis is defended. Non-thesis students take two additional courses constituting six credit hours. Students are required to defend their thesis proposal at least one semester prior to defending their final thesis and before submission of materials to IRB.

With the approval of the Graduate Advisor, students may also use their elective hours to concentrate on a particular field of study, such as sociology, political science, corrections, policing, or a multidisciplinary approach to a particular focus, such as administration-or research. Thesis students take 12 hours of elective courses and non-thesis students take 18 hours.

## Admission Requirements

The criminology and criminal justice graduate program adheres to the following admission criteria.

### UNCONDITIONAL ADMISSION

In addition to having satisfied the basic graduate admission requirements of UT Arlington outlined in this Catalog in the Admissions section under University Requirements & Procedures, applicants seeking unconditional admission to the CRCJ graduate program are required to meet the following four criteria:

1. Must have successfully completed a baccalaureate degree in criminology/criminal justice or related discipline.
2. A minimum GPA of 3.0 in the last 60 hours of undergraduate work as calculated by the Graduate School.
3. A minimum of 149 on both verbal and quantitative subsets of the GRE (minimum of 440 on both verbal and quantitative subsets under old scoring system). The GRE is not required of an applicant who satisfies all of the following requirements:
  - Has three or more years of professional experience with increasing responsibility in a criminal justice (or closely related) occupation and provides a detailed work history documenting this experience.
  - Submits an acceptable sample of professional writing authored solely by the applicant. This will be evaluated to assess writing and analytical skills.
  - Successfully completes a personal interview with the graduate advisor, where credentials, goals and objectives of graduate studies, and views related to the study and profession of Criminology/Criminal Justice will be discussed.
4. Must submit three letters of recommendation addressing the applicant's potential for success in the graduate program from persons knowledgeable of the applicant's abilities.

Applicants meeting all four of the criteria will be granted unconditional admission into the CRCJ Graduate Program. Applicants who lack one of the above criteria may be considered for probationary admission.

### PROBATIONARY ADMISSION

Applicants who fail to meet the four criteria for unconditional admission may be considered for probationary admission. Applicants who fail to meet the GPA or GRE requirements for unconditional admission may be granted probationary admission if any of the following three conditions is met:

1. the GPA falls between 2.5 and 3.0 and the remainder of the application package is satisfactory;
2. the GPA falls between 2.25 and 2.49, the remainder of the application package is satisfactory, and the applicant has five years of professional experience in a criminal justice (or closely related) occupation and a detailed work history documenting this experience; or
3. the GPA fall between 2.00 and 2.24, the remainder of the application package is satisfactory, and the applicant has 10 or more years of professional experience in a managerial or administrative position within a criminal justice (or closely related) occupation and a detailed work history documenting that experience.

In addition to providing a work history, applicants using their work history for admission must also provide a writing sample and complete a personal interview. Applicants admitted on probation will remain in that status until completing 12 hours of graduate coursework with no grade lower than a B.

### DEFERRED ADMISSION

In the event an applicant does not meet the minimum criteria established for unconditional or probationary admission, yet nonetheless is judged by the graduate advisor, in consultation with the CRCJ Graduate Studies Committee, to show promise, the admission decision may be deferred, with instructions provided to the student indicating the course of action to be taken prior to subsequent review. Admission decisions may also be deferred if the application package is incomplete.

## PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements may be granted provisional admission.

## DENIAL

Applicants who do not satisfy all of the criteria for any of the above categories will be denied admission.

## FELLOWSHIPS

Fellowships, when available, will be awarded on a competitive basis. Nominees for the Graduate School Master's Fellowship in the criminology/criminal justice graduate program will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.00, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate credit hours.
- Transcript of a completed bachelor's degree in criminology/criminal justice (or appropriate related field) from an accredited institution.
- Three letters of recommendation (may use the same letters submitted for consideration into the criminology/criminal justice graduate program).
- A written statement explaining the applicant's reasons for graduate study in criminology/criminal justice.

## MA Degree Requirements

The MA degree in criminology and criminal justice requires a minimum of 36 semester hours, regardless of the option selected, and includes 18 semester hours of required core coursework.

Core		
CRCJ 5301	PROSEMINAR IN CRIMINOLOGY AND CRIMINAL JUSTICE	3
CRCJ 5309	RESEARCH METHODS IN CRIMINAL JUSTICE	3
CRCJ 5310	STATISTICS & RESEARCH PRACTICES IN CRIMINAL JUSTICE	3
CRCJ 5327	CONSTITUTIONAL ISSUES IN THE CRIMINAL JUSTICE SYSTEM	3
CRCJ 5342	ETHICS IN CRIMINAL JUSTICE	3
CRCJ 5350	THEORETICAL CRIMINOLOGY	3

Electives		
The number of semester hours available for electives ranges from a minimum of 12 to 18, depending on the option selected (thesis or non-thesis). Ordinarily, elective hours are taken in areas of particular interest to the student, with the advice and approval of the Graduate Advisor.		12-18

Thesis		
CRCJ 5698	THESIS	6
Students opting for the Thesis track must take 6 hours of thesis credits the semester they plan to defend their thesis and graduate.		6

All candidates for the graduate degree must pass a final comprehensive examination, written, oral, or both written and oral. The scope, content, and form of this examination will be determined by the student's supervising committee.

## Dual Degree Requirements

The M.A. degree in criminology and criminal justice requires 36 semester hours and includes 18 semester hours of required core coursework. Up to 9 hours of courses outside of CRCJ may be allocated as electives for the CRCJ degree, with the prior approval of the graduate advisor.

Core		
CRCJ 5301	PROSEMINAR IN CRIMINOLOGY AND CRIMINAL JUSTICE	3
CRCJ 5309	RESEARCH METHODS IN CRIMINAL JUSTICE	3
CRCJ 5310	STATISTICS & RESEARCH PRACTICES IN CRIMINAL JUSTICE	3
CRCJ 5327	CONSTITUTIONAL ISSUES IN THE CRIMINAL JUSTICE SYSTEM	3
CRCJ 5342	ETHICS IN CRIMINAL JUSTICE	3
CRCJ 5350	THEORETICAL CRIMINOLOGY	3

Electives		
The number of semester hours available for electives is 12 hours in the Thesis track and 18 hours in the non-thesis track. Upon approval of the graduate advisor, up to 9 hours of electives may be taken outside of CRCJ.		12-18

Thesis		
--------	--	--

Students opting for the thesis track within CRCJ must take 6 hours of thesis credits the semester they plan to defend their thesis and graduate.

## Criminology and Criminal Justice - Undergraduate Programs

### Overview

The Department of Criminology and Criminal Justice (CRCJ) at The University of Texas at Arlington is designed to strike a balance between theory and application. The department's curriculum emphasizes the theoretical foundations necessary to understand human behavior; the criminal justice system; and the application of theoretical knowledge to the development and critical analysis of policy implications. The curriculum provides strong preparation for graduate work in both academic and professional programs and prepares students to more fully understand, analyze, and operate in a variety of settings within or related to the justice system.

The curriculum includes

- general education courses required to provide a foundation in the liberal arts,
- disciplinary courses that provide valuable theoretical and methodological perspectives, and
- courses that examine various aspects of crime and the judicial systems; law enforcement, and correctional processes designed to respond to the crime problem.

### Requirements to Major in Criminology and Criminal Justice

Students admitted to UT Arlington from high school or transfer students who have completed less than 30 hours of transferable college credit will be admitted as Criminology and Criminal Justice (CRCJ)-Intended majors, and will be allowed to declare CRCJ as their major based on the following criteria:

- Completed at least 15 hours of the University core courses with a minimum 2.0 GPA
- Completed both CRCJ 2334 INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM, and one other CRCJ core course with at least a C, and earned at least 15 grade points in the two courses combined (2.5 GPA).

Students admitted to UT Arlington who have completed 30 or more hours of transferable college credit will allowed to declare CRCJ as their major based on the following criteria:

- Achieved a minimum 2.25 GPA for all college credit earned, and
- Completed CRCJ 2334 INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM, or an equivalent course, and one other UT Arlington CRCJ core course, or equivalent course with at least a C, and earned at least 15 grade points in the two courses combined (2.5 GPA).

Students already admitted to UT Arlington, who previously declared a major other than CRCJ, who desire to change to CRCJ as their major will be accepted based on the following criteria:

- Completed at least 15 hours of the College of Liberal Arts core courses,
- Achieved a minimum 2.25 GPA in all hours completed at UT Arlington, and
- Completed both CRCJ 2334 INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM, and one other CRCJ core course with at least a C, and earned at least 15 grade points in the two courses combined (2.5 GPA).

### Requirements for a Bachelor of Arts Degree in Criminology and Criminal Justice

#### Pre-Professional Courses

General Core Requirements (p. 93)		39
Program Requirements (These courses also fulfill requirements in the General Core)		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Mathematics (MATH 1301 or higher; MATH 1301 and MATH 1308 are recommended)		
Modern and Classical Languages: 1441, 1442, 2313, 2314 (with a total of 14 hours)		

#### Professional Courses

Major		
A CRCJ major consists of 54 hours, including 33 hours of required CRCJ core courses and 21 hours of major electives (See additional requirements below)		
CRCJ Core (Required)		
CRCJ 2334	INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM <sup>1</sup>	3
CRCJ 2335	ETHICS AND THE CRIMINAL JUSTICE SYSTEM	3

CRCJ 2350	INTRODUCTION TO LAW ENFORCEMENT	3
CRCJ 3300	THEORETICAL CRIMINOLOGY	3
CRCJ 3310	PROFESSIONAL WRITING FOR CRCJ MAJORS	3
CRCJ 3338	JUVENILE JUSTICE SYSTEMS	3
CRCJ 3340	CRIMINAL JUSTICE STATISTICS	3
or SOCI 3352	SOCIAL STATISTICS	
CRCJ 3350	INTRODUCTION TO RESEARCH METHODS IN CRIMINOLOGY AND CRIMINAL JUSTICE	3
CRCJ 4301	THE AMERICAN JUDICIAL SYSTEM	3
CRCJ 4332	COMMUNITY CORRECTIONS	3
or CRCJ 4333	INSTITUTIONAL CORRECTIONS	
CRCJ 4380	COMPARATIVE CRIMINAL JUSTICE SYSTEMS	3
CRCJ Major Electives (of which at least 15 hours must be CRCJ-prefix courses):		21
CRCJ 2340	CRIMINAL INVESTIGATION	
CRCJ 3307	INTRODUCTION TO SECURITY SYSTEMS	
CRCJ 3320	CYBERCRIME	
CRCJ 3330	FUNDAMENTALS OF LAW	
CRCJ 3336	POLICE MANAGEMENT AND ADMINISTRATION	
CRCJ 3337	ADVANCED CRIMINAL PROCEDURE	
CRCJ 3370	INTRODUCTION TO FORENSICS	
CRCJ 3371	CRIME SCENE INVESTIGATION	
CRCJ 3380	RACE, CRIME, AND JUSTICE	
CRCJ 3385	WOMEN AND CRIME	
CRCJ 3390	VICTIMOLOGY	
CRCJ 3395	DRUG USE AND ABUSE	
CRCJ 4309	PRIVATE SECURITY ADMINISTRATION	
CRCJ 4315	CRIMINAL CAREERS AND BEHAVIOR SYSTEMS	
CRCJ 4325	GANGS	
CRCJ 4332	COMMUNITY CORRECTIONS	
or CRCJ 4333	INSTITUTIONAL CORRECTIONS	
CRCJ 4340	FORENSIC DEATH INVESTIGATION	
CRCJ 4341	FORENSIC EXAMINATION OF IMPRESSION EVIDENCE	
CRCJ 4342	FORENSIC HAIR AND FIBER IDENTIFICATION	
CRCJ 4343	FORENSIC EXPERT TESTIMONY	
CRCJ 4345	CRIME AND THE CRIMINAL JUSTICE SYSTEM IN THE MEDIA	
CRCJ 4352	TERRORISM AND MASS VIOLENCE	
CRCJ 4355	ORGANIZED CRIME: NATIONAL AND INTERNATIONAL	
CRCJ 4365	CAPITAL PUNISHMENT	
CRCJ 4386	TOPICS IN CORRECTIONS	
CRCJ 4387	TOPICS IN CRIME AND CRIMINOLOGY	
CRCJ 4388	TOPICS IN LAW AND JUDICIAL PROCESSES	
CRCJ 4389	TOPICS IN LAW ENFORCEMENT AND PRIVATE SECURITY	
CRCJ 4390	INTERNSHIP IN CRIMINAL JUSTICE	
CRCJ 4191	CONFERENCE COURSE	
CRCJ 4291	CONFERENCE COURSE IN CRIMINAL JUSTICE	
CRCJ 4391	CONFERENCE COURSE IN CRIMINAL JUSTICE	
CRCJ 4394	HONORS THESIS/SENIOR PROJECT	
6 hours of electives can be taken from the following courses:		
ECON 3302	THE ECONOMICS OF CRIME	
HIST 3317	U.S. LEGAL AND CONSTITUTIONAL HISTORY, COLONIAL TO 1877	
HIST 3318	U.S. LEGAL AND CONSTITUTIONAL HISTORY, 1877 TO PRESENT	
POLS 3331	CONTEMPORARY ISSUES IN CIVIL LIBERTIES	
POLS 3333	JURISPRUDENCE	

POLS 3335	CRIMINAL LAW	
POLS 4332	U.S. CONSTITUTIONAL LAW: FUNDAMENTAL RIGHTS	
SOCI 3320	DEVIANCE: SOCIAL AND PERSONAL	
SOCI 3357	LAW AND SOCIETY	
Other courses may be used for elective credit with advisor approval		
Minor		
A minor is not required, but is optional. A minor, if chosen, consists of 18 hours, with at least six hours at 3000/4000 level.		
Total Hours		99

## Computer and Communication Competency

**Computer Use:** Students majoring in Criminology and Criminal Justice may demonstrate competency in computer use by taking either CSE 1301 COMPUTER LITERACY, INSY 2303 INTRODUCTION TO M.I.S. AND DATA PROCESSING, or any other course approved by the Undergraduate Assembly for this purpose. They may also demonstrate competency by passing the University proficiency examination in computer use.

**Communication:** Students majoring in Criminology and Criminal Justice may demonstrate competency in communication by taking either:

COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	3
COMS 3315	COMMUNICATION FOR EDUCATORS	3
or any other course approved by the Undergraduate Assembly for this purpose		

## MAJOR

In addition to fulfilling University and College of Liberal Arts requirements, students planning to graduate with a B.A. in Criminology and Criminal Justice (CRCJ) must also fulfill the following requirements:

- Be a declared CRCJ major,
- Achieve a minimum overall 2.0 GPA in all courses taken at UT Arlington,
- Earn a C or better in all major courses required for the degree, and
- Maintain a minimum 2.5 GPA in all CRCJ courses taken, including approved electives selected from ECON, HIST, POLS, and SOCI.

## Requirements for the Online Bachelor Degree in Criminology and Criminal Justice

This degree is offered via the UT TeleCampus and is designed with the criminal justice and law enforcement professional in mind. Students who have already completed the first two years of undergraduate courses, can complete the bachelor degree program by taking the upper level courses online, taught by the same faculty who teach on-campus courses. The courses are taught entirely online and do not require any on-campus visits. This 66-credit hour program, combined with the appropriate lower-division undergraduate course work, will lead to a Bachelor in Criminology and Criminal Justice degree from UT Arlington. To earn a Bachelor in Criminology and Criminal Justice degree from UT-Arlington, students must earn grades of C or better in all major courses required for the degree. Students must maintain a minimum 2.5 GPA in major courses to remain in the program and must graduate with 2.5 GPA or higher in all major courses. To learn more about this program, please visit: [www.utcoursesonline.org](http://www.utcoursesonline.org) (<http://www.utcoursesonline.org>).

<b>Pre-Professional Courses</b>		
General Core Requirements (p. 93)		39
Program Requirements (These courses also fulfill requirements in the General Core)		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Mathematics (MATH 1301 or higher; MATH 1301 and MATH 1308 are recommended)		
<b>Professional Courses</b>		
Major		
CRCJ 2334	INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM (CCJO 2310) (UTA)	3
CRCJ 3350	INTRODUCTION TO RESEARCH METHODS IN CRIMINOLOGY AND CRIMINAL JUSTICE (CCJO 3320) (UTA)	3
CRCJ 3380	RACE, CRIME, AND JUSTICE (CCJO 3370) (UTA)	3
CRCJ 4301	THE AMERICAN JUDICIAL SYSTEM (CCJO 4330) (UTA)	3
CRCJ 4380	COMPARATIVE CRIMINAL JUSTICE SYSTEMS (CCJO 4336) (UTA)	3
CRCJ 4333	INSTITUTIONAL CORRECTIONS (CCJO 4350) (UTA)	3
CRCJ 4315	CRIMINAL CAREERS AND BEHAVIOR SYSTEMS (CCJO 4352) (UTA)	3

CRIJ 3315 (CCJO 3322) Legal Aspects of Evidence (UTB)	
CRIJ 3331 (CCJO 3326) Legal Aspects of Corrections (UTB)	
CRIJ 4370 (CCJO 4338) Senior Seminar in Criminal Justice (UTB)	
CRIJ 4312 (CCJO 4358) Principles of Law Enforcement Supervision (UTB)	
CRIJ 4341 (CCJO 4360) Correctional Casework and Counseling (UTB)	
CRIJ 4313 (CCJO 4362) Seminar of Issues in Law Enforcement (UTB)	
CCJO 3312 (formerly CRIM 3340) Criminal Justice Administration (UTPB)	
CCJO 3332 (formerly CRIM 3365) Juvenile Delinquency and Justice (UTPB)	
CCJO 4316 (formerly CRIM 4332) Theories of Criminal Behavior (UTPB)	
CCJO 4354 (formerly CRIM 4381) Ethics in Criminal Justice (UTPB)	
CCJO 4356 (formerly CRIM 4321) Probation and Parole (UTPB)	
CCJO 4364 (formerly CRIM 4382) Police and the Community (UTPB)	
PSYC 4305 (CCJO 4372) Drugs and Behavior (UTPB)	
Select two of the following electives:	
CRIJ 3325 Violet Crime and Offenders (UTB)	
CRIJ 4363 (CCJO 4366) Gangs and Gang Behavior (UTB)	
CRIJ 4300 (CCJO 4300) Forensics DNA Analysis (UTEP)	
BIOL 3320 (CCJO 3324) Genetics (UTEP)	
BIOL 4395 (CCJO 4395) Toxicology (UTEP)	
INSS 4350 Selected Problems in Intelligence Crime & Border Security (UTEP)	
Electives	10
Total Hours	76

**Note:** UT Arlington denotes classes offered by The University of Texas at Arlington; UTB denotes classes offered by The University of Texas at Brownsville; UTPB denotes classes offered by The University of Texas at Permian Basin; and UTEP denotes classes offered by The University of Texas at El Paso.

Students will satisfy the computer and communications competencies during completion of the online core courses required for the BCRCJ degree.

## Requirements for a Minor in Criminology and Criminal Justice

A minor in CRCJ consists of 18 semester hours, of which at least 12 must be 3000/4000 level. CRCJ 2334 INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM, and CRCJ 4301 THE AMERICAN JUDICIAL SYSTEM, are required courses for a CRCJ minor. Students must earn a 2.0 GPA in all CRCJ courses taken toward the minor.

## Certificate in Crime Analysis

A Certificate in Crime Analysis is offered by the Department for students interested in pursuing a law enforcement career in crime analysis. Students must complete seven required courses (21 credit hours) to qualify. The courses are:

CRCJ 3336	POLICE MANAGEMENT AND ADMINISTRATION	3
CRCJ 3340	CRIMINAL JUSTICE STATISTICS	3
CRCJ 3350	INTRODUCTION TO RESEARCH METHODS IN CRIMINOLOGY AND CRIMINAL JUSTICE	3
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
CSE 1301	COMPUTER LITERACY	3
CSE 1310	INTRODUCTION TO COMPUTERS & PROGRAMMING	3
CRCJ 4390	INTERNSHIP IN CRIMINAL JUSTICE <sup>1</sup>	3
Total Hours		21

<sup>1</sup> Participation in CRCJ 4390 INTERNSHIP IN CRIMINAL JUSTICE requires a minimum GPA of 3.0 in both CRCJ courses and in all courses completed at UT-Arlington.

## Certificate in Crime Scene Technology

CRCJ students interested in beginning a career as a crime scene technician are offered a Certificate in Crime Scene Technology. Students must complete seven required courses (21 credit hours) to qualify. The courses are:

CRCJ 2334	INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM	3
CRCJ 2340	CRIMINAL INVESTIGATION	3
CRCJ 3337	ADVANCED CRIMINAL PROCEDURE	3
CRCJ 3370	INTRODUCTION TO FORENSICS	3
CRCJ 3371	CRIME SCENE INVESTIGATION	3
CRCJ 4340	FORENSIC DEATH INVESTIGATION	3
Optional Courses		
CRCJ 3320	CYBERCRIME	
CRCJ 4341	FORENSIC EXAMINATION OF IMPRESSION EVIDENCE	
CRCJ 4342	FORENSIC HAIR AND FIBER IDENTIFICATION	
CRCJ 4343	FORENSIC EXPERT TESTIMONY	
CRCJ 4390	INTERNSHIP IN CRIMINAL JUSTICE <sup>1</sup>	
<b>Total</b>		<b>21</b>

<sup>1</sup> Participation in CRCJ 4390 INTERNSHIP IN CRIMINAL JUSTICE requires a minimum GPA of 3.0 in both CRCJ courses and in all courses completed at UT-Arlington.

## Certificate in Law Enforcement Administration

The Department of Criminology and Criminal Justice (CRCJ) at UT-Arlington and the Institute for Law Enforcement Administration (ILEA), which is one of seven institutes within the Center for American and International Law, Plano, TX, combine to offer a Certificate in Law Enforcement Administration for police officers, supervisors, and managers. To receive the certificate, officers must complete four courses offered by ILEA (13 credit hours) and five courses (15 credit hours) offered by the CRCJ Department at UT Arlington.

Courses to be taken at or through ILEA are:

- LEA 200, School of Police Supervision;
- LEA 220, Fair Labor Standards Act Law;
- ETH 100, Ethical Decision Making; and
- ETH 150, Ethics Train-the-Trainer.

Courses offered by the CRCJ Department at UT-Arlington are online courses and include:

CRCJ 2334	INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM	3
CRCJ 3380	RACE, CRIME, AND JUSTICE	3
CRCJ 4301	THE AMERICAN JUDICIAL SYSTEM	3
CRCJ 4380	COMPARATIVE CRIMINAL JUSTICE SYSTEMS	3
CRCJ 4315	CRIMINAL CAREERS AND BEHAVIOR SYSTEMS	3
Total Hours		15

## Certificate in Legal Studies

The Department of Criminology and Criminal Justice (CRCJ) at UT-Arlington, offers a Certificate in Legal Studies for students interested in working in the legal field. To receive the certificate, students must complete six courses (18 credit hours) offered by the department. The courses are:

CRCJ 2334	INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM	3
CRCJ 3330	FUNDAMENTALS OF LAW	3
CRCJ 3337	ADVANCED CRIMINAL PROCEDURE	3
CRCJ 4301	THE AMERICAN JUDICIAL SYSTEM	3
Select two of the following:		6
CRCJ 4365	CAPITAL PUNISHMENT	
CRCJ 4380	COMPARATIVE CRIMINAL JUSTICE SYSTEMS	
CRCJ 4388	TOPICS IN LAW AND JUDICIAL PROCESSES	
CRCJ 4390	INTERNSHIP IN CRIMINAL JUSTICE <sup>1</sup>	
<b>Total</b>		<b>18</b>



- <sup>1</sup> Participation in CRCJ 4390 INTERNSHIP IN CRIMINAL JUSTICE requires a minimum GPA of 3.0 in both CRCJ courses and in all courses completed at UT-Arlington.

## English

### Undergraduate Degrees

- Bachelor of Arts in English (p. 356)
- Bachelor of Arts in English with Teacher Certification (p. 356)
- Minor in English (p. 358)
- Minor in Writing (p. 358)
- Minor in Creative Writing (p. 358)
- Minor in Medieval and Early Modern Studies (p. 358)

### Graduate Degrees

- English, M.A. (p. 353)
- English, Ph.D. (p. 355)

## English - Graduate Programs

### Objectives

The Department of English offers a wide variety of graduate courses to meet the needs of students with a diversity of interests and academic backgrounds who wish to enhance their awareness of their literary and cultural environment by additional formal instruction or to increase their professional competence.

The Master of Arts program in English is designed to enable students to learn about, critique, and work in teaching, scholarship, writing, or other fields which value a strong background in language, rhetoric, and the study of culture through texts.

Early in the program each student takes one core course which serves as an introduction to theory as it is currently used in English scholarship. Each student plans an individual program of coursework, with the help of the Graduate Advisor. This program draws on the department's varied courses, which offer students ways to study literature, rhetoric, and criticism, as well as methods of studying culture through texts and traditions of discourse.

The M.A. in English provides a strong grounding in scholarly methods and in theory, making it an ideal preparation for doctoral study in disciplinary or interdisciplinary programs. M.A. graduates in English pursue careers in journalism, educational administration and services, publishing, and many business fields that demand writing and communication skills. The M.A. in English is also useful for prospective or experienced teachers who want both to sharpen their ability to teach literature and writing and to advance professionally.

The doctoral program in English prepares students at the most advanced stage in the interpretation and composition of texts. The program emphasizes rigorous critical study in the fields of rhetoric, composition, critical theory, cultural studies, pedagogy and literary studies. Rather than offering separate tracks, the program allows students in consultation with the Graduate Advisor and the dissertation committee, to design a program of work that best suits their particular scholarly interests and career goals. The combination of a diversity of course offerings, required and elected courses, and the requirement that each student define a focus that reflects his or her intellectual and career interests provides students with the flexibility to adapt to changes in English studies. Specifically, the English doctoral program prepares students for careers in writing, including electronic and technical writing, as well as in teaching in community colleges, small colleges or regional state universities. The department trains students for college-level teaching in several ways, including graduate courses in the teaching of literature and of composition. Doctoral students in English present papers at scholarly conferences, publish essays in scholarly journals and participate in other professional activities.

### Fellowships

The same four criteria used to determine admission to the M.A. or Ph.D. programs will be considered when awarding graduate fellowships.

The Graduate School stipulates that "Fellowships, when available, will be awarded on a competitive basis based on the following criteria: Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships. The minimum undergraduate GPA requirement is 3.00, as calculated by the Graduate School."

### Graduate Teaching Assistantships

Please consult the Director of First Year English for more information on Graduate Teaching Assistantships.

## Admissions Requirements

### ADMISSION PROCEDURES

In addition to the basic graduate admission requirements of UT Arlington described in this Catalog in the Admission section under University Policies & Requirements, the English Department requires all international students to have speaking, reading, and writing competence in English. For both the M.A. and the Ph.D., we consider four different admission criteria:

1. GPA
2. GRE
3. writing sample, and
4. letters of recommendation.

Prospective students must submit all the required materials and scores, i.e., official transcripts, GRE scores, a writing sample, and recommendation letters in order for their application to be processed. All criteria are considered together, in a holistic way, and no single factor will eliminate a prospective student from consideration. For unconditional admission, candidates must meet the following standards for at least three of the four criteria.

### CRITERIA FOR ADMISSION: MASTER'S PROGRAM

1. A minimum GPA of 3.0 in undergraduate work, with a minimum of 3.4 in the English major or upper-level English courses.
2. GRE scores: a minimum of 500 on the old verbal scale or at least 153 on the new verbal scale and a score of 4.5 on analytic writing. We will not consider the math scores. We do not require the English subject test.
3. A writing sample of 10 to 15 pages that demonstrates a sophisticated prose style and the ability to construct complex arguments.
4. Three letters of recommendation that attest to the prospective student's intellectual and scholarly potential. At least two of these should be from former professors.

### DEFERRED DECISION

A deferred decision may be granted when a file is incomplete or when a denial is not appropriate.

### PROVISIONAL ADMISSION

An applicant who is unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### PROBATIONARY ADMISSION

For both the M.A. and Ph.D. programs, students may be admitted on probation under one of two scenarios:

1. if the prospective student's application materials do not meet two of the four standards, but are outstanding in the remaining two categories, or
2. if the prospective student's materials come extremely close to meeting the standards in at least three of the four areas.

Students on academic probation must make no grade lower than a "B" in the first 12 hours of their graduate work in order to remain in the program.

### DENIAL

Admission will be denied if the application materials:

1. do not meet the standards in three of the four categories, or
2. do not meet the standards in two of the categories, and in the remaining two categories meet the standards but in an unexceptional manner.

### DEFICIENCY COURSES

Students who wish to pursue the Master's degree but who do not have an undergraduate major in English will probably be required to take between 3 and 12 hours in specified advanced undergraduate courses and make no grade lower than a "B." These courses will not be counted for graduate credit, but instead will provide the necessary background for pursuit of the advanced degree.

## Degree Requirements

### MASTER OF ARTS

1. ENGL 5300 THEORY AND PRACTICE IN ENGLISH STUDIES is required. It must be taken within a student's first 12 hours of study and the student must pass it with at least a grade of B.
2. The program has thesis and non-thesis options.
3. The thesis option is a 30 credit-hour program and requires 24 hours of coursework (a three credit-hour core course and 21 hours of electives) and at least six hours of thesis. The degree culminates with defense of the thesis.

4. Students wishing the thesis option must apply for it during their 24th hour of coursework. A student who elects to write a thesis must select a topic in consultation with his/her thesis director. Before the student registers for thesis hours, a Thesis Committee (a director and two readers) must be established.
5. The non-thesis option requires a 36 credit-hour program of coursework (a three credit-hour core course and 33 hours of electives). The final requirement for a non-thesis MA is submission of a portfolio. This will consist of a variety of writing assignments designed to prepare the student to enter the professional and/or academic workplace.

## Admission Requirements

In addition to the basic graduate admission requirements of UT Arlington described in this Catalog in the Admission section under University Policies & Requirements, the English Department requires all international students to have speaking, reading, and writing competence in English. For both the M.A. and the Ph.D., we consider four different admission criteria: 1) GPA; 2) GRE; 3) writing sample; and 4) letters of recommendation. Prospective students should submit all the required materials and scores i.e. official transcripts, GRE scores, a writing sample, and recommendation letters in order for their application to be processed. All criteria are considered together, in a holistic way. No single factor will eliminate a prospective student from consideration. For unconditional admission, candidates must meet the following standards for at least three of the four criteria.

### CRITERIA FOR ADMISSION: PH.D. PROGRAM

1. A minimum GPA of 3.5 in the student's M.A. in English or a very closely related field. (If the M.A. is not in English, we will consider the undergraduate GPA as well as that of the M.A. Moreover, if the M.A. is not in a very closely related field, the prospective student will be admitted to the M.A. program in English, not the Ph.D.)
2. GRE scores: a minimum of 550 on the old verbal scale or at least 156 on the new verbal scale and a score of 4.5 on analytic writing. We will not consider the math scores. We do not require the English subject test.
3. A writing sample of 15 to 20 pages that demonstrates a sophisticated prose style, the ability to engage in intellectually rigorous modes of analysis, and a strong knowledge of rhetoric, composition studies, literary studies, cultural studies, or interdisciplinary critical theory.
4. Letters of recommendation that attest to the student's intellectual and scholarly potential. At least two of these must be from former professors; at least one must be a professor from the student's Master's program.

### DEFERRED DECISION

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### PROBATIONARY ADMISSION

For both M.A. and Ph.D., students may be admitted on probation under one of two scenarios: 1) if the prospective student's application materials do not meet two of the four standards, but are outstanding in the remaining two categories; or 2) if the prospective student's materials come extremely close to meeting the standards in at least three of the four areas. Students on academic probation must make no grade lower than a "B" in the first 12 hours of their graduate work in order to remain in the program.

### DENIAL

Admission will be denied if the application materials 1) do not meet the standards in three of the four categories; or 2) if the materials do not meet the standards in two of the categories, and in the remaining two categories meet the standards but in an unexceptional manner.

### DEFICIENCY COURSES

Students who wish to pursue the Master's degree but who do not have an undergraduate major in English will probably be required to take between 3 and 12 hours in specified advanced undergraduate courses and make no grade lower than a "B." These courses will not be counted for graduate credit, but instead will provide the necessary background for pursuit of the graduate degree.

## Degree Requirements

### DOCTOR OF PHILOSOPHY

1. The Ph.D. requires thirty semester hours of coursework beyond the M.A., followed by a minimum of 9 hours of dissertation work.
2. ENGL 5300 THEORY AND PRACTICE IN ENGLISH STUDIES is required. It must be taken within a student's first 12 hours of study unless they have already taken ENGL 5300 while in the M.A. program and received a grade of B or higher.
3. All students are also required to take ENGL 5311 FOUNDATIONS OF RHETORIC AND COMPOSITION OR ENGL 5359 ARGUMENTATION THEORY as early in their programs as possible.
4. Students are allowed to take 9 hours of coursework outside the English department.

5. The Ph.D. track in English requires basic proficiency in translation in one natural language other than English.

Students must consult with the Graduate Advisor and the chair of their dissertation committee to carefully construct a coherent focus for their coursework and comprehensive examinations. After completing coursework and satisfying the foreign language requirement, students will take a written comprehensive examination. While studying for the comprehensive exams, students may enroll in ENGL 6391 GRADUATE READINGS, supervised reading for the Ph.D. exam, graded R. By the end of the first semester after successfully completing the comprehensive examinations, the students must submit a dissertation prospectus to their committee. The dissertation must be an original, substantial and significant contribution to a scholarly field. Students should work closely with the chair of their committee while researching and writing their dissertation. While researching and writing their dissertation, students must enroll in dissertation hours (ENGL 6399 DISSERTATION, ENGL 6699 DISSERTATION or ENGL 6999 DISSERTATION). In the final semester of dissertation work, students must enroll in ENGL 7399 DOCTORAL DEGREE COMPLETION. Once the student, the chair of the committee, and the primary readers agree that the dissertation is sufficiently completed, the student may schedule the defense. The student must furnish each committee member with a copy of the dissertation, including notes and bibliography, at least three weeks prior to the defense date. The defense of the dissertation is oral. The defense is open to all members of the faculty, graduate students and invited guests of the university community. Questioning of the candidate will be directed by the student's dissertation supervising committee, but any person attending the defense may participate. Committee members may request that the dissertation be further revised and may withhold final approval of the dissertation until the revisions have been made. For more specific information regarding degree requirements, please consult the Graduate Handbook of the Department of English.

## English - Undergraduate Programs

### Overview

By majoring in English, students are involved simultaneously with two activities that are essentially and uniquely human: language and art. The mission of the Department of English in the College of Liberal Arts at The University of Texas at Arlington is to educate students about the powers and pleasures of literary and other kinds of language.

The curriculum provides students with an understanding of theoretical and analytical processes which enable them to assimilate a variety of textual materials representing many cultures and historical periods. Students will learn to read closely, critically, and with empathy. In addition, students will learn to conduct scholarly research and to produce clear and cogent arguments in both written and oral form. These skills are widely applicable for English graduates who seek out and create careers in the arts, education, business, research and development, government, media, and publishing.

The English department offers two degree options: a BA in English and a BA in English with Teacher Certification (BATCH). Students choosing the BA in English will meet several distribution requirements but also have the flexibility to specialize in one of six different concentrations: Generalist, Multicultural and Comparative Literatures, Language and Rhetoric, Gender and Sexuality, Critical Theory, and Environment. In addition to the majors, the English Department offers minors in English, in Writing, and in Creative Writing. The English Department frequently cross-lists courses with Women's Studies, Mexican American Studies, African American Studies, Environmental and Sustainability Studies, and Medieval and Early Modern Studies.

### Requirements for a Bachelor of Arts Degree in English

#### Pre-Professional Courses

General Core Requirements (p. 93)	39
Recommended Core Requirements	
Electives sufficient to complete the total number of hours required for the degree	
Modern and Classical Languages: 1441, 1442, 2313, and 2314 or equivalent	

#### Professional Courses

Major. To count toward the major, all English courses must be completed with a grade of C or better. <sup>1</sup>	
ENGL 1301	RHETORIC AND COMPOSITION I (or waiver for advanced standing) 3
ENGL 1302	RHETORIC AND COMPOSITION II (or waiver for advanced standing) 3
ENGL 2350	INTRODUCTION TO ANALYSIS AND INTERPRETATION (This course is a pre- or co-requisite for all upper-level English courses. English majors must pass this course with a C or better in order to receive credit toward the major for any 3000/4000-level English courses.) <sup>2</sup> 3
ENGL 2384	STRUCTURE OF MODERN ENGLISH (This course is a pre- or co-requisite for all upper-level English courses. English majors must pass this course with a C or better in order to receive credit toward the major for any 3000/4000 level English courses) 3
6 hours of sophomore literature or 3 hours with a grade of A	3
18 hours of 3000/4000-level courses, distributed as follows: AREA A, Literature written in English before mid-seventeenth century (3 hours); ABEA B, Literature written between mid-seventeenth century and mid-nineteenth century (3 hours); AREA C, Literature written between mid-nineteenth century and contemporary (3 hours); AREA D, Language, Rhetoric, and Theory (3 hours);	
ENGL 4399	SENIOR SEMINAR (capstone course) 3
3000/4000-level elective (3 hours)	9

12 hours of 3000/4000 level courses organized in a Concentration. A Concentration consists of 12 hours selected from any 3000- or 4000-level courses. No course which has been counted toward an Area requirement may also be counted toward a Concentration. Any upper-level topics course may be counted toward a Concentration if the topic is directly related to the subject of the Concentration. A topics course may be repeated for credit toward a Concentration when content changes, if the new topic is directly related to the subject of the Concentration. Under special circumstances and with the approval of the Associate Chair of Undergraduate Studies, students may count one course from another department toward the Concentration. The possible Concentrations are as follows. GENERALIST: This Concentration consists of a combination of courses in any topic, theme, or period of British or American literature. LANGUAGE AND RHETORIC: This concentration focuses on the history, theory, and practice of language use and on rhetoric from its inception as the art of public speaking to contemporary applications. MULTICULTURAL AND COMPARATIVE: This concentration consists of courses in multicultural, ethnic, and/or world literature. CRITICAL THEORY: This concentration focuses on a range of critical and philosophical questions central to the interpretation of texts, which include how to understand language, culture, power, subjectivity, knowledge, history, race, and other issues. GENDER AND SEXUALITY: This concentration focuses on representations of gender and sexuality in literature as well as in social, cultural, political, economic, and/or scientific contexts. ENVIRONMENT: This concentration overlaps with science studies and also brings together several recent areas of inquiry into the relations between texts and environments, including ecocriticism, the environmental humanities, animal studies, and posthumanism.

Total Hours

66

- 1 To count toward the major, each English course must be completed with a grade of C or better.
- 2 English majors must pass this course with a grade of C or better in order to receive credit toward the major for any 3000/4000-level English courses.

## Teacher Certification

Students wishing to take a Bachelor of Arts Degree in English with Secondary Teacher Certification must complete LIST 4343 CONTENT AREA READING AND WRITING and 36 hours in English. To count toward the major, each English course must be completed with a grade of C or better. The required English courses are:

ENGL 1301	RHETORIC AND COMPOSITION I (or waiver for advanced standing)	3
ENGL 1302	RHETORIC AND COMPOSITION II (or waiver for advanced standing)	3
ENGL 2350	INTRODUCTION TO ANALYSIS AND INTERPRETATION <sup>1</sup>	3
ENGL 2384	STRUCTURE OF MODERN ENGLISH	3
Literature on the sophomore level or above		3
ENGL 3340	HISTORY OF AMERICAN LITERATURE	3
ENGL 3351	HISTORY OF BRITISH LITERATURE I	3
ENGL 3361	HISTORY OF WORLD LITERATURE I	3
or ENGL 3362	HISTORY OF WORLD LITERATURE II	
Select one of the following (Writing/Composition Group):		3
ENGL 3371	ADVANCED EXPOSITION	
ENGL 3372	COMPUTERS AND WRITING	
ENGL 4371	ADVANCED ARGUMENTATION	
ENGL 3374	WRITING, RHETORIC, AND MULTIMEDIA AUTHORING	
ENGL 4374	WRITING, RHETORIC, AND MULTIMEDIA AUTHORING II	
Select one of the following (Cultural Diversity Group):		3
ENGL 3343	US CHICANO/LATINO LIT	
ENGL 3344	AMERICAN INDIAN LITERATURE	
ENGL 3345	AFRICAN AMERICAN LITERATURE	
ENGL 3346	MEXICAN AMERICAN LITERATURE	
ENGL 3347	TOPICS IN MULTICULTURAL LITERATURES	
ENGL 3355	POST-COLONIAL LITERATURE IN ENGLISH	
ENGL 3364	GAY AND LESBIAN LITERATURE	
ENGL 3370	WOMEN IN LITERATURE	
ENGL 4340	LITERATURE BY WOMEN	
ENGL 4326	SHAKESPEARE	3
ENGL 4370	RHETORIC AND COMPOSITION FOR SECONDARY SCHOOL TEACHERS	3
Total Hours		36

- 1 BATCH majors must pass this course with a C or better in order to receive credit toward the major for any 3000/4000-level English courses.

The requirement of six hours of English or world history does not pertain to students obtaining teacher certification.

## Competence in Oral Presentations

Students obtaining a Bachelor of Arts degree in English can demonstrate oral proficiency by passing:

COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
COMS 1302	VOICE AND DICTION	3
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	3
COMS 3315	COMMUNICATION FOR EDUCATORS (or equivalent)	3
Total Hours		12

## Competence in Computer Use

Students obtaining a Bachelor of Arts degree in English can demonstrate computer proficiency by:

1. passing ENGL 3372 COMPUTERS AND WRITING, ENGL 3374 WRITING, RHETORIC, AND MULTIMEDIA AUTHORING or ENGL 4374 WRITING, RHETORIC, AND MULTIMEDIA AUTHORING II; or
2. passing CSE 1301 COMPUTER LITERACY (or equivalent); or
3. passing the University computer literacy examination.

## Information on Sophomore Courses

Unless otherwise indicated, six hours of first-year English credit is prerequisite to all 2000-level courses. Students who are not majoring in English may register for ENGL 2303 TOPICS IN LITERATURE, ENGL 2309 WORLD LITERATURE, ENGL 2319 BRITISH LITERATURE or ENGL 2329 AMERICAN LITERATURE. Students who plan to major in English must complete ENGL 2350 INTRODUCTION TO ANALYSIS AND INTERPRETATION and ENGL 2384 STRUCTURE OF MODERN ENGLISH with a grade of C or better, even if they have already completed six hours of sophomore literature.

## Minoring in English

An English minor may be achieved by completing eighteen hours in English with a grade of C or better. At least six of the hours must be on the 3000- or 4000-level. In addition to this minor, English also offers a minor in Writing and a minor in Creative Writing.

### OPTION FOR MINOR IN WRITING

The Writing minor is offered for students who wish to concentrate in writing as a part of their undergraduate curriculum. Students selecting the Writing minor should consult first with the undergraduate advisor in their department or program for approval of the minor, and then with the English department undergraduate advisor. Working with advisors, students will select a sequence of advanced courses to fulfill their minor requirements. To count toward the minor, all English courses must be completed with a grade of C or better. This minor consists of 21 hours, distributed as follows.

#### Required Courses for Students Selecting the Writing Option:

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Select one of the following:		3
ENGL 2303	TOPICS IN LITERATURE	
ENGL 2309	WORLD LITERATURE	
ENGL 2319	BRITISH LITERATURE	
ENGL 2329	AMERICAN LITERATURE	
ENGL 3371	ADVANCED EXPOSITION	3
Select three of the following:		9
ENGL 3372	COMPUTERS AND WRITING	
ENGL 3373	TECHNICAL COMMUNICATION	
ENGL 3374	WRITING, RHETORIC, AND MULTIMEDIA AUTHORING	
ENGL 3376	BUSINESS & PROFESSIONAL WRITING	
ENGL 4371	ADVANCED ARGUMENTATION	
ENGL 4374	WRITING, RHETORIC, AND MULTIMEDIA AUTHORING II	

Total Hours

21

## OPTION FOR MINOR IN CREATIVE WRITING

The Creative Writing minor is offered for students wishing to do intensive work in creative writing to supplement an English major or another major. Students selecting the Creative Writing minor should consult first with the undergraduate advisor in their department or program for approval of the minor, and then with the English department undergraduate advisor. Working with advisors, students will select a sequence of advanced courses to fulfill their minor requirements. To count toward the minor, all English courses must be completed with a grade of C or better. This minor requires 24 hours, distributed as follows:

### Required Courses for Students Selecting the Minor in Creative Writing:

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Select two of the following:		6
ENGL 2303	TOPICS IN LITERATURE	
ENGL 2309	WORLD LITERATURE	
ENGL 2319	BRITISH LITERATURE	
ENGL 2329	AMERICAN LITERATURE	
ENGL 3375	CREATIVE WRITING	3
Select three of the following Advanced Creative Writing courses:		9
ART 3350	INTRODUCTION TO NARRATIVE SCREENWRITING	
ART 4354	ADVANCED NARRATIVE SCREENWRITING	
THEA 3320	PLAYWRITING I	
ENGL 4330	ADVANCED CREATIVE WRITING: TOPICS	
ENGL 4347	ADVANCED CREATIVE WRITING: FICTION	
ENGL 4348	ADVANCED CREATIVE WRITING: POETRY	
ENGL 4349	ADVANCED CREATIVE WRITING: CREATIVE NON-FICTION	
Total Hours		24

1 ART 3350 INTRODUCTION TO NARRATIVE SCREENWRITING is a prerequisite for this course

## The Medieval and Early Modern Studies Minor

The medieval and early modern world saw major social and cultural changes--the rise of the middle class, the development of the individual, the emergence of the nation state, and the consolidation of many modern languages. The Medieval and Early Modern Studies minor fosters interdisciplinary study of these periods, encouraging students to explore and connect topics in language, literature, history, art, and philosophy. The minor in Medieval and Early Modern Studies comprises courses taught by members of the Art, English, French, German, History, Latin, Philosophy, and Spanish departments in the College of Liberal Arts.

Students seeking to minor in Medieval and Early Modern Studies should first consult with advisors in their departments or programs for approval of the minor, then with the Director of the Minor in Medieval and Early Modern Studies (currently Dr. Jacqueline Stodnick of the Department of English). A minor in Medieval and Early Modern Studies consists of six courses (18 hours total; six hours upper level) selected from approved courses, with no more than nine hours to be completed in any single discipline. Relevant topics courses may be used to fulfill the minor, with the approval of the Director of the Minor in Medieval and Early Modern Studies. Students should consult the catalog and/or the appropriate department for prerequisites.

For information on the Medieval and Early Modern Studies minor, contact the Director at [stodnick@uta.edu](mailto:stodnick@uta.edu).

## History

### Undergraduate Degrees

- Bachelor of Arts in History (p. 367)
- Bachelor of Arts in History (Pre-Law Option) (p. 367)
- Bachelor of Arts in History with Secondary Social Studies Teacher Certification (p. 367)
- Bachelor of Arts in History with Secondary History Teacher Certification (p. 367)
- Minor in History (p. 371)

## Graduate Degrees

- History, M.A. (p. 360)
- Transatlantic History, Ph.D. (p. 362)

## Certificate

- Archival Administration Certificate (p. 366)

# History - Graduate Programs

## Objectives

Graduate study in history seeks not only to train students in historical methods and analysis but also to nurture in them a sense of the excitement and relevance of studying the past. Exploring the historical diversity of human experience broadens and deepens our understanding of both the past and the contemporary world. Students who complete graduate studies in history pursue careers in teaching, research and archival or museum administration, as well as in government and business.

The Master's Degree Program offers students a general graduate degree, with courses in a broad array of geographic and temporal topics, including U.S., European, African, Latin American, Transatlantic and Transnational histories. In the flexible Master's degree curriculum, apart from two required courses early in the program, students tailor their course of study among available course offerings to meet individual interests and career objectives. Students choose either Thesis or Non-Thesis programs. Coursework and internships in Archival Administration certification and/or Public History are also available as part of the Master's degree program.

The Doctoral Degree Program in Transatlantic History offers students comparative study of the historical development of peoples on the continents bordering the Atlantic Ocean. This exciting Ph.D. program is part of recent developments within the discipline of history that broaden the study of the past, transcend national histories, and contribute to a new transnational and comparative perspective. Utilizing specific research resources in the UT Arlington Libraries, the Ph.D. program in Transatlantic History (1492 to the present) offers a structured and focused curriculum of both required and elective courses. Prerequisite: B.A. or M.A. degree in history.

## Admission Standards

In compliance with HB 1641, the History Department does not assign a specific weight to any one factor being considered, and does not use standardized tests (i.e., the GRE) in the admissions process as the sole criterion for consideration or as the primary criterion to end consideration of an applicant to either the M.A. or Ph.D. program. However, the GRE is required and used as a criterion, without specific weight, in the Department's evaluation of candidates for admission to programs at each of three levels: Unconditional, Provisional, and Probationary Admission.

The Department wishes to be as thorough and fair as possible in evaluating applicants for admission. It recognizes that some applicants may appear to be stronger according to some criteria than according to other criteria. When an applicant does not completely meet the minimum expectations for Unconditional Admission, the Department may consider the applicant for possible Provisional or Probationary Admission. When the applicant is not granted any of the three levels of admission, the decision may be deferred or the application is denied. We do not wish to exclude a qualified and potentially successful candidate who perhaps has approached but not met all the criteria completely. However, we do not wish to admit candidates who, based on the criteria, are deemed to have a poor chance of successfully completing the graduate program.

## Admission Standards

### UNCONDITIONAL ADMISSION

The criteria for admission below are used, without specific weights, as positive indicators of potential success in the program. In all but the most exceptional cases, all four criteria for unconditional admission must be met in order to receive unconditional admission.

- Undergraduate GPA of 3.0 (as calculated by Graduate Admissions) in the last 60 credit hours in the course of completing a B.A. degree in History (or an appropriate other field) from an accredited institution (verified by official transcripts from each college or university previously attended sent directly from the registrar of that institution to Graduate Admissions).
- A writing sample, sent to the Graduate Advisor. The Department prefers that applicants send a research paper written in an upper-division history course, but other examples are acceptable. The essay should demonstrate the applicant's writing, research, and analytical skills where possible. There is not a specific page minimum, but papers should not be over 25 pages.
- Three letters of recommendation (from faculty if possible) mailed directly from the recommenders to the History Graduate Advisor.
- A minimum score of 153 on the verbal section and a minimum score of 4 on the analytical writing section of the GRE aptitude test (verified by official GRE scores sent to Graduate Admissions). However, standardized test performance is not the sole criterion for admission or the primary criterion to end consideration for admission.



**PROVISIONAL ADMISSION**

An applicant unable to supply all required documentation (e.g. GRE scores have not yet arrived) prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission. Provisionally admitted students must adequately satisfy any incomplete documentation by the end of the semester in which they are admitted. If the applicant fails to do so, the Department may then reclassify the applicant as Probationary, defer the decision, or ask the candidate to leave the program.

**PROBATIONARY ADMISSION**

An applicant whose performance, according to the criteria, approximates but does not meet minimum admission standards may be granted Probationary Admission. Students admitted under this category must earn no grade lower than a B in his/her first 12 semester hours of graduate work taken at UT Arlington.

**DEFERRAL OR DENIAL**

If two or more of the criteria have not been met satisfactorily, the applicant will not be admitted on any of the three levels above but will receive deferral or denial. A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate. A deferred decision may also be granted when the student does not have adequate preparation in the discipline of history. In the latter case, students will be required to take "leveling" courses (make-up coursework) and earn a B or better before reapplying.

**M.A. Degree Requirements**

Courses taken toward a master's degree should fit into a unified program aimed at providing students with both a comprehensive background and a depth of understanding in U.S., European, African, Latin American, Transatlantic, or Transnational history . All students are required to take HIST 5339 HISTORICAL THEORY AND METHODOLOGY and the Issues & Interpretations course corresponding to their major field (either HIST 5340 ISSUES AND INTERPRETATIONS IN U.S. HISTORY or HIST 5341 APPROACHES TO WORLD HISTORY. Except for those specializing in Public history, all students must take a minimum of six hours in both the Colloquium and the Seminar courses. Master's students are eligible to take courses at the 6000 level as well as 5000 level, subject to any particular course prerequisites. Students may take upper-division under-graduate courses for graduate credit under certain conditions. In this case and others, students must consult with the Graduate Advisor to determine their program.

Competency in one foreign language is required to obtain the Master's degree. This may be demonstrated by one of three methods:

- four semesters of credit in an approved language verifiable in an official transcript
- successful completion of an examination administered by an approved UTA faculty member or by an approved outside source such as a CLEP test
- a passing grade in a graduate-level translation course (MODL 5301) offered by the Department of Modern Languages

The Thesis degree plan is designed for students who wish to research and write a substantial, original work on a historical topic of personal interest. The plan requires completion of 30 credit hours (24 hours of coursework, plus 6 hours of thesis preparation). With the approval of the Graduate Advisor, thesis students may have a minor of as many as six hours of graduate and/or advanced undergraduate courses in a discipline other than history. A maximum of six hours of advanced undergraduate history coursework may be taken for graduate credit. Thesis candidates should consult with the Graduate Advisor to form their thesis faculty committee, which consists of one supervising professor and two other professors.

The Non-Thesis degree plan requires completion of 36 credit hours of coursework. With the approval of the Graduate Advisor, non-thesis students may have a minor of as many as nine hours of graduate and/or advanced undergraduate courses in a discipline other than history. A maximum of nine hours of advanced undergraduate coursework may be taken for graduate credit. In the final semester, the non-thesis students are required to form a nonthesis faculty committee in consultation with the Graduate Advisor, consisting of three members of the graduate faculty. The student must submit to this committee a portfolio containing their seminar paper(s) and a selection of three papers that required an analysis of historiography. After reviewing the portfolio, the committee will devise a new assignment for the student to complete based on its determination of what best fits the needs of the student, keeping in mind that the assignment will constitute less than the equivalent of 3 credit hours of course work. The student will complete the assignment during his/her final semester and turn it into the faculty committee, where it must receive an evaluation of "adequate" or better. The committee will meet the student for a final oral exam, in which the student discusses his/her project.

**Non-thesis**

**Requirements for Non-Thesis option:**

HIST 5339	HISTORICAL THEORY AND METHODOLOGY	3
HIST 5340 or HIST 5341	ISSUES AND INTERPRETATIONS IN U.S. HISTORY APPROACHES TO WORLD HISTORY	3
Content courses (reading colloquia and research seminars) in U.S., European, African, Latin American, Transatlantic or Transnational history		30
Students may take up to 9 hours in another discipline that has a history-related focus with advisor approval.		
Final Term: Portfolio submitted; portfolio project completed and defended		
Total Hours		36

## Thesis

### Requirements for Thesis option:

HIST 5339	HISTORICAL THEORY AND METHODOLOGY	3
HIST 5340	ISSUES AND INTERPRETATIONS IN U.S. HISTORY	3
or HIST 5341	APPROACHES TO WORLD HISTORY	
Content courses (reading colloquia and research seminars) in U.S., European, African, Latin American, Transatlantic or Transnational history		18
Students may take up to 6 hours in another discipline that has a history-related focus with advisor approval.		
Thesis		6
Total Hours		30

## Archival Administration

### Requirements for Archival Administration option:

HIST 5339	HISTORICAL THEORY AND METHODOLOGY	3
HIST 5340	ISSUES AND INTERPRETATIONS IN U.S. HISTORY	3
or HIST 5341	APPROACHES TO WORLD HISTORY	
Content courses (reading colloquia and research seminars) in U.S., European, African, Latin American, Transatlantic or Transnational history		18
Students may take up to 9 hours in another discipline that has a history-related focus with advisor approval.		
HIST 5342	PRINCIPLES OF ARCHIVES AND MUSEUMS I	3
HIST 5343	PRINCIPLES OF ARCHIVES AND MUSEUMS II	3
HIST 5644	ARCHIVAL/PUBLIC HISTORY INTERNSHIP	6
Final Term: Portfolio submitted; portfolio project completed and defended		
Total Hours		36

## Public History

Students desiring public history as an area of study as part of the Master of Arts in History must take:

### Requirements for Public History option:

HIST 5339	HISTORICAL THEORY AND METHODOLOGY	3
HIST 5340	ISSUES AND INTERPRETATIONS IN U.S. HISTORY	3
or HIST 5341	APPROACHES TO WORLD HISTORY	
Content courses (reading colloquia and research seminars) in U.S., European, African, Latin American, Transatlantic or Transnational history		12
HIST 5342	PRINCIPLES OF ARCHIVES AND MUSEUMS I	3
HIST 5343	PRINCIPLES OF ARCHIVES AND MUSEUMS II	3
HIST 5345	INTRODUCTION TO PUBLIC HISTORY	3
HIST 5348	TOPICS IN PUBLIC HISTORY	3
HIST 5644	ARCHIVAL/PUBLIC HISTORY INTERNSHIP	6
Final Term: Portfolio submitted; portfolio project completed and defended		
Total Hours		36

Students electing to complete an internship in archival management will also earn the certificate in archival administration (see Certificate section).

Students interested in either archival administration (see Certificate section) or public history as an area of study are encouraged to consult the Graduate Advisor to discuss a program of work.

## Master of Education in Teaching (M.Ed.T.)

History may be chosen as an appropriate academic specialization or teaching field for students enrolled in the Master of Education in Teaching Degree Program. The History Department offers courses that qualify as an academic area or teaching field for elementary and secondary teachers. HIST 5340 ISSUES AND INTERPRETATIONS IN U.S. HISTORY and/or HIST 5341 APPROACHES TO WORLD HISTORY are especially recommended for students in the M.Ed.T. program, and for others who wish to broaden their historical knowledge for classroom teaching. See Master of Education in Teaching Degree Program (p. 195).

## Ph.D. Program

### UNCONDITIONAL ADMISSION

The criteria for admission below are used, without specific weight, as positive indicators of potential success in the program. All criteria must be met in order to receive consideration for unconditional admission.

- A prior academic degree (B.A. or M.A. in History or related fields) from an accredited institution (verified by transcripts from each college or university previously attended sent directly from the registrar of that institution to Graduate Admissions).
- A minimum undergraduate GPA of 3.0 in the course of completing a B.A. degree in History or a related field from an accredited institution (verified by official transcripts from each college or university previously attended sent directly from the registrar of that institution to Graduate Admissions).
- An academic writing sample (e.g. research essay) from a previous course assignment.
- A letter of intent, describing the student's historical interests and how they intersect with the faculty and transatlantic focus of the Ph.D. program.
- Three letters of recommendation (from university or college professors) mailed directly from the recommenders to the History Ph.D. Advisor.
- A score of 156 or higher on the verbal section and a score of 5 or higher on the analytical writing section of the GRE aptitude test (verified by official GRE scores sent to Graduate Admissions). However standardized test performance is not the sole criterion for admission or the primary criterion to end consideration for admission.

### PROVISIONAL ADMISSION

An applicant unable to supply all required documentation (e.g., GRE scores) prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission. Provisionally admitted students must adequately satisfy any incomplete documentation by the end of the semester in which they are admitted. If the applicant fails to do so, the student will be dropped from the program. He or she may seek readmission when provisional requirements are complete.

### PROBATIONARY ADMISSION

An applicant whose credentials approximate but do not meet minimum admission standards, may be granted Probationary Admission subject to the condition that the candidate must earn no grade lower than a B in his/her first 12 semester hours of graduate work taken at UT Arlington.

### DEFERRAL OR DENIAL

If two or more of the criteria have not been met satisfactorily, the applicant will not be admitted on any of the three levels above but will receive deferral or denial. A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### APPLICATION DEADLINE

The Ph.D. admissions committee will begin its evaluation of completed applications on January 15 and will continue to meet periodically until the Graduate School deadline of June 15. Decisions concerning fellowships and assistantships will be made beginning March 15 and will continue thereafter depending on availability.

### PH.D. FELLOWSHIP STANDARDS

Fellowships, when available, will be awarded on a competitive basis. The criteria for Liberal Arts Special (Transatlantic) Doctoral Fellowships in History are:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- Undergraduate GPA of 3.25 for the last 60 undergraduate hours from an accredited institution.
- Three letters of recommendation (from faculty if possible)
- An academic writing sample (e.g. research essay, thesis chapter) from a previous undergraduate course assignment.

## Ph.D. Degree Requirements

Students accepted into the transatlantic PhD program are expected to take a total of 48 semester credit hours in a three-year period: During the first year, students take HIST 5339 HISTORICAL THEORY AND METHODOLOGY, HIST 5340 ISSUES AND INTERPRETATIONS IN U.S. HISTORY, HIST 5341 APPROACHES TO WORLD HISTORY and HIST 5349 INTRODUCTION TO TRANSATLANTIC HISTORY, as well as two colloquia (reading courses). During their second and third year, students take HIST 5347 INTRODUCTION TO TEACHING COLLEGE HISTORY and four additional colloquia and four seminars (research courses). At least two of the six colloquia and at least two of the four seminars must be in transatlantic history. At least one of the transatlantic colloquia must be labelled "early" and another "late". In their sixth semester, students commonly enroll in HIST 6690 DIRECTED STUDIES FOR PhD STUDENTS to prepare for the Comprehensive Exam.

### REQUIRED COURSES

HIST 5339	HISTORICAL THEORY AND METHODOLOGY	3
HIST 5340	ISSUES AND INTERPRETATIONS IN U.S. HISTORY	3

HIST 5341	APPROACHES TO WORLD HISTORY	3
HIST 5349	INTRODUCTION TO TRANSATLANTIC HISTORY	3
HIST 5360	READING COLLOQUIUM IN EARLY TRANSATLANTIC HISTORY	3
HIST 5361	READING COLLOQUIUM IN LATE TRANSATLANTIC HISTORY	3
HIST 6321	TRANSATLANTIC HISTORY TO 1800	3
HIST 6322	TRANSATLANTIC HISTORY POST 1800	3

Full time doctoral students are expected to take nine hours each semester. Part time students are required to take at least six hours each semester. Each semester a student must consult the Graduate Advisor before he/she can be cleared to register.

## RECOMMENDED COURSE OF STUDY FOR FULL-TIME STUDENTS

### First Year

First Semester	Hours	Second Semester	Hours
HIST 5339	3	HIST 5340	3
HIST 5349	3	HIST 5341	3
One colloquium	3	One colloquium	3
	<b>9</b>		<b>9</b>

### Second Year

First Semester	Hours	Second Semester	Hours
HIST 5347	3	One colloquium	3
One colloquium	3	One colloquium	3
One seminar	3	One seminar	3
	<b>9</b>		<b>9</b>

### Third Year

First Semester	Hours	Second Semester	Hours
One colloquium	3	One seminar	3
One colloquium	3	HIST 6690	6
One seminar	3		
	<b>9</b>		<b>9</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
Comprehensive Exam		HIST 6699	6
Dissertation Prospectus is due			
HIST 6990	9		
	<b>9</b>		<b>6</b>

### Fifth Year

First Semester	Hours	Second Semester	Hours
HIST 6699	6	HIST 6699	6
	<b>6</b>		<b>6</b>

**Sixth Year**

First Semester	Hours	Second Semester	Hours
HIST 6699	6	HIST 7399	3
	6		3

Total Hours: 90

## Diagnostic Evaluation

At the end of the first academic year or after the student has completed the first 18 hours of coursework, each student will have to pass a diagnostic evaluation. History faculty with whom the student has worked will be asked to submit a written evaluation of the student's potential to continue in the program, using a form developed by the Graduate Advisor. The Graduate Studies Committee will review these evaluations and give each student one of four results:

1. approval to continue in the doctoral program;
2. approval to continue with specified remedial work;
3. failure, but with permission for assessment through a second diagnostic evaluation after no more than one year;
4. failure and referral of the student to the MA program, in which the student will be allowed to work towards a terminal MA degree.

## Language Requirement

If the student has not already fulfilled the foreign language requirement before entering the MA/PhD program, he/she is expected to use the first three years in the program to satisfy the foreign language requirement. The student is expected to choose a language that will be required to work on the PhD topic of his/her choice. Each student is expected to have a solid reading knowledge in at least one transatlantic language (modern languages of the European and African peoples other than English). The language proficiency can be demonstrated in three different ways:

1. If the student has not already taken four semesters (from an accredited university) in a single foreign language with at least a B before being admitted to the MA/PhD program (within 10 years prior to admission), the student needs to complete four semesters in one foreign language with at least a grade of B prior to taking the Comprehensive Exam.
2. Demonstrating proficiency in a foreign language by taking the CLEP test and scoring 71-80 in German, 68-80 in French, and 67-80 in Spanish.
3. Taking the Reading Comprehension Exercise by an appropriate faculty member in which the student during one semester must read one monograph (about 200-300 pages) in a language other than English and submit a five-seven page summary in English, which must include up to three pages of direct translation.

The language requirement must be satisfied before the student can take the Comprehensive Exam. For the student at the dissertation stage, the candidate's doctoral committee may require that the student demonstrates competency in a second foreign language in the same fashion as the first foreign language if that second language is judged essential for the student's dissertation research.

## Comprehensive Exam

### COMPREHENSIVE EXAM COMMITTEE

If the student is allowed to stay in the program, he/she should, after consultation with the Ph.D. Advisor, consider establishing a five-member Comprehensive Exam Committee. The student must first ask a graduate faculty member whose research closely relates to the student's anticipated dissertation topic to chair the committee. The chair of the committee will then assist the student in assembling the rest of the committee. Four of the five committee members must be from UTA's History Department. The PhD advisor reserves the right to attend the oral portion of the Comprehensive Exam. One member can be from outside the department or even from another university. All five members of the committee will read and assess the comprehensive examination and the dissertation prospectus.

### COMPREHENSIVE EXAM

After the student has completed all or most of the 48 hours of coursework and satisfied the language requirement, he/she, upon consultation with the Ph.D. Advisor and the Comprehensive Exam Committee, should begin preparing for the Ph.D. Comprehensive Exam. It is strongly recommended that students wait until they have completed all 48 hours of coursework before they take the Exam. To prepare for the Comprehensive Examination, students may enroll in Independent Study courses, HIST 6190 DIRECTED STUDIES FOR PhD STUDENTS, HIST 6390 DIRECTED STUDIES FOR PhD STUDENTS, HIST 6690 DIRECTED STUDIES FOR PhD STUDENTS, or HIST 6990 DIRECTED STUDIES FOR PhD STUDENTS during their sixth semester.

Only after the student has the approval of the Ph.D. Advisor, he/she may arrange the date of the exam in consultation with all committee members. Please make sure to file the **Request for the Comprehensive Examination** in the first four weeks of the semester. (See the graduate program assistant in the History Department office to file the form.)

The Comprehensive Examination is meant to test the student's knowledge in at least three broad areas of study and to determine whether the student is prepared to teach in those areas. Students work with their professors to define each of their three exams. At least one of the three must be on a broad aspect of transatlantic history. The Department recommends that another of the three exams focus on a teaching field, perhaps defined in traditional regional or national terms, and that the third exam be defined in terms of a transnational historical theme or topic, like "History of Cartography," "Labor and Citizenship," "Gender and Power."

The written portion of the exam will be taken over a period of three consecutive days, seven hours each day, from 9:00 a.m. to 4:00 p.m. The students will be examined over one area each day. Beginning with the first morning, the student should report to the graduate program assistant in the History Department office, who will issue the student the relevant question(s) for that day's examination. Students may use a personal computer available in the department to take their examination. They may not use texts or notes during the exam. Chairs should ensure that time-limits for individual parts of the examination are observed.

After the written exams are completed and the committee has read all three parts, students will take the oral exam (within a week of the written exam). Students must take both the written and oral exams or they will automatically fail the comprehensive exam. After the oral exam is over, the committee members will discuss the exam as a whole (written and oral). Then the committee will be decided on one of the four options listed below.

1. Passed, approval and recommendation to begin dissertation research under the supervision of the committee chair.
2. Passed, approval to remain in the program upon meeting certain specified additional requirements.
3. Failed, with permission to retake the examination after a certain period as specified by the examining committee.
4. Failed: Recommendation not to continue in the program.

Students are required to pass this examination before they proceed to the dissertation (ABD) phase of the program.

## Dissertation Guidelines

By the end of the first semester after the successful completion of the Comprehensive Examination, the student should submit a dissertation prospectus to his/her committee and the Ph.D. Advisor who assures that it fulfills the expectations of a doctoral project in transatlantic history. The dissertation committee ordinarily consists of three of the five professors involved in the Comprehensive Examination of the student. **All three members of the dissertation committee must be members of the UT Arlington History Department. The student together with his/her primary supervisor may, if deemed necessary, invite outside readers to become additional members of the dissertation committee.** Students should work closely with the chair of their committee while researching and writing their dissertation.

During the dissertation phase of the program, students enroll in HIST 6399 DISSERTATION, HIST 6699 DISSERTATION and HIST 6999 DISSERTATION and, in exceptional cases with prior approval of the Ph.D. Advisor, in HIST 6190 DIRECTED STUDIES FOR PhD STUDENTS. HIST 6190 DIRECTED STUDIES FOR PhD STUDENTS may be taken by students following their Comprehensive Exams for a maximum of four semesters, if their dissertation chair concludes that in a given semester they are not engaged **full-time in work** on their dissertation. In the final semester of dissertation work, students must enroll in HIST 6999 DISSERTATION to be in compliance with the requirement of the Graduate School. Students should be aware that the dissertation defense should occur **after NO more than four years from the Comprehensive Examination**. If the student takes more time to finish the doctoral dissertation, he/she has to file for an extension with the Graduate School.

Once the student, the chair of the committee, and the primary readers agree that the dissertation is ready to be defended, the student must submit the **request for dissertation defense** form and schedule the **dissertation defense**. Before he/she **applies for graduation**, the student must receive approval from the Ph.D. Advisor. The student should furnish each committee member with a copy of the dissertation, including notes and bibliography, at least three weeks prior to the defense date. The oral defense of the dissertation generally lasts 1-2 hours. Questioning of the candidate will be supervised by the chair of the student's dissertation committee. Committee members may request that the dissertation be further revised and may withhold final approval of the dissertation until the revisions have been made. If the dissertation has been approved by the committee, the student has to submit the **dissertation** and the **dissertation defense report** to the Graduate School. The deadline dates for each semester are published in the Graduate School Calendar.

## Certificate Requirements

These studies involve application of historical knowledge and methodology in non-academic settings such as private businesses or public historical agencies (e.g., archives, museums, preservation societies).

Students desiring a certificate of archival administration or a certificate in public history should consult course requirements (p. 360).

Students already holding a M.A. or Ph.D. degree in history or a related field, as well as students enrolled in graduate programs other than history, who desire only a certificate in archival administration should consult the Graduate Advisor.

# History - Undergraduate Programs

## Overview

The study of history explores the basic forces that have shaped human affairs and is therefore a means for dealing with present concerns and future problems. An appreciation of our heritage develops a sense of our identity. Historical inquiry also provides the necessary background for the study of other disciplines such as economics, literature, art, language, and the social as well as natural sciences.

Students of history develop important critical skills that are the hallmark of educated people: the ability to reason and analyze; the capacity to investigate problems and synthesize diverse information; facility in expressing ideas or data clearly and precisely. The History Department encourages an open and questioning attitude toward the diversity of human experiences and ideas. An awareness of cultural differences between various groups of people will provide insights concerning the basic issues of world civilization. Students of history are encouraged to read analytically, speak cogently, and write coherently.

Both the curriculum and the methodology of the History Department are multifaceted. The History Department, therefore, requires that students take courses in both chronological and topical areas in United States and world history. The history faculty specializes in such diverse methodologies as quantitative analysis and social and political history, as well as the more traditional biographical and narrative approaches. Thus students are exposed to the many ways of studying the past and the present.

A degree in history prepares students for a variety of careers, including teaching, archival administration, business, journalism and communications, historical preservation, law, and public affairs. More importantly, by providing insight into the causes and effects of change in society, a knowledge of history prepares every individual for life in a complex world.

## Admission to Department of History Degree Programs

There are no special requirements that prospective majors in the Department of History must fulfill beyond entering with a minimum 2.25 GPA. In order to graduate students must have a 2.0 GPA overall and in history courses. Students are strongly encouraged to complete the core requirement before enrolling in upper level history courses.

## Requirements for a Bachelor of Arts Degree in History

### General Core Requirements

General Core Requirements (p. 93)	39
-----------------------------------	----

### Required Core for History

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
ENGL 2303	TOPICS IN LITERATURE	3
or ENGL 2309	WORLD LITERATURE	
or ENGL 2319	BRITISH LITERATURE	
or ENGL 2329	AMERICAN LITERATURE	
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
MATH 1301	CONTEMPORARY MATHEMATICS	3
or MATH 1302	COLLEGE ALGEBRA	
or MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1303	TRIGONOMETRY	3
or MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
or MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life & Physical Sciences (select 6 hours from general core requirements)		6
Social and Behavioral Sciences (Select one course from the general core requirements)		3
Creative Arts elective (Select one course from the general core requirements)		3
Foundational Component Area elective (Select one additional course from the general core requirements)		3
Electives - ten hours from any level		10
Electives - six hours from any 3000-4000 level courses		6

### Major Requirements for History

History Core <sup>1</sup>		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3

HIST 2301	HISTORY OF CIVILIZATION (or 2313 for pre-law majors)	3
HIST 2302	HISTORY OF CIVILIZATION (or 2314 for pre-law majors)	3
HIST 3300	INTRODUCTION TO HISTORICAL RESEARCH	3
History Concentration <sup>2</sup>		
Group A - U.S. History (select two courses between 3304 and 3373)		6
Group B - Non U.S. History (select two courses between 3374 and 4384)		6
Group A or B (Select three courses between 3304 and 4388)		9
Modern or Classical Language requirement (must be in same language)		14
Minor (see minor advisor for details)		18
<hr/>		
Total Hours		117

It is strongly recommended that history majors complete the core requirements before enrolling in upper level history courses.

Note: Please see undergraduate advisor for up-to-date information on degree totals.

- <sup>1</sup> **It is strongly recommended that history majors complete the core requirement before enrolling in upper level history courses.**
- <sup>2</sup> Students with a satisfactory SAT achievement score in U.S. history or other proof of a strong background in U.S. history may wish to enroll in an honors section or opt to substitute six hours of advanced courses in U.S. history.

**All history majors will design an appropriate course of upper level study in history in consultation with their advisor .**

## Bachelor of Arts Degree in History (Pre-Law Option)

<b>General Core Requirements</b>		
General Core Requirements (p. 93)		39
General Core requirements		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
ENGL 2303	TOPICS IN LITERATURE	3
or ENGL 2309	WORLD LITERATURE	
or ENGL 2319	BRITISH LITERATURE	
or ENGL 2329	AMERICAN LITERATURE	
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
MATH 1301	CONTEMPORARY MATHEMATICS	3
or MATH 1302	COLLEGE ALGEBRA	
or MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1303	TRIGONOMETRY	3
or MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
or MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life and Physical Sciences (select two courses from the general core requirements)		6
Creative Arts elective (see general core requirements)		3
Electives - any level		2
Major Requirements for History		
History Core		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
HIST 2313	HISTORY OF ENGLAND	3
or HIST 2301	HISTORY OF CIVILIZATION	
HIST 2314	HISTORY OF ENGLAND	3
or HIST 2302	HISTORY OF CIVILIZATION	
HIST 3300	INTRODUCTION TO HISTORICAL RESEARCH	3
or HIST 4394	HONORS THESIS/SENIOR PROJECT	
History Concentration		



Legal History - 12 hours from HIST 3307, HIST 3317, HIST 3318, HIST 3319, HIST 3320, HIST 3322, HIST 4350	12	
History electives - 3000-4000 level	6	
Other pre-law requirements		
Political Science - Six hours from POLS 3330, POLS 3331, POLS 3333, POLS 3334, POLS 3335, POLS 3336, POLS 4331, POLS 4332	6	
BLAW 3311	LAW I	3
or BLAW 3312	LAW II	
or BLAW 4310	BASIC INTERNATIONAL LAW FOR BUSINESS	
CRCJ 2334	INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM	3
or CRCJ 2340	CRIMINAL INVESTIGATION	
or CRCJ 3300	THEORETICAL CRIMINOLOGY	
or CRCJ 3337	ADVANCED CRIMINAL PROCEDURE	
or CRCJ 4380	COMPARATIVE CRIMINAL JUSTICE SYSTEMS	
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
or ECON 2306	PRINCIPLES OF MICROECONOMICS	
PHIL 1301	FUNDAMENTALS OF REASONING	3
or PHIL 2311	LOGIC	
Sociology or Anthropology (one class 3000-4000 level)		3
Modern or Classical Language requirement (must be same language)		14
Minor (see minor advisor for details)		18
<b>Total Hours</b>		<b>125</b>

**Note:** It is strongly recommended that history majors complete the core requirement before enrolling in upper level history courses.

**Note:** Please see undergraduate advisor for up-to-date information on degree totals.

## Teacher Certification

Students interested in Texas Teacher Certification at the elementary level should consult the College of Education and Health Professions section of this catalog for the most recent changes in requirements regarding admission to Teacher Education, completion of University programs in preparation for certification, and eligibility for certification after graduation. Students interested in secondary certification in social studies, including history, should see the History with Social Studies BA secondary certification plan below.

## Bachelor of Arts Degree in History with Secondary Level Teacher Certification for Social Studies

General Core Requirements		
General Core Requirements (p. 93)		39
<b>General Core Requirements</b>		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
ENGL 2303	TOPICS IN LITERATURE	3
or ENGL 2309	WORLD LITERATURE	
or ENGL 2319	BRITISH LITERATURE	
or ENGL 2329	AMERICAN LITERATURE	
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
MATH 1301	CONTEMPORARY MATHEMATICS	3
or MATH 1302	COLLEGE ALGEBRA	
or MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1303	TRIGONOMETRY	3
or MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
or MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life and Physical Sciences (select two courses from the general core requirements - geology recommended)		6
Creative Arts elective (see general core requirements)		3
Major Requirements for History		

History Core		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
HIST 2301	HISTORY OF CIVILIZATION	3
HIST 2302	HISTORY OF CIVILIZATION	3
HIST 3300	INTRODUCTION TO HISTORICAL RESEARCH	3
or HIST 4394	HONORS THESIS/SENIOR PROJECT	
History Concentration		
HIST 3363	TEXAS TO 1850	3
HIST 3364	TEXAS SINCE 1845	3
Group A - U.S. History (select two courses between 3304 and 3373)		6
Group B - Non-U.S. History (select three courses between 3374 and 4384)		9
Social Studies Certification Requirements		
Political Science - three hours from POLS 3306, POLS 3330, POLS 3331, POLS 3333, POLS 4314, POLS 4317, POLS 4318, POLS 4319, POLS 4324, POLS 4326, POLS 4330, POLS 4331, POLS 4332, POLS 4333, POLS 4334, POLS 4335, POLS 4350, or POLS 4354		3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
ECON 2306	PRINCIPLES OF MICROECONOMICS	3
GEOG 1302	INTRODUCTION TO HUMAN GEOGRAPHY	3
GEOG 1303	WORLD REGIONAL GEOGRAPHY	3
Geography elective (one course 3000-4000 level)		3
Modern or Classical Language requirement (must be in same language)		14
Education Courses		
Prior acceptance to the College of Education and Health Professions required		
EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
EDTC 4301	TECHNOLOGY APPLICATIONS	3
LIST 4343	CONTENT AREA READING AND WRITING	3
Field Experience (fall semester only)		
EDUC 4341	ORGANIZATION AND MANAGEMENT OF INSTRUCTION IN SECONDARY SCHOOLS	3
EDUC 4343	TEACHING SOCIAL STUDIES IN THE SECONDARY SCHOOL	3
EDUC 4352	TEACHING DIVERSE POPULATIONS	3
Field Experience (spring semester only - student teaching)		
EDUC 4647	SECONDARY STUDENT TEACHING	6
Total Hours		131

**Note:** Please see undergraduate advisor for up-to-date information on degree totals.

## Bachelor of Arts Degree in History with Secondary Level Teacher Certification for History

### General Core Requirements

General Core Requirements (p. 93) 39

### Required Core for History

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
ENGL 2303	TOPICS IN LITERATURE	3
or ENGL 2309	WORLD LITERATURE	
or ENGL 2319	BRITISH LITERATURE	
or ENGL 2329	AMERICAN LITERATURE	
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
MATH 1301	CONTEMPORARY MATHEMATICS	3
or MATH 1302	COLLEGE ALGEBRA	
or MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	

MATH 1303	TRIGONOMETRY	3
or MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
or MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life and Physical Sciences (select two courses from the general core requirements)		6
GEOG 1303	WORLD REGIONAL GEOGRAPHY	3
Creative Arts elective (see general core requirements)		3
Liberal Arts elective (2000 level or above)		3
Electives - any level		8
<b>Major Requirements for History</b>		
History Core		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
HIST 2301	HISTORY OF CIVILIZATION	3
HIST 2302	HISTORY OF CIVILIZATION	3
HIST 3300	INTRODUCTION TO HISTORICAL RESEARCH	3
or HIST 4394	HONORS THESIS/SENIOR PROJECT	
History Concentraion		
HIST 3363	TEXAS TO 1850	3
HIST 3364	TEXAS SINCE 1845	3
Group A - U.S. History (select two courses between 3304 and 3373)		6
Group B - Non-U.S. History (select three courses between 3374 and 4384)		9
Modern or Classical Language requirement (must be in same language)		14
<b>Education Courses</b>		
Prior acceptance to the College of Education and Health Professions required		
EDML 4300	PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT	3
EDTC 4301	TECHNOLOGY APPLICATIONS	3
LIST 4343	CONTENT AREA READING AND WRITING	3
Field Experience (fall semester only)		9
EDUC 4341	ORGANIZATION AND MANAGEMENT OF INSTRUCTION IN SECONDARY SCHOOLS	
EDUC 4343	TEACHING SOCIAL STUDIES IN THE SECONDARY SCHOOL	
EDUC 4352	TEACHING DIVERSE POPULATIONS	
Field Experience (spring semester only - student teaching)		6
EDUC 4647	SECONDARY STUDENT TEACHING	
Total Hours		117

**Note:** Please see undergraduate advisor for up-to-date information on degree totals.

## Oral Communication Competency

Students majoring in History demonstrate competency in oral communication by successfully completing HIST 3300 INTRODUCTION TO HISTORICAL RESEARCH. The department advisor must certify completion of this requirement.

## Computer Use Competency

Students majoring in History demonstrate competency in computer use by successfully completing the sophomore level of a Foreign Language course when taken at UT Arlington. If you satisfy your language requirement otherwise, consult the advisor for ways to satisfy this computer competency requirement. The department advisor must certify completion of this requirement.

## Minor in History

18 hours of history courses, at least six of which must be 3000/4000 level classes

## Minor in Disability Studies

The interdisciplinary field of disability studies explores the experiences of people with disabilities—one of the largest minorities in the United States and worldwide—as well as the ways in which conceptions and representations of disability and “the normal” have shaped human experiences more generally. Treating disability as a crucial element of human diversity, the Minor in Disability Studies approaches disability as a social, cultural, and

political construct rather than just a medical condition (as it is commonly viewed). Taught by faculty from the Colleges of Liberal Arts, Education and Health Professions, Architecture, Business, and Social Work, this flexible and multidisciplinary minor prepares students for a variety of graduate programs and for careers in law, education, public health, nursing, architecture, urban planning, and social work.

Students seeking to minor in Disability Studies should first consult with advisors in their major departments or programs for approval, then meet with the Director of the Minor in Disability Studies. A minor in Disability Studies consists of 18 hours, including two required courses: a core course on History of Disability (HIST 3307) and the Disability Studies Internship (DS 4395). Students must take at least 6 hours of other courses in Group A: Disability Studies and may take up to 6 hours of approved electives (Group B). No more than 12 hours may be completed in a single discipline.

History of Disability (HIST 3307) should be taken as early as possible; this course introduces students to disability studies and the histories of ideas about disability, the lives of people with disabilities, and disability policy. The Disability Studies Internship (DS 4395) is a supervised internship through which students apply the academic skills they have acquired in Disability Studies courses to work in a related business, academic, or non-profit environment. Students should complete DS 4395 as one of their last courses for the minor. In rare cases and with the director's permission, students may be allowed to substitute another course for DS 4395.

Some of the following courses change focus from term to term and may therefore not be relevant to the minor during a particular semester. Credit will only be given when the topic of the course (or a substantial portion) focuses on issues related to disability. Other relevant courses not listed below may also be used to fulfill the minor, with the approval of the Director of the Minor in Disability Studies. For that reason, it is important that students consult with the advisor for the minor before registering each semester. Students should consult the catalog and/or the appropriate department for course prerequisites.

#### Required Courses (six hours)

HIST 3307 or DS 3307	HISTORY OF DISABILITY	3
DS 4395	DISABILITY STUDIES INTERNSHIP	3

#### Group A: Disability Studies (at least six hours)

DS 3321	TOPICS IN DISABILITY STUDIES	3
DS 3331	RESEARCH IN DISABILITY STUDIES	3
DS 4391	CONFERENCE COURSE	3
KINE 3304	ADAPTED PHYSICAL EXERCISE & SPORT	3

#### Group A: Disability Studies (with prior approval from the director)

HIST 3300	INTRODUCTION TO HISTORICAL RESEARCH	3
HIST 4388	SELECTED TOPICS IN HISTORY	3

#### Group B: Approved electives

ANTH 3369	MEDICAL ANTHROPOLOGY	3
HIST 3317	U.S. LEGAL AND CONSTITUTIONAL HISTORY, COLONIAL TO 1877	3
HIST 3318	U.S. LEGAL AND CONSTITUTIONAL HISTORY, 1877 TO PRESENT	3
POLS 4340	FEDERAL SOCIAL POLICY	3
POLS 4350	HEALTH POLITICS AND POLICY	3
SOCI 3318	SELF AND SOCIAL IDENTITY	3
SOCI 3342 or KINE 3342	SOCIOLOGY OF THE HUMAN BODY	3
SOCI 4320	MEDICAL SOCIOLOGY	3

#### Group B: Approved electives (with prior approval from the director)

ANTH 3330	CULTURAL DIVERSITY AND IDENTITY	3
ECON 3301	THE ECONOMICS OF HEALTH	3
ENGL 3368	TOPICS IN GENDER AND SEXUALITY	3
ENGL 4345	TOPICS IN CRITICAL THEORY	3
GEOG 4350	SPECIAL TOPICS IN MODERN GEOGRAPHY	3
HIST 4388	SELECTED TOPICS IN HISTORY	3
KINE 2307	SPORTS AND SOCIETY	3
LING 2371	LANGUAGE IN A MULTICULTURAL USA	3
SOCI 3336	SOCIAL INEQUALITY	3
SOCW 3303	SOCIAL WELFARE POLICY AND SERVICES	3
SOCW 3317	HUMAN BEHAVIOR AND DIVERSE POPULATIONS	3

## Minor in Southwestern Studies

The Southwestern Studies minor fosters an interdisciplinary examination of an historically and culturally significant region—the southwestern United States and northern Mexico. The program offers opportunities for students to explore important topics in a regional context, including multicultural diversity, economic development, political and social change, art and literature, environment, cultural and historical geography, historical cartography, and architectural and urban history. The minor is supported by faculty from seven departments and is sponsored by the University's Center for Greater Southwestern Studies and the History of Cartography, which promotes the use of the UT Arlington Special Collections and the Minority Cultures Collection in the Central Library.

With the permission of their departmental advisor, students enroll in 18 hours selected primarily from the courses listed below. These hours must be distributed among at least three different departments.

Some of the following courses change content from offering to offering and might not be relevant to the minor during a particular year. In addition, special topics courses and/or courses taught outside the College of Liberal Arts may also be used to fulfill the Southwestern Studies minor with the permission of the Director of Southwestern Studies. For these reasons it is important that students consult with the Southwestern Studies faculty advisor before registering each semester.

### Anthropology

ANTH 3333	NORTH AMERICAN INDIANS	3
ANTH 3350	NORTH AMERICAN ARCHAEOLOGY	3

### Architecture

ARCH 4308	HISTORY OF URBAN FORM	3
-----------	-----------------------	---

### Art History

ART 3320	ART OF THE ANCIENT AMERICAS	3
----------	-----------------------------	---

### English

ENGL 3300	TOPICS IN LITERATURE ((if topic relevant))	3
ENGL 3344	AMERICAN INDIAN LITERATURE	3
ENGL 3346	MEXICAN AMERICAN LITERATURE	3
ENGL 4336	TOPICS IN AMERICAN LITERATURE ((if topic relevant))	3

### Geography

GEOG 3371	IMAGES OF THE SOUTHWEST	3
or HIST 3371	IMAGES OF THE SOUTHWEST	
GEOG 4301	HISTORICAL GEOGRAPHY AND CARTOGRAPHY	3
or HIST 4301	HISTORICAL GEOGRAPHY AND CARTOGRAPHY	
GEOG 4310	GEOGRAPHY OF THE GREATER SOUTHWEST	3
GEOG 4350	SPECIAL TOPICS IN MODERN GEOGRAPHY	3

### Mexican American Studies

MAS 3312	LATIN AMERICAN CULTURE AND CIVILIZATION	3
or SPAN 3312	LATIN AMERICAN CULTURE AND CIVILIZATION	
MAS 3317	MEXICAN POLITICS AND U.S.-MEXICO RELATIONS	3
or POLS 3317	MEXICAN POLITICS AND U.S.-MEXICO RELATIONS	
MAS 3352	THE SOUTHWEST	3
or HIST 3352	THE SOUTHWEST	
MAS 3363	TEXAS TO 1850	3
or HIST 3363	TEXAS TO 1850	
MAS 3368	MEXICAN AMERICAN HISTORY	3
or HIST 3368	MEXICAN AMERICAN HISTORY	
MAS 4313	TOPICS IN HISPANIC CULTURE	3
or SPAN 4313	TOPICS IN HISPANIC CULTURE	
MAS 4315	TOPICS IN CONTEMPORARY LATIN-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT	3
or SPAN 4315	TOPICS IN CONTEMPORARY LATIN-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT	
MAS 4317	CHICANO LITERATURE	3
or SPAN 4317	CHICANO LITERATURE	
MAS 4318	MEXICAN LITERATURE	3

or SPAN 4318	MEXICAN LITERATURE	
MAS 4319	POLITICS OF MEXICAN AMERICANS	3
or POLS 4319	POLITICS OF MEXICAN AMERICANS	
MAS 4368	HISTORY OF MEXICO	3
or HIST 4368	HISTORY OF MEXICO	
<b>History</b>		
HIST 3351	HISTORY OF THE DALLAS-FORT WORTH METROPLEX	3
HIST 3352	THE SOUTHWEST	3
or MAS 3352	THE SOUTHWEST	
HIST 3357	THE EARLY FRONTIER	3
HIST 3358	THE LATER FRONTIER	3
HIST 3363	TEXAS TO 1850	3
or MAS 3363	TEXAS TO 1850	
HIST 3364	TEXAS SINCE 1845	3
HIST 3367	AMERICAN INDIAN HISTORY	3
HIST 3368	MEXICAN AMERICAN HISTORY	3
or MAS 3368	MEXICAN AMERICAN HISTORY	
HIST 3370	THE IMAGE OF THE AMERICAN WEST	3
HIST 3371	IMAGES OF THE SOUTHWEST	3
or GEOG 3371	IMAGES OF THE SOUTHWEST	
HIST 4301	HISTORICAL GEOGRAPHY AND CARTOGRAPHY	3
or GEOG 4301	HISTORICAL GEOGRAPHY AND CARTOGRAPHY	
HIST 4365	HISTORY OF SPAIN AND PORTUGAL	3
HIST 4366	LATIN AMERICAN HISTORY: ORIGINS THROUGH INDEPENDENCE	3
HIST 4367	LATIN AMERICAN HISTORY: POST-INDEPENDENCE TO THE PRESENT	3
HIST 4368	HISTORY OF MEXICO	3
or MAS 4368	HISTORY OF MEXICO	
<b>Political Science</b>		
POLS 3316	DICTATORSHIP AND DEMOCRACY IN LATIN AMERICAN POLITICS	3
POLS 3317	MEXICAN POLITICS AND U.S.-MEXICO RELATIONS	3
or MAS 3317	MEXICAN POLITICS AND U.S.-MEXICO RELATIONS	
POLS 4319	POLITICS OF MEXICAN AMERICANS	3
or MAS 4319	POLITICS OF MEXICAN AMERICANS	
<b>Spanish</b>		
SPAN 3312	LATIN AMERICAN CULTURE AND CIVILIZATION	3
or MAS 3312	LATIN AMERICAN CULTURE AND CIVILIZATION	
SPAN 3320	INTRODUCTION TO HISPANIC LITERATURE AND CULTURE	3
SPAN 4313	TOPICS IN HISPANIC CULTURE	3
or MAS 4313	TOPICS IN HISPANIC CULTURE	
SPAN 4314	TOPICS IN LATIN-AMERICAN LITERATURE AND CULTURE TO MODERNISM	3
SPAN 4315	TOPICS IN CONTEMPORARY LATIN-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT	3
or MAS 4315	TOPICS IN CONTEMPORARY LATIN-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT	
SPAN 4317	CHICANO LITERATURE	3
or MAS 4317	CHICANO LITERATURE	
SPAN 4318	MEXICAN LITERATURE	3
or MAS 4318	MEXICAN LITERATURE	

## Minor in Medieval and Early Modern Studies

The medieval and early modern world saw major social and cultural changes—the rise of the middle class, the development of the individual, the emergence of the nation state, and the consolidation of many modern languages. The Medieval and Early Modern Studies minor fosters

interdepartmental study of these periods, encouraging students to explore and connect topics in language, literature, history, art, and philosophy. The minor in Medieval and Early Modern Studies comprises courses taught by members of various departments in the College of Liberal Arts.

Students seeking to minor in Medieval and Early Modern Studies should first consult with advisors in their departments or programs for approval of the minor, then with the Director of the Minor in Medieval and Early Modern Studies. A minor in Medieval and Early Modern Studies consists of 6 courses (18 hours total) selected from the courses listed below, with no more than 9 hours to be completed within any single discipline. In addition, other relevant topics courses not listed below may be used to fulfill the minor, with the approval of the director of the Minor in Medieval and Early Modern Studies. Students should consult the catalog and/or the appropriate department for prerequisites.

<b>ART</b>		
ART 3306	BYZANTINE AND MEDIEVAL ART	3
ART 3307	THE EARLY RENAISSANCE	3
ART 3308	HIGH RENAISSANCE	3
ART 4306	MID-RENAISSANCE	3
ART 4396	SPECIAL STUDIES IN ART HISTORY ((if topic relevant))	3
<b>English</b>		
ENGL 2303	TOPICS IN LITERATURE ((if topic relevant))	3
ENGL 2319	BRITISH LITERATURE	3
ENGL 3351	HISTORY OF BRITISH LITERATURE I	3
ENGL 4301	HISTORY OF THE ENGLISH LANGUAGE	3
ENGL 4321	MEDIEVAL ENGLISH LITERATURE	3
ENGL 4322	SIXTEENTH & SEVENTEENTH CENTURY BRITISH LITERATURE	3
ENGL 4325	CHAUCER	3
ENGL 4326	SHAKESPEARE	3
ENGL 4334	TOPICS IN BRITISH LITERATURE ((if topic relevant))	3
ENGL 4399	SENIOR SEMINAR	3
<b>French</b>		
FREN 3311	FRENCH LITERATURE AND CULTURE I	3
FREN 4332	STUDIES IN MEDIEVAL AND RENAISSANCE CULTURE	3
<b>German</b>		
GERM 3318	SPECIAL TOPICS IN GERMAN STUDIES I ((if topic relevant))	3
GERM 4321	TOPICS IN LITERATURE & CULTURE ((if topic relevant))	3
<b>History</b>		
HIST 2313	HISTORY OF ENGLAND	3
HIST 3376	MEDIEVAL EUROPE I	3
HIST 3377	MEDIEVAL EUROPE II	3
HIST 3378	EUROPE: THE RENAISSANCE	3
HIST 3379	EUROPE: THE REFORMATION AND COUNTER-REFORMATION	3
HIST 3383	EARLY MODERN EUROPE, 1560-1715	3
HIST 4330	MEDIEVAL CRUSADE AND JIHAD	3
HIST 4331	MEDIEVAL TRAVELERS	3
HIST 4345	TUDOR-STUART ENGLAND, 1485-1714	3
HIST 4354	EARLY FRANCE: OLD REGIME AND REVOLUTION, 1610-1799	3
HIST 4365	HISTORY OF SPAIN AND PORTUGAL	3
HIST 4388	SELECTED TOPICS IN HISTORY ((if topic relevant))	3
<b>Latin</b>		
LATN 1441	LATIN LEVEL I	4
LATN 1442	LATIN LEVEL II	4
LATN 2313	LATIN LEVEL III	3
LATN 2314	LATIN LEVEL IV	3
LATN 4391	CONFERENCE COURSE ((if topic relevant))	3
<b>Philosophy</b>		
PHIL 3302	HISTORY OF PHILOSOPHY: ROMAN AND MEDIEVAL PHILOSOPHY	3
PHIL 3303	HISTORY OF PHILOSOPHY: RENAISSANCE AND EARLY MODERN EUROPEAN PHILOSOPHY	3

**Spanish**

SPAN 3302	HISPANIC LITERATURE IN TRANSLATION ((if topic relevant))	3
SPAN 4310	TOPICS IN PENINSULAR SPANISH LITERATURE AND CULTURE TO THE EIGHTEENTH CENTURY	3
SPAN 4313	TOPICS IN HISPANIC CULTURE ((if topic relevant))	3
SPAN 4330	TOPICS IN SPANISH LINGUISTICS ((if topic relevant))	3

**Geography Minor**

18 hours, at least six advanced.

Geography is the study of humanity's interaction with the physical environment. Geographic conditions have had significant effects on history as interrelationships between place and human activities have changed over time. The study of geographic spatial relationships has a major role in general education because it offers both theoretical and practical foundations for understanding contemporary problems, particularly those related to environmentalism, modernization, and technological progress.

GEOG 1302	INTRODUCTION TO HUMAN GEOGRAPHY	3
GEOG 1303	WORLD REGIONAL GEOGRAPHY	3
GEOG 2401	WEATHER & CLIMATE	4
or GEOL 1340	WEATHER AND CLIMATE	
GEOG 3304	HISTORICAL GEOGRAPHY OF THE UNITED STATES TO 1850	3
or HIST 3304	HISTORICAL GEOGRAPHY OF THE UNITED STATES TO 1850	
GEOG 3305	HISTORICAL GEOGRAPHY OF THE UNITED STATES SINCE 1850	3
or HIST 3305	HISTORICAL GEOGRAPHY OF THE UNITED STATES SINCE 1850	
GEOG 3350	READING THE LANDSCAPE	3
or HIST 3350	READING THE LANDSCAPE	
GEOG 3355	ENVIRONMENTAL HISTORY OF THE UNITED STATES	3
or HIST 3355	ENVIRONMENTAL HISTORY OF THE UNITED STATES	
GEOG 3371	IMAGES OF THE SOUTHWEST	3
or HIST 3371	IMAGES OF THE SOUTHWEST	
GEOG 4191	CONFERENCE COURSE	1
GEOG 4291	CONFERENCE COURSE	2
GEOG 4301	HISTORICAL GEOGRAPHY AND CARTOGRAPHY	3
or HIST 4301	HISTORICAL GEOGRAPHY AND CARTOGRAPHY	
GEOG 4310	GEOGRAPHY OF THE GREATER SOUTHWEST	3
GEOG 4350	SPECIAL TOPICS IN MODERN GEOGRAPHY	3
GEOG 4391	CONFERENCE COURSE	3

**Linguistics****Undergraduate Degree**

- Bachelor of Arts in Linguistics (p. 383)
- Minor in Linguistics (p. 384)

**Graduate Degrees**

- Linguistics, M.A. (p. 377)
- Teaching English to Speakers of Other Languages, M.A. (p. 377)
- Linguistics, B.A. to Ph.D.
- Linguistics, Ph.D. (p. 379)

**Certificate**

- Undergraduate Certificate in Teaching English to Speakers of Other Languages (TESOL) (p. 385)
- Graduate Certificate in Teaching English to Speakers of Other Languages (TESOL) (p. 382)



# Linguistics - Graduate Programs

## Objectives

Linguistics is the scientific study of language, investigating the systematic aspects of sound patterns, word formation, sentences, and meaning. The Department of Linguistics and TESOL at the University of Texas at Arlington provides training in both linguistics and TESOL. In terms of linguistics degrees, the Department trains students so that they can describe, analyze and apply theories to data representing the core areas of the field: phonology (sound patterns), syntax (sentence structure), semantics (meaning), and pragmatics (meaning in context). Students receive a foundation that requires courses in theoretical phonology, syntax, semantics, and pragmatics, but there are also opportunities to build on these areas in terms of language documentation/field linguistics, corpus approaches, and experimental investigations. Many linguistics students pursue additional studies or doctoral concentrations in second language acquisition or work on an understudied or endangered language, areas in which Department faculty have considerable expertise. In terms of TESOL degrees, the programs cover relevant linguistic training, paired with courses in methodology and pedagogy, to equip graduates for professional careers in teaching English to speakers of other languages (TESOL). The TESOL degree programs include practicum and internship components so that students learn the theories that underlie the practice, but also receive ample opportunities to put those theories and skills into practice. Required course content includes second language acquisition, the phonological and grammatical structure of English, and curriculum design. There are also several courses where linguistics and TESOL students find their studies intersecting, such as in the second language acquisition, pragmatics, bilingualism, or language revitalization courses, which can be used as electives or specialization courses in various degree programs.

For further information on graduate degree programs in Linguistics, consult the program's Web site at <http://www.uta.edu/linguistics/current-students/degrees/index.php> or contact the Graduate Advisor.

## TESOL (TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES)

Graduate programs in TESOL are primarily designed for those with a background in English language and literature and/or education who plan to go on to teach English to adult learners. A graduate career in TESOL may also be appropriate to those with undergraduate study in a foreign language, international studies, or community development.

## Admission Requirements for Graduate Degree Programs in Linguistics

In evaluating candidates for admissions to its graduate degree programs, the Linguistics & TESOL Faculty has adopted a comprehensive approach that is sensitive to the diversity of backgrounds of its applicants. To this end, the following constellation of quantitative and qualitative factors has been established to make explicit the range of criteria upon which admissions decisions will be based. These factors are then applied to the Admission Metrics established for each degree program. (See below for admission requirements for the Graduate Certificate in TESOL.)

### ADMISSION FACTORS

Admission decisions into a degree program in the Department of Linguistics & TESOL are made on the basis of two types of factors, quantitative and qualitative. PhD applicants must include an academic writing sample.

1. Quantitative Factors
  - a. Grade Point Average (GPA)
    - i For M.A. program applicants, undergraduate GPA is determined by the U.T. Arlington Graduate School.
    - ii For Ph.D. program applicants, GPA is based on all graduate work completed and recorded at the time the applicant submits an application for admission.
    - iii For BA-to-PhD applicants, GPA is on the undergraduate GPA as determined by the U.T. Arlington Graduate School.
  - b. Graduate Record Examination (GRE) Scores. All applicants are required to submit GRE scores. There are no exceptions. The Department of Linguistics & TESOL evaluates each applicant's sub-scores separately: verbal, quantitative, and analytical.
  - c. TOEFL Scores (international applications only) Applicants for whom English is not their native language and who have not been granted either an undergraduate or graduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) or IELTS equivalent score. There are no exceptions.
2. Qualitative Factors
  - a. Letters of Recommendation. Each applicant must present three (3) letters of recommendation that unequivocally indicate that the applicant is prepared for and capable of successful graduate study in linguistics or TESOL at U.T. Arlington. The letters should further indicate that the applicant is capable of completing the appropriate degree program.
  - b. Statement of intent for academic study in our department. Each applicant must write a statement that explains their plan of study and specialization in our department. The statement will be evaluated on the degree to which it is clear, reasonable, and consistent with the research and teaching agenda of the current faculty in Linguistics & TESOL at U.T. Arlington. Prospective applicants should consider the departmental website and faculty research and teaching areas as they evaluate whether they would be able to accomplish their plan of study in our department, especially if they are applying to the doctoral program. Possible areas of specialization are those outlined at <http://www.uta.edu/linguistics/current-students/degrees/phd-linguistics/index.php>. The statement should also convey a level of commitment and maturity commensurate with the applicant's desired degree goals.

- c. Undergraduate Preparation. Applicants to the M.A. in TESOL program should have passed the following three courses or reasonable equivalents as determined by the graduate advisor (U.T. Arlington equivalents are noted in parentheses):
  - i English composition (ENGL 1302 RHETORIC AND COMPOSITION II)
  - ii A course on English-language literature (ENGL 2319 BRITISH LITERATURE, ENGL 2329 AMERICAN LITERATURE)
  - iii The equivalent of a fourth-semester course in a foreign language (SPAN 2314 INTERMEDIATE SPANISH II, FREN 2314 INTERMEDIATE FRENCH II, etc.). Students whose undergraduate education was delivered in a language other than English are exempt from this requirement.
- d. Applicants to the M.A. in Linguistics or Ph.D. in Linguistics programs should have passed the following three courses or reasonable equivalents as determined by the graduate advisor (U.T. Arlington equivalents are noted as in parentheses):
  - i English composition (ENGL 1302 RHETORIC AND COMPOSITION II)
  - ii College-level mathematics (MATH 1302 COLLEGE ALGEBRA)
  - iii A laboratory science (any 1000-level course in BIOL, CHEM, GEOL or PHYS; LING 5322 LABORATORY PHONOLOGY may also be used to fulfill this requirement)
- e. Applicants to the Ph.D. and the BA-to-Ph.D in Linguistics programs should present all of the following: evidence of research activity during undergraduate studies; an undergraduate transcript showing coursework which demonstrates that the applicant has passed with a B or higher the following three courses or reasonable equivalents as determined by the graduate advisor (U.T. Arlington equivalents are noted as in parentheses):
  - i Introduction to linguistics (LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE/LING 5300 LINGUISTIC ANALYSIS)
  - ii Phonetics and phonology (LING 3330 PHONETICS AND PHONOLOGY)
  - iii Morphology and syntax (LING 3340 GRAMMAR AND MORPHOLOGY)
- f. Previous Graduate Work (Ph.D. applicants only.) Ph.D. applicants must present at least 30 semester credit hours of previous graduate-level coursework in any field (not necessarily linguistics) and must meet the linguistics course equivalents (LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE/LING 5300 LINGUISTIC ANALYSIS, LING 3330 PHONETICS AND PHONOLOGY, LING 3340 GRAMMAR AND MORPHOLOGY).
- g. Ph.D. applicants who present fewer than 30 semester credit hours will be assessed based on whether they meet the criteria for unconditional admission for the accelerated Ph.D. in linguistics, and whether their coursework includes the linguistics course equivalents (LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE/LING 5300 LINGUISTIC ANALYSIS, LING 3330 PHONETICS AND PHONOLOGY, LING 3340 GRAMMAR AND MORPHOLOGY). Such candidates who meet the unconditional admission criterion and who also have passed the three linguistics course equivalents will be considered for the BA-to-PhD program (i.e., "doctoral-bound"). Ph.D. applicants who present fewer than 30 semester credit hours and do not meet the unconditional admission criterion AND also the criterion of passing the three linguistics course equivalents will automatically be considered as applicants to the M.A. Linguistics program.
- h. Writing Sample (required for PhD applicants, optional for other programs): Applicants must submit an academic writing sample (research paper) of 20 pages or less. The paper must be in an area of language or linguistic study, and demonstrate a strong prose style, a solid handle on argumentation, and the ability to do academic research in linguistics or a closely related field.

## ADMISSION METRICS

In formulating a recommendation for admission, the graduate advisors will apply the following admission metrics to each applicant's admission dossier.

- 1. M.A. in TESOL
  - a. Unconditional Admission. Typically, applicants for the M.A. in TESOL will be offered unconditional admission if they meet either of the following two sets of criteria:
    - i The applicant presents an undergraduate GPA of at least 3.0, a GRE Verbal score of at least 550 (156 on the 2011 or later version), a GRE Quantitative score of at least 450 (141 on the 2011 or later version), a GRE Analytical score of at least 4.5, and a full set of Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 100 iBt, or 250 if computer based, or 600 if paper based.
    - ii The applicant presents an undergraduate GPA of at least 3.5, a GRE Verbal score of at least 500 (153 on the 2011 or later version), a GRE Quantitative score of at least 400 (140 on the 2011 or later version), a GRE Analytical score of at least 4.0, and a full set of Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 100 iBt, or 250 if computer based, or 600 if paper based.
  - b. Probationary Admission. Applicants for the M.A. in TESOL typically present a complete application that has one of the following:
    - i includes a GRE Verbal score of less than 500 (153); or
    - ii includes a GRE Quantitative score of less than 400 (140); or
    - iii includes a GRE Analytical score of less than 4.0; or
    - iv lacks the undergraduate preparation specified above but who otherwise meet a majority of the remaining admission criteria (including an undergraduate GPA of at least 3.0), will be eligible for probationary admission. Students on probation must:

- complete any undergraduate courses necessary for unconditional admission during their first two semesters of study; and
- achieve a GPA of at least 3.3 in the first 9 graduate-level courses taken as an M.A. TESOL student.

## 2. M.A. in Linguistics

- a. Unconditional Admission. Typically, applicants for the M.A. in Linguistics will be offered unconditional admission if they meet either of the following sets of criteria:
  - i The applicant presents an undergraduate GPA of at least 3.0, a GRE Verbal score of at least 450 (150 on the 2011 or later version), a GRE Quantitative score of at least 550 (146 on the 2011 or later system), a GRE Analytical score of at least 4.5, and a full set of acceptable Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 100 iBt, or 250 if computer based, or 600 if paper based.
  - ii The applicant presents an undergraduate GPA of at least 3.5, a GRE Verbal score of at least 400 (146 on the 2011 or later version), a GRE Quantitative score of at least 500 (144 on the 201a or later system), a GRE Analytical score of at least 4.0, and a full set of acceptable Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 100 iBt, or 250 if computer based, or 600 if paper based.
- b. Probationary Admission. Applicants for the M.A. in Linguistics typically present a complete application that has one of the following:
  - i includes a GRE Verbal score of less than 400 (146); or
  - ii includes a GRE Quantitative score of less than 500 (144); or
  - iii includes a GRE Analytical score of less than 4.0; or
  - iv lacks the undergraduate preparation specified above, but who otherwise meet a majority of the remaining admission criteria (including an undergraduate GPA of at least 3.0), will be eligible for probationary admission. Students on probation must:
    - complete any undergraduate courses necessary for unconditional admission during their first two semesters of study; and
    - achieve a GPA of at least 3.3 in the first 9 graduate-level credit hours (in LING courses) as an M.A. Linguistics student.

## Master's Degree Requirements

### LINGUISTICS DEGREE PLANS

**M.A. Non-Thesis Degree Plan:** 36 hours of graduate-level coursework plus comprehensive examination on the coursework. Students requiring leveling courses must take from three to to nine additional hours, for a total of up to 45 hours.

### TESOL DEGREE PLANS

Requirements for master's degrees are given in the Advanced Degrees and Requirements section of this catalog. In addition, the following apply to those pursuing a graduate degree in TESOL:

**M.A. Non-Thesis Degree Plan:** 36 hours of graduate-level coursework plus comprehensive examination on the coursework.

All M.A. TESOL students must demonstrate knowledge of a foreign language prior to unconditional admission to the degree program. Those without such background may pursue study of a foreign language at U.T. Arlington concurrent with probationary enrollment in the M.A. TESOL program.

For additional information on prerequisites or degree requirements, consult the Graduate Advisor.

## Admission Requirements for Graduate Degree Programs in Linguistics

In evaluating candidates for admissions to its graduate degree programs, the Linguistics & TESOL Faculty has adopted a comprehensive approach that is sensitive to the diversity of backgrounds of its applicants. To this end, the following constellation of quantitative and qualitative factors has been established to make explicit the range of criteria upon which admissions decisions will be based. These factors are then applied to the Admission Metrics established for each degree program. (See below for admission requirements for the Graduate Certificate in TESOL.)

### ADMISSION FACTORS

Admission decisions into a degree program in the Department of Linguistics & TESOL are made on the basis of two types of factors, quantitative and qualitative. PhD applicants must include an academic writing sample.

1. Quantitative Factors
  - a. Grade Point Average (GPA)
    - i For M.A. program applicants, undergraduate GPA is determined by the U.T. Arlington Graduate School.
    - ii For Ph.D. program applicants, GPA is based on all graduate work completed and recorded at the time the applicant submits an application for admission.
    - iii For BA-to-PhD applicants, GPA is on the undergraduate GPA as determined by the U.T. Arlington Graduate School.

- b. Graduate Record Examination (GRE) Scores. All applicants are required to submit GRE scores. There are no exceptions. The Department of Linguistics & TESOL evaluates each applicant's sub-scores separately: verbal, quantitative, and analytical.
  - c. TOEFL Scores (international applications only) Applicants for whom English is not their native language and who have not been granted either an undergraduate or graduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) or IELTS equivalent score. There are no exceptions.
2. Qualitative Factors
- a. Letters of Recommendation. Each applicant must present three (3) letters of recommendation that unequivocally indicate that the applicant is prepared for and capable of successful graduate study in linguistics or TESOL at U.T. Arlington. The letters should further indicate that the applicant is capable of completing the appropriate degree program.
  - b. Statement of intent for academic study in our department. Each applicant must write a statement that explains their plan of study and specialization in our department. The statement will be evaluated on the degree to which it is clear, reasonable, and consistent with the research and teaching agenda of the current faculty in Linguistics & TESOL at U.T. Arlington. Prospective applicants should consider the departmental website and faculty research and teaching areas as they evaluate whether they would be able to accomplish their plan of study in our department, especially if they are applying to the doctoral program. Possible areas of specialization are those outlined at <http://www.uta.edu/linguistics/current-students/degrees/phd-linguistics/index.php>. The statement should also convey a level of commitment and maturity commensurate with the applicant's desired degree goals.
  - c. Undergraduate Preparation. Applicants to the M.A. in TESOL program should have passed the following three courses or reasonable equivalents as determined by the graduate advisor (U.T. Arlington equivalents are noted in parentheses):
    - i English composition (ENGL 1302 RHETORIC AND COMPOSITION II)
    - ii A course on English-language literature (ENGL 2319 BRITISH LITERATURE, ENGL 2329 AMERICAN LITERATURE)
    - iii The equivalent of a fourth-semester course in a foreign language (SPAN 2314 INTERMEDIATE SPANISH II, FREN 2314 INTERMEDIATE FRENCH II, etc.). Students whose undergraduate education was delivered in a language other than English are exempt from this requirement.
  - d. Applicants to the M.A. in Linguistics or Ph.D. in Linguistics programs should have passed the following three courses or reasonable equivalents as determined by the graduate advisor (U.T. Arlington equivalents are noted as in parentheses):
    - i English composition (ENGL 1302 RHETORIC AND COMPOSITION II)
    - ii College-level mathematics (MATH 1302 COLLEGE ALGEBRA)
    - iii A laboratory science (any 1000-level course in BIOL, CHEM, GEOL or PHYS; LING 5322 LABORATORY PHONOLOGY may also be used to fulfill this requirement)
  - e. Applicants to the Ph.D. and the BA-to-Ph.D in Linguistics programs should present all of the following: evidence of research activity during undergraduate studies; an undergraduate transcript showing coursework which demonstrates that the applicant has passed with a B or higher the following three courses or reasonable equivalents as determined by the graduate advisor (U.T. Arlington equivalents are noted as in parentheses):
    - i Introduction to linguistics (LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE/LING 5300 LINGUISTIC ANALYSIS)
    - ii Phonetics and phonology (LING 3330 PHONETICS AND PHONOLOGY)
    - iii Morphology and syntax (LING 3340 GRAMMAR AND MORPHOLOGY)
  - f. Previous Graduate Work (Ph.D. applicants only.) Ph.D. applicants must present at least 30 semester credit hours of previous graduate-level coursework in any field (not necessarily linguistics) and must meet the linguistics course equivalents (LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE/LING 5300 LINGUISTIC ANALYSIS, LING 3330 PHONETICS AND PHONOLOGY, LING 3340 GRAMMAR AND MORPHOLOGY).
  - g. Ph.D. applicants who present fewer than 30 semester credit hours will be assessed based on whether they meet the criteria for unconditional admission for the accelerated Ph.D. in linguistics, and whether their coursework includes the linguistics course equivalents (LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE/LING 5300 LINGUISTIC ANALYSIS, LING 3330 PHONETICS AND PHONOLOGY, LING 3340 GRAMMAR AND MORPHOLOGY). Such candidates who meet the unconditional admission criterion and who also have passed the three linguistics course equivalents will be considered for the BA-to-PhD program (i.e., "doctoral-bound"). Ph.D. applicants who present fewer than 30 semester credit hours and do not meet the unconditional admission criterion AND also the criterion of passing the three linguistics course equivalents will automatically be considered as applicants to the M.A. Linguistics program.
  - h. Writing Sample (required for PhD applicants, optional for other programs): Applicants must submit an academic writing sample (research paper) of 20 pages or less. The paper must be in an area of language or linguistic study, and demonstrate a strong prose style, a solid handle on argumentation, and the ability to do academic research in linguistics or a closely related field.

## ADMISSION METRICS

In formulating a recommendation for admission, the graduate advisors will apply the following admission metrics to each applicant's admission dossier.

- 1. BA-to-PhD applicants in Linguistics
  - a. Unconditional admission. Typically, applicants for the BA-to-Ph.D. in Linguistics program must be admitted unconditionally. Unconditional admission requirements are as follows. The applicant presents an undergraduate GPA of at least 3.6 (on a 4.0 scale) based on upper division course work (junior and senior level or equivalent) in a four year BA in linguistics program or a BA or BS in an allied field. Regardless of degree

program, the coursework must include courses equivalent to LING 3330 PHONETICS AND PHONOLOGY and LING 3340 GRAMMAR AND MORPHOLOGY. In addition, the applicant presents a GRE Verbal score of at least 450, a GRE Quantitative score of at least 550, a GRE Analytical score of at least 4.0, and a full set of excellent Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also submit a Test of English as a Foreign Language (TOEFL) score of at least 100 iBt, or 250 if computer based, or 600 if paper based (or its IELTS equivalent) and also submit a score from the Test of Spoken English, the Speaking Section of the TOEFL iBT, or the Speaking Section of the IELTS that documents the applicant's proficiency in spoken English. The speaking score is used for making determination for assistantships; applicants who wish to be considered for an assistantship must receive a score of 45 or higher on the TSE, a score of 23 on the Speaking Section of the TOEFL iBT, or a score of 7 on the Speaking Section of the IELTS. This and other requirements for holding an assistantship are described in the Graduate Assistantship/ Associateship Policy.

## 2. Ph.D. in Linguistics

- a. Unconditional Admission. Typically, applicants for the Ph.D. in Linguistics will be eligible for unconditional admission if they meet either of the following sets of criteria:
  - i The applicant presents a graduate GPA of at least 3.3, a GRE Verbal score of at least 500 (153 on the 2011 or later version), a GRE Quantitative score of at least 600 (148 on the 2011 or later version), a GRE Analytical score of at least 4.5, and a full set of excellent Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also submit scores on the Speaking section of either the Test of English as a Foreign Language (TOEFL) or the IELTS. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also submit a Test of English as a Foreign Language (TOEFL) score of at least 100 iBt, or 250 if computer based, or 600 if paper based (or its IELTS equivalent) and also submit a score from the Test of Spoken English, the Speaking Section of the TOEFL iBT, or the Speaking Section of the IELTS. that documents the applicant's proficiency in spoken English. The speaking score is used for making determinations for assistantships; applicants who wish to be considered for an assistantship must receive a score of 45 or higher on the TSE, a score of 23 on the Speaking Section of the TOEFL iBT, or a score of 7 on the Speaking Section of the IELTS. This and other requirements for holding an assistantship are described in the University's Graduate Assistantship/ Associateship Policy.
  - ii The applicant presents an undergraduate GPA of at least 3.6, a GRE Verbal score of at least 450 (150 on the 2011 or later version), a GRE Quantitative score of at least 550 (146 on the 2011 or later version), a GRE Analytical score of at least 4.0, and a full set of excellent Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also submit a Test of English as a Foreign Language (TOEFL) score of at least 100 iBt, or 250 if computer based, or 600 if paper based (or its IELTS equivalent) and also submit a score from the Test of Spoken English, the Speaking Section of the TOEFL iBT, or the Speaking Section of the IELTS. that documents the applicants' proficiency in spoken English. The speaking score is used for making determinations for assistantships; applicants who wish to be considered for an assistantship must receive a score of 45 or higher on the TSE, a score of 23 on the Speaking Section of the TOEFL iBT, or a score of 7 on the Speaking Section of the IELTS. This and other requirements for holding an assistantship are described in the University's Graduate Assistantship/ Associateship Policy.
- b. Probationary Admission. Applicants for the Ph.D. in Linguistics typically present a complete application that has one of the following:
  - i includes a GRE Verbal score of less than 450 (150);
  - ii or includes a GRE Quantitative score of less than 550 (146); or
  - iii includes a GRE Analytical score of less than 4.0
  - iv lacks the undergraduate preparation specified above but who otherwise meet a majority of the remaining admission criteria (including a graduate GPA of at least 3.3 and for doctoral admissions, presents strong qualitative materials), will be considered for probationary admission. Students on probation must:
    - Deferred Admission Applicants for whom the admission file is incomplete will have a final decision admission deferred. In such cases, a final decision will be made only when the applicant presents a complete admission file.
    - Denial of Admission Applicants who do not meet a majority of the admission standards (both quantitative and qualitative) set forth above will be denied admission. For doctoral admission in particular, qualitative factors such as writing sample, statement of intent, or area of intended work may result in a student being denied admission even when quantitative factors are met.
    - Regarding Provisional Admission: The Department of Linguistics and TESOL does not permit Provisional Admission. All applicants must present a complete set of credentials before their application will be evaluated.

## Doctoral Degree Requirements

### PH.D. DEGREE PLAN

Students entering the Ph.D. program (including those entering as doctoral-bound) must enter having the equivalent of LING 5300 LINGUISTIC ANALYSIS/LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE, LING 3330 PHONETICS AND PHONOLOGY, and LING 3340 GRAMMAR AND MORPHOLOGY. The first semester of the program requires enrollment in LING 5320 PHONOLOGICAL THEORY and LING 5330 FORMAL SYNTAX. The doctoral degree requires graduate coursework as follows: 18 hours of linguistic core courses, 9 hours of methods courses, 3 hours of professional development, 6 hours in an area of specialization, 6 hours of seminar courses (separate from other requirements and with at least one in planned area of specialization), 3 hours of electives, 3 hours of dissertation proposal preparation (LING 6391 RESEARCH IN LINGUISTICS) and 9 hours of

dissertation (LING 6999 DISSERTATION). Students entering with a M.A. in linguistics may be able to waive up to 15 hours, at the discretion of the department, for equivalent courses completed at a B or higher in their master's program.

### Theoretical Core Courses

LING 5320	PHONOLOGICAL THEORY	3
LING 5321	ADVANCED PHONOLOGICAL THEORY	3
LING 5330	FORMAL SYNTAX	3
LING 5331	ADVANCED FORMAL SYNTAX	3
LING 5345	SEMANTICS	3
LING 5347	PRAGMATICS	3

### Methods Courses

Select three of the following four courses

LING 5380	FIELD METHODS	
LING 5381	CORPUS LINGUISTICS	
LING 6380	FIELD METHODS SEMINAR	
LING 6381	RESEARCH DESIGN AND STATISTICS (or an approved course in research design or statistics offered by another department)	

### Professional Development Course

LING 6300	PROFESSIONAL WRITING SEMINAR	3
-----------	------------------------------	---

### Specialization Courses

		6
--	--	---

### Elective

		3
--	--	---

### Seminar Requirement

		6
--	--	---

Select two of the following: <sup>1</sup>

LING 6390	LINGUISTICS SEMINAR	
LING 6392	SEMINAR IN PHONETICS AND PHONOLOGY	
LING 6393	SEMINAR IN SYNTAX	
LING 6394	SEMINAR IN SEMANTICS AND PRAGMATICS	
LING 6395	SEMINAR IN SECOND LANGUAGE ACQUISITION	

Total Hours		45
-------------	--	----

<sup>1</sup> Students should consult with their advisor in planning choices; at least one seminar must be in area of specialization.

BA-to-PH.D. students must successfully defend their dissertation proposal in order to be granted the M.A. degree in linguistics.

All Ph.D. students must demonstrate knowledge of core areas in linguistics by passing the diagnostic examination requirement outlined on the departmental website.

Doctoral students must satisfy all the coursework requirements of the doctoral program (including specialization and seminar courses) prior to taking courses that do not fulfill the requirements. Any exception to this policy must be approved by a majority vote of the Graduate Studies Committee.

In addition, there are foreign language and professional activities requirements that must be met. Visit <http://www.uta.edu/linguistics/current-students/degrees/phd-linguistics/index.php> for details.

## Admissions Requirements for the Graduate Certificate in TESOL

Students wishing to apply to the U.T. Arlington Graduate School solely for the purpose of earning the Graduate Certificate in TESOL must have earned an undergraduate degree at an accredited institution and present an undergraduate GPA of at least 3.0 (as determined by the U.T. Arlington Graduate School). Applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 100 iBt, or 250 if computer based, or 600 if paper based.

Students seeking to transfer from Special Student or Certificate status into a graduate degree program at U.T. Arlington must re-apply to the U.T. Arlington Graduate School as degree-seeking students and meet all published admissions requirements, including those pertaining to standardized tests. No student will be "automatically" or "exceptionally" moved from Special Student or Certificate status into any graduate degree program.

The Web site for the U.T. Arlington Office of Graduate Studies provides additional information about graduate study at U.T. Arlington and about the admission process, including general testing requirements and other paperwork. Students may apply for admission online or request application materials be sent via post.

## Certificate in Teaching English to Speakers of Other Languages (TESOL)

This program provides preparation through study and practice for the individual who wishes to teach English to speakers of other languages. It is available to any student who has been admitted to the Graduate School at U.T. Arlington.

The certificate requires:

### Course Work

LING 5300	LINGUISTIC ANALYSIS <sup>1,3</sup>	3
LING 5301	TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE <sup>2,3</sup>	3
LING 5302	METHODS AND MATERIALS FOR TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE	3
LING 5305	SECOND LANGUAGE ACQUISITION	3
LING 5310	SOCIOLINGUISTICS	3
LING 5304 or LING 5307	PEDAGOGICAL GRAMMAR OF ENGLISH PEDAGOGICAL PHONOLOGY OF ENGLISH	3
<b>Practicum</b>		
LING 5110	TESOL PRACTICUM	1
Total Hours		19

- LING 5300 LINGUISTIC ANALYSIS (or equivalent linguistics course work) is a prerequisite for LING 5301 TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE, LING 5302 METHODS AND MATERIALS FOR TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE, and LING 5305 SECOND LANGUAGE ACQUISITION.
- LING 5301 TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE is a prerequisite for LING 5304 PEDAGOGICAL GRAMMAR OF ENGLISH and LING 5307 PEDAGOGICAL PHONOLOGY OF ENGLISH.
- Even if the student presents an equivalency of LING 5300 LINGUISTIC ANALYSIS, LING 5301 TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE, and/or other course work, the 18-hour requirement must be met.

A maximum of three credit hours of course work done at another institution can be transferred and counted toward the certificate.

Upon beginning study for the certificate, the student should contact the Graduate Advisor in TESOL to declare the intention to earn the certificate.

## Linguistics and TESOL - Undergraduate Programs

### Overview

Linguistics is the discipline that studies the structures, acquisition, and histories of human languages around the world. Linguists are not, then, principally people who know many languages, but rather people who investigate how a language is organized and what features all languages exhibit.

The Department of Linguistics and TESOL at UT Arlington is especially concerned with the study of minority, often endangered, languages. The curriculum offers students enriching insight into the cultural diversity represented in the more than 6,000 living languages currently known on the planet. The department also presents current approaches to the teaching of English to speakers of other languages.

The study of linguistics prepares students for a variety of careers, among them teaching English to speakers of other languages in the United States and abroad, brand naming (lexicon work), information and intelligence analyst, language policy, forensic linguistics and the law, computer analysis of language, language education, and graduate study in linguistics. Above all, students in the Department of Linguistics and TESOL are made especially aware of the complex world in which we live by studying a universal and most definitive human experience: language.

### Requirements for a Bachelor of Arts Degree in Linguistics

#### Pre-Professional Courses

General Core Requirements (p. 93)		39
Recommended Core Requirements		
LING 2301	INTRODUCTION TO THE STUDY OF HUMAN LANGUAGES	3
LING 2371	LANGUAGE IN A MULTICULTURAL USA	3
Program Requirements		
LING 3345	CRITICAL REASONING IN LINGUISTICS <sup>2</sup>	3
Select one of the following: <sup>3</sup>		
Sophomore level of a Foreign Language course when taken at UT Arlington		
LING 4330	CORPUS LINGUISTICS	

Electives <sup>4</sup>**Professional Courses**

Major		
Linguistics course at the 2000 level		3
LING 3311	INTRODUCTION TO LINGUISTIC SCIENCE	3
LING 3330	PHONETICS AND PHONOLOGY	3
LING 3340	GRAMMAR AND MORPHOLOGY	3
LING 4370	HISTORY OF LINGUISTICS	3
LING 3345	CRITICAL REASONING IN LINGUISTICS	3
or PHIL 2311	LOGIC	
LING 4301	PHONOLOGICAL THEORY I	3
or LING 4303	FORMAL SYNTAX	
Linguistics courses at 3000/4000 level		12
Service-Learning Requirement (see below)		3
Enhanced Language Requirement (see below)		
Electives <sup>4</sup>		
Total Hours		84

1 For a list of approved courses, contact the University Advising Center or the student's major department.

2 The department advisor must certify completion of this requirement.

3 If neither of these conditions are met, consult the advisor for ways to satisfy this computer competency requirement. The department advisor must certify completion of this requirement.

4 Sufficient number of hours to complete the total hours required for a degree.

**Note:** The 12 additional hours of linguistics courses at the 3000/4000 level may include linguistics courses offered by other departments, with approval of the department advisor, provided those courses do not satisfy either the Enhanced Language Requirement or the Minor. Under no circumstances can courses used for the Enhanced Language Requirement or Minor be used to satisfy requirements for linguistics major courses.

**SERVICE-LEARNING REQUIREMENT**

This will be satisfied by the student enrolling in and earning at least a 2.0 in three hours of credit from a departmental course designated as "service-learning." A course may satisfy both the service-learning requirement and the hours requirements for the major. (For example, LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE if taught as service-learning could satisfy the major requirement and the service-learning requirement.) The Department will maintain a list of courses and section numbers by semesters/year (i.e., Fall 2010) for verification of this requirement, and the department advisor must certify completion of this requirement.

**ENHANCED LANGUAGE REQUIREMENT**

The enhanced language requirement consists of coursework that covers the first year, second year, and third year levels of instruction in a single language. This requirement is equivalent of three years of language instruction, up to and including six hours at the 3000-level in a single language, where that language is not English and is not the student's home language. Classical, modern, signed or indigenous (for example, Native American) languages are all permissible languages to satisfy this requirement.

**Requirements for a Minor in Linguistics**

All undergraduate students who elect to minor in linguistics must take:

LING 2301	INTRODUCTION TO THE STUDY OF HUMAN LANGUAGES	3
LING 3311	INTRODUCTION TO LINGUISTIC SCIENCE	3
LING 3330	PHONETICS AND PHONOLOGY	3
or LING 3340	GRAMMAR AND MORPHOLOGY	
One course at the 4000-level with a LING prefix		3
Any undergraduate level course bearing the LING prefix <sup>1</sup>		6
Total Hours		18



- <sup>1</sup> Students intending to pursue graduate study in linguistics should, however, follow a course program that includes these courses as part of their minor: LING 2301 INTRODUCTION TO THE STUDY OF HUMAN LANGUAGES, LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE, LING 3330 PHONETICS AND PHONOLOGY, and LING 3340 GRAMMAR AND MORPHOLOGY.

## MINOR

18 hours in an allied field (psychology, anthropology, philosophy, education, computer science, classical/modern languages, or another field approved by the undergraduate advisor). A student may choose to use the same 18 hours to simultaneously satisfy the enhanced language requirement and the minor requirement. However, if language courses are used to fulfill both the Enhanced Language Requirement and the Minor Requirement, the student must complete the remaining 18 hrs with a second minor, to maintain a total of 120 hours for the degree.

## Requirements for an Undergraduate Certificate in TESOL

Students interested in receiving theoretical and practical training in Teaching English to Speakers of Other Languages (TESOL) are encouraged to consider this five-course certificate program. The Undergraduate Certificate in TESOL offers a sequence of courses which introduces linguistics, second language acquisition, and methods and materials in TESOL instruction, paired with the an internship required to consist of 60 hours of volunteer ESL/ literacy teaching in a local community service organization. Students take:

LING 3311	INTRODUCTION TO LINGUISTIC SCIENCE	3
LING 4327	SECOND LANGUAGE ACQUISITION	3
LING 4353	TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE	3
LING 4354	METHODS AND MATERIALS TO TEACH ENGLISH AS A SECOND OR FOREIGN LANGUAGE	3
LING 4395	INTERNSHIP	3
Total Hours		15

Ideally, students should start the sequence with LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE and use LING 4395 INTERNSHIP as the final course in this sequence. This certificate is ideal for students interested in earning a credential to increase employment opportunities, such as teaching English abroad. This certificate can be paired with a bachelor's degree in another discipline. Students who are interested in earning the BA in Linguistics with the Undergraduate Certificate in TESOL may apply the 4000 level courses required by the certificate to the degree requirement of 12 hours at the 3000/4000 level. This optimal sequencing will allow students to graduate with a BA in Linguistics and an Undergraduate Certificate in TESOL without adding additional hours to their degree requirements. Contact the Undergraduate Advisor for more information on this program.

## Mexican American Studies

The Center for Mexican American Studies in the College of Liberal Arts offers a minor that is available to all students. A Mexican American Studies (MAS) minor consists of 18 total credit hours: one required introductory course, one required course taught by Mexican American Studies faculty, and four electives selected from the lists below. Either of the two required courses not taken to fulfill the required course segment of the minor may be taken as an elective towards the minor. After consulting with their major departments or programs, students will file a degree plan for the MAS minor at the Center for Mexican American Studies. Courses not listed below may qualify as electives with the approval of the director of the Center for Mexican American Studies.

### Minor in Mexican American Studies

#### Required Courses

MAS 2300	INTRODUCTION TO MEXICAN AMERICAN STUDIES	3
MAS 3310	LATINOS IN THE UNITED STATES	3
or MAS 3314	THE LATINA EXPERIENCE	
or MAS 3346	MEXICAN AMERICAN LITERATURE	
or MAS 3368	MEXICAN AMERICAN HISTORY	

#### Electives (Choose four electives from the below) 12

MAS 3312	LATIN AMERICAN CULTURE AND CIVILIZATION	
MAS/POLS 3317	MEXICAN POLITICS AND U.S.-MEXICO RELATIONS	
MAS 3319/SOCW 3317	HUMAN BEHAVIOR AND DIVERSE POPULATIONS	
MAS/ANTH 3330	CULTURAL DIVERSITY AND IDENTITY	
MAS/SOCI 3337	RACIAL & ETHNIC GROUPS IN US	
MAS/ANTH 3348	LATINO IMMIGRATION TO THE U.S.	
MAS/HIST 3352	THE SOUTHWEST	
MAS/HIST 3363	TEXAS TO 1850	
MAS/CRCJ 3380	RACE, CRIME, AND JUSTICE	

MAS/SPAN 4313	TOPICS IN HISPANIC CULTURE
MAS/SPAN 4315	TOPICS IN CONTEMPORARY LATIN-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT
MAS/SPAN 4317	CHICANO LITERATURE
POLS 4317	ETHNIC GROUP POLITICS IN THE UNITED STATES
MAS/SPAN 4318	MEXICAN LITERATURE
MAS/POLS 4319	POLITICS OF MEXICAN AMERICANS
MAS/SPAN/WOMS 4327	WOMEN IN HISPANIC LITERATURE
MAS 4350	TOPICS IN MEXICAN AMERICAN STUDIES
SOCI 4365/WOMS 4392	TOPICS IN SOCIOLOGY *
MAS/HIST 4368	HISTORY OF MEXICO
MAS 4391	CONFERENCE COURSE

Total Hours

18

\* Permitted when the topic pertains to Hispanic women.

Either of the two required courses not taken to fulfill the required course segment of the minor may be taken as an elective towards the minor. After consulting with their major departments or programs, students will file a degree plan for the MAS minor at the Center for Mexican American Studies. Courses not listed below may qualify as electives with the approval of the director of the Center for Mexican American Studies.

## Military Science - Undergraduate Program

### Purpose

The ROTC program at The University of Texas at Arlington offers a unique opportunity for quality students to assess and develop their leadership skills. A wide variety of settings are provided to expose students to the styles, techniques, and tools of leadership. It also develops college-educated officers for the active Army and the reserve components (U.S. Army Reserve and Army National Guard). This affords the student the opportunity to pursue either a civilian or a military career after completing college.

### Programs Available

#### GENERAL INFORMATION

**Classroom:** Examine theory, principles and techniques. Review leadership from a historical perspective through case studies and presentations. Communications skills emphasized.

**Lab:** Practical application of theory and opportunity for each student to be assessed. Immediate feedback provided enabling students to build on the experience gained. Individual skills and team-building emphasized.

**Corps of Cadets:** Leadership positions assigned according to demonstrated individual progress. Provides a forum for individual growth by working within a structured organization. Emphasis on counseling, coaching, mentorship, and coordination.

**Field Training:** A unique opportunity to gain experience under stressful and challenging situations. Students are placed in environments to test their abilities and reactions in leading small groups. Emphasis on decision-making, endurance, and reaction under stress to build self-confidence.

**Simultaneous Membership Program:** An opportunity to serve in a National Guard or Reserve unit as an officer trainee while participating in ROTC and attending UT Arlington. Emphasis on planning and organizing. Programs tailored to meet individual needs.

**Army Schools:** Develop skills through exposure to other students and soldiers from around the country by attending Airborne, Air Assault, or other schools. Emphasis on increased experience.

**Leadership Development Assessment Course:** Five weeks of high-intensity training with students from across the nation, designed to evaluate individual leadership potential. Emphasis placed on evaluation/development of the individual. Student receives pay. Travel, lodging and most meal costs are paid for by the Army.

**Leadership Training Camp:** A five-week summer camp conducted at an Army post. The environment is rigorous and stresses leadership, initiative and self-discipline. No military obligation incurred. The student receives pay. Travel, lodging and most meal costs are paid for by the Army.

**Four-Year Program:** The traditional program of Army ROTC is a program of instruction which extends over four years of college. The four-year program is divided into two phases—a two-year basic course and a two-year advanced course. The basic course is normally taken by students during their freshman and sophomore years. The purpose of the basic course is to introduce students to general military subjects and leadership principles. There is no military obligation incurred for attending the basic course.

The student who wishes to enter the advanced course, normally taken during the junior and senior years, must apply for it; must meet eligibility requirements including a physical examination; and must sign an agreement to complete the last two years of Army ROTC and accept a commission as a U.S. Army Officer. Students auditing courses or students not eligible for commissioning into the Army will receive P/F grades only.

**Two-Year Program:** This program is offered for students who have had two years of college remaining to graduate. Students must meet ROTC advanced course eligibility requirements. Prior military service, JROTC experience, and attendance at the Leadership Training Camp (LTC) are some of the ways to meet ROTC advanced course enrollment eligibility.

## Scholarships

The U.S. Army Scholarship Program provides an excellent way for young men and young women to obtain assistance in financing a college education. Every scholarship provides for payment of all expenses incurred for fees and tuition, an allowance for books and supplies, and up to \$400 a month for up to 10 months per year. There are scholarships offered in all four years with payments ranging from one to four years. Initial application may be made during the student's senior year in high school or freshman year in college. Each year more scholarships are added to the program. These scholarships are merit based and are not contingent on financial need. All students are encouraged to make application through the Military Science Department.

## Minor in Military Science

Military science may be used as a minor course of study in many degree programs at The University of Texas at Arlington.

To be eligible, the student must:

MILS 3341	LEADERSHIP I	3
MILS 3342	LEADERSHIP II	3
MILS 4341	ADVANCED LEADERSHIP I	3
MILS 4342	ADVANCED LEADERSHIP II	3
MILS 4391	CONFERENCE COURSE	3

1. be enrolled in the ROTC program,
2. receive acceptance of military science as a minor from his/her major degree department,
3. successfully complete with a grade of B or better in four of the following:
4. successfully complete 6 additional military science hours with a grade of B or better of any level (MILS 0180 LEADERSHIP LAB can be repeated to meet this requirement),
5. successfully complete the Army's Leader Development and Assessment Course offered annually in the Summer, and,
6. meet all Army prerequisites to earn a commission as an Army officer upon graduation.

## Modern Languages

### Undergraduate Degrees

- Bachelor of Arts in French (p. 392)
- Bachelor of Arts in French with Secondary Teacher Certification (p. 392)
- Bachelor of Arts in Spanish (p. 392)
- Bachelor of Arts in Spanish Translation and Interpreting (p. 392)
- Bachelor of Arts in Spanish with Secondary Teacher Certification (p. 392)
- Bachelor of Arts in Critical Languages and International Studies (p. 392)
- Bachelor of Business Administration in International Business and French, German, Russian, or Spanish (in cooperation with School of Business Administration) (p. 392)
- Minor in Chinese (p. 395)
- Minor in French (p. 395)
- Minor in German (p. 395)
- Minor in Korean (p. 395)
- Minor in Russian (p. 395)
- Minor in Spanish (p. 395)
- Minor in Medieval and Early Modern Studies (p. 395)

### Graduate Degrees

- Modern Languages, M.A. (Spanish or French Concentration) (p. 388)
- Modern Languages, French Certificate ([http://www.uta.edu/modl/gradstudies/current-students/graduate\\_certificate.html](http://www.uta.edu/modl/gradstudies/current-students/graduate_certificate.html))

- Modern Languages, Spanish Certificate ([http://www.uta.edu/modl/gradstudies/current-students/graduate\\_certificate.html](http://www.uta.edu/modl/gradstudies/current-students/graduate_certificate.html))

## Certificates

- Certificate in Spanish Translation (p. 395)
- Certificate in Spanish Interpreting ([http://www.uta.edu/modl/translation-studies/certificate\\_span\\_trans.html](http://www.uta.edu/modl/translation-studies/certificate_span_trans.html))
- Certificate in Localization and Translation (p. 395)
- Certificate in Dual-Language Localization and Translation (p. 395)

# Modern Languages - Graduate Program

## Objectives

Graduate programs in modern languages are designed to enhance students' competence in the language and literature of their major language field. Specific objectives are to prepare students for a career in teaching or in any area in private or public life in which knowledge of a modern language is essential and to help them develop the techniques of independent research necessary for work beyond the master's level.

## FELLOWSHIPS

Fellowships, when available, will be awarded on a competitive basis. Nominees for the Graduate School Master's Fellowship in Modern Languages will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.0, as calculated by the Graduate School, plus as GPA of 3.0 for any graduate credit hours.
- Transcript of a completed bachelor's degree in French or Spanish (or appropriate related field) from an accredited institution.
- Three letters of recommendation.
- A written statement explaining the applicant's reasons for graduate study in Spanish.

## TEACHING ASSISTANTSHIPS

Teaching assistantships are available for graduate students in the Department of Modern Languages. Graduate students who obtain teaching assistantships are urged to take MODL 5305 METHODS OF MODERN LANGUAGE TEACHING.

## Admission Standards

In compliance with HB 1641, the UT Arlington Department of Modern Languages does not use unwritten criteria, it does not assign a specific weight to any one factor being considered, and it does not use standardized tests (i.e., the GRE) in the admissions or competitive fellowship or scholarship process as the sole criterion for consideration or as the primary criterion to end consideration of an applicant to the M.A. program. However, the GRE is required and it is used as a criterion, without specific weight, in the Department's evaluation of candidates for admission to programs at each of three levels: Unconditional, Provisional, and Probationary Admission.

The Department wishes to be as thorough and fair as possible in evaluating applicants for admission. It recognizes that some applicants may appear to be stronger according to some criteria than according to other criteria. When an applicant does not completely meet the minimum expectations for Unconditional Admission, the Department considers the applicant for possible Provisional or Probationary Admission. When the applicant is not granted any of the three levels of admission, the decision may be deferred or the application is denied. We do not wish to exclude a qualified and potentially successful candidate who perhaps has approached but not met all the criteria completely. However, we do not wish to admit candidates who, based on the criteria, are deemed to have a poor chance of successfully completing the graduate program.

## UNCONDITIONAL ADMISSION

The criteria for admission below are used, without specific weights, as positive indicators of potential success in the program. All four criteria for unconditional admission must be met in order to receive unconditional admission.

- degree in the language to be studied of 18 upper level hours in the language or equivalent<sup>1</sup>
- 3.0 undergraduate GPA (last 60 hours)
- submission of GRE scores<sup>2</sup>
- 3 letters of recommendation (from faculty if possible) sent to the Department of Modern Languages Graduate Advisor.

1 A student with a bachelor's degree in a field other than French or Spanish may become an unconditionally admitted graduate student after fulfilling the upper level requirements in the language:

- 18 hours of upper level Spanish, or French or
- a combination of coursework and testing.

(A person with a bachelor's degree in a major other than French or Spanish must have the equivalent of 18 hours of upper level French or Spanish in order to become a master's student. The equivalency may take one of the following forms: A student may obtain 18 hours at the 3000 and 4000 level, or s/he may attempt to test out of nine hours of grammar, composition, and conversation. If a student tests out of grammar, composition, and conversation, s/he must take nine hours of literature, in order to demonstrate ability to do literary studies).

2 Under specific circumstances the GRE may be waived for those who received their B.A. from UT Arlington or have already earned an advanced graduate degree.. See GRE Waiver or Advanced Admission. International students must also take the TOEFL test and score 550 on the paper-and-pencil test or 213 on the computerized test, in order to qualify for unconditional admission.

## PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

## DEFERRED ADMISSION

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

## FAST TRACK PROGRAM IN MODERN LANGUAGES

The Fast Track Program allows outstanding undergraduate students in French or Spanish at UT Arlington to take up to three graduate seminars in Spanish or French that will earn credit toward both the Bachelor's degree and the Master's degree in Modern Languages. It is designed to encourage high standards of performance, to facilitate the transition from undergraduate to graduate study, and to reduce time needed to complete the MA . Interested undergraduate students should apply for the Fast Track Program when they are within 30 hours of completing the Bachelor's degree. To qualify, students must have completed at least 30 hours at UTA with a GPA of 3.0 in all courses and 3.25 in the last 30 hours. Before entering the Fast Track, students must also have completed the four required core courses in the French or Spanish major with a GPA of at least 3.50. Additionally, they must have already completed at least two additional 3000-4000 level courses in either French or Spanish, excluding International Business and/or translation courses, with a GPA of 3.5 or higher.

Students who successfully complete the Fast Track Program will be admitted automatically to the Graduate School to continue their graduate work in the Modern Languages MA Program once the Bachelor's degree is awarded. They will not be required to take the GRE, complete an additional application for admission to the Graduate School, supply letters of recommendation, or pay an application fee. An undergraduate student completing the maximum of nine graduate hours would be admitted to the Modern Languages MA Program with only five additional courses and a thesis remaining to complete the requirements for the thesis option.

To remain in the Fast Track Program, students must receive no grade lower than a B in any graduate seminars taken as an undergraduate, selected with the advice and approval of the Modern Languages Graduate Advisor. Undergraduate students who do not maintain grades of B or A in the graduate courses taken will be unable to continue in the Fast Track Program but, if the courses are completed passing, will still receive credit toward their undergraduate degree requirements. Students originally denied entry into the Fast Track Program, discontinued after provisional admission, subsequently dropped or opting out are still welcome to apply to the Modern Languages MA Program in the usual way and will be considered without prejudice.

For an application form or to obtain more details about this program, contact the Modern Languages Graduate Advisor.

## Master's Degree Requirements

In addition to the Graduate School requirements for Master's degree programs, the following requirements apply in the Department of Modern Languages:

**Thesis:** A written comprehensive examination may be given at the discretion of the student's committee.

**Thesis Substitute:** There will be a comprehensive examination on the coursework and appropriate reading list. An oral defense of the thesis substitute may be required at the discretion of the student's supervising committee. At least 30 hours must be in coursework.

**Non-thesis:** There will be a comprehensive written examination on the coursework, an appropriate reading list, as well as an oral exam.

## MODERN LANGUAGES (FRENCH; SPANISH)

Those wishing to major in a modern language or literature must upon admission have a baccalaureate degree with a major in that modern language or have a minimum of 18 advanced hours, or the equivalent in language proficiency and course content.

Modern Languages (French; Spanish) Students pursuing the M.A. in Modern Languages with concentration in French or in Spanish are required to take a minimum of 9 hours in the core MODL courses along with 27 hours in their concentration or alternatively a maximum of 12 hours in the core

MODL courses and 24 hours in their concentration. All students are required to take MODL 5304 CURRENTS IN EUROPEAN AND LATIN AMERICAN LITERATURES AND THOUGHT.

A knowledge of a second foreign language will be required, including listening, speaking, reading and writing skills as demonstrated by the successful completion of two semesters of coursework at the second-year level, MODL 5301 MODERN LANGUAGES FOR GRADUATE READING, or by an appropriate examination.

## Modern Languages - Undergraduate Programs

The Department of Modern Languages (MODL) offers courses in Arabic (<http://www.uta.edu/modl/arabic>), Chinese (<http://www.uta.edu/modl/chinese>), French (<http://www.uta.edu/modl/french>), German (<http://www.uta.edu/modl/german>), Korean (<http://www.uta.edu/modl/kore>), Portuguese (<http://www.uta.edu/modl/portuguese>), Russian (<http://www.uta.edu/modl/russian>), and Spanish (<http://www.uta.edu/modl/spanish>).

MODL offers a Bachelor of Arts in French (<http://www.uta.edu/modl/french/undergrad.html>), Spanish ([http://www.uta.edu/modl/spanish/undergrad\\_major.html](http://www.uta.edu/modl/spanish/undergrad_major.html)), Spanish Translation and Interpreting, and a Bachelor of Arts with major in Critical Languages and International Studies (<http://www.uta.edu/modl/clis>) (Chinese, German, and Russian), as well as certificate programs in Translation (Spanish) ([http://www.uta.edu/modl/translation-studies/certificate\\_span\\_trans.html](http://www.uta.edu/modl/translation-studies/certificate_span_trans.html)), Interpreting (Spanish), and Localization and Translation ([http://www.uta.edu/modl/translation-studies/certificate\\_gilt.html](http://www.uta.edu/modl/translation-studies/certificate_gilt.html)) (Arabic, Chinese, French, German, Korean, Portuguese, and Russian). At the graduate level, MODL offers a Master of Arts in Modern Languages with concentrations in French (<http://www.uta.edu/modl/french/grad.html>) or Spanish (<http://www.uta.edu/modl/spanish/graduate.html>). The department also offers minors in Arabic, Chinese, French, German, Korean, Portuguese, Russian, Spanish, and Spanish Translation and Interpreting, as well as area studies and other options.

Learning other languages has always formed a critical part of a well-rounded education. In today's global economy, the ability to communicate in languages other than one's own has become an increasingly valuable asset sought after by employers across the public and private sectors. Our substantive programs prepare students for research, translation, literary studies, linguistic studies, teaching, and business.

The goal of language study is to develop deep translingual and transcultural competence. In view of these aims, MODL provides a full range of language offerings from beginning to advanced courses in a variety of languages from around the globe. In addition to development in the four basic language skills -- speaking, listening, reading, and writing -- a major aim is to gain understanding of the diversity of human culture as represented in several of the world's languages, literatures, and other cultural media.

Ultimately, these aims contribute to the development of informed and capable communication and interaction with educated native speakers of the target language as well as the ability to reflect on the world and oneself through the lens of other languages and cultures.

## Criteria for Admission to a Major in the Department of Modern Languages

In addition to satisfying the entrance requirements for the College of Liberal Arts, prospective majors in the Department of Modern Languages must meet the following criteria:

- A 3.0 GPA is required in the 1441-2314 Modern Language sequence, or a grade of B on the Modern Language placement test, or approval of the departmental advisor.
- After admission to the Modern Language major, students must maintain a 2.75 GPA in major classes.

## Intensive Language Program

Students with no previous experience or courses in a modern language may choose to begin by enrolling in one of the Intensive Programs:

- French, German and Russian can be completed by taking Levels I and II (8 credit hours), or Levels III and IV (6 credit hours) of these languages in the Fall, Spring, or Summer sessions.
- An Intensive Spanish course is offered for Levels III and IV (6 credit hours) during the Fall and Spring semesters.
- Students may also choose to fulfill their language requirement by enrolling in Arabic, Chinese, and Portuguese. These classes may not be offered every semester or every summer. Check with the Department of Modern Languages for available courses.

Students are cautioned to take these courses prior to their senior year because of the possibility of enrollment limitations.

## Language Acquisition Center

The Department of Modern Languages maintains a fully equipped computer lab on the third floor of Trimble Hall. The lab has a library of CDs and DVDs for student use, as well as specialized software to assist students in their language studies.

## Credit by Examination and Placement Tests

Spanish, French, and German. Students with one year of background in the language they will study are strongly recommended to take an advanced placement examination for placement at the appropriate level. Students wishing to earn credit by examination for any of the first four (1441, 1442, 2313,

2314) levels of French, German, or Spanish must present an official score received on one of two nationally administered examinations recognized by the department:

1. Advanced Placement Examination of the College Entrance Examination Board (CEEB), or
2. College-Level Examination Program (CLEP) of the CEEB.

At UT Arlington the examinations will be administered by the Testing Services Office of Counseling and Career Development on dates to be announced. Native or heritage speakers in the French, German, or Spanish program must take either the CLEP or the CEEB exam, as described above.

Russian. Non-native speakers of Russian with previous exposure to the language, who intend to enroll in Russian courses at UT Arlington, may be eligible to take a placement test at the discretion of the department. Native or heritage speakers intending to major or minor in Russian must take the Russian placement test.

Arabic, Chinese, Korean, and Portuguese. Non-native speakers of Arabic, Chinese, Korean, or Portuguese with previous exposure to the language, who intend to enroll in courses in these languages at UT Arlington, may be eligible to take a placement test at the discretion of the department.

Placement tests for Arabic, Chinese, Korean, Portuguese, and Russian are administered on site in the Department of Modern Languages and not offered by The Testing Services Office. For more information, contact the Department of Modern Languages. Testing fees may apply.

## Study Abroad

Students should give serious consideration to the unique learning experience of studying abroad. Students wishing to study for a summer, a semester, or a year may obtain UT Arlington credit, continue with their financial aid, and receive scholarship aid to attend any UT Arlington-approved program for Arabic, Chinese, French, German, Korean, Portuguese, Russian, or Spanish.

Summer Study: The department offers several opportunities for gaining credit while studying abroad. Regular programs are offered which provide opportunities for summer study in various countries, including France, Germany, Mexico, and Russia. All arrangements must be made through the department.

## Competence in Computer Use

Students majoring in French, Spanish, or Critical Languages and International Studies may demonstrate competency in computer use by:

- passing CSE 1301 COMPUTER LITERACY (or equivalent); or
- passing any 1441, 1442, 2313 or 2314 FREN, GERM, RUSS or SPAN course(s) in residence at UT Arlington; or
- passing the University computer competency examination; or
- passing any other course approved by the Undergraduate Assembly for this purpose.

## Competence in Oral Presentations

Students majoring in French, Spanish, Spanish Translation or Critical Languages and International Studies may demonstrate competence in oral presentations by one of the following:

ARAB 3303	ARABIC CONVERSATION & CULTURE
CHIN 3303	CHINESE CONVERSATION
FREN 3303	ADVANCED FRENCH CONVERSATION
GERM 3313	TOPICS IN GERMAN CULTURE & CONVERSATION
KORE 3303	KOREAN CONVERSATION I
RUSS 3333	CONVERSATION AND TOPICS IN RUSSIAN CULTURE
SPAN 3303	ADVANCED SPANISH CONVERSATION
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING
COMS 1302	VOICE AND DICTION
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION (or equivalent)

- Or passing any other course approved by the Undergraduate Assembly for this purpose

## Critical Cultures Summer Institute

The Critical Cultures Summer Institute (CCSI) highlights a different, less commonly taught cultural area of the globe each summer, providing up to 9 credits of upper-division coursework, along with GLOBAL 2301 INTRODUCTION TO GLOBAL ISSUES, the anchor course of UTA's Critical Languages and International Studies (CLIS) major.

GLOBAL 2301 will provide an introduction to global studies and couple with GLOBAL 3301 TOPICS IN INTERNATIONAL CULTURES AND CIVILIZATIONS I and GLOBAL 3302 TOPICS IN INTERNATIONAL CULTURES AND CIVILIZATIONS II in such areas as language and civilization, film, media, or other subjects of global study. An introductory class in Localization and Translation will also be offered under the aegis of the Summer Institute as GLOBAL 3310. GLOBAL 3301, 3302, and 3310 will fulfill three of the four international studies courses required for the BA in Critical Languages and Global Studies. GLOBAL 2301 is also a requirement for the degree. GLOBAL 2301 and GLOBAL 3301 will be offered during Summer Session I, and GLOBAL 3302 and 3310 will be offered during Summer Session II. Students at any level of language study may take these courses.

## Requirements for a Bachelor of Arts Degree in French, Spanish, Spanish Translation and Interpreting, and Critical Languages & International Studies

### GENERAL CORE REQUIREMENTS (P. 93)

#### Major

1441, 1442, 2313, 2314, or equivalent; plus 24 hours at 3000/4000 level in the major language field, at least nine of which must be at the 4000 level. Of these 24 hours, specific course requirements by language are listed below.

#### Electives

Sufficient number of hours to complete the total hours required for a degree.

#### Total

120 hours, at least 36 of which must be 3000/4000 level.

## Bachelor of Arts in French

FREN 1441	BEGINNING FRENCH I
FREN 1442	BEGINNING FRENCH II
FREN 2313	INTERMEDIATE FRENCH I
FREN 2314	INTERMEDIATE FRENCH II

or equivalent; plus 24 hours at 3000/4000 level in French, at least nine of which must be at the 4000 level. Of these 24 hours, specific course requirements by language are listed below:

All French majors must take FREN 3311 FRENCH LITERATURE AND CULTURE I and FREN 3312 FRENCH LITERATURE AND CULTURE II

- For Non-heritage speakers: Either FREN 3303 ADVANCED FRENCH CONVERSATION A or FREN 3300 PHONOLOGY & PRONUNCIATION is also required.
- For For Native or Heritage speakers: An appropriate substitute for FREN 3303 ADVANCED FRENCH CONVERSATION or FREN 3300 PHONOLOGY & PRONUNCIATION will be selected in consultation with an advisor.

## Bachelor of Arts in Spanish

SPAN 1441	BEGINNING SPANISH I
SPAN 1442	BEGINNING SPANISH II
SPAN 2313	INTERMEDIATE SPANISH I
SPAN 2314	INTERMEDIATE SPANISH II
OR	
SPAN 2315	INTERM SPAN HERITAGE SPEAKERS

or equivalent; plus 24 hours at 3000/4000 level in Spanish, at least nine of which must be at the 4000 level. Of these 24 hours, specific course requirements by language are listed below:

All Spanish majors must take SPAN 3315 COMPOSITION THROUGH LITERATURE and SPAN 3319 INTRODUCTION TO SPANISH LINGUISTICS

- For Non-heritage speakers: SPAN 3314 ADVANCED SPANISH GRAMMAR
- For Native or Heritage speakers: SPAN 3305 ADVANCED SPANISH FOR HERITAGE SPEAKERS . Native or heritage speakers of a language may not enroll in courses below 3000, with the exception of SPAN 2315 INTERM SPAN HERITAGE SPEAKERS.

## Bachelor of Arts in Critical Languages and International Studies

GLOBAL 2301 INTRODUCTION TO GLOBAL ISSUES as well as 12 advanced hours in the chosen language and 12 hours in global studies from one of the 3 categories: Arts and Humanities (Art, History, Literature, Music), Global Issues (Business, Ethics, Sustainability), Social and Cultural Studies (Anthropology, Political Science, Sociology). See advisor for a complete listing of relevant courses.



All students who wish to earn a Bachelor of Arts degree in Critical Languages and International Studies must complete the following coursework in language and allied fields:

Select one of the following languages:

Chinese	
CHIN 1441	BEGINNING CHINESE I
CHIN 1442	BEGINNING CHINESE II
CHIN 2313	INTERMEDIATE CHINESE I
CHIN 2314	INTERMEDIATE CHINESE II
German	
GERM 1441	GERMAN LEVEL I
GERM 1442	BEGINNING GERMAN II
GERM 2313	INTERMEDIATE GERMAN I
GERM 2314	INTERMEDIATE GERMAN II
Russian	
RUSS 1441	BEGINNING RUSSIAN I
RUSS 1442	BEGINNING RUSSIAN II
RUSS 2313	INTERMEDIATE RUSSIAN I
RUSS 2314	INTERMEDIATE RUSSIAN II

## Bachelor of Arts in Spanish Translation and Interpreting

All Spanish Translation and Interpreting majors must take:

SPAN 1441	BEGINNING SPANISH I
SPAN 1442	BEGINNING SPANISH II
SPAN 2313	INTERMEDIATE SPANISH I
SPAN 2314	INTERMEDIATE SPANISH II
OR	
SPAN 2315	INTERM SPAN HERITAGE SPEAKERS

or equivalent; plus 24 hours at 3000/4000 level, at least nine of which must be at the 4000 level. Of these 24 hours, specific course requirements are listed below:

For Non-Heritage Speakers

SPAN 3303	ADVANCED SPANISH CONVERSATION
SPAN 3314	ADVANCED SPANISH GRAMMAR
SPAN 3315	COMPOSITION THROUGH LITERATURE

For Heritage Speakers

SPAN 3305	ADVANCED SPANISH FOR HERITAGE SPEAKERS
SPAN 3312	LATIN AMERICAN CULTURE AND CIVILIZATION
SPAN 3315	COMPOSITION THROUGH LITERATURE

For All Students

SPAN 3340	INTRODUCTION TO TRANSLATION
SPAN 3341	INTRODUCTION TO INTERPRETING
SPAN 4341	BUSINESS AND LEGAL TRANSLATION
SPAN 4342	MEDICAL, SCIENTIFIC & TECH TRANSLATION
SPAN 4343	INTERPRETING IN MEDICAL SETTINGS
SPAN 4344	INTERPRETING IN LEGAL SETTINGS

Suggested Electives

SPAN 3311	SPANISH CULTURE AND CIVILIZATION
SPAN 3312	LATIN AMERICAN CULTURE AND CIVILIZATION
SPAN 3313	TOPICS IN HISPANIC LANGUAGE, LITERATURE & CULTURE
SPAN 3319	INTRODUCTION TO SPANISH LINGUISTICS
SPAN 3320	INTRODUCTION TO HISPANIC LITERATURE AND CULTURE
SPAN 4310	TOPICS IN PENINSULAR SPANISH LITERATURE AND CULTURE TO THE EIGHTEENTH CENTURY

SPAN 4311	TOPICS IN PENINSULAR SPANISH LITERATURE AND CULTURE, EIGHTEENTH CENTURY TO THE PRESENT
SPAN 4313	TOPICS IN HISPANIC CULTURE
SPAN 4314	TOPICS IN LATIN-AMERICAN LITERATURE AND CULTURE TO MODERNISM
SPAN 4315	TOPICS IN CONTEMPORARY LATIN-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT
SPAN 4320	TOPICS IN SPANISH LANGUAGE, WRITING AND THEORY
SPAN 4318	MEXICAN LITERATURE
SPAN 4330	TOPICS IN SPANISH LINGUISTICS
SPAN 4332	TOPICS IN SPANISH DIALECTOLOGY
SPAN 4339	THE ACQUISITION OF SPANISH
Outside Electives (Only two allowed)	
NURS 4360	CULTURAL VARIATION IN HEALTH CARE: A COMPARATIVE ANALYSIS OF TWO CULTURES
CRCJ 2334	INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM
CRCJ 2350	INTRODUCTION TO LAW ENFORCEMENT
CRCJ 4301	THE AMERICAN JUDICIAL SYSTEM
SOCW 2311	INTRODUCTION TO SOCIAL WORK
BUSA 2304	INTRODUCTION TO BUSINESS
HEED 1316	FOUNDATIONS OF HEALTH

## Options

The following options may be selected, but courses listed under options do not substitute for courses specified by number in the basic degree plan above.

## FAST TRACK PROGRAM IN MODERN LANGUAGES

The Fast Track Program allows outstanding undergraduate students in French or Spanish at UT Arlington to take up to three graduate seminars in Spanish or French that will earn credit toward both the Bachelor's degree and the Master's degree in Modern Languages. It is designed to encourage high standards of performance, to facilitate the transition from undergraduate to graduate study, and to reduce time needed to complete the MA. Interested undergraduate students should apply for the Fast Track Program when they are within 30 hours of completing the Bachelor's degree. To qualify, students must have completed at least 30 hours at UTA with a GPA of 3.0 in all courses and 3.25 in the last 30 hours. Before entering the Fast Track, students must also have completed the four required core courses in the French or Spanish major with a GPA of at least 3.50. Additionally, they must have already completed at least two additional 3000-4000 level courses in either French or Spanish, excluding International Business and/or translation courses, with a GPA of 3.5 or higher.

Students who successfully complete the Fast Track Program will be admitted automatically to the Graduate School to continue their graduate work in the Modern Languages MA Program once the Bachelor's degree is awarded. They will not be required to take the GRE, complete an additional application for admission to the Graduate School, supply letters of recommendation, or pay an application fee. An undergraduate student completing the maximum of nine graduate hours would be admitted to the Modern Languages MA Program with only five additional courses and a thesis remaining to complete the requirements for the thesis option.

To remain in the Fast Track Program, students must receive no grade lower than a B in any graduate seminars taken as an undergraduate, selected with the advice and approval of the Modern Languages Graduate Advisor. Undergraduate students who do not maintain grades of B or A in the graduate courses taken will be unable to continue in the Fast Track Program but, if the courses are completed passing, will still receive credit toward their undergraduate degree requirements. Students originally denied entry into the Fast Track Program, discontinued after provisional admission, subsequently dropped or opting out are still welcome to apply to the Modern Languages MA Program in the usual way and will be considered without prejudice.

For an application form or to obtain more details about this program, contact the Modern Languages Graduate Advisor.

## TEACHER CERTIFICATION

Students wishing to take a Bachelor of Arts Degree in Modern Language with Secondary Teacher Certification must complete 24 hours of courses in the language, at the 2000 level and above.

In addition, each language requires specific courses (counted toward the overall requirement):

French	
FREN 3303	ADVANCED FRENCH CONVERSATION
FREN 4339	ACQUISITION OF FRENCH

Spanish

SPAN 4339 THE ACQUISITION OF SPANISH

Students should consult the College of Education for information concerning Teacher Certification and other specific requirements.

## LATIN AMERICAN STUDIES

(Bachelor of Arts Degree in Spanish with a concentration in Latin American studies)

POLS 3316	DICTATORSHIP AND DEMOCRACY IN LATIN AMERICAN POLITICS
HIST 4365	HISTORY OF SPAIN AND PORTUGAL
HIST 4366	LATIN AMERICAN HISTORY: ORIGINS THROUGH INDEPENDENCE
HIST 4367	LATIN AMERICAN HISTORY: POST-INDEPENDENCE TO THE PRESENT
ECON 4321	INTERNATIONAL TRADE
ECON 4322	INTERNATIONAL FINANCE (recommended)

Major: Spanish

## BBA IN INTERNATIONAL BUSINESS/MODERN LANGUAGE

In cooperation with the Department of Modern Languages, the School of Business Administration offers a Bachelor of Business Administration with dual concentrations in international business and a modern language. The BBA in International Business offers concentrations in French, German, Russian, or Spanish. In addition to 26 hours in a modern language with an additional six hours of modern language electives highly recommended, students in this program get a solid foundation in business courses, including accounting, economics, finance, management, marketing, and information systems. Students are encouraged to include six hours of degree specific language electives.

## Requirements for a Minor in Arabic, Chinese, French, German, Korean, Portuguese, Russian, Spanish or Spanish Translation and Interpreting

A minor consists of 19 semester hours (excluding 1441 Language Level I), at least nine of which must be 3000/4000 level.

For a minor in Spanish Translation and Interpreting students need to take at least 3 of the following courses: SPAN 3340 INTRODUCTION TO TRANSLATION, SPAN 3341 INTRODUCTION TO INTERPRETING SPAN 4341 BUSINESS AND LEGAL TRANSLATION, SPAN 4342 MEDICAL, SCIENTIFIC & TECH TRANSLATION, SPAN 4343 INTERPRETING IN MEDICAL SETTINGS, SPAN 4344 INTERPRETING IN LEGAL SETTINGS.

## MEDIEVAL AND EARLY MODERN STUDIES MINOR

The Medieval and Early Modern Studies minor fosters interdisciplinary study of the Middle Ages and the Early Modern Era, encouraging students to explore and connect topics in language, literature, history, art, and philosophy. Students seeking to minor in Medieval and Early Modern Studies should first consult with advisors in their departments or programs for approval of the minor, then with the Director of the Minor in Medieval and Early Modern Studies. The minor consists of six courses (18 hours total; six hours upper level) selected from courses in Art History, English, History, Modern Languages (French, German, and Spanish), and Philosophy. No more than nine hours to be completed within any single discipline. Students should consult the catalog or visit <http://www.uta.edu/libarts/mems/index.html> for more information.

## Certificate in Spanish Translation

Students interested in receiving theoretical and practical training in Spanish-English and English-Spanish translation are eligible to apply to the Department of Modern Languages for this 15-hour certificate program in translation and translation theory. Topics to be covered by coursework in the Certificate Program include medical, business, technical, scientific, legal, and literary translation. To be admitted to the program, students must demonstrate writing proficiency in both Spanish and English. Students should also have completed SPAN 3305 ADVANCED SPANISH FOR HERITAGE SPEAKERS or SPAN 3314 ADVANCED SPANISH GRAMMAR, and SPAN 3315 COMPOSITION THROUGH LITERATURE, or have consent of the department. Once in the program, students begin by taking SPAN 3340 INTRODUCTION TO TRANSLATION. After completing this class with a grade of B or better, students must take SPAN 4341 BUSINESS AND LEGAL TRANSLATION and SPAN 4342 MEDICAL, SCIENTIFIC & TECH TRANSLATION. SPAN 3340, 4341 and 4342 cannot be applied toward the B.A. in Spanish. To receive the certificate, students are also required to pass an Exit Examination in translation. In order to be eligible to take the Exit Examination, students must pass SPAN 4341 and 4342 with a grade of C or better. The Exit Examination in translation may only be taken once.

## Certificate in Spanish Interpreting

Students interested in receiving theoretical and practical training in Spanish-English and English-Spanish interpreting are eligible to apply to the Department of Modern Languages for this 15-hour certificate program in interpreting. Topics to be covered by coursework in the Certificate Program include interpreting in school, legal and medical settings. To enter the program, students must demonstrate oral proficiency in both Spanish and English. Students should also have completed SPAN 3305 ADVANCED SPANISH FOR HERITAGE SPEAKERS or SPAN 3314 ADVANCED SPANISH GRAMMAR. Taking SPAN 3303 ADVANCED SPANISH CONVERSATION (Advanced Spanish Conversation for Non-heritage speakers) before SPAN 3341 is highly recommended for Non-heritage speakers. Once in the program, students begin by taking SPAN 3341 INTRODUCTION TO

INTERPRETING (Introduction to Interpreting). After completing this class with a grade of B or better, students must take SPAN 4343 INTERPRETING IN MEDICAL SETTINGS (Interpreting in Medical Settings) and SPAN 4344 INTERPRETING IN LEGAL SETTINGS (Interpreting in Legal Settings). SPAN 3341, 4343 and 4344 cannot be applied toward the B.A. in Spanish. To receive the certificate, students are also required to pass an Exit Examination in interpreting. In order to be eligible to take the Exit Examination, students must pass SPAN 4343 and 4344 with a grade of C or better. The Exit Examination in interpreting may only be taken once.

## **Certificate in Localization and Translation with options in Arabic, Chinese, French, German, Korean, Portuguese, Russian, and Dual-Language**

In this five-course certificate program students study the processes of localization and develop specialized skills in translation for future employment in the language services industry. Localization adapts language, texts, products, software and websites to the locale for which they are intended. By using specialized computer-assisted translation workflow software and simulating a collaborative work environment, students become conversant with the tools and procedures required for twenty-first century localization and translation work. Extensive practice in translating a variety of oral and written documents in the target language provides the skills to work in business, non-profit, and academic situations. Three translation and localization courses and two culture courses comprise the certificate.

### **Students in Chinese take a total of five courses as follows:**

CHIN 3310	CHINESE LOCALIZATION AND TRANSLATION
Take the following course twice	
CHIN 3311	CHINESE LOCALIZATION AND TRANSLATION II
CHIN 3303	CHINESE CONVERSATION
CHIN 3304	CHINESE CONVERSATION II
CHIN 4334	CONTEMPORARY CHINESE CULTURE
CHIN 4335	BUSINESS CHINESE

### **Students in French take a total of five courses as follows::**

FREN 3320	LOCALIZATION AND TRANSLATION I
Take the following course twice:	
FREN 3321	LOCALIZATION AND TRANSLATION II
Select one of the following 3000 level courses:	
FREN 3305	FRENCH CULTURE AND CIVILIZATION
FREN 3310	INTRODUCTION TO LITERATURE
FREN 3311	FRENCH LITERATURE AND CULTURE I
FREN 3312	FRENCH LITERATURE AND CULTURE II
FREN 3316	TOPICS IN CITIES OF FRANCE
FREN 3318	PROBLEMS OF IDENTITY
Select one of the following 4000 level courses:	
FREN 4328	TOPICS IN TWENTIETH-CENTURY FRENCH STUDIES
FREN 4334	CONTEMPORARY FRENCH CULTURE
FREN 4335	BUSINESS FRENCH
FREN 4338	SELECTED TOPICS IN FRENCH LITERATURE OR CULTURE

### **Students in German take a total of five courses as follows:**

GERM 3310	LOCALIZATION AND TRANSLATION I
or GERM 4334	THE CULTURE OF BUSINESS
Select one of the following:	
GERM 3311	LOCALIZATION AND TRANSLATION II (take twice)
GERM 3311 & GERM 4335	LOCALIZATION AND TRANSLATION II and BUSINESS GERMAN

Select two additional upper level courses

### **Students in Russian take a total of five courses as follows:**

RUSS 3310	LOCALIZATION AND TRANSLATION I
or RUSS 4334	THE CULTURE OF BUSINESS
Select one of the following:	

RUSS 3311	LOCALIZATION AND TRANSLATION II (take twice)
RUSS 3311 & RUSS 4335	LOCALIZATION AND TRANSLATION II and BUSINESS RUSSIAN
RUSS 3333	CONVERSATION AND TOPICS IN RUSSIAN CULTURE
RUSS 4362	RUSSIA AND THE SUCCESSOR STATES TODAY

All courses can be used toward fulfilling the requirements for a major in French and a minor in German, or Russian.

### **Students in Korean take a total of five courses as follows:**

KORE 3303	KOREAN CONVERSATION I
KORE 3304	KOREAN CONVERSATION II
KORE 3310	KOREAN LOCALIZATION AND TRANSLATION I

Take the following course twice:

KORE 3311	KOREAN LOCALIZATION AND TRANSLATION II
-----------	--

A minimum of two years (four semesters) is required for this program.

### **Students in Arabic take a total of five courses as follows:**

ARAB 3303	ARABIC CONVERSATION & CULTURE
ARAB 3304	ARABIC CONVERS & CULT II
ARAB 3310	ARABIC LOCALIZATION AND TRANSLATION

Take the following course twice:

ARAB 3311	ARABIC LOCALIZATION AND TRANSLATION II
-----------	--

A minimum of two years (four semesters) is required for this program.

### **Students in Portuguese take a total of five courses as follows:**

PORT 3303	PORTUGUESE CONVERSATION AND CULTURE
PORT 3304	PORTUGUESE CONVERSATION AND CULTURE II
PORT 3310	PORTUGUESE LOCALIZATION AND TRANSLATION

Take the following course twice:

PORT 3311	PORTUGUESE LOCALIZATION AND TRANSLATION II
-----------	--

A minimum of two years (four semesters) is required for this program.

## **Music**

### **Undergraduate Degrees**

- Bachelor of Music (Performance, Theory, or Composition) (p. 403)
- Bachelor of Music (Music/Business, Music/Theatre, or Music/Media) (p. 403)
- Bachelor of Music (Jazz Studies Option) (p. 403)
- Bachelor of Music (preparation for Teacher Certification) (p. 403)
- Minor in Music (p. 412)

### **Graduate Degrees**

- Music Performance, M.M. Non-Thesis (p. 398)
- Music Performance, M.M. Thesis (p. 398)
- Music, M.M. (p. 398)

### **Certificate**

- Performance Certificate (p. 402)

# Music - Graduate Programs

## Music Education

The Master of Music in Music Education curriculum is designed to impart the knowledge needed to facilitate successful careers and encourage personal development. Through further education, music teachers will become more articulate, reflective practitioners so that they are able to select, adapt, adjust, and assess teaching and learning expectations.

More specifically, the aims of the degree are to:

- improve teaching skills through advanced coursework and research;
- offer graduate courses to improve general musicianship, including performance, theory, and music history;
- prepare students to enter graduate programs leading to the doctoral degree;
- offer highly specialized courses for students interested in researching historical, education or artistic areas;
- provide advanced courses for qualified members of the community.

## Fellowships

Fellowships, when available, will be awarded on a competitive basis. The Graduate Advisor should be notified of your interest in these fellowships at the time of your application. Nominees for the Graduate School Master's Fellowship in Music will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 9 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.00, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate credit hours.
- Transcript of a completed bachelor's degree in music from an accredited institution (or its demonstrated equivalent).
- Three letters of recommendation

The Department has a limited number of Enhanced Graduate Teaching Assistantships (<http://grad.pci.uta.edu/students/finances/fellowships/uta>) available. In addition to the requirements above, applicants for the EGTA positions must adhere to the following:

- A live audition is strongly encouraged whenever possible. (Performance Majors only)
- An interview, either in person or by phone, must be conducted by the Graduate Committee or a subset thereof.
- The Chair of the Department must be present at the audition and/or the interview.

## Admission Requirements

The Department of Music has the following requirements for entry into the Master of Music in Music Education Degree.

### UNCONDITIONAL ADMISSION

Requirements for unconditional admission into the program are:

1. Three letters of recommendation speaking to the student's potential for success from references familiar with the student's academic background.
2. A minimum 3.0 GPA in the last 60 hours of undergraduate work as calculated by the Graduate School.
3. Bachelor's degree in music or its demonstrated equivalent.

### PROBATIONARY STATUS

A student meeting two out of three criteria and showing promise for successful graduate study may still be admitted on probationary status upon the recommendation of the Graduate Studies Committee. Within probationary status, said student will be admitted unconditionally into the degree program upon completion of 12 hours of graduate study with no grade lower than a B.

### PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### DEFERRED ADMISSION

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

Admission will be denied for students not meeting at least two of the three criteria. Applicants may reapply for admission if the deficiencies in credentials that led to denial are remedied.

## TOEFL REQUIREMENT

Applicants whose native language is not English must demonstrate proficiency in English by earning a score of at least 550 on the paper-based Test of English as a Foreign Language (TOEFL) or a score of at least 213 on the computer-based test, or a minimum score of 40 on the Test of Spoken English (TSE). The Internet-based TOEFL examination (TOEFL iBT) will be accepted as an alternative to the paper and computer-based TOEFL for admission purposes. Students taking TOEFL iBT must attain a minimum total test score of 79 and meet or exceed the following scores on each of the sections of the test:

- Writing: 22
- Speaking: 21
- Reading: 20
- Listening: 16

**Those who do not meet the English proficiency requirement must satisfactorily complete courses in the ESOL area, as approved by the program and the Graduate School.**

## Music Performance

### ADMISSION REQUIREMENTS

#### Unconditional Admission

1. Bachelor's degree in music or its demonstrated equivalent (such as music conservatory degree, a bachelor's degree in some other discipline with substantial undergraduate hours in music, etc.). A person with a bachelor degree in a major other than music must have the equivalent of 18 hours of upper level music courses and may be asked to complete a Music Theory Barrier exam. Three letters of recommendation are required, speaking to the student's potential for success from references familiar with the student's academic background.
2. A minimum 3.0 GPA in the last 60 hours of undergraduate work as calculated by the Graduate School.
3. Applicants whose native language is not English must demonstrate proficiency in English by earning a score of at least 550 on the paper-based Test of English as a Foreign Language (TOEFL), or a score of at least 213 on the computer-based test, or a minimum score of 40 on the Test of Spoken English (TSE). The Internet-based TOEFL examination (TOEFL iBT) will be accepted as an alternative to the paper and computer-based TOEFL for admission purposes. Students taking TOEFL iBT must attain a minimum total test score of 79 and meet or exceed the following scores on each of the sections of the text:

< >Writing: 22Speaking: 21Reading: 20Listening: 16**Those who do not meet the English proficiency requirement must satisfactorily complete courses in the ESOL area, as approved by the program and the Graduate School.**

4. Applicants must audition (in person or by submitting a tape) with repertoire of at least college senior recital level. A repertoire list must be submitted for evaluation at the time of the audition. For further information contact the Graduate Advisor.

All admission criteria will be considered equally. Students meeting all four criteria will be granted unconditional admission.

#### Probationary Status

A student not meeting the above criteria but who shows promise for successful graduate study may be admitted probationally. This period of probation is not to exceed one semester and the conditions of probation must be resolved during the first semester. The conditions will be in the offer letter of admission. (The Music department does not have the authority to lower University TOEFL score requirements for any student.)

#### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

#### Deferred Admission

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

## Degree Requirements - Master of Music in Music Education

The program is designed for the student who has a Bachelor's degree in music. A person with a bachelor degree in a major other than music must have the equivalent of 18 hours of upper level music courses and may be asked to complete a Music Theory Barrier exam. The Graduate Advisor for program studies will counsel the student in correcting deficiencies and selecting courses for the student's degree program. A minimum of 30 semester hours is required if the student chooses to write a thesis. If the student chooses not to write a thesis, a minimum of 36 semester hours is required. Advisory examinations in music history and written theory will be administered to all students prior to enrollment or during their first semester as a degree-seeking student.

Coursework for the program includes:

**Core Courses**

MUSI 5301	FORM AND STYLE ANALYSIS	3
MUSI 5308	MUSIC HISTORY SELECTED TOPICS	3
MUSI 5351	PHILOSOPHICAL FOUNDATIONS OF MUSIC EDUCATION	3
MUSI 5352	PSYCHOLOGICAL FOUNDATIONS OF MUSIC EDUCATION	3
MUSI 5363	RESEARCH IN MUSIC EDUCATION	3

**Options**

Select one of the following options: 9-18

Students following the thesis option will take three hours of music education electives and an additional six hours of free choice electives.

Students following the non-thesis option will take six hours of music education electives and an additional 12 hours of free choice electives.

Total Hours 24-33

Music education electives may be chosen from the following:

MUSI 5350	SELECTED TOPICS IN MUSIC PEDAGOGY	3
MUSI 5354	SELECTED TOPICS IN MUSIC LITERATURE	3
MUSI 5355	REHEARSAL TECHNIQUES	3
MUSI 5359	ADVANCED DICTION FOR SINGERS	3
MUSI 5360	ADVANCED TECHNOLOGY FOR MUSICIANS	3
MUSI 5361	ELEMENTARY MUSIC	3
MUSI 5364	HISTORICAL FOUNDATIONS AND CURRICULAR TRENDS IN MUSIC EDUCATION	3

Free choice electives may be selected from ensembles, private instruction, music history, music theory, jazz studies and repeated special topics courses. Up to six hours of graduate credit from other disciplines may be considered if relevant to the degree, subject to approval by the Graduate Studies Committee. Students following the non-thesis option will enroll in at least one semester of MUSI 5353 PROJECT IN MUSIC EDUCATION. Students who choose to write a thesis (MUSI 5398 THESIS, MUSI 5698 THESIS) will work closely with one or more members of the graduate faculty from the Department of Music on a research project in a specialized area of interest within the music education field.

**Master of Music in Music Performance**

Majors are offered in Instrumental Studies, Voice Studies, Jazz Studies, and Conducting. The program is designed for the student who has a Bachelor's degree in music. A person with a bachelor degree in a major other than music must have the equivalent of 18 hours of upper level music courses and must score a 75% or better on the Music Theory Barrier exam. The Graduate Advisor for program studies will counsel the student in correcting deficiencies and selecting courses for the student's degree program. Advisory examinations in music history and written theory can be administered to all students prior to enrollment or during their first semester as a degree-seeking student.

Coursework for the program includes:

**Core Courses**

MUSI 5301	FORM AND STYLE ANALYSIS	3
MUSI 5308	MUSIC HISTORY SELECTED TOPICS	3
MUSI 5354	SELECTED TOPICS IN MUSIC LITERATURE	3
MUSI 5362	Introduction to Research in Music	3

4 semesters of Applied Study (MUSI 53XX) with the last semester including a full length recital

4 semesters of a Major Ensemble (MUSI 51XX)

**Electives**

Select 6 credit hours from the following depending on your major: 6

Instrumental

Prescribed Electives (choose 6 credit hours)

MUSI 3394	DIGITAL MUSIC TECHNOLOGY	
MUSI 5112	CHAMBER MUSIC (maximum of 3 repeats)	
MUSI 5308	MUSIC HISTORY SELECTED TOPICS (may be counted once as an elective if core requirement is met and the course is taken with a different emphasis)	
MUSI 5350	SELECTED TOPICS IN MUSIC PEDAGOGY	
MUSI 5351	PHILOSOPHICAL FOUNDATIONS OF MUSIC EDUCATION	
MUSI 5352	PSYCHOLOGICAL FOUNDATIONS OF MUSIC EDUCATION	
MUSI 3326	POST-TONAL ANALYSIS	



MUSI 3390	SCHENKERIAN ANALYSIS
MUSI 3391	ADVANCED SONATA THEORY (recommended only after taking 5301-Form and Style Analysis)
MUSI 4350	20TH CENTURY FORM & TECHNIQUE
Voice	
Prescribed Electives (choose 6 credit hours)	
MUSI 5359	ADVANCED DICTION FOR SINGERS
MUSI 5205	MUSIC THEATRE/OPERA LAB
MUSI 3394	DIGITAL MUSIC TECHNOLOGY
MUSI 5308	MUSIC HISTORY SELECTED TOPICS (may be counted once as an elective if core requirement is met and the course is taken with a different emphasis)
MUSI 5350	SELECTED TOPICS IN MUSIC PEDAGOGY
MUSI 5351	PHILOSOPHICAL FOUNDATIONS OF MUSIC EDUCATION
MUSI 5352	PSYCHOLOGICAL FOUNDATIONS OF MUSIC EDUCATION
MUSI 3326	POST-TONAL ANALYSIS
MUSI 3390	SCHENKERIAN ANALYSIS
MUSI 3391	ADVANCED SONATA THEORY (recommended only after taking 5301-Form and Style Analysis)
MUSI 4350	20TH CENTURY FORM & TECHNIQUE
Jazz	
Prescribed Electives (choose 6 credit hours)	
MUSI 5110	JAZZ COMBO
MUSI 5366	JAZZ STYLE AND ANALYSIS
MUSI 5355	REHEARSAL TECHNIQUES
MUSI 5360	ADVANCED TECHNOLOGY FOR MUSICIANS
MUSI 3394	DIGITAL MUSIC TECHNOLOGY
MUSI 5308	MUSIC HISTORY SELECTED TOPICS (may be counted once as an elective if core requirement is met and the course is taken with a different emphasis)
MUSI 5350	SELECTED TOPICS IN MUSIC PEDAGOGY
MUSI 5351	PHILOSOPHICAL FOUNDATIONS OF MUSIC EDUCATION
MUSI 5352	PSYCHOLOGICAL FOUNDATIONS OF MUSIC EDUCATION
MUSI 3326	POST-TONAL ANALYSIS
MUSI 3390	SCHENKERIAN ANALYSIS
MUSI 3391	ADVANCED SONATA THEORY (recommended only after taking 5301-Form and Style Analysis)
MUSI 4350	20TH CENTURY FORM & TECHNIQUE
Conducting	
Prescribed Electives (choose 6 credit hours)	
MUSI 3394	DIGITAL MUSIC TECHNOLOGY
MUSI 5355	REHEARSAL TECHNIQUES
MUSI 5359	ADVANCED DICTION FOR SINGERS
MUSI 5112	CHAMBER MUSIC (maximum of 3 repeats)
MUSI 5308	MUSIC HISTORY SELECTED TOPICS (may be counted once as an elective if core requirement is met and the course is taken with a different emphasis)
MUSI 5350	SELECTED TOPICS IN MUSIC PEDAGOGY
MUSI 5351	PHILOSOPHICAL FOUNDATIONS OF MUSIC EDUCATION
MUSI 5352	PSYCHOLOGICAL FOUNDATIONS OF MUSIC EDUCATION
MUSI 3326	POST-TONAL ANALYSIS
MUSI 3390	SCHENKERIAN ANALYSIS
MUSI 3391	ADVANCED SONATA THEORY (recommended only after taking 5301-Form and Style Analysis)
MUSI 4350	20TH CENTURY FORM & TECHNIQUE

Total Hours

18

## Final Master's Examination

A final program examination is required of all Music Education degree candidates. A final Master's examination may result in:

1. An unconditional pass with a recommendation to the Graduate Dean that the candidate be certified to receive the degree.
2. A conditional pass with the requirement that additional conditions be met, which may include further work on the thesis or thesis substitute, additional coursework with a minimum specified grade point average or both (in all cases the final master's examination must be repeated within a specified period).
3. Failure, with permission to be re-examined within a specified period; or
4. Failure, with recommendation to the Dean of Graduate Studies that the candidate be dismissed from the program. The Music Department limits to 2 the number of times the examination can be taken.

## Admission Requirements

### CERTIFICATE ADMISSION REQUIREMENTS

Students wishing to enroll only in the certificate program but not a graduate degree program may apply for admission to U.T. Arlington as a special student (non-degree seeking). Admission requires a bachelor's degree or equivalent and would be contingent upon an audition for a minimum of two faculty members; GRE scores and letters of recommendation are not required. Students in this certificate program who later seek graduate degrees at U.T. Arlington may apply 12 hours of certificate coursework within six years of completion and award of the certificate, if they meet the admission requirements for the graduate degree and receive approval from the appropriate Graduate Studies Committee and the Dean of Graduate Studies. Admission as a special student in no way guarantees subsequent unconditional admission into a graduate program or into the Graduate School.

### TOEFL REQUIREMENT

Applicants whose native language is not English must demonstrate proficiency in English by earning a score of at least 550 on the paper-based Test of English as a Foreign Language (TOEFL) or a score of at least 213 on the computer-based test, or a minimum score of 40 on the Test of Spoken English (TSE). The Internet-based TOEFL examination (TOEFL iBT) will be accepted as an alternative to the paper and computer-based TOEFL for admission purposes. Students taking TOEFL iBT must attain a minimum total test score of 79 and meet or exceed the following scores on each of the sections of the test:

- Writing: 22
- Speaking: 21
- Reading: 20
- Listening: 16

## Certificate in Performance

The Certificate in Performance requires 15 hours of coursework and is currently available only in Keyboard Studies:

Applied Study:		9
MUSI 5321	PRIVATE LESSONS IN PIANO	3
OR		
MUSI 5322	PRIVATE LESSONS IN ORGAN	3
OR		
MUSI 5323	PRIVATE LESSONS IN HARPSICHORD	3
Recital:		3
MUSI 5391	CONFERENCE COURSE IN MUSIC	3
Keyboard Accompaniment:		3
MUSI 5190	KEYBOARD ACCOMPANIMENT	1
Total Hours		28

## Music - Undergraduate Programs

### Overview

The University of Texas at Arlington is a member of the National Association of Schools of Music.

The Department of Music offers the Bachelor of Music degree (1) in preparation for all-level teacher certification; (2) in Performance (woodwind, brass, percussion, keyboard, strings, or voice); (3) in Theory; (4) in Composition; (5) in Jazz Studies; (6) in Music/Business; (7) in Music/Theatre; and (8) in Music/Media. Music students must meet all the requirements of one of these specializations to receive the Bachelor of Music degree. All degree plans leading to a Bachelor of Music degree include offerings which provide a solid foundation in music theory, history, and literature and require a concentration in a specific instrument/voice.

The mission of the Music Department is to further the quest for enrichment and to nurture aesthetics, knowledge, and excellence through experiencing and studying the art and science of music.

The Music Department's goals and objectives for academic and artistic enrichment of the university and the extended community include: (1) offering curricula leading to a baccalaureate degree and graduate programs that provide students with the opportunity to realize their inherent musical potential, (2) offering degree options that recognize and nurture students' abilities and talents to make contributions of excellence in the fields of music, and (3) preparing students for further graduate study and/or professional careers in music by meeting curricula criteria, performance standards, and academic expectations.

All prospective music majors must audition for proper placement in their respective performance areas and take a music theory placement test. Information concerning auditions and placement tests is available in the Music Office.

All music majors (and transfer students) are required to pass the sophomore barrier on their major instrument. Students can only attempt the barrier two times. If they fail the sophomore barrier the first time, they will receive an Incomplete and will be required to enroll in MUSI 2222 DEVELOPMENTAL PRIVATE LESSONS the following semester. At the end of MUSI 2222 DEVELOPMENTAL PRIVATE LESSONS, students will be required to attempt the barrier for a last time. If the student successfully passes the barrier, the Incomplete will be changed to the appropriate grade. If students do not successfully pass the barrier, they will not be allowed to remain a music major.

All students wishing to pursue the Bachelor of Music Degree with the Jazz Studies Option must pass the jazz performance barrier exam upon completion of MUSI 3226 JAZZ IMPROVISATION II. Students can attempt the barrier two times. Students failing to pass the jazz barrier on the second attempt will not be permitted to continue in the Jazz Studies Option. Successful completion of the jazz barrier is a prerequisite for enrollment in:

MUSI 3395	JAZZ COMPOSITION	3
MUSI 4300	JAZZ PERSPECTIVES	3
MUSI 4302	JAZZ ARRANGING	3
MUSI 4225	ADVANCED JAZZ IMPROVISATION	2

All students wishing to pursue the Bachelor of Music Degree in Preparation for Teacher Certification must pass the music education barrier exam before enrolling in:

MUSI 3211	EARLY CHILDHOOD MUSIC	2
MUSI 3213	INSTRUMENTAL MATERIALS AND TECHNIQUES I	2
MUSI 3214	CHORAL MATERIALS AND TECHNIQUES I	2

An audition or permission of the instructor is required for all large ensembles. All University students, regardless of major, are permitted to audition for and participate in all music department ensembles: concert bands, marching band, jazz ensembles, choirs, and orchestra.

All music majors are required to enroll in a large ensemble each semester in residence. Ensembles that meet this requirement, as well as any minimum requirements for number(s) of semester in specific ensembles, are determined by each degree plan. Residence is defined as any semester that a student is enrolled in any private lesson section or enrolled in 6 or more semester hours at the university, except during student teaching or music industry studies internship.

All students are strongly urged to refer to the sections on Academic Regulations and Degree Programs in the current UT Arlington Undergraduate Catalog. Students seeking teacher certification should read the College of Education section of this catalog concerning admission to teacher education programs and state requirements for certification.

In addition to fulfilling University and the College of Liberal Arts requirements for admission to a degree program, students planning to be music majors must also fulfill the listed Music Department requirements.

Students must receive a C or better in all music courses in order to graduate. If a student does not earn a C or better, it may not count as a prerequisite for any other course.

Students should expect, in addition to attending weekly private lessons, a minimum preparation (individual practice) of five hours per week in courses granting two hours credit, 10 hours per week in courses granting three hours credit, and 12 hours per week in courses granting four hours credit.

All private instruction, except MUSI 0171, requires a jury.

Music majors must complete a minimum of 36 hours at the 3000/4000 level, at least 24 of which must be in music.

Those music courses available to non-music majors are indicated in the course description. Individual instruction courses are open in limited numbers to all University students.

## Requirements for a Bachelor of Music Degree (In Performance, Theory, or Composition)

<b>Pre-Professional Courses</b>		
General Core Requirements (p. 93)		39
Program Requirements		
Modern and Classical Languages: 1441, 1442, 2313, 2314		14
<b>Professional Courses</b>		
MUSI 1185	SIGHTSINGING AND EAR TRAINING I	1
MUSI 1186	SIGHTSINGING AND EAR TRAINING II	1
MUSI 1325	THEORY AND HARMONY I	3
MUSI 1326	THEORY AND HARMONY II	3
MUSI 2185	SIGHTSINGING AND EAR TRAINING III	1
MUSI 2186	SIGHTSINGING AND EAR TRAINING IV	1
MUSI 2325	THEORY AND HARMONY III	3
MUSI 2326	THEORY AND HARMONY IV	3
MUSI 3308	INSTRUMENTAL CONDUCTING I	3
or MUSI 3309	CHORAL CONDUCTING I	
MUSI 3300	MUSIC HISTORY I	3
MUSI 3301	MUSIC HISTORY II	3
Performance Concentration (in one instrument or voice)		8
MUSI 1180	FUNCTIONAL PIANO I <sup>1</sup>	1
MUSI 1181	FUNCTIONAL PIANO II <sup>1</sup>	1
MUSI 2180	FUNCTIONAL PIANO III <sup>1</sup>	1
MUSI 2181	FUNCTIONAL PIANO IV <sup>1</sup>	1
Total Hours		90

<sup>1</sup> Keyboard concentrates must substitute four hours keyboard ensemble.

### OPTIONS

#### Voice Performance Option

MUSI 2302	MUSIC LITERATURE	3
MUSI 3101	ITALIAN AND FRENCH DICTION	1
MUSI 3302	FORM AND ANALYSIS	3
MUSI 3303	COUNTERPOINT	3
MUSI 3394	DIGITAL MUSIC TECHNOLOGY	3
MUSI 4101	GERMAN AND ENGLISH DICTION	1
A cappella choir/university singers/women's chorus		7
Musical theatre/opera laboratory		3
Performance major (additional hours)		14
MUSI 0174	SECONDARY KEYBOARD	1
MUSI 3103	VOCAL PEDAGOGY	1
MUSI 4102	VOCAL LITERATURE	1
MUSI 4301	ORCHESTRATION	3
or MUSI 4302	JAZZ ARRANGING	
Junior and Senior Recital		
Total Hours		44

Students electing studies in pedagogy substitute the following:

Performance concentration (additional hours)		8
MUSI 3294	APPLIED PEDAGOGY (Vocal Pedagogy I, II)	2

MUSI 4291	CONFERENCE COURSE (Vocal Literature I,II)	2
MUSI 0174	SECONDARY KEYBOARD	1
MUSI 1242	PRIVATE LESSONS IN PIANO	2
MUSI 4205	ADVANCED FUNCTIONAL PIANO	2
Senior Recital		
Total Hours		17

### Keyboard Performance Option

MUSI 2302	MUSIC LITERATURE	3
MUSI 3294	APPLIED PEDAGOGY	2
MUSI 3295	PIANO PEDAGOGY	2
MUSI 3302	FORM AND ANALYSIS	3
MUSI 3303	COUNTERPOINT	3
MUSI 3394	DIGITAL MUSIC TECHNOLOGY	3
MUSI 4301	ORCHESTRATION	3
or MUSI 4302	JAZZ ARRANGING	
MUSI 4291	CONFERENCE COURSE (Keyboard Literature I, II)	2
Accompanying		1
Ensemble (any)		1
Performance major (additional hours)		14
MUSI 0174	SECONDARY KEYBOARD	1
Music elective		3
Junior and Senior Recital		
Total Hours		41

Students electing studies in pedagogy substitute the following:

Performance concentration (additional hours)		8
MUSI 1257	PRIVATE LESSONS IN ORGAN	2
MUSI 1258	PRIVATE LESSONS IN ORGAN	2
MUSI 2257	PRIVATE LESSONS IN ORGAN	2
MUSI 2258	PRIVATE LESSONS IN ORGAN	2
MUSI 3211	EARLY CHILDHOOD MUSIC	2
MUSI 4291	CONFERENCE COURSE (Group Piano Methods)	2
Senior Recital		
Total Hours		20

### Wind, String, or Percussion Performance Option

MUSI 2302	MUSIC LITERATURE	3
MUSI 3302	FORM AND ANALYSIS	3
MUSI 3303	COUNTERPOINT	3
MUSI 3394	DIGITAL MUSIC TECHNOLOGY	3
MUSI 4301	ORCHESTRATION	3
or MUSI 4302	JAZZ ARRANGING	
MUSI 4191	CONFERENCE COURSE (wind or string instrument pedagogy)	1
MUSI 4191	CONFERENCE COURSE (wind or string instrument literature)	1
Performance Major (additional hours in one instrument or voice)		14
Ensemble <sup>1</sup>		12
Music elective		3
Junior and Senior Recital		
Total Hours		46

- <sup>1</sup> Orchestra emphasis students taken eight hours orchestra, three hours string quartet, and one hour any ensemble.  
Band emphasis students will take eight hours wind symphony, symphonic winds or symphonic band, two hours any ensemble, and two hours orchestra.

### Theory Option

MUSI 2227	COMPOSITION TECHNIQUES	2
MUSI 2302	MUSIC LITERATURE	3
MUSI 3302	FORM AND ANALYSIS	3
MUSI 3303	COUNTERPOINT	3
MUSI 3326	POST-TONAL ANALYSIS	3
MUSI 3390	SCHENKERIAN ANALYSIS	3
MUSI 3391	ADVANCED SONATA THEORY	3
MUSI 4205	ADVANCED FUNCTIONAL PIANO	2
MUSI 4350	20TH CENTURY FORM & TECHNIQUE	3
MUSI 4351	MUSIC THEORY CAPSTONE/SEMINAR	3
MUSI 4301	ORCHESTRATION	3
MUSI 0174	SECONDARY KEYBOARD <sup>1</sup>	1
Performance concentration (additional hours in one instrument or voice)		4
Ensemble (any) <sup>2</sup>		6
Senior research project <sup>3</sup>		
Total Hours		42

<sup>1</sup> Keyboard concentrates must substitute MUSI 4242 PRIVATE LESSONS IN PIANO.

<sup>2</sup> At least three hours must be large ensemble.

<sup>3</sup> Prepare and present project in music theory in a conference setting.

### Composition Option

MUSI 2227	COMPOSITION TECHNIQUES	2
MUSI 3302	FORM AND ANALYSIS	3
MUSI 3303	COUNTERPOINT	3
MUSI 3392	COMPOSITION I	3
MUSI 3393	COMPOSITION II	3
MUSI 3394	DIGITAL MUSIC TECHNOLOGY	3
MUSI 4301	ORCHESTRATION	3
MUSI 4492	COMPOSITION III	4
MUSI 4493	COMPOSITION IV	4
MUSI 3127 & MUSI 3128	COMPUTER COMPOSITION I and COMPUTER COMPOSITION II	2
Select two hours from the following:		2
MUSI 1103	HIGH BRASS CLASS	
MUSI 1104	WOODWIND CLASS I	
MUSI 1105	VOICE CLASS	
MUSI 2103	STRING CLASS	
MUSI 2104	PERCUSSION CLASS	
Performance concentration (additional hours in one instrument or voice)		2
MUSI 0174	SECONDARY KEYBOARD <sup>1</sup>	1
Ensemble (any) <sup>2</sup>		6
Program of original works <sup>3</sup>		
Total Hours		41

- 1 Keyboard concentrates must substitute MUSI 3243 PRIVATE LESSONS IN PIANO.
- 2 At least three hours must be large ensemble.
- 3 Prepare and present original works.

## Requirements for a Bachelor of Music Degree (in Music/Business, Music/Theatre, or Music/Media)

Pre-Professional Courses		
General Core Requirements (p. 93)		39
Program Requirements		
Electives:		3-8
Music Theatre options (three hours at 3000/4000 level)		
Music Business and Music Media options (eight hours), foreign language recommended		
Professional Courses		
MUSI 1185	SIGHTSINGING AND EAR TRAINING I	1
MUSI 1186	SIGHTSINGING AND EAR TRAINING II	1
MUSI 1325	THEORY AND HARMONY I	3
MUSI 1326	THEORY AND HARMONY II	3
MUSI 2185	SIGHTSINGING AND EAR TRAINING III	1
MUSI 2186	SIGHTSINGING AND EAR TRAINING IV	1
MUSI 2302	MUSIC LITERATURE	3
MUSI 2325	THEORY AND HARMONY III	3
MUSI 2326	THEORY AND HARMONY IV	3
MUSI 3308	INSTRUMENTAL CONDUCTING I	3
or MUSI 3309	CHORAL CONDUCTING I	
MUSI 3300	MUSIC HISTORY I	3
MUSI 3301	MUSIC HISTORY II	3
MUSI 3394	DIGITAL MUSIC TECHNOLOGY	3
MUSI 4390	RECORDING TECHNIQUES I	3
MUSI 4391	CONFERENCE COURSE	3
Performance concentration (in one instrument or voice)		8
MUSI 1180	FUNCTIONAL PIANO I <sup>1</sup>	1
MUSI 1181	FUNCTIONAL PIANO II <sup>1</sup>	1
Total Hours		89-94

- 1 Keyboard concentrates substitute one hour keyboard ensemble.

## OPTIONS

### Music/Business Option

Performance concentration (additional hours in one instrument or voice)		2
MUSI 4323	BUSINESS OF MUSIC	3
Ensemble (any) <sup>1</sup>		6
Select 10 hours from the following: <sup>2</sup>		10
MUSI 1302	JAZZ APPRECIATION	
MUSI 1304	HISTORY OF ROCK MUSIC	
MUSI 2227	COMPOSITION TECHNIQUES	
MUSI 2301	MUSIC IN FILM	
MUSI 3125	JAZZ THEORY	
MUSI 3212	JAZZ TECHNIQUES	
MUSI 3302	FORM AND ANALYSIS	
MUSI 3303	COUNTERPOINT	
MUSI 3308	INSTRUMENTAL CONDUCTING I	

MUSI 3309	CHORAL CONDUCTING I	
MUSI 3390	SCHENKERIAN ANALYSIS	
MUSI 3391	ADVANCED SONATA THEORY	
MUSI 3392	COMPOSITION I	
MUSI 4300	JAZZ PERSPECTIVES	
MUSI 4301	ORCHESTRATION	
MUSI 4302	JAZZ ARRANGING	
MUSI 4324	HISTORY OF MUSICAL THEATRE	
MUSI 4325	RECORDING TECHNIQUES II	
MUSI 4326	RECORDING TECHNIQUES III	

Select 18 hours from the following: <sup>2,3</sup> 18

Business courses

Communication courses

Total Hours 39

- 1 At least three must be large ensemble.
- 2 Nine hours must be at the 3000/4000 level.
- 3 Pending approval by the Music Business Area Coordinator.

### Music/Theatre Option

Performance concentration (additional hours)		4
MUSI 2180	FUNCTIONAL PIANO III	1
MUSI 2181	FUNCTIONAL PIANO IV	1
MUSI 0174	SECONDARY KEYBOARD <sup>1</sup>	1
or MUSI 4205	ADVANCED FUNCTIONAL PIANO	
MUSI 3101	ITALIAN AND FRENCH DICTION	1
MUSI 4101	GERMAN AND ENGLISH DICTION	1
MUSI 4324	HISTORY OF MUSICAL THEATRE	3
Ensemble (any) <sup>2</sup>		6
Choral ensembles or musical theatre/opera laboratory (additional hours)		4
Theatre Arts and/or Broadcast Communication courses as recommended by major advisor <sup>3</sup>		15
Dance courses <sup>4</sup>		3
Total Hours		40

- 1 Keyboard concentrates substitute four hours MUSI 0175 SECONDARY VOICE.
- 2 May include THEA 0181 THEATRE PRACTICUM.
- 3 Nine must be 3000/4000 level.
- 4 See music advisor for a list of approved courses.

### Music/Media Option

Select one of the following:

MUSI 2180	FUNCTIONAL PIANO III	
MUSI 2181	FUNCTIONAL PIANO IV	
MUSI 4205	ADVANCED FUNCTIONAL PIANO <sup>1</sup>	
MUSI 2227	COMPOSITION TECHNIQUES	2
MUSI 3125	JAZZ THEORY	1
MUSI 3308	INSTRUMENTAL CONDUCTING I	3
or MUSI 3309	CHORAL CONDUCTING I	
MUSI 4323	BUSINESS OF MUSIC	3
MUSI 4325	RECORDING TECHNIQUES II	3
PHYS 1300	INTRODUCTION TO MUSICAL ACOUSTICS	3



Ensemble (any) <sup>2</sup>	6
Select one of the following:	3
MUSI 4326                      RECORDING TECHNIQUES III	
ART 3385                        SOUND & POST PRODUCTION	
THEA 3303                      SOUND DESIGN	
Select one of the following:	3
MUSI 2301                      MUSIC IN FILM	
MUSI 3392                      COMPOSITION I	
MUSI 3302                      FORM AND ANALYSIS	
MUSI 3303                      COUNTERPOINT	
MUSI 3390                      SCHENKERIAN ANALYSIS	
Art, Business, Communication, and/or Electrical Engineering courses <sup>3</sup>	9
<b>Total Hours</b>	<b>36</b>

<sup>1</sup> Keyboard concentrates substitute two hours of MUSI 0109 KEYBOARD ENSEMBLE or MUSI 4205 ADVANCED FUNCTIONAL PIANO.

<sup>2</sup> At least three hours must be large ensemble.

<sup>3</sup> Three hours must be at 3000/4000 level. All courses must be approved by the Music Media Area Coordinator.

## Requirements for a Bachelor of Music Degree (With Jazz Studies Option)

### Pre-Professional Courses

General Core Requirements (p. 93)	39
Program Requirements	
Electives (foreign language recommended)	8

### Professional Courses

MUSI 1101                      JAZZ LISTENING	1
MUSI 1185                      SIGHTSINGING AND EAR TRAINING I	1
MUSI 1186                      SIGHTSINGING AND EAR TRAINING II	1
MUSI 1325                      THEORY AND HARMONY I	3
MUSI 1326                      THEORY AND HARMONY II	3
MUSI 2185                      SIGHTSINGING AND EAR TRAINING III	1
MUSI 2186                      SIGHTSINGING AND EAR TRAINING IV	1
MUSI 2302                      MUSIC LITERATURE	3
MUSI 2325                      THEORY AND HARMONY III	3
MUSI 2326                      THEORY AND HARMONY IV	3
MUSI 3125                      JAZZ THEORY	1
MUSI 3180                      FUNCTIONAL JAZZ PIANO	1
MUSI 3308                      INSTRUMENTAL CONDUCTING I	3
or MUSI 3309                      CHORAL CONDUCTING I	
MUSI 3225                      JAZZ IMPROVISATION I	2
MUSI 3226                      JAZZ IMPROVISATION II	2
MUSI 3300                      MUSIC HISTORY I	3
MUSI 3301                      MUSIC HISTORY II	3
MUSI 3394                      DIGITAL MUSIC TECHNOLOGY	3
MUSI 3395                      JAZZ COMPOSITION	3
MUSI 4225                      ADVANCED JAZZ IMPROVISATION	2
MUSI 4300                      JAZZ PERSPECTIVES	3
MUSI 4302                      JAZZ ARRANGING	3
MUSI 4323                      BUSINESS OF MUSIC	3
MUSI 4390                      RECORDING TECHNIQUES I	3
MUSI 4392                      JAZZ STUDIES SENIOR RECITAL/PROJECT	3

Performance concentration (1000/2000 level in one instrument or voice) <sup>2</sup> 8

Performance concentration (additional hours at 3000/4000 level in one instrument or voice) <sup>2</sup>	14	
MUSI 1180	FUNCTIONAL PIANO I <sup>1</sup>	1
MUSI 1181	FUNCTIONAL PIANO II <sup>1</sup>	1
MUSI 2180	FUNCTIONAL PIANO III <sup>1</sup>	1
MUSI 2181	FUNCTIONAL PIANO IV <sup>1</sup>	1
Large jazz ensemble		7
Small jazz ensemble		2
Music Elective		3
<b>Total Hours</b>		<b>143</b>

<sup>1</sup> Keyboard concentrates substitute two hours keyboard ensemble and two hours small jazz ensemble.

<sup>2</sup> Keyboard concentrates elect both classical and jazz private lessons through the barrier exam level. Junior and Senior level private lessons in jazz piano only.

## Requirements for a Bachelor of Music Degree (in preparation for Teacher Certification)

The Bachelor of Music Degree (in preparation for Teacher Certification) is a 5-year degree.

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Professional Courses

MUSI 1185	SIGHTSINGING AND EAR TRAINING I	1
MUSI 1186	SIGHTSINGING AND EAR TRAINING II	1
MUSI 1325	THEORY AND HARMONY I	3
MUSI 1326	THEORY AND HARMONY II	3
MUSI 2185	SIGHTSINGING AND EAR TRAINING III	1
MUSI 2186	SIGHTSINGING AND EAR TRAINING IV	1
MUSI 2325	THEORY AND HARMONY III	3
MUSI 2326	THEORY AND HARMONY IV	3
MUSI 3308	INSTRUMENTAL CONDUCTING I	3
or MUSI 3309	CHORAL CONDUCTING I	
MUSI 3300	MUSIC HISTORY I	3
MUSI 3301	MUSIC HISTORY II	3
Performance concentration (in one instrument or voice)		8
MUSI 1180	FUNCTIONAL PIANO I <sup>1</sup>	1
MUSI 1181	FUNCTIONAL PIANO II <sup>1</sup>	1
MUSI 2180	FUNCTIONAL PIANO III <sup>1</sup>	1
MUSI 2181	FUNCTIONAL PIANO IV <sup>1</sup>	1
LIST 4343	CONTENT AREA READING AND WRITING	3
EDUC 4352	TEACHING DIVERSE POPULATIONS	3
EDUC 4647	SECONDARY STUDENT TEACHING	6
<b>Total Hours</b>		<b>88</b>

<sup>1</sup> Keyboard concentrates refer to appropriate options for substitute hours.

## OPTIONS

### All-Level Instrumental Option (Band Emphasis)

MUSI 1103	HIGH BRASS CLASS	1
MUSI 1104	WOODWIND CLASS I	1
MUSI 1105	VOICE CLASS (or one semester any choir)	1
MUSI 1106	LOW BRASS CLASS	1
MUSI 1107	WOODWIND CLASS II	1

MUSI 2103	STRING CLASS	1
MUSI 2104	PERCUSSION CLASS	1
MUSI 2112	INTRODUCTION TO MUSIC PEDAGOGY	1
MUSI 3211	EARLY CHILDHOOD MUSIC	2
MUSI 3213	INSTRUMENTAL MATERIALS AND TECHNIQUES I	2
MUSI 4308	INSTRUMENTAL CONDUCTING II	3
MUSI 4211	ELEMENTARY MUSIC	2
MUSI 4213	INSTRUMENTAL MATERIALS AND TECHNIQUES II	2
MUSI 4216	STRATEGIES AND ASSESSMENT IN MUSIC PEDAGOGY	2
MUSI 4217	MUSIC PEDAGOGY FIELD-BASED EXPERIENCE	2
MUSI 3200	MARCHING BAND TECHNIQUES	2
MUSI 3212	JAZZ TECHNIQUES	2
MUSI 4301	ORCHESTRATION	3
or MUSI 4302	JAZZ ARRANGING	
Keyboard concentrates take four hours MUSI 0109 (see Major)		
Ensembles (3 hours marching band; four hours wind symphony, symphonic winds, or symphonic band)		7
Performance concentration (additional hours in one instrument)		6
Senior half recital		

### All-Level Instrumental Option (Orchestra Emphasis)

MUSI 1105	VOICE CLASS (or one semester any choir)	1
MUSI 2101	BRASS SURVEY	1
MUSI 2102	WOODWIND SURVEY	1
MUSI 2112	INTRODUCTION TO MUSIC PEDAGOGY	1
MUSI 3211	EARLY CHILDHOOD MUSIC	2
MUSI 3213	INSTRUMENTAL MATERIALS AND TECHNIQUES I	2
MUSI 4308	INSTRUMENTAL CONDUCTING II	3
MUSI 4301	ORCHESTRATION	3
or MUSI 4302	JAZZ ARRANGING	
MUSI 4211	ELEMENTARY MUSIC	2
MUSI 4213	INSTRUMENTAL MATERIALS AND TECHNIQUES II	2
MUSI 4216	STRATEGIES AND ASSESSMENT IN MUSIC PEDAGOGY	2
MUSI 4217	MUSIC PEDAGOGY FIELD-BASED EXPERIENCE	2
MUSI 3294	APPLIED PEDAGOGY	2
MUSI 4303	ADVANCED STRING CLASS	3
MUSI 3191	SECONDARY LESSONS IN STRINGS (enrolled in two times: each hour on a different string instrument other than principal instrument)	1
Keyboard concentrates take four hours MUSI 0109 (see Major)		
Ensembles (7 hours orchestra)		7
Performance concentration (additional hours in one instrument)		6
Senior half recital		

### All-Level Choral Option

MUSI 2101	BRASS SURVEY	1
MUSI 2102	WOODWIND SURVEY	1
MUSI 3103	VOCAL PEDAGOGY	1
MUSI 2103	STRING CLASS	1
MUSI 2104	PERCUSSION CLASS	1
MUSI 2112	INTRODUCTION TO MUSIC PEDAGOGY	1
MUSI 3101	ITALIAN AND FRENCH DICTION	1
MUSI 3211	EARLY CHILDHOOD MUSIC	2
MUSI 3214	CHORAL MATERIALS AND TECHNIQUES I	2

MUSI 4101	GERMAN AND ENGLISH DICTION	1
MUSI 4309	CHORAL CONDUCTING II	3
MUSI 4301	ORCHESTRATION	3
MUSI 4211	ELEMENTARY MUSIC	2
MUSI 4214	CHORAL MATERIALS AND TECHNIQUES II	2
MUSI 4216	STRATEGIES AND ASSESSMENT IN MUSIC PEDAGOGY	2
MUSI 4217	MUSIC PEDAGOGY FIELD-BASED EXPERIENCE	2
A capella choir/university singers/women's chorus		6
Musical theatre/opera laboratory		1
Performance concentration (additional hours)		6
Senior half recital		
Total Hours		39

### Voice Concentration

MUSI 0174	SECONDARY KEYBOARD	1
MUSI 4205	ADVANCED FUNCTIONAL PIANO	2
Total Hours		3

### Keyboard Concentration

MUSI 0109	KEYBOARD ENSEMBLE	1
MUSI 0175	SECONDARY VOICE	1
Total Hours		2

## Teacher Certification

Students interested in Texas Teacher Certification should consult the College of Education and Health Professions section of this catalog for the most recent changes in requirements regarding admission to Teacher Education, completion of University programs in preparation for certificate, and eligibility for certification after graduation.

## Oral Communication and Computer Use Competence Requirements

Students majoring in music are required to demonstrate computer use and oral communication competencies.

Computer use proficiency can be demonstrated by:

1. successful completion of MUSI 3394 DIGITAL MUSIC TECHNOLOGY; or
2. successful completion of CSE 1301 COMPUTER LITERACY or INSY 2303 INTRODUCTION TO M.I.S. AND DATA PROCESSING; or
3. passing the University computer use competency exam.

Oral communication proficiency can be demonstrated by:

1. successful completion of MUSI 3308 INSTRUMENTAL CONDUCTING I or MUSI 3309 CHORAL CONDUCTING I; or
2. successful completion of one of the following:

COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	3
COMS 3315	COMMUNICATION FOR EDUCATORS	3

Students should discuss these options with their undergraduate advisor who may also provide a list of other courses approved by the University of meet these requirements.

## Requirements for a Minor in Music

Eighteen hours of music, six hours of which must be 3000/4000 level.

# Philosophy and Classics

## Undergraduate Degrees

- Bachelor of Arts in Philosophy (Pre-Professional Track) (p. 414)
- Bachelor of Arts in Philosophy (General Track) (p. 414)
- Bachelor of Arts in Philosophy (Pre-Law Option) (p. 414)
- Bachelor of Arts in Philosophy (Mind, Language, and Cognition Option) (p. 414)
- Bachelor of Arts in Philosophy (Philosophy and Classics Option) (p. 414)
- Minor in Philosophy (p. 416) or Classical Studies (p. 416)

## Philosophy - Graduate Program

### The Philosophy Doctoral Program at the University of North Texas

Students in the Ph.D. program in philosophy at the University of North Texas may, but are no longer required to, take up to 15 graduate semester credit hours in the Department of Philosophy at UT Arlington. Visit the web page of UNT's Department of Philosophy and Religion Studies (<http://philosophy.unt.edu/graduate-program>). For more information, contact Dr. Dale Wilkerson ([dale.wilkerson@unt.edu](mailto:dale.wilkerson@unt.edu)) at the University of North Texas.

## Philosophy and Classics - Undergraduate and Certificate Programs

### Overview

A major in philosophy is built on the central texts in the history of Western thought. Philosophy focuses on the perennial problems raised by the encounter of human beings with their history, culture, and the world. It emphasizes methods of analysis and clarity of argumentation. Students who major in philosophy have the broadest possible preparation in the liberal arts.

Students who complete a major in philosophy are prepared to enter either graduate programs or the world of work. In addition to providing vocational skills and a solid foundation for graduate work in the discipline, a major in philosophy constitutes appropriate and strong preparation for graduate work in other academic disciplines as well as in professional programs in a broad variety of fields. The Department of Philosophy and Humanities is prepared to work with students who are interested in postgraduate professional education to assure that their preparation meets disciplinary and/or professional criteria and expectations in areas including law, business administration, and theology. The faculty of the Department of Philosophy and Humanities also work with advisors in the Health Professions Advising Office of the College of Science to ensure that philosophy majors pursuing a pre-medical curriculum are kept abreast of required and recommended courses outside the major.

### Requirements for Admission to a Major in Philosophy

Students should have completed 30 hours of core with 30 hours at UT Arlington, or 40 hours of core with 12 hours at UT Arlington with an overall GPA greater than 2.0. Before being accepted into the major in philosophy, students must also have passed a course in symbolic logic (PHIL 2311 LOGIC or the equivalent). Students may be accepted as pre-philosophy majors if the above standards are not met.

### Requirements for a Minor in Philosophy

A minor in philosophy requires 18 semester hours, at least six of which must be 3000/4000 level.

### Requirements for a Minor in Classical Studies

A minor in classical studies requires at least 18 semester hours, at least six of which must be 3000/4000 level, in approved classical studies courses. There are four options for the classical studies minor: Greek Language, Latin Language, Classical Civilization, and Ancient Studies.

### Requirements for the Certificate in Ethics

The certificate in ethics requires at least 15 semester hours in approved ethics courses.

## Undergraduate Advising

All philosophy majors are directed in their program by a designated undergraduate advisor. In addition, the following special advisors are available:

**Graduate Work in Philosophy:** Majors who are interested in graduate work in philosophy should consult the departmental graduate advisor during their junior year.

**Pre-Law:** Majors who intend to apply to law school will find courses in logic, philosophy of law, political philosophy, and ethics particularly useful. Interested students should consult the Philosophy/Pre-law faculty advisor for assistance in course selection and application procedures.

**Philosophy/Business Administration Minor:** It is possible to combine the philosophy major with a business administration minor in preparation for admission to the UT Arlington MBA program. (See Liberal Arts Major/Business Administration Minor section in the introduction of the College of Liberal Arts.) The Philosophy/Business Administration faculty advisor will assist students in coordinating their program and meeting admissions requirements either at UT Arlington or other schools.

**Pre-Theological:** Majors who plan to enter a school of theology should consider a minor in classics and foreign language preparation in Greek and/or Latin. Electives in ethics and philosophy of religion are particularly recommended. Interested students should consult the Philosophy/Pre-ministerial faculty advisor for additional assistance.

**Pre-Medical:** A departmental faculty advisor is available to assist majors who intend to apply to medical school. The major program will be coordinated with the Health Professions Advising Office of the College of Science.

## Oral Communication Competency

Students majoring in philosophy may demonstrate competency in oral communication by

1. successful completion of a specific course approved by the Department of Philosophy and Humanities for this purpose, or
2. successful completion of any course from among those approved by the Undergraduate Assembly.

## Computer Use Competency

Students majoring in philosophy may demonstrate competency in computer use by

1. successful completion of PHIL 3307 SEMINAR IN RESEARCH METHODS AND PHILOSOPHICAL WRITING, or
2. successful completion of any course from among those approved by the Undergraduate Assembly for this purpose, or
3. passing the University proficiency examination in computer use.

## Requirements for a Bachelor of Arts Degree in Philosophy (Pre-Professional Track)

### Pre-Professional Courses

General Core Requirements (p. 93)	39	
Core Courses Required for this Major		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Program Requirements		
Modern and Classical Languages: 1441, 1442, 2313, 2314	14	

### Professional Courses

PHIL 1310	PHILOSOPHICAL PERSPECTIVES	3
or PHIL 2300	INTRODUCTION TO PHILOSOPHY	
PHIL 2311	LOGIC	3
PHIL 3301	HISTORY OF PHILOSOPHY: ANCIENT PHILOSOPHY	3
PHIL 3303	HISTORY OF PHILOSOPHY: RENAISSANCE AND EARLY MODERN EUROPEAN PHILOSOPHY	3
PHIL 3307	SEMINAR IN RESEARCH METHODS AND PHILOSOPHICAL WRITING	3
Select at least one course from the "metaphysics and epistemology" group:		3
PHIL 3318	THE PHILOSOPHY OF SCIENCE AND TECHNOLOGY	
PHIL 3321	PHILOSOPHY OF LANGUAGE	
PHIL 4385	THEORY OF KNOWLEDGE	
PHIL 4386	METAPHYSICS	
PHIL 4388	TOPICS IN THE HISTORY OF PHILOSOPHY	
PHIL 4389	TOPICS IN PHILOSOPHY AND THE SOCIAL SCIENCES	
Select at least one course from the "value theory" group:		3
PHIL 2312	ETHICS	
PHIL 2313	PHILOSOPHY OF THE ARTS	
PHIL 3316	PHILOSOPHY OF RELIGION	
PHIL 3319	BIOMEDICAL ETHICS	
PHIL 3320	PHILOSOPHY OF LAW	
PHIL 3330	SOCIAL AND POLITICAL PHILOSOPHY	
PHIL 4387	TOPICS IN VALUE THEORY	

Advanced hours-with a total of at least six hours at the 4000 level <sup>1</sup>	9
PHIL 4394 SENIOR THESIS (complete a senior thesis sometime during their final year)	3
Total Hours	92

<sup>1</sup> Including any 4000-level "metaphysics and epistemology" or "value theory" courses, but not including PHIL 4394 SENIOR THESIS.

## Requirements for a Bachelor of Arts Degree in Philosophy (General Track)

### Pre-Professional Courses

General Core Requirements (p. 93)	39
Core Courses Required for this Major	
ENGL 1301 RHETORIC AND COMPOSITION I	3
ENGL 1302 RHETORIC AND COMPOSITION II	3
Program Requirements	
Modern and Classical Languages: 1441, 1442, 2313, 2314	14

### Professional Courses

Major	
PHIL 1310 PHILOSOPHICAL PERSPECTIVES	3
or PHIL 2300 INTRODUCTION TO PHILOSOPHY	
PHIL 2311 LOGIC	3
PHIL 3307 SEMINAR IN RESEARCH METHODS AND PHILOSOPHICAL WRITING	3
Additional hours (12 advanced hours, with at least six hours at the 4000 level)	18
Total Hours	86

<sup>1</sup> In consultation with the undergraduate philosophy advisor and in light of individual aims and interests, students in the general track are to select electives concentrated primarily in one or two areas of *secondary emphasis*-for example, business, classical studies, cognitive science, computer science engineering, history, humanities/liberal arts, mathematics, or political science.

## Requirements for a Bachelor of Arts Degree in Philosophy (Pre-Law Option)

Students interested in the Pre-Law Option must complete the requirements for the Pre-Professional Track degree in philosophy, while selecting their elective course work in consultation with the Philosophy/Pre-Law faculty advisor. Recommended philosophy courses for the Pre-Law Option include

PHIL 1301 FUNDAMENTALS OF REASONING	3
PHIL 1304 CONTEMPORARY MORAL PROBLEMS	3
PHIL 2312 ETHICS	3
PHIL 3317 INTERMEDIATE LOGIC	3
PHIL 3318 THE PHILOSOPHY OF SCIENCE AND TECHNOLOGY	3
PHIL 3319 BIOMEDICAL ETHICS	3
PHIL 3320 PHILOSOPHY OF LAW	3
PHIL 3321 PHILOSOPHY OF LANGUAGE	3
PHIL 3324 BUSINESS ETHICS	3
PHIL 3330 SOCIAL AND POLITICAL PHILOSOPHY	3
PHIL 3340 TOPICS IN APPLIED ETHICS	3
PHIL 4381 THEORIES OF INTERPRETATION	3
PHIL 4385 THEORY OF KNOWLEDGE	3
PHIL 4387 TOPICS IN VALUE THEORY	3

## Requirements for a Bachelor of Arts Degree in Philosophy (Mind, Language, and Cognition Option)

Students interested in the Mind, Language, and Cognition (MLC) Option must complete the requirements for the General Track degree in philosophy, with a minor in linguistics, and psychology as their area of secondary emphasis for elective course work. Although specific major, minor, and elective courses should be selected in consultation with the MLC advisor in philosophy, typical courses include

LING 2301 INTRODUCTION TO THE STUDY OF HUMAN LANGUAGES	3
LING 3311 INTRODUCTION TO LINGUISTIC SCIENCE	3

LING 3330	PHONETICS AND PHONOLOGY	3
LING 3340	GRAMMAR AND MORPHOLOGY	3
LING 3345	CRITICAL REASONING IN LINGUISTICS	3
LING 4303	FORMAL SYNTAX	3
LING 4317	SOCIOLINGUISTICS	3
LING 4335	LANGUAGE UNIVERSALS & LINGUISTIC TYPOLOGY	3
LING 4345	SEMANTICS	3
LING 4347	PRAGMATICS	3
LING 4370	HISTORY OF LINGUISTICS	3
PHIL 2300	INTRODUCTION TO PHILOSOPHY	3
PHIL 2311	LOGIC	3
PHIL 3317	INTERMEDIATE LOGIC	3
PHIL 3318	THE PHILOSOPHY OF SCIENCE AND TECHNOLOGY	3
PHIL 3321	PHILOSOPHY OF LANGUAGE	3
PHIL 4381	THEORIES OF INTERPRETATION	3
PHIL 4385	THEORY OF KNOWLEDGE	3
PHIL 4389	TOPICS IN PHILOSOPHY AND THE SOCIAL SCIENCES (Mind)	3
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	3
PSYC 2443	RESEARCH DESIGN & STATISTICS I	4
PSYC 2444	RESEARCH DESIGN & STATISTICS II	4
PSYC 4332	THEORIES OF HUMAN LEARNING AND MEMORY	3
PSYC 4338	COGNITIVE NEUROSCIENCE	3
PSYC 4355	THE HISTORY OF PSYCHOLOGY	3

(Students who intend to apply to graduate school may elect to complete the requirements for the Pre-Professional Track degree in philosophy, with the minor in linguistics and elective course work in psychology.)

## Requirements for a Bachelor of Arts Degree in Philosophy (Philosophy and Classics Option)

Students interested in the Philosophy and Classics Option typically complete the requirements for the General Track degree in Philosophy, with a minor in Classical Studies, and are required to fulfill their language requirement with Greek; with advisors' approval, students may choose to substitute Latin, French or German. Specific major, minor and elective courses should be selected in consultation with the philosophy undergraduate advisor and the director of Classical Studies. (Students who intend to apply to graduate school may elect to complete the requirements for the Pre-Professional Track degree in Philosophy, with the minor in Classical Studies, and the language hours in Greek.)

### Minor in Philosophy

18 hours, at least six of which must be 3000/4000 level.

### Minor in Classical Studies

18 hours, at least six of which must be 3000/4000 level. There are four options for the classical studies minor: Greek Language, Latin Language, Classical Civilization, and Ancient Studies. Interested students must consult with the advisor to determine which courses are required for each option. Typical courses include:

CLAS 1300	INTRODUCTION TO CLASSICAL MYTHOLOGY	3
CLAS 2300	HOLLYWOOD CLASSICS: THE ANCIENT WORLD IN FILM	3
CLAS 2303	THE CLASSICAL ROOTS OF ENGLISH VOCABULARY	3
CLAS 2307	WOMEN IN THE ANCIENT WORLD	3
CLAS 3310	INTRODUCTION TO GREEK CIVILIZATION	3
CLAS 3320	INTRODUCTION TO ROMAN CIVILIZATION	3
CLAS 3323	TOPICS IN CLASSICAL MYTHOLOGY	3
CLAS 3335	TOPICS IN CLASSICAL STUDIES	3
CLAS 4391	CONFERENCE COURSE	3
CLAS 4394	SENIOR THESIS/HONORS THESIS	3
HIST 3374	ANCIENT GREECE	3



HIST 3375	ANCIENT ROME	3
HIST 3380	HISTORY OF ANCIENT SPORT	3
ANTH 3370	ARCHAEOLOGY OF THE PREHISTORIC AEGEAN	3
ANTH 3371	ARCHAEOLOGY OF GREECE	3
ANTH 3372	ARCHAEOLOGY OF THE ANCIENT NEAR EAST	3
ANTH 3373	ARCHAEOLOGY OF EGYPT	3
GREK 1441	GREEK LEVEL I	4
GREK 1442	GREEK LEVEL II	4
GREK 2313	GREEK LEVEL III	3
GREK 2314	GREEK LEVEL IV	3
GREK 4335	TOPICS IN GREEK LITERATURE	3
GREK 4391	CONFERENCE COURSE	3
LATN 1441	LATIN LEVEL I	4
LATN 1442	LATIN LEVEL II	4
LATN 2313	LATIN LEVEL III	3
LATN 2314	LATIN LEVEL IV	3
LATN 4301	INTENSIVE LATIN FOR READING I	3
LATN 4302	INTENSIVE LATIN FOR READING II	3
LATN 4335	TOPICS IN LATIN LITERATURE	3
LATN 4391	CONFERENCE COURSE	3

## Certificate in Ethics

To receive the certificate, a student must complete five courses from the following list:

PHIL 1304	CONTEMPORARY MORAL PROBLEMS	3
or PHIL 2312	ETHICS	
or PHIL 3319	BIOMEDICAL ETHICS	
or PHIL 3320	PHILOSOPHY OF LAW	
or PHIL 3324	BUSINESS ETHICS	
or PHIL 3330	SOCIAL AND POLITICAL PHILOSOPHY	
or PHIL 3340	TOPICS IN APPLIED ETHICS	
or PHIL 4387	TOPICS IN VALUE THEORY	

With the permission of the departmental adviser, one of the five required courses may be replaced by a course from the following list:

BDEC 3311	BUSINESS DECISION MAKING - PLANNING, ETHICS, SUSTAINABILITY, & AGILITY	3
or COMM 3310	COMMUNICATION LAW & ETHICS	
or EDUC 4346	SECONDARY SCHOOL CULTURE AND THE TEACHING PROFESSION	
or JOUR 2346	REPORTING	
or LSHP 4312	LEADER ETHICS	
or MANA 4340	BUSINESS AND SOCIETY	
or MILS 2251	INDIVIDUAL/TEAM DEVELOPMENT	
or NURS 3363	ETHICAL ISSUES IN CONTEMPORARY HEALTH CARE	
or PSYC 3304	ANALYSIS & MANAGEMENT OF BEHAVIOR	

## Political Science

### Undergraduate Degrees

- Bachelor of Arts in Political Science (p. 421)
- Minor in Political Science (p. 424)

### Graduate Degree

- Political Science, M.A. (p. 418)

# Political Science - Graduate Programs

## Objective

The program leading to a Master of Arts degree in Political Science emphasizes preparation for service in many areas of our national life, both public and private. Students interested in careers in teaching and research or in leadership roles in the public or private sectors may pursue programs adapted to their individual objectives. The Department of Political Science endeavors to equip students with the research techniques and substantive background for coursework undertaken beyond the master's level. Particular attention is given to newer methodologies and approaches employed by scholars in the field.

## Admissions and Fellowship Criteria

The program is committed to a holistic admissions approach. As a result, admissions criteria include: grade point averages, letters of recommendation, personal statements, advanced degrees, graduate courses taken as a degreed student or in another program, and professional work experience. The major purpose of the admissions criteria is to promote access to our program, but maintain standards that will enable the department to determine if the applicant demonstrates the requisite skill level to master the requirements of the program.

Admission to the M.A. program in political science is based upon the completion of the general admission requirements of the Graduate School. Applicants are required to submit all official transcripts, a personal statement, and three (3) letters of recommendation. The department will review the application package in its entirety. The package is evaluated to determine if a student has achieved a 3.00 grade point average (GPA) in the last 60 hours of their undergraduate work as calculated by the Graduate School, and meets other admission requirements. If a student has already earned an advanced degree, the department will evaluate the student's academic performance in obtaining that degree equally with the undergraduate performance. International students must meet or exceed the minimum university standard on the TOEFL (550 for paper examination, 213 for computer examination), TOEFL iBT (total score of 79 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 16 for the listening section), TSE (40), or the IELTS (6.5).

The criteria for admission below are used, without specific weights, as positive indicators of potential success in the program. All four criteria for unconditional admission must be met in order to receive unconditional admission.

1. A bachelor's degree from an accredited general or specific program. A bachelor's degree in political science, however, is not required.
2. An undergraduate GPA of 3.00 or greater (as calculated by the Graduate School) in the last 60 credit hours of completing an undergraduate B.A. or B.S. degree from an accredited institution (verified by the Graduate School from official transcripts from each college or university previously attended).
3. A written statement (200 words) explaining the applicant's reasons for graduate study in political science.
4. Three letters of recommendation (including at least two from university/college faculty) mailed directly from the recommenders to the graduate advisor of political science. Letters of recommendation must favorably assess the applicant's potential success in a graduate program and in the field of political science.

## PROBATIONARY STATUS

Students who do not qualify for unconditional admission may be considered for probationary admission if they satisfy any 3 of the 4 criteria for unconditional admission. Students with a reported grade point average below 2.70, however, will not be eligible for probationary admission. Being admitted on probationary status means that the student will be able to take graduate level classes, but the student must earn a B or better in their first 12 hours of graduate coursework at UT Arlington. This regulation will be strictly enforced.

## PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admission deadline, but otherwise appears to meet admission requirements, may be granted provisional admission. Provisionally admitted students must adequately satisfy any incomplete documentation by the end of the semester in which they are admitted. If the applicant fails to do so, the Department may then reclassify the applicant's admission status as probationary or ask the student to leave the program.

## DEFERRAL

A deferred decision may be granted when a file is incomplete or when a denial decision is not appropriate.

## DENIAL

If two or more of the aforementioned criteria for unconditional admission have not been met with satisfaction or the applicant's grade point average is below 2.70, the candidate will be denied admission.

## FELLOWSHIPS

Fellowships, when available, will be awarded on a competitive basis. Nominees for the Graduate School Master's Fellowship in the Political Science master's program will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.00, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate credit hours.
- Transcript of a completed bachelor's degree in Political Science (or appropriate related field) from an accredited institution.
- Three letters of recommendation. These letters may be the same submitted for admission.
- A written statement explaining the applicant's reasons for graduate study in Political Science.

## Master's Degree Requirements

The thesis degree plan requires 24 hours of coursework including three hours of methods in Political Science for those who have not had POLS 3310 RESEARCH METHODS AND POLITICAL ANALYSIS or its equivalent. Of the remaining 21 hours, at least one course each must be taken from four of the following five areas:

### Political Behavior and Processes

POLS 5300	AMERICAN GOVERNMENT AND POLITICS	3
POLS 5311	CAMPAIGNS AND ELECTIONS	3
POLS 5315	PUBLIC OPINION	3
POLS 5316	PUBLIC LEADERSHIP: RACE, ETHNICITY, & GENDER	3
POLS 5317	ETHNIC GROUPS AND THE NATION STATE	3
POLS 5318	WOMEN IN THE POLITICAL PROCESS	3
POLS 5319	CONGRESSIONAL BEHAVIOR	3
POLS 5320	THE AMERICAN PRESIDENCY	3
POLS 5321	THE PRESIDENCY AND DOMESTIC POLICY	3
POLS 5322	SEPARATION OF POWERS IN AMERICAN POLITICAL DEVELOPMENT	3
POLS 5380	TOPICS IN U.S. POLITICS: INSTITUTIONS, PROCESS AND BEHAVIOR	3

### Comparative Politics

POLS 5303	COMPARATIVE POLITICAL SYSTEMS	3
POLS 5331	POLITICAL SYSTEMS OF EAST ASIA	3
POLS 5333	IDENTITY AND POLITICS IN THE MIDDLE EAST	3
POLS 5335	LATIN AMERICAN POLITICS	3
POLS 5336	REPRESSION AND REVOLUTION IN LATIN AMERICAN	3
POLS 5337	POLITICAL SYSTEMS OF RUSSIA AND EASTERN EUROPE	3
POLS 5381	TOPICS IN COMPARATIVE POLITICS	3

### International Politics and Organization

POLS 5332	THEORIES OF THE INTERNATIONAL SYSTEM	3
POLS 5334	VIOLENCE AND DEPRIVATION IN WORLD POLITICS	3
POLS 5338	AMERICAN FOREIGN POLICY	3
POLS 5339	ISRAELI IDENTITY AND THE ARAB-ISRAELI CONFLICT	3
POLS 5341	Political Psychology and International Relations	3
POLS 5342	International Organizations	3
POLS 5384	TOPICS IN INTERNATIONAL RELATIONS	3

### Public Law and Jurisprudence

POLS 5301	JUDICIAL POLITICS AND THE U.S. SUPREME COURT	3
POLS 5323	STATE COURT SYSTEMS	3
POLS 5382	TOPICS IN PUBLIC LAW AND JURISPRUDENCE	3

### Public Administration and Policy Studies

POLS 5302	BUREAUCRATIC LEADERSHIP: TRENDS IN PUBLIC ADMINISTRATION AND POLICY MANAGEMENT	3
POLS 5324	PUBLIC POLICY ANALYSIS	3
POLS 5325	STATE GOVERNORS AND LEGISLATURES	3
POLS 5326	STATE/LOCAL GOVERNMENT POLICYMAKING	3
POLS 5327	URBAN POLICYMAKING AND ADMINISTRATION	3
POLS 5328	PUBLIC POLICY AND MEXICAN AMERICAN COMMUNITIES	3
POLS 5329	PUBLIC BUDGETING	3
POLS 5330	ENERGY AND THE ENVIRONMENT	3

POLS 5368	Health Politics and Policy	3
POLS 5369	SOCIAL POLICY	3
POLS 5383	TOPICS IN PUBLIC ADMINISTRATION AND POLICY MAKING	3

Additional courses may also be taken in the area of political theory, but other than the methods requirement (POLS 5310 EMPIRICAL THEORY AND RESEARCH METHODS) that area is not required for the thesis or non-thesis degree plans. Elective courses in political theory include:

- POLS 5305 TOPICS IN POLITICAL THEORY.

Students should consult the Political Science Graduate Student Handbook for regulations on transfer courses, undergraduate courses, conferences, internships, and special courses. It is recommended that students complete at least one general field seminar (POLS 5300 AMERICAN GOVERNMENT AND POLITICS, POLS 5301 JUDICIAL POLITICS AND THE U.S. SUPREME COURT, POLS 5302 BUREAUCRATIC LEADERSHIP: TRENDS IN PUBLIC ADMINISTRATION AND POLICY MANAGEMENT, POLS 5303 COMPARATIVE POLITICAL SYSTEMS, POLS 5332 THEORIES OF THE INTERNATIONAL SYSTEM) prior to taking the topics courses. See the Graduate Advisor for more detail.

The non-thesis degree plan requires a minimum of 36 hours, including three hours of methodology, and courses from four of the five areas.

All candidates for the degree of Master of Arts with a major in political science must pass a final comprehensive examination, written, oral, or both written and oral. The scope, content, and form of the examination will be determined by the student's supervising committee. In the event of failure of the final comprehensive examination, the student may petition the Committee on Graduate Studies to retake the examination on a date no sooner than 60 days after the first examination. Students will not be permitted more than one reexamination after failure of the initial examination.

## INTERNATIONAL STUDIES OPTION

The International Studies option of the Master of Arts program in Political Science emphasizes comparative politics and international politics within the framework of Political Science. This option requires courses from three of six areas of Political Science and 12 hours in comparative politics and/or international politics. Students must have three hours of a methods course. Upon satisfying the requirements for this option, students will receive a letter of completion. Completion will not be reflected on student transcripts.

## U.S. POLITICAL INSTITUTIONS AND PROCESSES OPTION

The U.S. Political Institutions and Processes option of the Master of Arts program in Political Science emphasizes political behavior and processes and public law and jurisprudence within the framework of political science. This option requires courses from three of six areas of Political Science and 12 hours in political behavior and processes and/or public law and jurisprudence. Students must have three hours of a methods course. Upon satisfying the requirements for this option, students will receive a letter of completion. Completion will not be reflected on student transcripts.

## Dual Degree Program

Students in political science may participate in a dual degree program whereby they can earn a Master of Arts in political science and a Master of Arts in criminal justice. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from nine to 18 hours, subject to the approval of Graduate Advisors from both programs. To participate in the dual degree program, students must make separate application to each program and must submit a separate program of work for each degree. Those interested in a dual degree program should consult the appropriate Graduate Advisor(s) for further information on course requirements. See also the statement on "Dual Degree Programs" in the general information section of this catalog.

# Political Science - Undergraduate Programs

## Overview

The goal of the political science undergraduate curriculum is to maximize students' capacities to analyze and interpret political events and governmental processes. In addition to acquiring general knowledge about government and political behavior, students also learn the analytical skills relevant to particular political systems (their own and others'), and to problems of most immediate consequence and concern to them.

The four major objectives of the department's curriculum are to:

- Identify and describe political structures, rules, behaviors and environments which shape political action.
- Explain and employ statistical and methodological techniques to analyze information.
- Identify, comprehend, and apply comparative, theoretical, or conceptual approaches to actors and their policies.
- Develop the ability to analyze, synthesize, and evaluate political phenomena.

The major courses are designed to present a coherent portrait of the discipline. Students begin with a general introduction to national, state, and local politics followed by required courses in political methodology and political theory. Finally, students are exposed to at least four major areas of the discipline. The department also offers options for students who desire a concentration in pre-law, public policy/administration, or international studies. Students may choose any 18 hours (6 advanced) for a minor. Those who want a specialization may concentrate courses in areas of public law; policy

and administration; comparative and international politics; American national government; political parties, group politics, and elections; or political theory.

The political science student is exposed to a multifaceted and highly regarded faculty, many of whom have received regional and national honors for teaching, service, and research. Upon graduation, UT Arlington political science majors are prepared to compete for a wide variety of jobs in both the private and public sectors.

## Admission to Department of Political Science Degree Programs

Students should have completed 30 hours of core with 30 hours at UT Arlington, or 40 hours of core with 12 hours at UT Arlington with an overall GPA greater than 2.0. Students may be accepted as pre-political science majors if the above standards are not met.

## Teacher Certification

Students interested in Texas Teacher Certification should consult the College of Education section of this catalog for the most recent changes in requirements regarding admission to Teacher Education, completion of University programs in preparation for certification, and eligibility for certification after graduation.

## Oral Communication and Computer Use Competencies

Students majoring in political science are required to demonstrate computer use and oral communication competencies. Computer use proficiency can be demonstrated by one of the following:

1. successful completion of POLS 3310 RESEARCH METHODS AND POLITICAL ANALYSIS; or
2. successful completion of CSE 1301 COMPUTER LITERACY or INSY 2303 INTRODUCTION TO M.I.S. AND DATA PROCESSING; or
3. successful completion of other courses approved by the Undergraduate Assembly; or
4. passing the University computer use competency exam.

Oral communication proficiency can be demonstrated by one of the following:

COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	3
COMS 3315	COMMUNICATION FOR EDUCATORS	3

1. successful completion of specific political science courses approved by the department; or
2. successful completion of one of the following:
3. successful completion of other courses approved by the Undergraduate Assembly.

Students should discuss these options with their undergraduate advisor who may also provide a list of other courses approved by the University to meet these requirements.

## Requirements for a Bachelor of Arts Degree in Political Science

All students who wish to earn a Bachelor of Arts degree in Political Science must complete the following coursework. In completing this coursework, they will satisfy the University's core curriculum requirements.

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I (or suitable substitute)
ENGL 1302	RHETORIC AND COMPOSITION II (or suitable substitute)
HIST 1311	HISTORY OF THE UNITED STATES TO 1865
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT
MATH 1302	COLLEGE ALGEBRA
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS
POLS 2311	GOVERNMENT OF THE UNITED STATES <sup>1</sup>
POLS 2312	STATE AND LOCAL GOVERNMENT <sup>1</sup>

Social or cultural anthropology; archaeology; social/political/cultural geography; economics; criminal justice; psychology; sociology; women's studies courses cross-listed with these departments and/or Introduction to Women's Studies (WOMS 2310). This fulfills the Social/Cultural studies requirement

### Program Requirements

Electives		
Modern and Classical Languages: 1441, 1442, 2313, 2314		14
Sufficient to give the total number of hours required for the degree		
<b>Professional Courses</b>		
Major		
POLS 2311	GOVERNMENT OF THE UNITED STATES <sup>1</sup>	3
POLS 2312	STATE AND LOCAL GOVERNMENT <sup>1</sup>	3
POLS 3310	RESEARCH METHODS AND POLITICAL ANALYSIS (or equivalent)	3
Select one of the following in political thought:		
POLS 3313	MODERN CRITICS OF SOCIETY AND POLITICS	
POLS 4322	ISSUES IN POLITICAL THEORY	
POLS 4323	FEMINIST POLITICAL THOUGHT	
POLS 4327	POLITICAL IDEAS OF THE ANCIENT WORLD	
POLS 4328	MODERN POLITICAL IDEAS	
POLS 4329	CONTEMPORARY CONTROVERSIES IN POLITICAL THEORY	
Or equivalent		
Select at least one course from any four of the five areas listed:		12
Area I Political Behavior and Processes:		
POLS 3306	LEGISLATIVE ORGANIZATION AND PROCEDURE	
POLS 3311	PUBLIC OPINION	
POLS 3327	AMERICAN POLITICAL PARTIES	
POLS 4314	SEPARATION OF POWERS AND AMERICAN INSTITUTIONS	
POLS 4316	WOMEN IN THE POLITICAL PROCESS	
POLS 4317	ETHNIC GROUP POLITICS IN THE UNITED STATES	
POLS 4318	POLITICS OF AFRICAN AMERICANS	
POLS 4319	POLITICS OF MEXICAN AMERICANS	
POLS 4324	ELECTORAL BEHAVIOR	
POLS 4326	ELECTION STRATEGY AND CAMPAIGN MANAGEMENT	
POLS 4330	THE U.S. PRESIDENCY	
POLS 4333	PRESIDENTIAL LEADERSHIP IN DOMESTIC POLICY MAKING	
POLS 4335	LEADERSHIP IN AMERICAN (U.S.) POLITICAL DEVELOPMENT	
Area II Comparative Politics:		
POLS 3304	INTRODUCTION TO COMPARATIVE POLITICS	
POLS 3314	POLITICAL SYSTEMS OF EASTERN AND CENTRAL EUROPE	
POLS 3316	DICTATORSHIP AND DEMOCRACY IN LATIN AMERICAN POLITICS	
POLS 3317	MEXICAN POLITICS AND U.S.-MEXICO RELATIONS	
POLS 3318	POLITICAL SYSTEMS OF EAST ASIA	
POLS 3328	INTRODUCTION TO MIDDLE EAST POLITICS	
POLS 4313	POLITICAL DEVELOPMENT	
POLS 4361	THE POLITICAL ENVIRONMENT OF RUSSIA AND THE SUCCESSOR STATES	
POLS 4362	RUSSIA AND THE SUCCESSOR STATES TODAY	
POLS 4371	THE POLITICS AND FOREIGN POLICY OF ISRAEL	
Area III International Politics:		
POLS 3302	INTRODUCTION TO INTERNATIONAL RELATIONS	3
POLS 3329	THE POLITICS OF INTERNATIONAL CONFLICT	
POLS 4311	INTERNATIONAL RELATIONS, FOREIGN POLICY, AND POLITICAL PSYCHOLOGY	3
POLS 4312	INTERNATIONAL ORGANIZATIONS	3
POLS 4334	PRESIDENTIAL LEADERSHIP IN FOREIGN POLICY	
POLS 4336	CONTEMPORARY UNITED STATES FOREIGN POLICY	
POLS 4355	INTERNATIONAL POLITICS	
POLS 4360	THEORIES OF THE INTERNATIONAL SYSTEM	
POLS 4365	FOREIGN POLICIES OF RUSSIA AND THE SUCCESSOR STATES	

POLS 4370	INTERNATIONAL RELATIONS OF THE MIDDLE EAST	
POLS 4372	HUMAN SECURITY, VIOLENCE, AND SCARCITY	3
Area IV Public Law:		
POLS 3330	JUDICIAL BEHAVIOR AND THE JUDICIAL PROCESS	
POLS 3331	CONTEMPORARY ISSUES IN CIVIL LIBERTIES	
POLS 3333	JURISPRUDENCE	
POLS 3334	WOMEN AND U.S. LAW	
POLS 3335	CRIMINAL LAW	
POLS 4331	U.S. CONSTITUTIONAL LAW: GOVERNMENT POWER	
POLS 4332	U.S. CONSTITUTIONAL LAW: FUNDAMENTAL RIGHTS	
Area V Public Administration and Policy Studies:		
POLS 3303	INTRODUCTION TO PUBLIC ADMINISTRATION	
POLS 3305	GOVERNMENT IN URBAN AMERICA	
POLS 3307	COMPARATIVE STATE AND LOCAL POLITICS	
POLS 3312	INTRODUCTION TO PUBLIC POLICY ANALYSIS	
POLS 4303	PUBLIC ADMINISTRATION AND THE POLITICAL PROCESS	
POLS 4340	FEDERAL SOCIAL POLICY	3
POLS 4350	HEALTH POLITICS AND POLICY	3
POLS 4351	ENERGY POLICY AND ADMINISTRATION	
POLS 4352	U.S. IMMIGRATION POLICY AND THE AMERICAN DREAM	
POLS 4353	PUBLIC BUDGETING AND TAXATION	
Select one of the following areas of specialization:		12-18
Pre-Law:		
Requiring a minimum of 9 hours in the Public Law area of Political Science, plus 9 hours of courses to be chosen from the following:		
COMS 3310	GROUP COMMUNICATION THEORY	
CRCJ 4301	THE AMERICAN JUDICIAL SYSTEM	
ENGL 4371	ADVANCED ARGUMENTATION	
HIST 3317	U.S. LEGAL AND CONSTITUTIONAL HISTORY, COLONIAL TO 1877	
HIST 3318	U.S. LEGAL AND CONSTITUTIONAL HISTORY, 1877 TO PRESENT	
HIST 3319	GREAT ANGLO-AMERICAN TRIALS	
HIST 3320	U.S. CIVIL LIBERTIES	
HIST 4350	BRITISH CONSTITUTIONAL HISTORY	
PHIL 1301	FUNDAMENTALS OF REASONING	
PHIL 2311	LOGIC	
PHIL 3320	PHILOSOPHY OF LAW	
SOCI 3313	CRIMINOLOGY	
SOCI 3357	LAW AND SOCIETY	
BLAW 3311	LAW I	
BLAW 3312	LAW II	
Policy/Public Administration:		
Requiring a minimum of 12 hours in the Policy/Public Administration area of Political Science		
International Studies:		
Requiring a minimum of 12 hours in any combination of the Comparative Politics and International Politics areas of Political Science		
Political Behavior and Processes:		
Requiring a minimum of 12 hours in the Political Behavior and Processes area of Political Science		

Total Hours

104-110

1 36 hours to include POLS 2311 GOVERNMENT OF THE UNITED STATES and POLS 2312 STATE AND LOCAL GOVERNMENT

Students majoring in Political Science will pursue this general course of study in the discipline AND they may declare a specific area of concentration by filing a statement of intent with the Political Science Department. The area of concentration will require that the student complete the requirements for the general degree plan while also fulfilling certain requirements for the concentration. All students will receive the B.A. in Political Science. Those completing the selected specialization will also receive recognition of completion.

The purpose of the specializations is to provide the student with a focused, systematic, and in-depth educational experience in the context of a broad liberal arts education.

Political Science classes may be used toward the major requirements or minor requirements (at the discretion of the department offering the minor), but not both.

## Oral Communication and Computer Use Competencies

Students majoring in political science are required to demonstrate computer use and oral communication competencies. Computer use proficiency can be demonstrated by one of the following:

1. successful completion of POLS 3310 RESEARCH METHODS AND POLITICAL ANALYSIS; or
2. successful completion of CSE 1301 COMPUTER LITERACY or INSY 2303 INTRODUCTION TO M.I.S. AND DATA PROCESSING; or
3. successful completion of other courses approved by the Undergraduate Assembly; or
4. passing the University computer use competency exam.

Oral communication proficiency can be demonstrated by one of the following:

COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	3
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	3
COMS 3315	COMMUNICATION FOR EDUCATORS	3

1. successful completion of specific political science courses approved by the department; or
2. successful completion of one of the following:
3. successful completion of other courses approved by the Undergraduate Assembly.

Students should discuss these options with their undergraduate advisor who may also provide a list of other courses approved by the University to meet these requirements.

## Requirement for a Minor in Political Science

A minor in political science requires 18 semester hours, at least six of which must be 3000/4000 level.

Political Science classes may be used toward the major requirements or minor requirements (at the discretion of the department offering the minor), but not both.

# Sociology and Anthropology

## Undergraduate Degrees

- Bachelor of Arts in Sociology (p. 424)
- Bachelor of Arts in Anthropology (p. 428)
- Minor in Sociology (p. 426)
- Minor in Anthropology (p. 429)

## Graduate Degrees

- Anthropology, M.A. (p. 427)
- Anthropology, M.A. Thesis Substitute (p. 427)
- Sociology, M.A. (p. 427)
- Sociology, M.A. Thesis Substitute (p. 427)
- Sociology, M.A. Non-Thesis (p. 427)

# Sociology - Undergraduate Programs

## Overview

The principal common educational objective in the Department of Sociology and Anthropology is to develop a systematic understanding of social behavior, human culture, and social institutions. Knowledge of human social and cultural relationships is vital to a meaningful perspective on and understanding of the society in which we live. Contemporary societies are characterized by diversity, rapid change, complex organization, and extensive specialization. Programs of study in the Department of Sociology and Anthropology pursue the challenge of:



1. creating and disseminating general knowledge that will render this world more understandable and
2. providing an educational base for more effective and humane planning and social intervention in society.

Each of the programs of study relates to this general objective in a somewhat different manner. Students are encouraged to visit with the faculty and learn more about the programs offered in the department.

## Sociology

A program of study in sociology has three principle objectives: to foster the ability to analyze human relationships from a sociological perspective, to develop the theoretical, methodological, and statistical skills necessary for asking and answering sociological questions, and to enhance individuals' awareness of the relationship between events in their own lives and the structure of the society in which they live. The program is designed to prepare students both to pursue graduate work in sociology and to seek a career in a variety of private and public settings where knowledge of human relationships and/or social research skills is particularly useful. Students seeking certification to teach in the public schools can use sociology as a teaching area.

## Fast Track Program

The Fast Track Program in Sociology allows outstanding seniors in sociology to take up to three graduate seminars for credit toward both the Bachelor's degree and the Master's degree in Sociology. Interested undergraduate students should apply for the Fast Track Program when they are within 30 hours of completing the Bachelor's Degree. Students who successfully complete the Fast Track Program will be admitted automatically to Graduate Studies. They will not be required to take the Graduate Record Examination, complete an application for admission to Graduate Studies, supply letters of recommendation, or pay an application fee. An undergraduate student completing the maximum of nine graduate hours would be admitted to the Sociology MA program with only five additional courses and a thesis remaining to complete the requirements for thesis option. For more details about the program contact the Undergraduate Advisor for the Department of Sociology and Anthropology and consult the on-line catalog.

## Requirements for a Bachelor of Arts Degree in Sociology

### GENERAL CORE REQUIREMENTS

POLS 2311 GOVERNMENT OF THE UNITED STATES

POLS 2312 STATE AND LOCAL GOVERNMENT

HIST 1311 HISTORY OF THE UNITED STATES TO 1865

HIST 1312 HISTORY OF THE UNITED STATES, 1865 TO PRESENT

Communication - 6 hours from approved list.

14 hours in the same modern or classical language (1441, 1442, 2313, 2314).

Creative Arts - 3 hours from approved list.

Language Philosophy and Culture - 3 hours from approved list.

Life and Physical Sciences - 6 hours from approved list.

Mathematics - 6 hours MATH 1301 or higher. Math 1308 is recommended.

Required Component Area Option - Any course listed above. A course may fulfill only one component area.

### MAJOR COURSES

37 hours including;

SOCI 1311 INTRODUCTION TO SOCIOLOGY

SOCI 3352 SOCIAL STATISTICS

SOCI 3372 SOCIOLOGICAL THEORY

SOCI 3462 SOCIAL RESEARCH

One course in Anthropology

### ELECTIVES

Sufficient to give the total number of hours required for the degree.

**TOTAL**

120 hours, at least 36 of which must be 3000/4000 level.

**Optional Specializations in Sociology**

Students majoring in sociology may pursue a general course of study in the discipline or declare a specific area of concentration by filing a statement of intent with the Sociology Department. The purpose of specialization is to provide the student with a focused, systematic, and in-depth educational experience in the context of a broad liberal arts education. Each area requires a minimum of 12 semester hours. Additional requirements may apply. See advisor for details.

The areas of specialization are:

**FAMILY AND GENDER STUDIES**

SOCI 3314	THE LATINA EXPERIENCE	3
SOCI 3328	MARITAL AND SEXUAL LIFESTYLES	3
SOCI 3331	SOCIOLOGY OF THE FAMILY	3
SOCI 3334	GENDER ROLES	3
SOCI 3356	WOMEN, WORK AND SOCIAL CHANGE	3
SOCI 4303	WOMEN IN SOCIETY	3
SOCI 4331	RACE, ETHNICITY & FAMILY FORMATION	3
ANTH 3338	COMPARATIVE KINSHIP AND FAMILY SYSTEMS	3

**RESEARCH AND EVALUATION**

SOCI 3352	SOCIAL STATISTICS	3
SOCI 3355	COMPUTER APPLICATIONS IN THE SOCIAL SCIENCES	3
SOCI 3365	PROGRAM EVALUATION & NEEDS ASSESSMENT	3
SOCI 3366	POPULATION TRENDS AND PROCESSES	3
SOCI 3462	SOCIAL RESEARCH	4
SOCI 4306	QUALITATIVE RESEARCH METHODS	3
ANTH 3341	RESEARCH METHODS IN CULTURAL ANTHROPOLOGY	3
SOCI 4370	SENIOR RESEARCH SEMINAR	3

**SOCIAL PSYCHOLOGY**

SOCI 3315	SOCIAL PSYCHOLOGY OF CRIME	3
SOCI 3317	INDIVIDUAL AND SOCIETY	3
SOCI 3318	SELF AND SOCIAL IDENTITY	3
SOCI 3319	SMALL GROUPS	3
SOCI 3320	DEVIANCE: SOCIAL AND PERSONAL	3
SOCI 3327	INTERCULTURAL INTERACTION	3

**SOCIAL DIVERSITY**

SOCI 3314	THE LATINA EXPERIENCE	3
SOCI 3327	INTERCULTURAL INTERACTION	3
SOCI 3334	GENDER ROLES	3
SOCI 3336	SOCIAL INEQUALITY	3
SOCI 3337	RACIAL & ETHNIC GROUPS IN US	3
SOCI 3338	CONTEMPORARY BLACK EXPERIENCE	3
SOCI 3339	RACE, SPORT AND MEDIA	3
SOCI 3353	SOCIAL CLIMATE OF CITIES	3
SOCI 4331	RACE, ETHNICITY & FAMILY FORMATION	3
SOCI 4341	INEQUALITIES IN PUBLIC EDUCATION	3

**Requirement for a Minor in Sociology**

A minor in sociology requires 18 semester hours, at least six of which must be 3000/4000 level.

# Sociology - Graduate Programs

## Objectives: M.A. in Sociology

The Master of Arts program in sociology is designed to provide students with a firm substantive background in sociological theory and in the techniques of contemporary research methodology and statistical analyses. In addition to these core concerns, the program offers a variety of seminars, as well as practicum opportunities, to help prepare students for a wide range of professional careers in both the private and public sectors or continued graduate education at the Ph.D. level.

## Graduate Assistantships and Fellowships in Sociology

Graduate teaching and research assistantships and other forms of financial support will be awarded on a competitive basis. In addition to performance in any graduate courses the student may have taken, the same criteria used to determine admission status will be used in evaluating applications for such awards. No single factor, including standardized test scores, will be used to end consideration of any graduate assistantships.

## Admissions Requirements: Sociology

Applicants must apply for admission through, and supply all information required by Graduate Admissions. The Sociology Graduate Advisor, in consultation with other members of the faculty, decides on each applicant.

All of the following criteria will be considered in determining program admission status:

1. Undergraduate grade point average
2. Graduate Record Exam (GRE) scores
3. Letters of recommendation from faculty
4. Preparation in sociology and satisfactory performance in sociology courses and/or courses in related disciplines
5. A statement (2-3 pages) describing the applicant's academic background, research/study interests, and professional goals

## CRITERIA FOR UNCONDITIONAL ADMISSION

For unconditional admission, the student must satisfy each of the following criteria.

1. Minimum GPA of 3.0, as calculated by Graduate Studies.
2. Preferred GRE score of at least 150 on the verbal subtest (500 on the prior scale) and 144 on the quantitative subtest (500 on the prior scale).
3. Satisfactory letters of recommendation.
4. Adequate preparation in sociology and satisfactory performance in sociology courses and/or those in related disciplines.
5. Satisfactory statement (2-3 pages) describing the applicant's academic background, research/study interests, and professional goals

## CRITERIA FOR AUTOMATIC UNCONDITIONAL ADMISSION

Sociology students who completed their undergraduate degree in Sociology at UT Arlington with a 3.0 overall GPA, a 3.0 GPA in advanced hours, a B or better in SOCI 3372 SOCIOLOGICAL THEORY or , SOCI 3352 SOCIAL STATISTICS and or SOCI 3462 SOCIAL RESEARCH and satisfactory letters of recommendation from UT Arlington faculty qualify for automatic unconditional admission, pending submission of all required materials.

## CRITERIA FOR PROBATIONARY ADMISSION

Students who do not qualify for unconditional admission may be admitted on probation if they satisfy any 4 of the 5 criteria for unconditional admission.

Those entering the program under probationary status will be granted unconditional admission only after completing 12 hours of graduate sociology courses, approved by the Graduate Advisor, earning no grade below a B.

## PROVISIONAL ADMISSION

An applicant unable to supply all required information prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

## DEFERRED ADMISSION

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

## DENIED ADMISSION

Applicants who do not satisfy the requirements for any of the aforementioned forms of admission will not be admitted.

## INTERNATIONAL STUDENTS

To qualify for admission, international students must score 550 or above on the TOEFL.

### Degree Requirements: Sociology

Students may select from three options: the thesis, thesis substitute, or non-thesis degree plan.

**Thesis Option:** Satisfactory completion of a minimum of 30 hours of coursework, including core courses in theory, methods, and statistics, and the six hour thesis course SOCI 5698 THESIS.

**Thesis Substitute Option:** Satisfactory completion of a minimum of 33 hours of coursework, including core courses in theory, methods, and statistics, and the three hour thesis substitute course SOCI 5393 THESIS SUBSTITUTE.

**Non-Thesis Option:** Satisfactory completion of a minimum of 36 hours of coursework, including core courses in theory, methods, and statistics, and the three hour non-thesis course SOCI 5385 NON-THESIS PROJECT.

All candidates for the degree Master of Arts with a major in sociology must pass a final examination. For thesis candidates, it is the oral defense of the completed thesis. For thesis substitute candidates, it is an oral examination on a project, the scope, content, and form of which shall be determined by the student's supervising committee. A thesis substitute project might be, for example, a review of professional literature on a selected topic, a thematic paper integrating the course of study completed, or an internship report applying sociological concepts. For non-thesis candidates, it is an oral examination, the scope, content, and form of which shall be determined by the student's supervising committee.

### Dual Degree Program

Students in sociology may participate in a dual degree program where by they can earn a Master of Arts in Sociology and another field, such as Master of Public Administration or Master of Science in Social Work. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. Six or more hours may be jointly applied depending on the total number of hours required for both degrees, and subject to the approval of graduate advisors from both programs.

To participate in the dual degree option, students must make separate application to each program and must submit a separate Program of Work for each program. Admission to and enrollment in the two programs must be concurrent (admitted to the second program before completing more than 24 hours in the first). Those interested should consult each of the appropriate graduate advisors for coursework requirements and refer to Graduate Studies catalog entry on Dual Degree Program in the Advanced Degrees and Requirements section for further details.

## Anthropology Undergraduate Programs

### Overview

The principal common educational objective in the Department of Sociology and Anthropology is to develop a systematic understanding of social behavior, human culture, and social institutions. Knowledge of human social and cultural relationships is vital to a meaningful perspective on and understanding of the society in which we live. Contemporary societies are characterized by diversity, rapid change, complex organization, and extensive specialization. Programs of study in the Department of Sociology and Anthropology pursue the challenge of:

1. creating and disseminating general knowledge that will render this world more understandable and
2. providing an educational base for more effective and humane planning and social intervention in society.

Each of the programs of study relates to this general objective in a somewhat different manner. Students are encouraged to visit with the faculty and learn more about the programs offered in the department.

### Anthropology

A program of study in anthropology has the objective of grounding students in three main subfields of anthropology: cultural anthropology (the comparative analysis of human lifeways around the world), archaeology (the systematic analysis of the material remains of past cultures), and physical anthropology (the study of humans as a biological species). The program prepares students both for graduate work in anthropology and for many careers in which anthropological perspectives and training are useful.

### Major/Professional Courses

By completing the set of requirements listed below, students will simultaneously fulfill both university core and major requirements. Any substitutions require approval of the Anthropology Program Director.

ENGL 1301 RHETORIC AND COMPOSITION I

ENGL 1302 RHETORIC AND COMPOSITION II

HIST 1311 HISTORY OF THE UNITED STATES TO 1865

HIST 1312 HISTORY OF THE UNITED STATES, 1865 TO PRESENT

POLS 2311 GOVERNMENT OF THE UNITED STATES

POLS 2312 STATE AND LOCAL GOVERNMENT

14 hours in the same modern or classical language (1441, 1442, 2313, 2314)

LING 2301 INTRODUCTION TO THE STUDY OF HUMAN LANGUAGES

6 MATH - prefixed hours at the level of college algebra (MATH 1302) or higher. Check with advisor for a list of approved core courses.

A minimum of 6 hours in one of the following sequences in the same life/physical science:

BIOL 1333 INTRODUCTION TO BIOLOGY I and

BIOL 1334 INTRODUCTION TO BIOLOGY II ;

CHEM 1300 INTRODUCTORY CHEMICAL PRINCIPLES and

CHEM 1345 CHEMISTRY IN THE WORLD AROUND US ;

GEOL 1301 EARTH SYSTEMS and

GEOL 1302 EARTH HISTORY ;

PHYS 1301 PHYSICS FOR NON SPECIALISTS I and

PHYS 1302 PHYSICS FOR NON SPECIALISTS II ; or

PHYS 1441 GENERAL COLLEGE PHYSICS I and

PHYS 1442 GENERAL COLLEGE PHYSICS II ; or

PHYS 1443 GENERAL TECHNICAL PHYSICS I and

PHYS 1444 GENERAL TECHNICAL PHYSICS II

3 hours of Creative Arts; see approved core courses list.

3 additional core hours, if not met by Modern Language above.

SOCI 3352 SOCIAL STATISTICS

35 ANTH hours, including ANTH 2307, 2322, 2339, 3300, 3341; a minimum of one 3000/4000 level course in each of archaeology, biological anthropology, and cultural anthropology; and 11 additional advanced ANTH hours.

It is recommended that (1) students with a primary interest in cultural anthropology take courses in at least two topical areas and covering at least two geographic regions, (2) students with a primary interest in archaeology take at least one Old World and one New World course, with a minimum of one upper division course in either, and an archaeological field school, and (3) students with a primary interest in biological anthropology take at least 12 hours of upper division biological anthropology.

Additional elective hours sufficient to reach 120 total credit hours, with 36 advanced (3000/4000) hours; may include an optional minor.

## Requirement for a Minor in Anthropology

The Anthropology minor (6 courses/18 hours total) can be fulfilled by successfully completing:

Select two of the following:

ANTH 2307 BIOLOGICAL ANTHROPOLOGY

ANTH 2322 GLOBAL CULTURES

ANTH 2339 PRINCIPLES OF ARCHAEOLOGY

Any other four ANTH courses, at least two of which must be at the advanced level (3000 or above)

Questions about the Anthropology minor may be directed to the department advisor.

## Southwestern Studies

The Southwestern Studies minor fosters an interdisciplinary examination of an historically and culturally significant region—the southwestern United States and northern Mexico. The program offers opportunities for students to explore important topics in a regional context, including multicultural diversity, economic development, political and social change, art and literature, environment, cultural and historical geography, historical cartography, and architectural and urban history. The minor is supported by faculty from seven departments and is sponsored by the University's Center for Greater Southwestern Studies and the History of Cartography, which promotes the use of the UT Arlington Special Collections and the Minority Cultures Collection in the Central Library.

With the permission of their departmental advisor, students enroll in 18 hours selected primarily from the courses listed below. These hours must be distributed among at least three different departments.

Some of the following courses change content from offering to offering and might not be relevant to the minor during a particular year. In addition, special topics courses and/or courses taught outside the College of Liberal Arts may also be used to fulfill the Southwestern Studies minor with the permission of the Director of Southwestern Studies. For these reasons it is important that students consult with the Southwestern Studies faculty advisor before registering each semester.

### Course Descriptions

(Select 6 classes from the below to equal 18 credit hours. 3 credit hours must be distributed among at least 3 different departments.)

#### Anthropology

ANTH 3333	NORTH AMERICAN INDIANS
ANTH 3350	NORTH AMERICAN ARCHAEOLOGY

#### Architecture

ARCH 4308	HISTORY OF URBAN FORM
-----------	-----------------------

#### Art History

ART 3320	ART OF THE ANCIENT AMERICAS
----------	-----------------------------

#### English

ENGL 3300	TOPICS IN LITERATURE
ENGL 3344	AMERICAN INDIAN LITERATURE
ENGL 3346	MEXICAN AMERICAN LITERATURE
ENGL 3375	CREATIVE WRITING
ENGL 4336	TOPICS IN AMERICAN LITERATURE

#### Geography

GEOG 3371	IMAGES OF THE SOUTHWEST
GEOG 4301	HISTORICAL GEOGRAPHY AND CARTOGRAPHY
GEOG 4310	GEOGRAPHY OF THE GREATER SOUTHWEST
GEOG 4350	SPECIAL TOPICS IN MODERN GEOGRAPHY
GEOG 4191	CONFERENCE COURSE
or GEOG 4291	CONFERENCE COURSE
or GEOG 4391	CONFERENCE COURSE

#### History

HIST 3351	HISTORY OF THE DALLAS-FORT WORTH METROPLEX
HIST 3352	THE SOUTHWEST
HIST 3357	THE EARLY FRONTIER
HIST 3358	THE LATER FRONTIER
HIST 3363	TEXAS TO 1850
HIST 3364	TEXAS SINCE 1845
HIST 3367	AMERICAN INDIAN HISTORY
HIST 3368	MEXICAN AMERICAN HISTORY
HIST 3370	THE IMAGE OF THE AMERICAN WEST
HIST 3371	IMAGES OF THE SOUTHWEST
HIST 4365	HISTORY OF SPAIN AND PORTUGAL

HIST 4366	LATIN AMERICAN HISTORY: ORIGINS THROUGH INDEPENDENCE
HIST 4367	LATIN AMERICAN HISTORY: POST-INDEPENDENCE TO THE PRESENT
HIST 4368	HISTORY OF MEXICO
Spanish	
SPAN 3312	LATIN AMERICAN CULTURE AND CIVILIZATION
SPAN 3320	INTRODUCTION TO HISPANIC LITERATURE AND CULTURE
SPAN 4313	TOPICS IN HISPANIC CULTURE
SPAN 4314	TOPICS IN LATIN-AMERICAN LITERATURE AND CULTURE TO MODERNISM
SPAN 4315	TOPICS IN CONTEMPORARY LATIN-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT
SPAN 4317	CHICANO LITERATURE
SPAN 4318	MEXICAN LITERATURE
Political Science	
POLS 3316	DICTATORSHIP AND DEMOCRACY IN LATIN AMERICAN POLITICS
POLS 3317	MEXICAN POLITICS AND U.S.-MEXICO RELATIONS
POLS 4319	POLITICS OF MEXICAN AMERICANS

## Theatre Arts

### Undergraduate Degrees

- Bachelor of Arts in Theatre Arts (p. 434)
- Bachelor of Fine Arts in Theatre Arts (p. 434)
- Minor in Theatre Arts (p. 443)

## Theatre Arts - Graduate Programs

### Objective

The graduate course offerings in theatre arts are provided to support other graduate degree programs and to meet the express needs of students. No program leading to a graduate degree in theatre arts exists at this time.

## Theatre Arts - Undergraduate Programs

The mission of the Department of Theatre Arts in the College of Liberal Arts at The University of Texas at Arlington is to provide a comprehensive undergraduate education through theory, practice, and research.

The objective of the department is to provide an extensive and wide-ranging education in the theatrical profession through applied and practical experiences acquired through performance and production opportunities. Undergraduate students in the Department of Theatre Arts explore the components which comprise the performance and production event. The research of new theories and their applications to the art, craft, and management of Theatre Arts is highly encouraged through one-on-one mentoring and supervision by specialized and professional faculty. A primary aspect of the Department of Theatre Arts is to provide a challenging educational environment for each student characterized by shared values, unity of purpose, diversity of opinion, mutual respect, and a commitment to lifelong learning. The following degrees are offered:

- **Bachelor of Arts (B.A.) in Theatre Arts degree** and the
- **Bachelor of Fine Arts (B.F.A.) in Theatre Arts degree (Subplans: Design and Technology, Musical Theatre, Performance, and Theatre Studies).**

In addition, the Department offers a **minor in Theatre Arts** and **courses in Dance Activity (DNCA) and Dance Theory (DNCE)**. Several approved University core courses are also offered by the Department that satisfy core degree requirements in other disciplines.

### MAVERICK THEATRE COMPANY

The Maverick Theatre Company is the production company of the Department of Theatre Arts at the University of Texas at Arlington. A resident company of professional artists and students present a wide variety of plays and musicals from past and current theatrical literature with a special focus on new play development. Every student, upon admission to the department, becomes a Maverick Theatre Company member. These activities directly support the academic objectives of the department.

## The Bachelor of Arts (B.A.) Degree Program

### LIBERAL ARTS REQUIREMENTS

The Bachelor of Arts degree provides a general background in Theatre Arts and Liberal Arts. The B.A. allows students the opportunity, through elective coursework in Theatre Arts, to tailor their degree program in interest areas the student may wish to explore.

### ADMISSION

In addition to the general requirements for admission to the University, the aspiring undergraduate must meet the following requirement for admission to the Bachelor of Arts degree program:

- Participation in advisement and a personal interview.

To be fully accepted in the Bachelor of Arts in Theatre degree program, all students must complete at least one semester as a "Theatre Arts Intended" student and earn a 2.25 cumulative grade point average in all courses taken at UT Arlington, and a 2.5 grade point average in all theatre courses taken at UT Arlington. Once these standards are met, the student may be declared as a Bachelor of Arts in Theatre Arts major.

### ACADEMIC REQUIREMENTS

All Theatre Arts majors shall enroll in THEA 0181 THEATRE PRACTICUM for one hour per semester in residence in order to graduate. Eight (8) hours of THEA 0181 THEATRE PRACTICUM are required. Students should see their advisor regarding practicum obligations.

All B.A. students are encouraged to audition for each major production each semester they are enrolled, though they may choose to decline being considered for a role at the time of the audition. Production activities and Theatre Arts disciplinary rules shall be governed by a student handbook that is available to the student through the Department of Theatre Arts.

A minimum 2.25 overall grade point average is required for all courses taken at UT Arlington in order to remain in the B.A. degree program. A minimum grade point average of 2.50 is required for all Theatre Arts courses taken at UT Arlington in order to remain in the B.A. degree program. Students currently enrolled at UT Arlington who wish to declare Theatre Arts as a major must have a minimum grade point average of 2.25 in overall coursework taken at UT Arlington in order to be admitted.

A student will be placed on departmental academic probation in the Department of Theatre Arts if her/his grade point average drops below the minimum requirements for the degree plan in which she/he are enrolled. A theatre arts student who is on academic probation is not allowed to audition for or accept an acting role or serve as a designer, stage manager or other significant production position for any of the productions during the next regular semester they are enrolled. If after a regular semester the student's grade point average returns to at least the minimum required grade point average for her/his degree plan, then the probation is removed. However, if after a regular semester the student's grade point average does not meet the minimum required grade point average, the student may be removed from the degree program and will be advised as to other degree plan alternatives, should they exist.

### DEPARTMENT SCHOLARSHIPS

The Department of Theatre Arts offers limited scholarships to deserving students based upon talent, academic excellence, and merit. Work-study positions are also available. Contact the Department of Theatre Arts for information.

## Teacher Certification

Students interested in Texas Teacher Certification should consult the College of Education for the most recent changes in requirements regarding admission to teacher education, completion of university programs in preparation for certification, and eligibility for certification after graduation. The Department of Theatre Arts does not offer certification courses or certification advising.

## The Bachelor of Fine Arts (B.F.A.) Degree Program

### LIBERAL ARTS REQUIREMENTS

The Bachelor of Fine Arts degree is a specialized, pre-professional degree that provides a background in the liberal arts with subplans in Design and Technology, Musical Theatre, Performance, or Theatre Studies. The Design and Technology Subplan is for students seeking a professional career as a scenic, lighting, sound or costume designer, technical director, and/or theatre technician. The Musical Theatre Subplan is designed for students seeking a career in musical theatre performance. The Performance Subplan is designed for students seeking a professional career as an actor. The Theatre Studies Subplan provides a comprehensive study of the theatre arts, suitable for students seeking a career in teaching, directing, dramaturgy, and/or stage management. Students seeking the B.F.A. elect additional courses chosen from the University and Liberal Arts core curricula outside the Department of Theatre Arts.

### ADMISSION

Entering B.F.A. students are accepted into the B.F.A. degree program as B.F.A.-Intended students.



Students who enter UT Arlington as a freshman or a sophomore B.F.A.-Intended student shall be evaluated by faculty in their sophomore year as to whether they shall be fully admitted into the B.F.A. program. Students who are not admitted may seek advisement regarding the possibility of changing to the B.A. degree.

Students who transfer into UT Arlington and are accepted as B.F.A.-intended students must be evaluated by faculty as to whether they shall be fully admitted into the B.F.A. program. Students who are not admitted may seek advisement regarding the possibility of changing to the B.A. degree.

In addition to the requirements stated above, the aspiring undergraduate must meet the following requirements for admission to the Bachelor of Fine Arts degree program:

- Participation in advisement.
- A personal interview with a designated faculty member (all students).
- A design/technical production portfolio review (Design and Technology Subplan), or an audition and interview (Musical Theatre Subplan or Performance Subplan), or a 1,000 word written essay and interview (Theatre Studies Subplan) are required. For the Theatre Studies subplan, write a 1,000 word essay about educational and career objectives and experiences, and how past and future training helps to achieve stated objectives. The essay should be word-processed in 12-point type.
- A grade point average or equivalent of at least 3.0 in all Theatre Arts course work from the student's high school or transferring college.
- A letter of recommendation from the student's high school theatre instructor (optional).
- Upon acceptance by the University and the Department of Theatre Arts, an indication of area of specialization (Design and Technology, Musical Theatre, Performance, or Theatre Studies) is required.

## ACADEMIC REQUIREMENTS

All Theatre Arts majors shall enroll in THEA 0181 THEATRE PRACTICUM for one hour per semester in residence in order to graduate. Eight (8) hours of THEA 0181 THEATRE PRACTICUM are required. Students should see their advisor regarding practicum obligations. Transfer students must discuss THEA 0181 THEATRE PRACTICUM requirements with the Theatre Arts academic advisor.

B.F.A. Design and Technology Subplan students are required to present an updated portfolio and resume of production and course work at a formal portfolio review session at the end of each semester enrolled. Upon completion of the final semester of the B.F.A. Design and Technology Subplan, students shall present their work at an exit portfolio presentation: all accumulated design and production work completed while enrolled in the B.F.A. subplan shall be presented.

B.F.A. Musical Theatre Subplan students are required to audition for each major production each semester they are enrolled and must accept roles for which they are cast, unless special permission has been obtained in advance of the audition from the Musical Theatre Subplan Chair or the Chair of the Department.

B.F.A. Performance Subplan students are required to audition for each major production each semester they are enrolled and must accept roles for which they are cast, unless special permission has been obtained in advance of the audition from the Performance Subplan Chair or the Chair of the Department.

B.F.A. Theatre Studies Subplan students are required to present a formal research poster session, or an approved equivalent, of their research project completed in the course "Theatre Studies Research" during the senior year.

A minimum grade point average of 2.25 is required in overall coursework taken at UT Arlington in order to remain in the B.F.A. degree program. A minimum grade point average of 3.0 is required for all Theatre courses taken at UT Arlington in order to remain in the B.F.A. degree program. Students currently enrolled at UT Arlington who wish to declare Theatre Arts as an intended B.F.A. major must have a minimum grade point average of 2.25 in overall coursework taken at UT Arlington, in addition to the admission requirements stated above, in order to be admitted.

Concurrent enrollment in more than one B.F.A. subplan is not allowed. A student must complete a B.F.A. subplan and graduate with that subplan before being allowed to enroll in a second B.F.A. subplan.

Students wishing to change their B.F.A. subplan from one plan to another must reapply for and be accepted by the faculty to the new subplan according to the application procedures applicable for that subplan. Students should be aware that changing B.F.A. subplans may result in additional semesters of study. Students should contact their academic advisor to obtain a new graduation date when changing subplans.

A student will be placed on departmental academic probation in the Department of Theatre Arts if her/his grade point average drops below the minimum requirements for the degree plan in which she/he is enrolled. A theatre arts student who is on academic probation is not allowed to audition for or accept an acting role or serve as a designer, stage manager or other significant production position for any of the productions during the next regular semester they are enrolled. If after a regular semester the student's grade point average returns to at least the minimum required grade point average for her/his degree plan, then the probation is removed. However, if after a regular semester the student's grade point average does not meet the minimum required grade point average, the student may be removed from the degree program and will be advised as to other degree plan alternatives, should they exist.

Production activities and Theatre Arts disciplinary rules shall be governed by a student handbook that is available to the student through the Department of Theatre Arts.

## DEPARTMENT SCHOLARSHIPS

The Department of Theatre Arts offers limited scholarships to deserving students based upon talent, academic excellence, and merit. Work-study positions are also available. Contact the Department of Theatre Arts for information.

## Requirements for a Bachelor of Arts (B.A.) Degree in Theatre Arts

### Pre-Professional Courses

General Core Requirements (p. 93)	39
See UT Arlington approved Core Curriculum for Core requirements.	
Core courses also in the THEA B.A. degree plan:	
ENGL 1301, ENGL 1302, THEA 1303, THEA 1343	
Program Requirements:	
Modern and Classical Languages: 1441, 1442, 2313, 2314.	14
Electives:	
Sufficient to give the total number of hours required for degree, six hours of which must be at the 3000/4000 level	

### Professional Courses

#### B.A. THEATRE ARTS: Lower-Division Hours

FS-THEA 1300	FIRST YEAR SEMINAR IN THEATRE ARTS <sup>2</sup>	3
THEA 0181	THEATRE PRACTICUM <sup>1</sup>	1
THEA 1101	THEATRE ARTS SYMPOSIUM	1
THEA 1303	VOCAL PERFORMANCE I: FUNDAMENTALS (Also Area Option Core Course)	Core
THEA 1304	STAGECRAFT I	3
THEA 1305	INTRODUCTION TO THEATRICAL DESIGN	3
THEA 1307	ACTING I: BASIC TECHNIQUES	3
THEA 1343	INTRODUCTION TO THEATRE (Also Creative Arts Core Course)	Core
THEA 2306	THE CRAFT OF COSTUME	3
ENGL 1301	RHETORIC AND COMPOSITION I (Also Communication Core Course)	Core
ENGL 1302	RHETORIC AND COMPOSITION II (Also Communication Core Course)	Core

#### B.A. THEATRE ARTS: Upper-Division Hours

THEA 3300	DIRECTING I	3
THEA 3309	SCRIPT ANALYSIS	3
THEA 3315	THEATRICAL MAKEUP	3
THEA 3318	DRAFTING FOR THE ARTS	3
THEA 4303	CLASSICAL THEATRE HISTORY	3
THEA 4304	MODERN THEATRE HISTORY	3
THEA Electives at the 3000/4000 level		6
Electives at ANY level, ANY subject (may vary depending upon core course substitutions)		4
Advanced Elective, any subject		12
Total Hours		110

### TOTAL B.A. HOURS= 42 +78 = 120 HOURS

- <sup>1</sup> All Theatre Arts majors shall enroll in THEA 0181 THEATRE PRACTICUM for one hour per semester in residence in order to graduate. Eight (8) hours of THEA 0181 THEATRE PRACTICUM are required. Students should see their advisor regarding practicum obligations. Transfer students must discuss THEA 0181 THEATRE PRACTICUM requirements with the Theatre Arts academic advisor.
- <sup>2</sup> Only first year students (not transfers) are required and eligible to take FS-THEA 1300 FIRST YEAR SEMINAR IN THEATRE ARTS. This course is substituted for the First Year Experience (FYE) course.

## Bachelor of Arts (B.A.)-Sample Plan of Study Grid\*:

### First Year

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1

THEA 1101	1	THEA 1304	3
THEA 1307	3	THEA 1305	3
THEA 1343 (Approved Creative Arts Core course.) <sup>1</sup>	3	THEA 3315	3
ENGL 1301 (Approved Communication Core course) <sup>1</sup>	3	ENGL 1302 (Approved Communication Core course) <sup>1</sup>	3
FS-THEA 1300	3	Mathematics: Choose from approved core <sup>1</sup>	3
THEA 1303 (Satisfies Core Option Area) <sup>1</sup>	3		
	<b>17</b>		<b>16</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 2306	3	Elective: Any level, any subject	3
THEA 3309	3	HIST 1312 <sup>1</sup>	3
HIST 1311 <sup>1</sup>	3	Advanced Theatre Elective	3
Mathematics: Choose from approved core <sup>1</sup>	3	Social & Behavioral Sciences: Choose from approved core <sup>1</sup>	3
Modern Language Level 1 (1441)	4	Modern Language Level 2 (1442)	4
	<b>17</b>		<b>17</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 3318	3	Elective: Advanced Theatre Elective	3
POLS 2311 <sup>1</sup>	3	POLS 2312 <sup>1</sup>	3
Life & Physical Sciences: Choose from approved lab science core <sup>1</sup>	3	Life & Physical Sciences: Choose from approved lab science core <sup>1</sup>	3
Modern Language Level 3 (2313)	3	Modern Language Level 4 (2314)	3
	<b>13</b>		<b>13</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 3300	3	THEA 4304	3
THEA 4303	3	Elective: Advanced, any subject	3
Elective: Advanced, any subject	3	Elective: Advanced: any subject	3
Elective: Any level, any subject	4	Elective: Advanced, any subject	3
	<b>14</b>		<b>13</b>

---

 Total Hours: 120

\* NOTE: The study grid above is for informational purposes only and is not an official degree plan. See the department's academic advisor for more information.

<sup>1</sup> Satisfies core requirement.

## OPTIONAL MINOR IN ANOTHER DISCIPLINE

B.A. Degree students may pursue a minor in another discipline after filing a statement of intent with their undergraduate advisor.

## Requirements for a Bachelor of Fine Arts (B.F.A.) Degree in Theatre Arts

### Pre-Professional Courses

General Core Requirements (p. 93) 39

See UT Arlington approved Core Curriculum for Core requirements. Core courses also in the THEA B.F.A. degree plan:

ENGL 1301, ENGL 1302, THEA 1303, THEA 1343

Program Requirements

Electives: Sufficient to give the total number of hours required for degree.

### Professional Courses

Subplans 65-77

### B.F.A. THEATRE STUDIES SUBPLAN:

#### Lower-Division Hours

FS-THEA 1300	FIRST YEAR SEMINAR IN THEATRE ARTS <sup>2</sup>	3
THEA 0181	THEATRE PRACTICUM <sup>1</sup>	1
THEA 1101	THEATRE ARTS SYMPOSIUM	1
THEA 1303	VOCAL PERFORMANCE I: FUNDAMENTALS	3
THEA 1304	STAGECRAFT I	3
THEA 1305	INTRODUCTION TO THEATRICAL DESIGN	3
THEA 1307	ACTING I: BASIC TECHNIQUES	3
THEA 1343	INTRODUCTION TO THEATRE	3
THEA 2306	THE CRAFT OF COSTUME	3
THEA 2352	ACTING II: SCENE STUDY	3
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3

#### Upper-Division Hours

THEA 3300	DIRECTING I	3
THEA 3301	SCENE DESIGN I	3
THEA 3303	SOUND DESIGN	3
or THEA 3306	SCENE PAINTING FOR THE STAGE	
THEA 3305	LIGHTING DESIGN I	3
THEA 3309	SCRIPT ANALYSIS	3
THEA 3315	THEATRICAL MAKEUP	3
THEA 3318	DRAFTING FOR THE ARTS	3
THEA 3320	PLAYWRITING I	3
THEA 3340	MOVEMENT PERFORMANCE I: FUNDAMENTALS	3
THEA 4302	STAGE MANAGEMENT AND THEATRE ADMINISTRATION	3
THEA 4303	CLASSICAL THEATRE HISTORY	3
THEA 4304	MODERN THEATRE HISTORY	3
THEA 4342	THEATRE STUDIES RESEARCH	3
THEA 4343	COSTUME DESIGN	3
THEA 4352	DRAMATURGY	3

### B.F.A. MUSICAL THEATRE SUBPLAN:

#### Lower-Division Hours

FS-THEA 1300	FIRST YEAR SEMINAR IN THEATRE ARTS <sup>2</sup>	3
THEA 0181	THEATRE PRACTICUM <sup>1</sup>	1
THEA 1101	THEATRE ARTS SYMPOSIUM	1
THEA 1303	VOCAL PERFORMANCE I: FUNDAMENTALS	3

THEA 1304	STAGECRAFT I	3
THEA 1305	INTRODUCTION TO THEATRICAL DESIGN	3
THEA 1307	ACTING I: BASIC TECHNIQUES	3
THEA 1343	INTRODUCTION TO THEATRE	3
THEA 2306	THE CRAFT OF COSTUME	3
THEA 2352	ACTING II: SCENE STUDY	3
MUSI 1140	PRIVATE LESSONS IN VOICE-MUSICAL THEATRE	1
MUSI 1141	PRIVATE LESSONS IN VOICE-MUSICAL THEATRE	1
MUSI 1180	FUNCTIONAL PIANO I	1
MUSI 1185	SIGHTSINGING AND EAR TRAINING I	1
MUSI 1325	THEORY AND HARMONY I	3
MUSI 1326	THEORY AND HARMONY II	3
MUSI 2140	PRIVATE LESSONS IN VOICE-MUSICAL THEATRE	1
MUSI 2141	PRIVATE LESSONS IN VOICE-MUSICAL THEATRE	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3

## Upper-Division Hours

THEA 3300	DIRECTING I	3
THEA 3309	SCRIPT ANALYSIS	3
THEA 3315	THEATRICAL MAKEUP	3
THEA 3317	SINGING FOR THE ACTOR I	3
THEA 3335	DANCE FOR THE ACTOR I	3
THEA 3340	MOVEMENT PERFORMANCE I: FUNDAMENTALS	3
THEA 4304	MODERN THEATRE HISTORY	3
THEA 4310	MUSICAL THEATRE HISTORY	3
THEA 4317	SINGING FOR THE ACTOR II (Course is repeated for credit.)	3
THEA 4333	MUSICAL THEATRE PORTFOLIO AND SHOWCASE	3
THEA 4335	DANCE FOR THE ACTOR II (Course is repeated for credit.)	3
MUSI 3140	PRIVATE LESSONS IN VOICE-MUSICAL THEATRE	1
MUSI 3141	PRIVATE LESSONS IN VOICE-MUSICAL THEATRE	1
MUSI 4140	PRIVATE LESSONS IN VOICE-MUSICAL THEATRE	1

**B.F.A. PERFORMANCE SUBPLAN:**

## Lower-Division Hours

FS-THEA 1300	FIRST YEAR SEMINAR IN THEATRE ARTS <sup>2</sup>	3
THEA 0181	THEATRE PRACTICUM <sup>1</sup>	1
THEA 1101	THEATRE ARTS SYMPOSIUM	1
THEA 1303	VOCAL PERFORMANCE I: FUNDAMENTALS	3
THEA 1304	STAGECRAFT I	3
THEA 1305	INTRODUCTION TO THEATRICAL DESIGN	3
THEA 1307	ACTING I: BASIC TECHNIQUES	3
THEA 1343	INTRODUCTION TO THEATRE	3
THEA 2306	THE CRAFT OF COSTUME	3
THEA 2337	IMPROVISATION	3
THEA 2352	ACTING II: SCENE STUDY	3
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3

## Upper-Division Hours

THEA 3300	DIRECTING I	3
THEA 3308	ACTING III: ACTING FOR THE CAMERA	3
THEA 3309	SCRIPT ANALYSIS	3
THEA 3311	VOCAL PERFORMANCE II: DIALECTS	3

THEA 3315	THEATRICAL MAKEUP	3
THEA 3317	SINGING FOR THE ACTOR I	3
THEA 3335	DANCE FOR THE ACTOR I	3
THEA 3340	MOVEMENT PERFORMANCE I: FUNDAMENTALS	3
THEA 3341	ACTING IV: ADVANCED ACTING & PORTFOLIO	3
THEA 3346	STAGE COMBAT	3
THEA 4301	ACTING V: PERIOD STYLES	3
THEA 4302	STAGE MANAGEMENT AND THEATRE ADMINISTRATION	3
THEA 4303	CLASSICAL THEATRE HISTORY	3
THEA 4304	MODERN THEATRE HISTORY	3
THEA 4311	VOCAL PERFORMANCE III: SHAKESPEARE AND VERSE	3
THEA 4340	MOVEMENT PERFORMANCE II: PHYSICAL THEATRE	3

**B.F.A. DESIGN & TECHNOLOGY SUBPLAN:**

## Lower-Division Hours

FS-THEA 1300	FIRST YEAR SEMINAR IN THEATRE ARTS <sup>2</sup>	3
THEA 0181	THEATRE PRACTICUM <sup>1</sup>	1
THEA 1101	THEATRE ARTS SYMPOSIUM	1
THEA 1303	VOCAL PERFORMANCE I: FUNDAMENTALS	3
THEA 1304	STAGECRAFT I	3
THEA 1305	INTRODUCTION TO THEATRICAL DESIGN	3
THEA 1307	ACTING I: BASIC TECHNIQUES	3
THEA 1343	INTRODUCTION TO THEATRE	3
THEA 2306	THE CRAFT OF COSTUME	3
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3

## Upper-Division Hours

THEA 3300	DIRECTING I	3
THEA 3301	SCENE DESIGN I	3
THEA 3303	SOUND DESIGN	3
THEA 3304	STAGECRAFT II	3
THEA 3305	LIGHTING DESIGN I	3
THEA 3306	SCENE PAINTING FOR THE STAGE	3
THEA 3309	SCRIPT ANALYSIS	3
THEA 3315	THEATRICAL MAKEUP	3
THEA 3316	LIGHTING AND SOUND TECHNOLOGY	3
THEA 3318	DRAFTING FOR THE ARTS	3
THEA 4302	STAGE MANAGEMENT AND THEATRE ADMINISTRATION	3
THEA 4303	CLASSICAL THEATRE HISTORY	3
THEA 4304	MODERN THEATRE HISTORY	3
THEA 4343	COSTUME DESIGN	3
THEA 4344	PORTFOLIO AND RENDERING	3

**TOTAL FOR EACH B.F.A. SUBPLAN = 128 HOURS, OF WHICH AT LEAST 39 MUST BE AT THE 3000/4000 LEVEL.**

<sup>1</sup> All Theatre Arts majors shall enroll in one (1) hour per semester in residence in THEA 0181 THEATRE PRACTICUM in order to graduate. Eight (8) hours of THEA 0181 THEATRE PRACTICUM are required. Students should see their advisor regarding practicum obligations. Transfer students must discuss THEA 0181 THEATRE PRACTICUM requirements with the Theatre Arts advisor.

<sup>2</sup> Only first year students (not transfers) are required and eligible to take FS-THEA 1300 FIRST YEAR SEMINAR IN THEATRE ARTS. This course is substituted for the First Year Experience (FYE) course.

**B.F.A. SUBPLANS-SAMPLE PLANS OF STUDY GRIDS****Bachelor of Fine Arts - Theatre Studies Subplan: Sample Plan of Study Grid\*:****First Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
THEA 0181	1	THEA 0181	1
THEA 1101	1	THEA 1303 <sup>1</sup>	3
THEA 1304	3	THEA 1305	3
THEA 1343 <sup>1</sup>	3	THEA 1307	3
FS-THEA 1300	3	ENGL 1302 <sup>1</sup>	3
ENGL 1301 <sup>1</sup>	3	Mathematics: Choose from approved core <sup>1</sup>	3
Elective: Any level, any subject	3		
	<b>17</b>		<b>16</b>

**Second Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
THEA 0181	1	THEA 0181	1
THEA 2306	3	THEA 2352	3
THEA 3303 or 3306	3	THEA 3315	3
THEA 3309	3	THEA 3340	3
Mathematics: Choose from approved core <sup>1</sup>	3	HIST 1311 <sup>1</sup>	3
Social and Behavioral Sciences: Choose from approved core.	3	Elective: Any level, any subject	3
	<b>16</b>		<b>16</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
THEA 0181	1	THEA 0181	1
THEA 3318	3	THEA 3305	3
THEA 4343	3	THEA 4302	3
HIST 1312 <sup>1</sup>	3	Fine Arts Elective: Any Fine Arts course, any level	3
POLS 2311 <sup>1</sup>	3	POLS 2312 <sup>1</sup>	3
Life and Physical Sciences: Select from approved lab science core. <sup>1</sup>	3	Life and Physical Sciences: Select from approved lab science core <sup>1</sup>	3
	<b>16</b>		<b>16</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
THEA 0181	1	THEA 0181	1
THEA 3300	3	THEA 3301	3
THEA 4303	3	THEA 3320	3
THEA 4342	3	THEA 4304	3
Elective: Any level, any subject	3	THEA 4352	3

Language, Philosophy & Culture: Select from approved core <sup>1</sup>	3	Elective: Any level, any subject	2
	<b>16</b>		<b>15</b>

Total Hours: 128

<sup>1</sup> Satisfies core requirement.

\* NOTE: The study grid above is for informational purposes only and is not an official degree plan. See the department's academic advisor for more information.

## Bachelor of Fine Arts - Musical Theatre Subplan: Sample Plan of Study Grid\*:

### First Year

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 1101	1	THEA 1305	3
THEA 1343 <sup>1</sup>	3	THEA 1307	3
MUSI 1185	1	MUSI 1140	1
MUSI 1325	3	MUSI 1180	1
ENGL 1301 <sup>1</sup>	3	MUSI 1326	3
FS-THEA 1300	3	ENGL 1302 <sup>1</sup>	3
		Mathematics: Select from approved core. <sup>1</sup>	3
	<b>15</b>		<b>18</b>

### Second Year

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 3309	3	THEA 1304	3
MUSI 1141	1	THEA 2352	3
Mathematics: Select from approved core. <sup>1</sup>	3	THEA 3335	3
POLS 2311 <sup>1</sup>	3	MUSI 2140	1
Social and Behavioral Sciences: Select from approved core. <sup>1</sup>	3	Life and Physical Sciences: Select from approved lab science in core. <sup>1</sup>	3
Life and Physical Sciences: Select from approved lab science core. <sup>1</sup>	3	POLS 2312 <sup>1</sup>	3
	<b>17</b>		<b>17</b>

### Third Year

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 1303 <sup>1</sup>	3	THEA 2306	3
THEA 3317	3	THEA 3340	3
MUSI 2141	1	THEA 4317	3
HIST 1311 <sup>1</sup>	3	MUSI 3140	1



Language, Philosophy & Culture: Select from approved core. <sup>1</sup>	3	HIST 1312 <sup>1</sup>	3
Fine Arts Elective: Select any level Fine Arts course.	3	Elective: Any level, any subject	2
	<b>17</b>		<b>16</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 3300	3	THEA 3315	3
THEA 4310	3	THEA 4304	3
THEA 4317	3	THEA 4335	3
THEA 4335	3	THEA 4333	3
MUSI 3141	1	MUSI 4140	1
	<b>14</b>		<b>14</b>

Total Hours: 128

<sup>1</sup> Satisfies core requirement.

**\* NOTE: The study grid above is for informational purposes only and is not an official degree plan. See the department's academic advisor for more information.**

**Bachelor of Fine Arts - Performance Subplan: Sample Plan of Study Grid\*:****First Year**

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 1101	1	THEA 1304	3
THEA 1307	3	THEA 1305	3
THEA 1343 <sup>1</sup>	3	THEA 2337	3
ENGL 1301 <sup>1</sup>	3	ENGL 1302 <sup>1</sup>	3
FS-THEA 1300	3	Mathematics: Select course from approved core. <sup>1</sup>	3
Elective: Any level, any subject	2		
	<b>16</b>		<b>16</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 1303 <sup>1</sup>	3	THEA 2306	3
THEA 3309	3	THEA 2352	3
HIST 1311 <sup>1</sup>	3	THEA 3340	3
Mathematics: Select course from approved core. <sup>1</sup>	3	HIST 1312 <sup>1</sup>	3
Social & Behavioral Sciences <sup>1</sup>	3	POLS 2311 <sup>1</sup>	3
	<b>16</b>		<b>16</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
THEA 0181	1	THEA 0181	1
THEA 3308	3	THEA 3300	3
THEA 3315	3	THEA 3311	3
THEA 3341	3	THEA 4302	3
POLS 2312 <sup>1</sup>	3	Life & Physical Sciences: Select lab course from approved core. <sup>1</sup>	3
Life and Physical Sciences: Select lab course from approved core. <sup>1</sup>	3	Language, Philosophy & Culture: Select course from approved core. <sup>1</sup>	3
	<b>16</b>		<b>16</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
THEA 0181	1	THEA 0181	1
THEA 3317	3	THEA 3335	3
THEA 3346	3	THEA 4301	3
THEA 4303	3	THEA 4304	3
THEA 4311	3	Fine Arts Elective: Any Fine Arts course, any level.	3
THEA 4340	3	Elective: Any level, any subject	3
	<b>16</b>		<b>16</b>

Total Hours: 128

<sup>1</sup> Satisfies core requirement.

**\* NOTE: The study grid above is for informational purposes only and is not an official degree plan. See the department's academic advisor for more information.**

**Bachelor of Fine Arts - Design & Technology Subplan: Sample Plan of Study Grid\*:****First Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
FS-THEA 1300	3	THEA 0181	1
THEA 0181	1	THEA 1307	3
THEA 1101	1	THEA 1305	3
THEA 1304	3	THEA 2306	3
THEA 1343 <sup>1</sup>	3	Mathematics: Select course from approved core. <sup>1</sup>	3
ENGL 1301 <sup>1</sup>	3	ENGL 1302 <sup>1</sup>	3
Elective: Any level, any subject.	2		
	<b>16</b>		<b>16</b>

**Second Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
THEA 0181	1	THEA 0181	1
THEA 3318	3	THEA 3305	3

THEA 3309	3	THEA 4344	3
THEA 4343	3	THEA 3315	3
THEA 3316	3	Mathematics: Select course from approved core. <sup>1</sup>	3
Language, Philosophy & Culture: Select course from approved core. <sup>1</sup>	3	POLS 2311 <sup>1</sup>	3
	<b>16</b>		<b>16</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 3306	3	THEA 4302	3
THEA 3303	3	THEA 3301	3
Life & Physical Sciences: select lab course from approved core. <sup>1</sup>	3	THEA 3304	3
POLS 2312 <sup>1</sup>	3	Life and Physical Science: Select course from approved core. <sup>1</sup>	3
HIST 1311 <sup>1</sup>	3	HIST 1312 <sup>1</sup>	3
	<b>16</b>		<b>16</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
THEA 0181	1	THEA 0181	1
THEA 3300	3	THEA 4304	3
THEA 1303 <sup>1</sup>	3	Fine Arts Elective: Any fine arts course, any level.	3
THEA 4303	3	Elective: Any level, any subject.	3
Social & Behavioral Sciences: Select course from approved core. <sup>1</sup>	3	Elective: Any level, any subject.	3
Elective: Any level, any subject.	3	Elective: Any level, any subject.	3
	<b>16</b>		<b>16</b>

---

Total Hours: 128

<sup>1</sup> Satisfies core requirement.

**\* NOTE: The study grid above is for informational purposes only and is not an official degree plan. See the department's academic advisor for more information.**

## Oral Communication Competency

Students majoring in Theatre Arts may demonstrate competency in oral communications by taking any course approved by the Undergraduate Assembly for this purpose. Alternatively, they may demonstrate this competency by passing the University proficiency examination in oral communication.

## Computer Use Competency

Students majoring in Theatre Arts may demonstrate competency in computer use by taking any course approved by the Undergraduate Assembly for this purpose. Alternatively, they may demonstrate this competency by passing the University proficiency examination in computer use.

## Requirements for a Minor in Theatre Arts

Students who are not majoring in Theatre Arts may elect to minor in it. Twenty-two (22) hours of theatre arts courses are required. This includes:

THEA 1101	THEATRE ARTS SYMPOSIUM	1
THEA 1304	STAGECRAFT I	3
THEA 1307	ACTING I: BASIC TECHNIQUES	3
THEA 1343	INTRODUCTION TO THEATRE	3
THEA 3309	SCRIPT ANALYSIS	3
Electives: a minimum of six (6) of these elective hours must be at the 3000/4000 level		9
Total Hours		22

Students interested in theatre arts as a minor should consult a Theatre Arts Department advisor to determine the most advantageous selection of courses in light of their interests and experience. With such consultation, departmental prerequisites may be waived for the purposes of a minor.

## DANCE (DNCA & DNCE)

The Department of Theatre Arts offers courses in Dance Activity (DNCA) and Dance Theory (DNCE).

## Women's and Gender Studies - Undergraduate Program

### Overview

The Women's and Gender Studies Program provides students with the opportunity to engage in critical analysis of issues related to women, gender, and sexuality. Courses typically emphasize how women, gender, and sexuality have shaped and been shaped by history, culture, and society, with particular attention to the role of race, ethnicity, class, nation, age, and religion in forming gender identities. This interdisciplinary program is taught by faculty from diverse fields and offers a unique opportunity for students to complement their work in traditional disciplines with courses that can be tailored to meet specific interests and needs.

Students may receive a Minor in Women's and Gender Studies by taking 18 credit hours from a selection of courses offered across several disciplines. Most of our courses are cross-listed with courses offered in other departments. Students should consult the Women's and Gender Studies website for a list of the courses being offered in any specific semester.

Women's and Gender Studies Minors are encouraged to take two foundation courses: WOMS 2310: Introduction to Women's & Gender Studies and WOMS 2315: Introduction to Gay & Lesbian Studies.

Women's and Gender Studies Minors may also consider taking the Internship course, which involves working off campus at a local organization that addresses women's or gender issues.

Students seeking the Women's and Gender Studies minor should first consult with the advisors in their major departments or programs for approval, then with the Women's and Gender Studies Program advisor.

# College of Nursing

---

## Mission and Philosophy

The College of Nursing is an integral component of The University of Texas at Arlington and subscribes to the mission of the University. The College of Nursing prepares quality nurse health care providers through excellence in education, scholarship and service. The undergraduate and graduate academic programs prepare individuals for professional nursing roles and for collaboration with other professionals and consumers in the delivery of holistic health care.

The faculty believes learning is a continuous lifelong process and a personal responsibility. Students must be actively involved in the learning process to acquire clinical proficiency and to be socialized into professional roles. Learning experiences are implemented to achieve sequence, continuity, and synthesis of knowledge and expertise as defined by the educational outcomes. Teaching and learning are dynamic processes involving curriculum evaluation and revision based on research evidence, the needs of a multicultural society, and the changing health care system. The educational process facilitates the development of each person's potential and promotes cultural competence and assimilation of ethical principles.

Faculty and students foster an educational climate of mutual respect, honesty, intellectual inquiry, creativity, and effective communication. We contribute to the development of our profession through the conduct of research and the dissemination and application of evidence-based knowledge. Faculty and students provide service to the community through clinical practice and leadership.

Undergraduate nursing education builds on a foundation of studies in the sciences, humanities, and arts. The baccalaureate program prepares competent, self-directed generalist nurses (Registered Nurses) who can assume increasing responsibility and leadership in the delivery of evidence-based nursing care.

Master's education builds on a foundation of undergraduate nursing education and provides specialty practice with an expanded theoretical and empirical knowledge base. The Master of Science in Nursing programs prepares Registered Nurses for advanced functional roles that require increased accountability, expertise, and leadership. Graduates are prepared to provide evidence-based health care in collaboration with other health care providers and consumers.

Doctoral education develops and advances empirical knowledge to promote evidence-based practice in the discipline of nursing. Graduates have a background to develop theories and conduct research with vulnerable populations and to assume academic, research, and leadership roles. The doctorate provides a basis for future research programs and other scholarly activities.

Lifelong learning is the responsibility of each professional nurse. Continuing education programs developed by the College of Nursing are sensitive to the influences of a changing society and respond to the continuing education needs of professional nurses in Texas.

## History and Overview

The UT Arlington College of Nursing was established in 1971 as the U.T. System College of Nursing in Fort Worth and was housed in John Peter Smith Hospital. The first baccalaureate class enrolled in fall of 1972; the graduate program (MSN) began in 1975. In 1976, the school became an academic unit of UT Arlington, moving to the campus in 1977.

The Undergraduate Program consists of the BSN and the RN to BSN programs. In addition to the Arlington campus, these programs are offered online through the UT Arlington Academic Partnership program. The Graduate Program offers a Master of Science in Nursing (MSN) with preparation as a nurse practitioner in the areas of Acute Care Adult Gerontology --(1996), Acute Care Pediatric (2005), Adult Gerontology Primary Care (previously Adult and Gerontology) (2013), Family (1975), Gerontology (1984), Neonatal (2008), Primary Care Pediatric (1985) and Psychiatric-Mental Health (1995). Post-master's certificates are available in all the above nurse practitioner specialties. In addition, the UT Arlington MSN Program offers preparation in Nursing Administration (1982) and Nursing Education (2008). Nursing Administration is also offered online through the UT Arlington Academic Partnership program. A dual degree of MSN (administration major) and Masters of Business Administration (MBA) was offered in 1999 and a dual degree of MSN and Masters of Science in Health Care Administration was offered in 2001. A joint degree of MSN and Masters in Public Health (MPH) was offered with University of North Texas Health Science Center in 2007. Certificates are offered in: Nursing Education (2001) and Advanced Nurse Educator Role (2001). A PhD in Nursing was approved in April 2003 with classes beginning in Fall 2003. A BSN-to-PhD entry option was approved in 2005, with classes beginning in Fall 2006. A Doctor of Nursing Practice (DNP) began in Fall 2009.

## Accreditation

The Bachelor of Science in Nursing, Master of Science in Nursing and Doctor of Nursing Practice Programs are accredited by the Commission on Collegiate Nursing Education (CCNE) and governed by the Texas Board of Nursing. The CCNE address is One Dupont Circle, NW, Suite 530, Washington, DC 20036-1120; Phone is (202) 887-6791 and fax is (202) 887-8476; and Website: [www.aacn.nche.edu/accreditation](http://www.aacn.nche.edu/accreditation) (<http://www.aacn.nche.edu/accreditation>). There are no accrediting agencies for PhD in Nursing programs.

## Scholastic Activities and Research Interests of the Faculty

The research programs of the College of Nursing faculty are diverse. A sampling of their areas of study includes Genomics (Dr. Barbara Raudonis); Hispanic health care (Dr. Donelle Barnes and Dr. Susan Baxley); nursing care outcomes (Dr. Reni Courtney); leadership in nursing education (Dr.

Ronda Mintz-Binder); chemical dependency and abuse (Dr. Cheryl Anderson and Dr. Diane Snow); nurses in international settings (Dr. Jennifer Gray); sickle cell disease (Dr. Phyllis Adams and Dr. Maxine Adegbola); care of the elderly (Dr. Barbara Raudonis and Dr. Kathryn Daniel); oncology (Dr. Laurie Johns); simulation instruction (Dr. Mindi Anderson and Dr. Judy LeFlore); neonatology, and very low birth weight (Dr. Judy LeFlore).

## Special Programs and Opportunities

### SMART HOSPITAL™

Interim Associate Dean for Simulation and Technology: Dr. Judy LeFlore

The Smart Hospital™ is a simulated hospital environment complete with state-of-the-science equipment and furnishings. In this facility, students interact with and provide care to a full array of simulated patients who occupy the Emergency Department, ICU, Labor and Delivery suite, pediatric unit, Neonatal ICU, adult medical/surgical beds and the resuscitation room for large team training. Students learn utilizing simulation technology including full body interactive patient simulators, computerized scenario-based programs and individual trainers for specific skills.

The "patients" who populate our Smart Hospital are life-sized computerized manikins that actually interact with the learners. Patients include infants, children, adults, and even a mother in labor who goes through the labor process and delivers a newborn. Some manikins are static but others are interactive and responsive—they can speak and breathe, have heart sounds and lung sounds, and can progress through the various stages of numerous clinical states from birth through death. In addition, we have specially trained actors who can serve as patients or family members in clinical teaching scenes. In each clinical scenario, the students are exposed to situations and changes in patient conditions, both subtle and obvious, that they will experience in actual practice. With repeated exposure to these situations, students develop a deeper understanding of clinical conditions and become more adept at critical and clinical thinking. With this foundation, our students move more quickly from novice to expert and in so doing enhance the quality of patient care they provide.

### LEARNING RESOURCES CENTER

Executive Assistant to the Dean: Lalita Thompson

The mission of the Center is to provide both undergraduate and graduate students support to develop, refine, and apply knowledge in the clinical practice of skills. Computer labs are available for student use. Faculty members are provided resources to support classroom instruction, clinical learning activities, and scholarly endeavors.

### CENTER FOR NURSING RESEARCH

Associate Dean: Dr. Michael Young

Scholarship is an essential component of the professional role in the College of Nursing. The Center provides support services to faculty and students: identifying funding sources; developing competitive proposals; writing grant applications; retrieving literature; collecting, entering and analyzing data; and disseminating research results and other scholarly products. Collaborative relationships for research with Metroplex health care agencies are in place.

### CENTER FOR HISPANIC STUDIES IN NURSING AND HEALTH

Director: Dr. Margarita Trevino

The Center is dedicated to fostering an understanding between health care professionals and people of Hispanic origin for the purpose of increasing understanding of health and healing through research of individual experience, cultural meanings, and the structure of institutions as important variables influencing health outcomes. The Center is also committed to the provision of educational programs and services which will assist health care providers to gain the necessary knowledge and skills to deliver increasingly culturally sensitive and competent care. The Center promotes interdisciplinary and interuniversity collaboration as a strategy for development of resources to solve or deal with bicultural issues facing health care professionals.

### RURAL HEALTH OUTREACH PROGRAM

Director: Sylvia Rawlings

The purpose of the Center is to provide appropriate, affordable, accessible continuing education to the nursing staffs of acute care and psychiatric hospitals, long term care facilities, home health agencies, and other health care facilities in the rural communities of North Central Texas.

### CENTER FOR CONTINUING NURSING EDUCATION

The mission of this Center is to provide quality continuing nursing education for the improvement of nursing practice and health care in North Texas. The program strives to be a regional center for the advancement of professional continuing nursing education and to meet the diverse needs of nurses in most every clinical specialty and all levels of functional roles.

## Programs

### Bachelor Degree

- Bachelor of Science in Nursing, B.S.N. (p. 459)

## Master's Degrees

- Academic Partnership Nurse Educator, M.S.N. Non Thesis (p. 452)
- Academic Partnership Nursing Admin., M.S.N. (p. 452)
- Nurse Practitioner, M.S.N. (p. 452)
- Nursing Administration, M.S.N. (p. 452)
- Nursing Education, M.S.N. (p. 452)

## Doctoral Degrees

- Doctor of Nursing Practice, D.N.P. (p. 456)
- PhD in Nursing (p. 456)
  - B.S.N.-to Ph.D. Nursing Administration Specialty (p. 456)
  - B.S.N.-to-Ph.D. Nursing Educator Specialty (p. 456)
  - B.S.N.-to-Ph.D. Clinical Specialty (p. 456)

## Certificates

- Advanced Nurse Educator Role (p. 458)
- Nurse Educator (p. 458)
- Nurse Practitioner, Acute Care (p. 458)
- Nurse Practitioner, Acute Care Pediatric (p. 458)
- Nurse Practitioner, Adult (p. 458)
- Nurse Practitioner, Family (p. 458)
- Nurse Practitioner, Gerontological (p. 458)
- Nurse Practitioner, Neonatal (p. 458) – *Gainful Employment Disclosure* (<http://grad.pci.uta.edu/prospective/programs/degrees/gainfulemployment/#neonatal>)
- Nurse Practitioner, Pediatric (p. 458)
- Nurse Practitioner, Psychiatric/Mental Health (p. 458)

## Nursing - Graduate Programs

### MSN Program

#### MSN ADMISSIONS REQUIREMENTS (ALL MSN PROGRAMS)

The applicant for the Master of Science in Nursing (MSN) degree must meet the general requirements of Graduate Admissions and have a Bachelor of Science in Nursing (BSN) degree from a program accredited by the National League for Nursing Accrediting Commission (NLNAC) or the Commission on Collegiate Nursing Education (CCNE) or proof of equivalent education at a foreign institution. Individual consideration may be given to applicants who hold a BSN degree from non-accredited programs.

Potential students must also possess a current unencumbered RN license from Texas, a compact state, or other state board of nursing.

The College of Nursing admission criteria are detailed in the MSN Graduate Admission table below. The admission status options are described below.

#### Unconditional Admission

Applicants must meet all criteria for unconditional admission.

#### Probationary Admission

Criteria for probationary admission status and minimum GRE scores are listed in the MSN Graduate Admission table below. When admitted on probation, a student must maintain a 3.0 GPA in the first two semesters of enrollment in the graduate program. Probationary students are admitted for part-time study only.

#### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but whom otherwise appears to meet admission requirements may be granted provisional admission.

#### Deferred Status

Deferred decision is granted when a file is incomplete or when a denial decision is not appropriate.

## Denial of Admission

An applicant will be denied admission if they have less than satisfactory performance on a majority of admission criteria listed in the MSN Admission Table.

### MSN GRADUATE ADMISSION TABLE

Admission Criteria	Unconditional	Probationary
GPA on last 60 hours of Undergraduate Program (BSN) (as calculated by Graduate Admissions of UTA)	3.0 <sup>1</sup>	2.8-2.99 <sup>2,3</sup>
GRE <sup>4</sup> Two highest GRE scores will be used in admission process	Not required	Verbal: 430 or 149 <sup>2</sup> or Quantitative: 430 or 141 or Analytical Writing: 3.5 Analytical: 430
Dual and Joint Degree Applicants	Additional standardized tests and requirements specific to the program must be completed. See Program advisor.	
TSE (Test of Spoken English) or TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing System)	TSE: Score of 40 or higher or TOEFL: Minimum of 550 on paper-based test, 213 on computer-based test, or 79 on the internet-based test and achieve the following minimum scores on subtests: Writing, 22; Speaking, 21; Reading, 20; and Listening, 16 or IELTS minimum score of 7.0	
Clinical Experience	<p>1. Two years clinical experience as a Registered Nurse (RN) is strongly recommended for all programs. Applicants without 2 years clinical experience should contact the Associate Dean and/or Program Director prior to making application.</p> <p>2. For the ACPNP, NNP, and ACNP programs, two years clinical experience as an RN in an acute care setting is required (Evaluated by the Associate Dean and/or Program Director).</p> <p>3. For the MSN in Nursing Education program, 2 years clinical experience is required.</p> <p>4. International students are required to have two years RN clinical experience in a United States (or equivalent) health care system.</p>	
200 word Essay re: Career goals	Evaluated by Associate Deans of MSN Programs	
Current and unencumbered RN License from Texas, a compact state, or other state board of nursing <sup>5</sup>	Evaluated by Associate Deans of MSN Programs	
Pediatric Advanced Life Support (PALS)	Required only for the Acute Care Pediatric Nurse Practitioner Program; Neonatal NP applicants may complete the NRP (Neonatal Resuscitation Program).	
BSN for NLNAC or CCNE Accredited Program	Evaluated by Associate Deans of MSN Programs	
Undergraduate Level Statistics	Minimum grade of "C"	
Cardiopulmonary Resuscitation	Required for all programs.	

<sup>1</sup> Minimum undergraduate GPA requirement for unconditional admission is a 3.0 on a 4.0 scale as calculated by Graduate Admissions.

<sup>2</sup> If a person does not meet probationary admission requirements, he or she may request review by a Committee of the Graduate Nursing Faculty. The Committee may request completion of coursework and/or additional information to support the individual's petition for admission.

<sup>3</sup> If admitted on probation, a student must maintain a 3.0 GPA in the first two semesters of enrollment in the graduate program. Probationary students are admitted for part-time study only.

<sup>4</sup> Verbal, Quantitative, and Analytical Writing GRE scores will be reviewed and the two highest scores will be considered for the admission process.



- <sup>5</sup> All graduate nursing students must have an unencumbered Registered Nursing License as designated by the Board Of Nursing (BON) for clinical courses. It is imperative that any student whose license becomes encumbered by the BON must immediately notify their department chair. The complete policy regarding encumbered RN license is available online at: <http://www.uta.edu/nursing/MSN/unencumbered>

**References or Letters of Recommendation are not required for admission into the MSN Program.**

## **ADMISSION POLICY FOR INDIVIDUALS INELIGIBLE TO CONTINUE GRADUATE STUDY AT ANOTHER UNIVERSITY**

If potential students are ineligible to continue graduate study at another university and apply to The University of Texas at Arlington MSN Program, they will be reviewed by an admission committee. The admission committee will be composed of (at minimum):

1. Director of the Program to which they are applying,
2. Representative core faculty, and
3. MSN Graduate Advisor.

The admission committee will make their recommendation for admission or denial based on the following:

1. Admission materials (GPA on the last 60 hours of BSN, graduate GPA, GRE scores, grade of C or higher on statistics, essay, and English language score if applicable);
2. a narrative statement from the potential student providing a rationale for their ineligibility at another university; and
3. a plan for successful study at UT Arlington.

**The admission committee reserves the right to ask for additional materials as are needed. The admission committee will make its recommendation of admission or denial to the Associate Dean of the College of Nursing.**

## **DNP Program**

The Doctor of Nursing Practice Program builds on a foundation of previous advanced practice education in nursing and prepares advanced practice nurse providers who demonstrate leadership, clinical expertise and innovation in problem recognition and resolution. The required courses identified for the DNP curriculum meet the American Association of Colleges of Nursing Essentials for Doctoral Education for Advanced Nursing Practice (AACN, August 2006).

## **DNP ADMISSIONS REQUIREMENTS**

The applicant for the Doctor of Nursing Practice (DNP) degree must meet the general requirements of Graduate Admissions and have a Master's Degree in Nursing as a Nurse Practitioner (NP) or a Post Master's with NP Preparation from a program accredited by the National League for Nursing Accrediting Commission (NLNAC) or the Commission on Collegiate Nursing Education (CCNE) or proof of equivalent education at a foreign institution.

Potential students must also possess a current unencumbered Texas RN license or an unencumbered license from a designated compact state for admission.

The College of Nursing admission criteria are detailed in the DNP Graduate Admission Table below. The admission status options are described.

### **Unconditional Admission**

Applicants must meet all criteria for unconditional admission.

### **Probationary Admission**

Criteria for probationary admission status are listed in the DNP Graduate Admission Table. When on probation, a student must maintain a 3.0 GPA in the first two semesters of enrollment in the graduate program.

### **Provisional Admission**

An applicant unable to supply all required documentation prior to the admission deadline but whom otherwise appears to meet admission requirements may be granted provisional admission.

### **Deferred Status**

Deferred decision is granted when a file is incomplete or when a denial decision is not appropriate.

### **Denial of Admission**

An applicant will be denied admission if they have less than satisfactory performance on a majority of admission criteria listed in the DNP Graduate Admission Table.

## DNP GRADUATE ADMISSION TABLE

Admission Criteria	Unconditional	Probationary
GPA on master's course work or Post-Master's NP Certificate	3.5 on a 4.0 scale	3.0-3.49 <sup>1</sup>
GRE	Waived	Waived
TSE (Test of Spoken English) or TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing System)	TSE: Score of 40 or higher or TOEFL: Minimum of 550 on paper-based test, 213 on computer-based test, or 79 on the internet-based test and achieve the following minimum scores of subtests: Writing, 22; Speaking, 21; Reading, 20; and Listening, 16 or IELTS minimum score of 7.0.	
Statistics course	Graduate level with a minimum grade of B.	
Current Vita or Resume	Evaluated by Associate Dean or Admissions Committee	
Written statement of career vision/goals	Evaluated by Associate Dean or Admissions Committee	
Unencumbered RN License in Texas <sup>2</sup>	Evaluated by Associate Dean of DNP Program	
Currently recognized by Board of Nursing as an APRN in Texas	Evaluated by Associate Dean of DNP Program	
Current National certification as an NP	Evaluated by Associate Dean of DNP Program	
Current NP Practice	Evaluated by Associate Dean or Admissions Committee	
Current CPR, ACLS, PALS or NRP as required for their Specialty Area	Evaluated by Associate Dean of DNP Program	
Proficiency in use of computer for word processing, spreadsheet development, and data and text file creation and manipulation	Evaluated by Associate Dean of DNP Program	

<sup>1</sup> Students admitted on probation, a student must maintain a 3.0 GPA in the first two semesters of enrollment in the graduate program.

<sup>2</sup> All graduate nursing students must have an unencumbered registered nurse license as designated by the Board Of Nursing (BON) for clinical courses. It is imperative that any student whose license becomes encumbered by the BON must immediately notify the Associate Dean for the DNP Program. The complete policy regarding encumbered RN license is available online at: <http://www.uta.edu/nursing/MSN/unencumbered>

**Admission Policy for Individuals Ineligible to Continue Graduate Study at Another University: If potential students are ineligible to continue graduate study at another university and apply to The University of Texas at Arlington DNP Program, they will be reviewed by an Admissions Committee. The Admissions Committee will be composed of (at a minimum):**

1. Two representative faculty, and
2. DNP Graduate Advisor.

The Admissions Committee will make their recommendation for admission or denial based on the following:

1. Admission materials (GPA on the MSN or Post-Master's certificate, grade of B or higher on graduate statistics, current vita, written statement of career vision, and English language score if applicable);
2. a narrative statement from the potential student providing a rationale for their ineligibility at another university; and
3. a plan for successful study at UT Arlington.

The Admissions Committee reserves the right to ask for additional materials as are needed. The Admissions Committee will make its recommendation of admission or denial to the Graduate Office for the University.

## PhD Program

The Doctor of Philosophy in Nursing Program is built on a foundation of prior nursing education and prepares the student for original research and theory development. The PhD in Nursing Program is designed to prepare nurse scientists to meet the health needs of a rapidly changing and culturally diverse society. The central focus of the PhD in Nursing Program is to prepare researchers and teachers who understand how communities evolve, interact, change and how they prescribe, understand and sanction health, illness and health seeking behaviors.

The PhD in Nursing Program offers two routes of entry: BSN-PhD or MSN-PhD. Potential students should refer to admission criteria below.

## PHD ADMISSION REQUIREMENTS

The applicant for the Doctor of Philosophy in Nursing (PhD) degree must meet the general requirements of Graduate Admissions and have a Bachelor's degree in Nursing (BSN-PhD entry) or a Master of Science in Nursing degree (MSN-PhD entry) from a program accredited by the National League for Nursing Accrediting Commission (NLNAC) or the Commission on Collegiate Nursing Education (CCNE) or proof of equivalent education at a foreign institution. Applicants must submit to the Office of Graduate Admissions official transcripts from each college or university attended.

An applicant whose native language is not English must take the Test of Spoken English (TSE), the Test of English as a Foreign Language (TOEFL), or the International English Language Testing System (IELTS).

- Persons taking the TSE must make a minimum score of 40.
- Persons taking the TOEFL must make a minimum score of 550 on the paper-based test, 213 on the computer-based test, and meet the following criteria on the internet-based test: attain a minimum overall score of 79 and achieve the following minimum scores of subtests: writing: 22; speaking: 21; reading: 20; and listening: 16
- Persons taking the IELTS must make a minimum score of 7.0.

A foreign student wishing to be a graduate research assistant or a graduate teaching assistant will need to take the Test of Spoken English. For admission, the foreign student must also possess a current RN license in the state where the student is participating in clinical activities.

## PHD ADMISSION STATUS OPTIONS

The College of Nursing admission criteria are detailed in the PhD Program Requirements table below.

### Unconditional Admission

Applicants must meet all criteria for unconditional admission

### Probationary Admission

Criteria for probationary admission status are designated in the PhD Program Requirements table below. When on probation, a student must maintain a 3.0 GPA in the first two semesters of enrollment in the graduate program.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements.

### Deferred Status

Deferred decision is granted when a file is incomplete or when a denied decision is not appropriate.

### Denial of Admission

An applicant will be denied admission if he/she has less than satisfactory performance on a majority of admission criteria listed in the table below. The PhD Admissions Committee will make a recommendation for denial.

## PHD PROGRAM IN NURSING ADMISSION REQUIREMENTS

**Note:** A student on probation must maintain a 3.0 GPA in the first two semesters of enrollment in the graduate program.

Admission Criteria	Unconditional	Probationary
Bachelor's Degree in Nursing (BSN-PhD entry) or Master's Degree in Nursing (MSN-PhD entry) from a National League for Nursing Accrediting Commission (NLNAC) or American Association of Colleges of Nursing's Commission on Collegiate Nursing Education (CCNE) accredited College of Nursing or equivalent.	Evaluated by Associate Dean	Evaluated by Associate Dean <sup>1</sup>
GPA on all bachelor's coursework (BSN-PhD) or on master's coursework (MSN-PhD).	3.0 GPA on a 4.0 scale as calculated by Graduate Admissions	3.0 GPA on a 4.0 scale as calculated by Graduate Admissions <sup>1</sup>
GRE for BSN-PhD entry; GRE waived for MSN-PhD entry	GRE with a total minimum score of: 500 or 153 on verbal; 500 or 144 on quantitative; 500/4 on analytical/analytical writing scores	Verbal: 400-490 or 146-152; Quantitative: 400-490 or 140-143; Analytical Writing: 3.0-3.5; Analytical: 400-490; (Based on GPA/GRE ratio) <sup>1</sup>

For international students, TSE (Test of Spoken English) or TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing System)	TSE: Score of 40 or higher or TOEFL: Minimum of 550 on paper-based test, 213 on computer-based test, or 79 on the internet-based test and achieve the following minimum scores of subtests: Writing, 22; Speaking, 21; Reading, 20; and Listening, 16. IELTS minimum score of 7.0.	TSE: Score of 40 or higher or TOEFL: Minimum of 550 on paper-based test, 213 on computer-based test, or 79 on the internet-based test and achieve the following minimum scores of subtests: Writing, 22; Speaking, 21; Reading, 20; and Listening, 16. IELTS minimum score of 7.0. <sup>1</sup>
Graduate level statistics course from an accredited college or university of 3 or more credit hours with a minimum grade of B.	Implement as stated	Implement as stated
Interview <sup>2</sup>	7 or higher on rating scale of 1-10	6 or less on rating scale of 1-10 Evaluated by Admissions Committee <sup>1</sup>
Written statement of goals <sup>2</sup>	7 or higher on rating scale of 1-10	6 or less on rating scale of 1-10 Evaluated by Committee <sup>1</sup>
Professional liability insurance.	Evaluated by Associate Dean	Evaluated by Associate Dean
Evidence of current professional nursing licensure/registration in at least one political jurisdiction. Licensure/registration must be maintained throughout the program. If a PhD student is going to perform direct patient care activities or supervise students in clinical agencies, he or she will be required to obtain an RN license in Texas or a compact state.	Evaluated by Associate Dean	Evaluated by Associate Dean
Two years of clinical experience recommended (BSN-PhD entry)	Evaluated by Associate Dean	Evaluated by Associate Dean
Immunizations required by the College of Nursing.	Evaluated by Associate Dean	Evaluated by Associate Dean
Criminal background check prior to clinical and research activities in health care agencies, which satisfies the Dallas/Fort Worth Hospital Council and the Texas Board of Nurse Examiners.	Evaluated by Associate Dean	Evaluated by Associate Dean
Drug screen prior to clinical and research activities in health care agencies, which satisfies the Dallas/Fort Worth Hospital Council and the Texas Board of Nurse Examiners.	Evaluated by Associate Dean	Evaluated by Associate Dean

<sup>1</sup> A student on probation must maintain a 3.0 GPA in the first two semesters of enrollment in the graduate program.

<sup>2</sup> A new goal statement and a new interview are required with every application.

## Health Insurance Coverage

All UT Arlington nursing students enrolled in clinical course(s) will be required to provide verification of medical insurance coverage that includes Emergency Department evaluation and follow-up treatment for needle-stick and blood borne disease exposure. This mandatory clinical requirement has been authorized by The University of Texas System Board of Regents.

As such, UT Arlington will not cover initial and follow up treatment for needle-stick injuries and/or exposure to blood borne diseases which may occur while students are enrolled in clinical courses.

While the UT Arlington College of Nursing recognizes the financial impact this clinical requirement presents for students, we also support the need for students to have health coverage for sudden illness, accidents, emergencies and exposure treatments that may occur in the clinical setting in a variety of clinical agencies.

## MSN Degree Requirements

A degree plan is developed for the student upon admission to the MSN Program. Students are required to have any changes in degree plan approved by a Graduate Advisor prior to registration. A minimum of 36 semester hours, thesis or non-thesis option, is required for the degree. Elective coursework that supports the selected nursing study area must be approved by the Graduate Advisor prior to registration. Students electing the thesis option do not have elective course requirements.

All non-thesis and thesis candidates shall pass a practicum course at the end of their coursework. All thesis candidates for the degree of Master of Science in Nursing shall present the completed thesis in a final oral examination.

MSN students must complete hours in required courses, nursing specialty area, functional role, and elective(s) depending on specific plan.

## MSN REQUIRED COURSES

NURS 5327	EXPLORATION OF SCIENCE AND THEORIES FOR NURSING	3
NURS 5366	PRINCIPLES OF RESEARCH IN NURSING	3
NURS 5367	EVIDENCE BASED PRACTICE	3
Total Hours		9

## MSN NURSING SPECIALTY AREAS

Each student must complete the required courses in at least one nursing specialty area and functional role.

### Nursing Administration

#### Specialty Requirements

NURS 5311	NURSING MANAGEMENT IN THE HEALTH CARE ENVIRONMENT	3
NURS 5340	MANAGEMENT SEMINAR AND PRACTICE	3
NURS 5341	FINANCIAL MANAGEMENT IN NURSING	3
NURS 5342	MANAGEMENT OF NURSING OPERATIONS	3
NURS 5343	NURSING LEADERSHIP AND COMPLEX HEALTH CARE SYSTEMS	3
NURS 5382	NURSING AND HEALTH CARE POLICY: ISSUES AND ANALYSIS	3

#### Functional Role

NURS 5339	ROLES AND FUNCTIONS OF THE NURSE ADMINISTRATOR	3
Total Hours		21

### Nursing Education

#### Specialty Requirements

NURS 5302	CURRICULUM DEVELOPMENT AND EVALUATION	3
NURS 5308	NURSING INFORMATICS	3
NURS 5309	TEACHING / LEARNING THEORIES, STRATEGIES, AND EVALUATION	3
NURS 5318	ADVANCED PATHOPHYSIOLOGY FOR NURSE EDUCATORS	3
NURS 5319	ADVANCED PHARMACOLOGY FOR NURSE EDUCATORS	3
NURS 5326	ADVANCED ASSESSMENT FOR NURSE EDUCATORS	3
NURS 5360	SIMULATION APPLICATION IN NURSING	3
NURS 5361	SPECIAL TOPICS IN CLINICAL PRACTICE	3
NURS 5362	TEACHING PRACTICUM	3

#### Functional Role

NURS 5329	ROLE OF THE NURSE EDUCATOR	3
Total Hours		30

### Nurse Practitioner Adult Gerontology Acute Care Program

#### Specialty Requirements

NURS 5303	PSYCHIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5305	ADULT MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5314	INVASIVE PROCEDURES FOR ADVANCED PRACTICE NURSES	3
NURS 5315	ADVANCED PATHOPHYSIOLOGY	3
NURS 5334	ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS	3
NURS 5418	ADVANCED HEALTH ASSESSMENT AND DIAGNOSTIC REASONING	4
NURS 5435	ADULT GERONTOLOGY ACUTE CARE NURSING I	4
NURS 5436	ADULT GERONTOLOGY ACUTE CARE NURSING II	4
NURS 5631	ADVANCED CLINICAL NURSING PRACTICUM	6

#### Functional Role

NURS 5350	ROLE OF THE NURSE IN ADVANCED PRACTICE	3
Total Hours		36

**Nurse Practitioner Acute Care Pediatric Program****Specialty Requirements**

NURS 5303	PSYCHIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5306	PEDIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5314	INVASIVE PROCEDURES FOR ADVANCED PRACTICE NURSES	3
NURS 5315	ADVANCED PATHOPHYSIOLOGY	3
NURS 5334	ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS	3
NURS 5418	ADVANCED HEALTH ASSESSMENT AND DIAGNOSTIC REASONING	4
NURS 5441	ACUTE CARE PEDIATRIC NURSING	4
NURS 5442	PRIMARY CARE PEDIATRIC NURSING	4
NURS 5444	ADVANCED NURSING CARE OF PEDIATRIC PATIENTS WITH COMPLEX PROBLEMS	4
NURS 5631	ADVANCED CLINICAL NURSING PRACTICUM	6

**Functional Role**

NURS 5350	ROLE OF THE NURSE IN ADVANCED PRACTICE	3
Total Hours		40

**Nurse Practitioner Primary and Acute Care Pediatric Program****Specialty Requirements**

NURS 5303	PSYCHIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5306	PEDIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5314	INVASIVE PROCEDURES FOR ADVANCED PRACTICE NURSES	3
NURS 5315	ADVANCED PATHOPHYSIOLOGY	3
NURS 5334	ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS	3
NURS 5418	ADVANCED HEALTH ASSESSMENT AND DIAGNOSTIC REASONING	4
NURS 5441	ACUTE CARE PEDIATRIC NURSING	4
NURS 5442	PRIMARY CARE PEDIATRIC NURSING	4
NURS 5444	ADVANCED NURSING CARE OF PEDIATRIC PATIENTS WITH COMPLEX PROBLEMS	4
NURS 5631	ADVANCED CLINICAL NURSING PRACTICUM	6
NURS 5632	ADVANCED CLINICAL NURSING PRACTICUM - CERT	6

**Functional Role**

NURS 5350	ROLE OF THE NURSE IN ADVANCED PRACTICE	3
Total Hours		46

**Nurse Practitioner Adult Gerontology Primary Care Program****Specialty Requirements**

NURS 5303	PSYCHIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5305	ADULT MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5313	CLINICAL PROCEDURES FOR ADVANCED PRACTICE NURSES	3
NURS 5315	ADVANCED PATHOPHYSIOLOGY	3
NURS 5334	ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS	3
NURS 5418	ADVANCED HEALTH ASSESSMENT AND DIAGNOSTIC REASONING	4
NURS 5451	ADULT/GERONTOLOGY PRIMARY CARE NURSING I	4
NURS 5552	ADULT/GERONTOLOGY PRIMARY CARE NURSING II	5
NURS 5453	ADULT/GERONTOLOGY PRIMARY CARE NURSING III	4
NURS 5631	ADVANCED CLINICAL NURSING PRACTICUM	6

**Functional Role**

NURS 5350	ROLE OF THE NURSE IN ADVANCED PRACTICE	3
Total Hours		41

**Nurse Practitioner Family Program****Specialty Requirements**

NURS 5303	PSYCHIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
-----------	---	---

NURS 5305	ADULT MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5306	PEDIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5313	CLINICAL PROCEDURES FOR ADVANCED PRACTICE NURSES	3
NURS 5315	ADVANCED PATHOPHYSIOLOGY	3
NURS 5334	ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS	3
NURS 5418	ADVANCED HEALTH ASSESSMENT AND DIAGNOSTIC REASONING	4
NURS 5430	FAMILY NURSING I	4
NURS 5431	FAMILY NURSING II	4
NURS 5631	ADVANCED CLINICAL NURSING PRACTICUM	6
<b>Functional Role</b>		
NURS 5350	ROLE OF THE NURSE IN ADVANCED PRACTICE	3
Total Hours		39

### Nurse Practitioner Neonatal Nursing Program

#### Specialty Requirements

NURS 5204	NEONATAL NURSING I	2
NURS 5315	ADVANCED PATHOPHYSIOLOGY	3
NURS 5316	ADVANCED HEALTH ASSESSMENT IN NURSING PRACTICE	3
NURS 5334	ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS	3
NURS 5537	NEONATAL NURSING II	5
NURS 5447	NEONATAL NURSING III	4
NURS 5631	ADVANCED CLINICAL NURSING PRACTICUM	6
<b>Functional Role</b>		
NURS 5350	ROLE OF THE NURSE IN ADVANCED PRACTICE	3
Total Hours		29

### Nurse Practitioner Primary Care Pediatric Program

#### Specialty Requirements

NURS 5303	PSYCHIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5306	PEDIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5313	CLINICAL PROCEDURES FOR ADVANCED PRACTICE NURSES	3
NURS 5315	ADVANCED PATHOPHYSIOLOGY	3
NURS 5334	ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS	3
NURS 5418	ADVANCED HEALTH ASSESSMENT AND DIAGNOSTIC REASONING	4
NURS 5442	PRIMARY CARE PEDIATRIC NURSING	4
NURS 5444	ADVANCED NURSING CARE OF PEDIATRIC PATIENTS WITH COMPLEX PROBLEMS	4
NURS 5631	ADVANCED CLINICAL NURSING PRACTICUM	6
<b>Functional Role</b>		
NURS 5350	ROLE OF THE NURSE IN ADVANCED PRACTICE	3
Total Hours		36

### Nurse Practitioner Family Psychiatric Mental Health Program

#### Specialty Requirements

NURS 5303	PSYCHIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5305	ADULT MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5306	PEDIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE	3
NURS 5315	ADVANCED PATHOPHYSIOLOGY	3
NURS 5334	ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS	3
NURS 5418	ADVANCED HEALTH ASSESSMENT AND DIAGNOSTIC REASONING	4
NURS 5424	PSYCHIATRIC-MENTAL HEALTH NURSING I	4
NURS 5425	PSYCHIATRIC-MENTAL HEALTH NURSING II	4
NURS 5631	ADVANCED CLINICAL NURSING PRACTICUM	6

**Functional Role**

NURS 5350	ROLE OF THE NURSE IN ADVANCED PRACTICE	3
Total Hours		36

**ELECTIVES/INDEPENDENT STUDY**

Elective courses may be taken in Nursing or other departments of the University. Electives can also be transferred from other universities with the approval of a Graduate Advisor. Independent study offers the student the opportunity to explore topics of special interest.

**Dual or Joint Degree Programs****DUAL DEGREE PROGRAMS**

- Master of Science in Nursing Administration/Master of Business Administration (MSN/MBA) [57 credit hours]
- Master of Science in Nursing/Master of Science in Health Care Administration (MSN/HCAD) [60 credit hours]

**JOINT DEGREE (MSN FROM UT ARLINGTON AND MPH FROM UNIVERSITY OF NORTH TEXAS HEALTH SCIENCE CENTER IN FORT WORTH)**

- Master of Science in Nursing/Master of Science in Public Health (MSN/MPH) [57 Credit hours]

**DNP Degree Requirements**

A degree plan is developed for the student upon admission to the DNP Program. Students are required to have any changes in planned program approved by the DNP Graduate Advisor prior to registration. The DNP Program includes 33 semester hours of required courses and 3 semester hours of elective. Students will select 3 semester hours of electives with the guidance of the graduate advisor to support and/or extend their clinical practice. Students will complete a Scholarly Project and Clinical Practica.

**DNP REQUIRED COURSES**

NURS 6302	ISSUES IN STUDYING THE HEALTH OF CULTURALLY DIVERSE AND VULNERABLE POPULATIONS	3
NURS 6320	LEADERSHIP IN HEALTH CARE SYSTEMS	3
NURS 6321	EPIDEMIOLOGY	3
NURS 6323	PRACTICE SCHOLARSHIP	3
NURS 6324	CLINICAL INFORMATION SYSTEMS	3
NURS 6326	PRACTICE SCHOLARSHIP PROJECT	3
NURS 6382	HEALTH CARE POLICY	3
NURS 6620	DNP PRACTICUM I	6
NURS 6621	DNP PRACTICUM II	6
Total Hours		33

**ELECTIVES/INDEPENDENT STUDY**

- Elective courses may be taken in Nursing or other departments of the University.
- Independent study offers the student the opportunity to explore topics of special interest.

**PhD Degree Requirements**

Students are required to have each semester's planned program approved by the Graduate Advisor prior to registration. A minimum of 54 semester hours is required for the degree: 30 hours of core courses, 12 hours of Research Tools, 3-9 hours of individualized area of study, and 9 hours of dissertation.

BSN-to-PhD Students will complete all PhD requirements.

**PHD REQUIRED COURSES (CORE)**

NURS 6301	THEORETICAL EVOLUTION IN SCIENCE	3
NURS 6302	ISSUES IN STUDYING THE HEALTH OF CULTURALLY DIVERSE AND VULNERABLE POPULATIONS	3
NURS 6303	CULTURE OF SCIENCE	3
NURS 6304	MEASUREMENT IN CULTURALLY DIVERSE AND VULNERABLE POPULATIONS	3
NURS 6305	QUALITATIVE RESEARCH	3
NURS 6306	RESEARCH DESIGN	3
NURS 6308	RESEARCH SEMINAR	3



NURS 6309	SCIENTIFIC PRODUCTS: PREPARATION DISSEMINATION (DELIVERY)	3
NURS 6310	PROPOSAL DEVELOPMENT SEMINAR	3
NURS 6321	EPIDEMIOLOGY	3
Total Hours		30

## RESEARCH TOOLS

Advanced statistics	6	
Research practicum	3	
Research tool elective	3	
Total Hours		12

## INDIVIDUALIZED AREA OF STUDY

Minimum of 3 hours of individualized study will be planned in collaboration with the Graduate Advisor.

## DISSERTATION

NURS 6399	DISSERTATION <sup>1</sup>	3
NURS 6699	DISSERTATION <sup>2</sup>	6
NURS 6999	DISSERTATION <sup>2</sup>	9
NURS 7399	DOCTORAL DEGREE COMPLETION <sup>2</sup>	3
Total Hours		21

<sup>1</sup> Graded R/F

<sup>2</sup> Graded R/F/P

## ELECTIVES / INDEPENDENT STUDY

Elective courses may be taken in an area of concentration in other departments.

NURS 6170 & NURS 6270 & NURS 6370 & NURS 6470	INDEPENDENT STUDY IN NURSING and INDEPENDENT STUDY IN NURSING and INDEPENDENT STUDY IN NURSING and INDEPENDENT STUDY IN NURSING <sup>1</sup>	10
NURS 6190 & NURS 6290 & NURS 6390 & NURS 6490	SPECIAL TOPICS IN NURSING and TOPICS IN NURSING and TOPICS IN NURSING and TOPICS IN NURSING	10

<sup>1</sup> Graded P/R/F

## DIAGNOSTIC EVALUATION

Before the completion of the first 18 hours beyond appropriate master's level coursework to assess progress and potential for completion

## COMPREHENSIVE EXAMINATION

Exam scheduled after all coursework and research tools are completed. Guidelines for the comprehensive exam are available in the PhD Student Handbook.

## PROPOSAL DEFENSE

Dissertation Committee reviews the study proposal and meets with the student privately to approve or not approve the proposal.

## DISSERTATION DEFENSE

Open meeting during which student presents study findings and responds to questions posed by the dissertation committee and other attendees. Successful defense of the dissertation is the final step toward completion of the doctoral degree.

## BSN-to-PhD Master's Level Courses

Students accepted into the BSN-to-PhD entry option may select a clinical focus, an administrative focus, or an educator focus for the master's level courses. Those in the clinical focus will take 32 credit hours at the master's level. Students in the administrative focus will take 27 hours at the master's level. Those in the educator focus will take 31 credit hours at the master's level.

### CORE MASTER'S COURSES TAKEN BY ALL BSN-TO-PHD STUDENTS

NURS 5327	EXPLORATION OF SCIENCE AND THEORIES FOR NURSING	3
NURS 5370	INDEPENDENT STUDY IN NURSING	3
NURS 5367	EVIDENCE BASED PRACTICE	3
NURS 5366	PRINCIPLES OF RESEARCH IN NURSING	3
Total Hours		12

### ADMINISTRATION SPECIALTY MASTER'S COURSES

NURS 5311	NURSING MANAGEMENT IN THE HEALTH CARE ENVIRONMENT	3
NURS 5339	ROLES AND FUNCTIONS OF THE NURSE ADMINISTRATOR	3
NURS 5341	FINANCIAL MANAGEMENT IN NURSING	3
NURS 5342	MANAGEMENT OF NURSING OPERATIONS	3
NURS 5343	NURSING LEADERSHIP AND COMPLEX HEALTH CARE SYSTEMS	3
Total Hours		15

### CLINICAL SPECIALTY MASTER'S COURSES

NURS 5315	ADVANCED PATHOPHYSIOLOGY	3
NURS 5418	ADVANCED HEALTH ASSESSMENT AND DIAGNOSTIC REASONING	4
NURS 5361	SPECIAL TOPICS IN CLINICAL PRACTICE	3
Total Hours		10

### EDUCATOR SPECIALTY MASTER'S COURSES

NURS 5302	CURRICULUM DEVELOPMENT AND EVALUATION	3
NURS 5309	TEACHING / LEARNING THEORIES, STRATEGIES, AND EVALUATION	3
NURS 5318	ADVANCED PATHOPHYSIOLOGY FOR NURSE EDUCATORS	3
NURS 5361	SPECIAL TOPICS IN CLINICAL PRACTICE	3
NURS 5326	ADVANCED ASSESSMENT FOR NURSE EDUCATORS	3
NURS 5319	ADVANCED PHARMACOLOGY FOR NURSE EDUCATORS	3
Total Hours		18

## Post-Master's Nurse Practitioner Certificates

The nurse practitioner certificate enables individuals with a Master's Degree in Nursing to be recognized by the Board of Nursing as an Advanced Practice Registered Nurse and to take a national certification exam in their area of specialization. Certificate students must complete the required courses for the nursing specialty area and functional role.

- Adult Gerontology Acute Care Nurse Practitioner
- Acute Care Pediatric Nurse Practitioner
- Adult Gerontology Primary Care Nurse Practitioner
- Family Nurse Practitioner
- Neonatal Nurse Practitioner
- Primary Care Pediatric Nurse Practitioner
- Family Psychiatric Mental Health Nurse Practitioner

## Master's Nursing Certificates

Two certificates in Nursing Education are available through the College of Nursing.

## NURSE EDUCATOR

A 6-hour certificate that includes two education courses.

NURS 5302	CURRICULUM DEVELOPMENT AND EVALUATION	3
NURS 5309	TEACHING / LEARNING THEORIES, STRATEGIES, AND EVALUATION	3
Total Hours		6

## ADVANCED NURSE EDUCATOR ROLE

A 12-hour certificate that includes four educator courses.

NURS 5302	CURRICULUM DEVELOPMENT AND EVALUATION	3
NURS 5309	TEACHING / LEARNING THEORIES, STRATEGIES, AND EVALUATION	3
Select two of the following:		6
NURS 5308	NURSING INFORMATICS	
NURS 5329	ROLE OF THE NURSE EDUCATOR	
NURS 5360	SIMULATION APPLICATION IN NURSING	
Total Hours		12

# Nursing - Undergraduate Programs

## Bachelor of Science in Nursing Degree

The undergraduate nursing degree consists of two programs, BSN and RN to BSN. We offer two delivery options: traditional in-the-seat and online (off campus). The off campus Academic Partnership Program (AP BSN and AP RN-BSN) is an online format developed by UT Arlington's College of Nursing to serve nurses in Texas and beyond by offering high quality, affordable and convenient nursing programs. As there are some differences in policies between the programs, there may also be differences between the traditional program and the online program; those will be noted throughout the catalog.

The faculty of the College of Nursing takes academic honesty and ethical behavior very seriously. Nurses are entrusted with the health, safety and well-being of the public. Students found guilty of academic dishonesty will be punished to the full extent permitted by the rules and regulations of UT Arlington.

### BSN (PRELICENSURE) PROGRAM

This is a four-year program consisting of nursing courses, university core courses and other prerequisite required courses. Upon successful completion of the program, the student is awarded the Bachelor of Science in Nursing degree and is eligible to take the National Council Licensure Examination (NCLEX) for licensure as a Registered Nurse.

### RN TO BSN PROGRAM

This program is designed for Registered Nurses who have completed an accredited Associate Degree or Diploma nursing program. Full-time students may complete the upper division nursing courses in one academic year. Upon successful completion of the program, the student is awarded the Bachelor of Science in Nursing degree.

## UNDERGRADUATE OUTCOMES - FOR THE BSN DEGREE

The University of Texas at Arlington Undergraduate Nursing Program prepares graduates to provide professional nursing care to persons/clients (individuals, families, groups, and communities) in diverse settings through the roles of provider of care, coordinator of care, and member of the profession.

On completion, the graduate will be able to:

- Apply the art and science of nursing using current evidence in the delivery of competent, culturally sensitive, developmentally appropriate holistic care.
- Utilize analytical, systematic, and critical reasoning for clinical judgment and nursing decision-making.
- Demonstrate accountability and responsibility for: optimal nursing care, legal and ethical standards, lifelong learning, professional development, promoting the nursing profession, and participating as a citizen in society.
- Collaborate and communicate respectfully and effectively with persons/clients and interdisciplinary teams using oral, nonverbal, written and electronic communication to promote and maintain optimal health outcomes to persons/clients.
- Demonstrate ethical behaviors and conflict management skills that inspire others and create effective working relationships to shape and implement change.

- Coordinate human and material resources in providing comprehensive, efficient, and cost-effective care to persons/clients.
- Articulate the importance of active and intentional life-long learning that includes self-reflection and awareness.
- Utilize standards of practice to provide safe nursing care in all patient care settings with an awareness of one's role in preventing errors and promoting quality improvement.
- Access and utilize information and computer sciences to perform nursing functions.

## **BSN Prelicensure Program**

### **ESSENTIAL PERFORMANCE STANDARDS FOR ADMISSION AND PROGRESSION IN THE COLLEGE OF NURSING**

It is the philosophy of the University of Texas at Arlington College of Nursing (UTACON) that the baccalaureate program is designed to prepare a competent, self-directed, general practitioner of nursing who can assume increasing responsibility and leadership in the delivery of nursing care. In consideration of the preparation of a general practitioner, all individuals who apply for admission and are enrolled in the undergraduate program must be able to perform the essential functions of a student of nursing.

The College of Nursing has identified areas of essential functioning: communication, hearing, visual and motor. The student enrolled in the program must demonstrate mastery of components comprising each of the four areas. Because providing direct patient care is physically demanding, students need to meet the physical requirements of a staff nurse in the same setting in which they are completing a clinical rotation.

Qualified applicants are admitted without discrimination with regard to race, color, national origin or ancestry, gender, age, religion, sexual orientation, veteran status or disability (reasonable accommodations will be made within the Americans with Disabilities Act guidelines).

More detailed information is available on the nursing website [www.uta.edu/nursing](http://www.uta.edu/nursing) in the Student Handbook.

### **ADMISSION REQUIREMENTS**

Students may be admitted as freshmen or may transfer to UT Arlington upon meeting the admission or transfer requirements established by the University. Students who designate themselves as nursing majors will be advised by the College of Nursing in Undergraduate Student Services. Official transcripts must be submitted to the UT Arlington Office of Admissions, Records and Registration.

**NOTE:** All freshmen are advised by University College.

### **BSN students desiring admission to the sequence of upper-division nursing courses leading to the degree of Bachelor of Science in Nursing must:**

- Submit College of Nursing application and official transcripts by January 5 for following fall semester or June 1 for following spring semester.
- Complete with a C or better all specified nursing prerequisites and pre-nursing courses (FS-NURS 1300 Introduction to Professional Nursing; N3366 Pathophysiologic Processes: Implications for Nursing, and N3365 Pharmacology in Nursing Practice) prior to starting Junior I nursing courses. (See lower-division course list for details.)
- Have a minimum of 48 Freshman/Sophomore prerequisites/core credits prior to the Junior I semester.
- Complete 12 or more prerequisite science credit hours at time of application.
- Have 2 GPAs calculated: science and prerequisite.
- Have minimum science and prerequisite GPAs of 2.75.
- Completion of designated sections of the Health Education Systems, Inc. Admissions Assessment Exam (HESI A2) with the following minimum scores:
  - Grammar: 75%
  - Math 75%, however, if accepted to the program, students scoring between 75-79% on the math portion of the HESI A2 will be required to complete a math remediation program prior to beginning the program.
  - Reading Comprehension: 75%
  - Vocabulary: 75%
- Learning Styles and Personality are also required; however, the results are not part of the application criteria.

Admission to Junior level (upper-division course work) is by ranking order based on space available.

### **Additional consideration will be given to applicants who complete the following by the application deadline:**

- Thirty (30) or more required College of Nursing prerequisite lower division credit hours earned at UT Arlington
- Twelve (12) or more required College of Nursing prerequisite lower-division natural science credit hours earned at UT Arlington.
- Nine (9) hours of UT Arlington Honors College courses (Must be active in Honors College) (On-campus only)
- Nine (9) hours of UT Arlington ROTC courses (Must be active in ROTC) (On-campus only)
- Previous baccalaureate, masters or doctorate degree earned in the United States.

**NOTE:** Students entering the Academic Partnership BSN off-campus program must complete all prerequisites including the upper division elective prior to beginning the program. Priority will be given to off-campus AP applicants employed by partner hospital systems offering clinical sites during that semester of admission. Partner hospital clinical sites vary each semester. To receive off campus AP priority, applicant must be employed at the time of ranking and the first day of class. Employment at a partner hospital is not a guarantee of admission into the upper-division nursing program.

## LOWER DIVISION COURSES

Students must complete all nursing prerequisites and Sophomore level nursing courses with a C or better. A grade of D or lower in a prerequisite course indicates unsatisfactory preparation for further nursing education. Any such course in which a D or lower is received must be repeated before enrolling in any nursing course. This requirement is subject to the Two-Attempt Rule. Under this policy, each course taken at UT Arlington and/or any other approved institution may be attempted a maximum of two times to earn a passing grade. By the second attempt a grade of "C" or better must be earned.

- Withdrawals (W) are exempt from this policy
- Any non-passing grade is valid for a five year period. At the conclusion of five years, a non-passing grade is no longer considered an attempt.

## CRITERIA FOR READMISSION OF STUDENTS

Students who withdraw from the UT Arlington College of Nursing Program for more than one semester in good standing who wish to return to complete the program must submit a written request for readmission to Undergraduate Student Services (USS) by the following deadlines:

Returning spring –November 15

Returning fall- April 15

- Readmission is dependent upon space availability.
- A student is eligible for readmission to the program only once.
- If a clinical course is to be repeated, the student must repeat both the theory and clinical components of the course.
- Student must repeat the drug screening process.

Criteria for Readmission:

One semester:

- All of requirements listed above plus:
- Completion of a clinical skills assessment at the Smart Hospital™. This assessment will be completed no later than three weeks prior to the start of the semester in which the student is planning to return. The assessment will focus on the skills associated with the last clinical course completed. Input related to skills to be assessed may be sought from faculty in the previous course(s) completed. Should clinical deficiencies be identified, Smart Hospital™ or other designated faculty will remediate clinical skill areas that are questionable or inadequate and provide the results to the lead teacher of the course the student is scheduled to enter. Failing to demonstrate adequate clinical skills after three attempts will result in the student being required to retake the last clinical course taken to re-establish clinical competency.
- If the student is in the AP BSN program, he/she will be required to come to the UT Arlington campus to complete the special skills assessment.

Two Semesters:

- All of requirements listed above plus:
- Satisfactory scores on previous HESI exams Student must take NURS 2232 if they score below 850 on more than one end of course HESI.
- As the school adopts standardized tests, satisfactory scores covering previous nursing courses must be achieved (i.e. mid-curricular tests).
- Repeat criminal background check if more than one year.

More than two semesters:

- Not eligible for readmission. Student must apply for admission as a beginning student.

## TOEFL REQUIREMENT

Applicants must receive a minimum score, as defined by the University, on the Test of English as a Foreign Language (TOEFL) if the applicant's native/first language is not English and if he or she does not hold a bachelor's or higher degree from an accredited U.S. institution. The exam is required for admission to the College of Nursing even if the student has met one of the stated University exemptions for the TOEFL.

Applicants who have graduated from secondary schools or colleges in the following countries are exempt from the TOEFL: Anguilla, Antigua, Australia, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Canada (except Quebec), Cayman Islands, Dominica, Grenada, Grand Cayman, Guyana, Ireland, Jamaica, Liberia, Montserrat, New Zealand, Sierra Leone, St. Kitts and Nevis, St. Lucia, St. Vincent, Trinidad/Tobago, Turks and Caicos Islands, and United Kingdom.

Students who are not exempt based on the countries listed above, but who can provide documentation of attendance and graduation from a secondary English speaking school in their native country or the US, will be exempt from the requirement.

## **TRANSFER FROM ANOTHER NURSING PROGRAM**

Nursing transfer students are defined as those students who have successfully completed prerequisite courses with a C or above and Junior I courses for the BSN Program: Holistic Health Assessment and Clinical Nursing Foundations at another college or university. Students who have not completed the required courses will be ranked with the incoming junior class. Admission as a transfer student to the College of Nursing is contingent upon available space. Transfer students must attend orientation. Students may not transfer into the AP BSN Program.

- Transfer students must transfer all nursing courses and the grade received from those courses.
- Minimum required HESI A2 scores as stated on the admission brochure.
- The student must submit a course syllabus and a content outline of the course(s) to Undergraduate Student Services. If the course is a clinical course, a list of nursing skills learned in the course(s) must also be submitted.
- The lead teacher in the course, using the Field of Study Criteria Guidelines and other criteria related to the course, will review courses provided by the student for substitution of UT Arlington courses. Faculty may request additional information to clarify their decision. The course is then accepted as a substitution for a core nursing course, as an elective, or denied.

Students must submit:

- Letter from previous school stating that the student is in good standing

Students must have:

- Minimum 2.75 GPA in the prerequisite natural science and prerequisite lower-division courses.
- No D's or F's in nursing courses
- Must meet application deadlines of:
  - April 1 - Fall Semester
  - October 1 - Spring Semester

Processing of the transfer procedure will not be initiated until the student has applied to the College of Nursing.

## **ORIENTATIONS**

All Junior I BSN students and transferring students are required to attend the general orientation held prior to the fall and spring semesters.

Clinical orientation is mandatory for all BSN students, as established by the Dallas/Fort Worth Hospital Council. BSN students are required to attend Junior Level and Senior Level Orientation annually.

- BSN students - prior to Junior I clinical courses and Senior I clinical courses. Part-time and transfer students must attend annually.

## **HONORS DEGREE IN NURSING**

Nursing students who wish to graduate with an Honors Degree in Nursing must be members of the Honors College in good standing. Students must complete the Nursing degree requirements and the requirements of the Honors College. Contact the College of Nursing Honors Coordinator for further information.

## **SPECIAL PARAPHERNALIA/EQUIPMENT REQUIREMENTS**

All Nursing students entering the Undergraduate BSN pre-licensure program are required to have equipment that is required by health care settings in which students have practice experiences. A complete list of requirements is outlined in the College of Nursing Student Handbook at: <http://www.uta.edu/nursing/bsn-program/>.

All students enrolling in courses/programs must have access to a reliable computer, internet connection, and updated software that meet program specifications. A list of computer specifications is outlined on the College of Nursing website [www.uta.edu/nursing](http://www.uta.edu/nursing).

Smart Phone or similar device highly recommended.

## **IMMUNIZATIONS**

Persons accepted to the College of Nursing must be immunized or provide information reflecting immunization as required by the College of Nursing. Specific requirements are listed on the College of Nursing website [www.uta.edu/nursing](http://www.uta.edu/nursing).

## **CERTIFICATION-CARDIOPULMONARY RESUSCITATION**

Undergraduate nursing students are required to obtain American Heart Association Basic Life Support (BLSC) CPR for Healthcare Providers.

Evidence of current CPR certification is required during clinical course enrollment from admission to graduation. The CPR must be valid throughout an entire semester with a clinical. If the current card will expire during the semester, the student must retake the course and have a card that will not expire during the semester.

## **HEALTH INSURANCE COVERAGE**

All UT Arlington nursing students enrolled in clinical course(s) will be required to provide verification of medical insurance coverage that includes Emergency Department evaluation and follow-up treatment for needle-stick and blood borne disease exposure. This mandatory clinical requirement has been authorized by The University of Texas System Board of Regents.

As such, UT Arlington will not cover initial and follow up treatment for needle-stick injuries and/or exposure to blood borne diseases which may occur while students are enrolled in clinical courses.

While the UT Arlington College of Nursing recognizes the financial impact this clinical requirement presents for students, we also support the need for students to have health coverage for sudden illness, accidents, emergencies and exposure treatments that may occur in the clinical setting in a variety of clinical agencies.

## **DRUG SCREEN POLICY**

Confirmation of a positive drug screening will result in removal from clinical courses for a period of one calendar year. Upon returning to the program, random drug screenings will be conducted throughout the program. A second positive test will render the student ineligible to continue in the program.

Random and / or for cause drug screens are at the student's expense and must be conducted at the UT Arlington Health Center or a Quest Preferred site for Off-Campus Accelerated BSN students. Failure to undergo a drug screen on the designated day will result in immediate withdrawal from the nursing program.

## **CRIMINAL BACKGROUND SCREEN**

A student with a positive criminal background screen will not be admitted into the program without a Declaratory Order from the Texas Board of Nursing stating that the individual has been granted permission to write the National Council Licensure Examination for Registered Nurses (NCLEX-RN Examination) upon completion of the requirements for graduation and payment of any required fees. Eligibility to take the NCLEX-RN Examination may be affected by any inaccuracies in the petition, and any subsequent violations of the Nursing Practice Act that may affect eligibility to sit for the examination or the later revocation of a license obtained through misrepresentation.

## **ELIGIBILITY TO WRITE THE NATIONAL COUNCIL LICENSURE EXAMINATION FOR REGISTERED NURSES (NCLEX RN) - DECLARATORY ORDERS**

The Texas Board of Nursing (BON) has set out guidelines and criteria on the eligibility of persons with criminal convictions to obtain a license as a registered nurse. The BON may refuse to admit persons to its licensure examinations, may refuse to issue a license or certificate of registration, or may refuse to issue a temporary permit to any individual who has any criminal offense. Detailed information related to determining eligibility and required processes to determine eligibility for your specific circumstances is available from the Texas Board of Nursing and on their Web site ([www.bon.state.tx.us](http://www.bon.state.tx.us) (<http://www.bon.state.tx.us>)).

## **PROFESSIONAL LIABILITY INSURANCE**

Nursing students are required to have evidence of professional liability insurance coverage for a minimum of \$1,000,000 limit each claim and \$3,000,000 limit aggregate. The charge for coverage will be assessed as a mandatory fee at the time of registration.

## **FEES**

Course fee information is available at [www.uta.edu/fees](http://www.uta.edu/fees). Additional costs beyond tuition, fees and books that may be incurred by a nursing student will include those items listed in the catalog under the Special Paraphernalia / Equipment Requirements and detailed on the College of Nursing website [www.uta.edu/nursing](http://www.uta.edu/nursing). In addition, some clinical agencies charge a nominal fee for parking passes and utilizing their scrubs.

## **ORAL COMMUNICATION PROFICIENCY REQUIREMENT**

Oral proficiency is recognized to be a critical component of providing safe nursing care. In addition to content-specific presentations in various nursing courses, all nursing students are required to communicate effectively with clients, members of the health care team, and faculty. Contact Undergraduate Program Director for more information.

## **E-MAIL ACCOUNTS**

Each student will be provided a UT Arlington e-mail address. Official communications from the College of Nursing will be distributed to this e-mail address and Blackboard accounts required by many courses. Students will be held responsible for information distributed in this manner.

## **NURSING COURSE WITHDRAWAL POLICY**

Students within the program, enrolled in an upper division NURS course, are permitted to drop the course one time. Upon attempting the course for the second time, the earned grade is retained. Students may drop no more than three upper division NURS courses during their undergraduate career.

Elective and pre-nursing courses are exempt from this policy but may be affected by the two attempt policy.

Exceptions to this policy may be entertained because of extraordinary non-academic circumstances.

## **MOVEMENT BETWEEN PROGRAMS**

Students who have started the BSN traditional in-the-seat programs cannot move to the AP off-campus BSN program.

## **OFF CAMPUS AP BSN STUDENTS WHO DROP OR FAIL A COURSE**

Students who either withdraw from or fail a Jr I AP-BSN course can repeat that course online the next time the course is offered for the same partner or at another partner hospital if space is available. Students who have not successfully completed Jr I courses cannot move to the on-campus program. If a student requests to move to the on-campus program, they will be placed in the pool of students applying for the next on campus program start date. Off campus AP students will be ranked along with the other applicants who are in the pool and will not be given preference because they had previously been accepted into the off campus AP-BSN program.

AP-BSN students who withdraw or fail a course in Jr II, Sr I, or Sr II can repeat the course online with the same partner hospital the next available time the course is offered, or at another partner hospital if space is available. If the student requests to move to the traditional, in-the-seat program, and they have successfully completed Junior 1 courses, they may do so if space is available in the classroom and clinical. Refer to the below order of preference for clinical placement guidelines.

- Students who seek readmission after withdrawing for any reason will be placed at the same partner site at the next admission date.
- If the partner is not providing a site when the student requests to return, the student who has withdrawn will be placed at another site dependent upon available space. (The site has filled all of their partnered seats and has un-partnered seats open)\*
- Students who seek readmission after failing a course will be placed at the same partner site that next admission date.
- If the partner is not providing a site when the student requests to return, the student who has failed a course will be placed at another site dependent upon available space, (The site has filled all of their partnered seats and has an un-partnered seat open)\*
- If no sites are available, the student will have to wait until a seat is available at a future admission date.
- Students who have completed Jr. 1, or above, and are wishing to move to the on-campus program will follow the guidelines in the "Student Movement" policy.

\*If there are more students than seats available, the students will be placed in the order in which they request the move (first come, first placed).

## **CLINICAL COURSES**

To pass a clinical course, the student must pass both the didactic and the clinical components of that course.

## **CLINICAL ATTENDANCE DURING SCHEDULED UNIVERSITY CLOSINGS**

Some programs in the College of Nursing, such as the Off-Campus AP BSN Program, may require students to attend clinical on evenings, nights, weekends, or holidays. Students are expected to attend their assigned clinical rotation as scheduled, even when the University is otherwise scheduled for closure, i.e. Spring Break. This policy does not include inclement weather closings.

## **PROGRESSION**

Students in the BSN Program will not be permitted to continue in the nursing program nor to enroll for additional courses if they:

- Receive a grade of D or F in more than one nursing course including Pathophysiology and Pharmacology or
- Receive any combination of grades of D or F on two attempts of the same course.
- Do not obtain a passing score on the HESI Comprehensive Exam
- The University grade replacement / exclusion policy is limited by the College of Nursing and is not applicable to nursing courses.

A student in the RN to BSN Program who earns a second D or F in a nursing course will be placed on probation. The student must earn a C or above in all subsequent courses in order to remain in the program.

## **REQUIRED TESTING**

Students are required to take nationally normed tests throughout the Junior and Senior years of the BSN program and to make a satisfactory score on such tests. In the Senior year, students are required to take a comprehensive exam and to make a satisfactory score on such an exam prior to graduation.



## RN to BSN Program

### ESSENTIAL PERFORMANCE STANDARDS FOR ADMISSION AND PROGRESSION IN THE COLLEGE OF NURSING

It is the philosophy of the University of Texas at Arlington College of Nursing (UTACON) that the baccalaureate program is designed to prepare a competent, self-directed, general practitioner of nursing who can assume increasing responsibility and leadership in the delivery of nursing care. In consideration of the preparation of a general practitioner, all individuals who apply for admission and are enrolled in the undergraduate program must be able to perform the essential functions of a student of nursing.

The College of Nursing has identified areas of essential functioning: communication, hearing, visual and motor. The student enrolled in the program must demonstrate mastery of components comprising each of the four areas.

Qualified applicants are admitted without discrimination with regard to race, color, national origin or ancestry, gender, age, religion, sexual orientation, veteran status or disability (reasonable accommodations will be made within the Americans with Disabilities Act guidelines).

More detailed information is available on the nursing website [www.uta.edu/nursing](http://www.uta.edu/nursing) in the Student Handbook.

### ADMISSION REQUIREMENTS

Students may be admitted or may transfer to UT Arlington upon meeting the admission or transfer requirements established by the University. Students who designate themselves as nursing majors will be advised by the College of Nursing in Undergraduate Student Services. Official transcripts must be submitted to the UT Arlington Office of Admissions.

#### Registered nurses desiring admission to this program must:

- Complete listed prerequisites with a minimum prerequisite GPA of 2.5
- Meet the TOEFL requirement (if applicable)
- Have a current license as an RN in the U.S.A.

### CREDIT BY RN LICENSURE

Transcripts of RN students are evaluated with consideration of the Coordinating Board Field of Study Curriculum guidelines. Credit is given for all courses listed in the Field of Study Curriculum as transferable as well as any additional courses that may be applicable for transfer for a total of 28 hours.

#### Certain other conditions apply:

- If the student earned one D or F in a nursing course at another college or school of nursing, they will be admitted unconditionally. If the student earns a subsequent D or F at UT Arlington, he/she will be placed on probation. The student must earn a C or above in all subsequent courses in order to remain in the program.
- If the student has earned more than one D or F, but no more than two, in nursing courses at another college or school of nursing, the student will enter UT Arlington on a probationary basis. The student must earn a C or above in all subsequent courses at UT Arlington in order to remain in the program.

### TOEFL REQUIREMENT

Applicants must receive a minimum score, as defined by the University, on the Test of English as a Foreign Language (TOEFL) if the applicant's native/first language is not English and if he or she does not hold a bachelor's or higher degree from an accredited U.S. institution. The exam is required for admission to the College of Nursing even if the student has met one of the stated University exemptions for the TOEFL.

Applicants who have graduated from secondary schools or colleges in the following countries are exempt from the TOEFL: Anguilla, Antigua, Australia, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Canada (except Quebec), Cayman Islands, Dominica, Grenada, Grand Cayman, Guyana, Ireland, Jamaica, Liberia, Montserrat, New Zealand, Sierra Leone, St. Kitts and Nevis, St. Lucia, St. Vincent, Trinidad/Tobago, Turks and Caicos Islands, and United Kingdom. Students who are not exempt based on the countries listed above, but who can provide documentation of attendance and graduation from a secondary English speaking school in their native country or the US, will be exempt from the requirement.

### ORIENTATION

All Junior RN-BSN students and transferring RN-BSN students are required to attend the general orientation held prior to entering their Junior semester.

### PROGRESSION

The University grade replacement/exclusion policy is limited by the College of Nursing and is not applicable to nursing courses.

- A student in the RN to BSN Program who earns a second D or F will be placed on probation. The student must earn a C or above in all subsequent courses in order to remain in the program.

## FEES

Course fee information is available at [www.uta.edu/fees](http://www.uta.edu/fees). Additional costs beyond tuition, fees and books that may be incurred by a nursing student in this program will be detailed on the College of Nursing website [www.uta.edu/nursing](http://www.uta.edu/nursing).

## ORAL COMMUNICATION PROFICIENCY REQUIREMENT

Oral proficiency is recognized to be a critical component of providing safe nursing care. In addition to content-specific presentations in various nursing courses, all nursing students are required to communicate effectively with clients, members of the health care team, and faculty. Contact Undergraduate Program Director for more information.

## E-MAIL ACCOUNTS

Each student will be provided a UT Arlington e-mail address. Official communications from the College of Nursing will be distributed to this e-mail address and Blackboard accounts required by many courses. Students will be held responsible for information distributed in this manner.

## MOVEMENT BETWEEN PROGRAMS

Normally students who have started the RN to BSN traditional in-the-seat programs cannot move to the AP:RN-BSN online program.

## BSN Prelicensure Program

### PRIOR TO ENROLLMENT

The following semester hours must be completed prior to enrollment in upper-division nursing courses except as noted:

#### Natural Sciences

Human Anatomy and Physiology I and II <sup>1,2,3,4</sup>	8
Microbiology <sup>2,4</sup>	4
General Chemistry and Biological Chemistry <sup>2,4</sup>	4

#### Behavioral Sciences

Introduction to Psychology <sup>4</sup>	3
Sociology or Anthropology <sup>3,4,5</sup>	3
Developmental Psychology (Lifespan) <sup>4</sup>	3

#### Nursing

FS-NURS 1300	INTRODUCTION TO PROFESSIONAL NURSING <sup>4</sup>	3
NURS 3365	PHARMACOLOGY IN NURSING PRACTICE <sup>4</sup>	3
NURS 3366	PATHOPHYSIOLOGIC PROCESSES: IMPLICATIONS FOR NURSING <sup>4</sup>	3

#### Other

Creative Arts (architecture, art, dance, music or theatre arts) <sup>3,5</sup>		3
MATH 1301	CONTEMPORARY MATHEMATICS (An applicant taking math at UT Arlington is encouraged to complete Contemporary Mathematics (MATH 1301)) <sup>3</sup>	3
An applicant taking math at UT Arlington is encouraged to complete Contemporary Mathematics (MATH 1301)		3
Statistics <sup>3,4</sup>		3
U.S. History I and II <sup>3,5,6</sup>		6
U.S. and Texas Government <sup>3,5,6</sup>		6
English Composition I and II <sup>3</sup>		6
English Literature <sup>3,5</sup>		3
Technical Writing <sup>4</sup>		3
Total Hours		67

- 1 If part of a two-semester sequence, both courses are required.
- 2 Must contain a lab component.
- 3 Degree Plan Core Curriculum courses.
- 4 Degree Plan Program Specific courses.
- 5 On-campus students may complete after enrollment in junior nursing courses.

<sup>6</sup> House Bill 935, passed by the Sixtieth Legislature, provides that no person may receive an undergraduate degree unless she/he has taken and passed six semester hours in American political science and six semester hours in United States history.

**Note:** AP BSN students must complete all courses, including the upper division elective, prior to enrollment in junior nursing courses.

## SUGGESTED COURSE SEQUENCE

The following semester hours must be completed for graduation.

Third Year					
First Semester	Hours	Second Semester	Hours	Summer Session	Hours
NURS 3320	3	NURS 3481	4	Upper-division electives	3
NURS 3333	3	NURS 3561	5		
NURS 3632	6	NURS 3321	3		
		NURS 3261	2		
	<b>12</b>		<b>14</b>		<b>3</b>
Fourth Year					
First Semester	Hours	Second Semester	Hours		
NURS 4431	4	NURS 4350	3		
NURS 4441	4	NURS 4462	4		
NURS 4581	5	NURS 4351	3		
		NURS 4223	2		
	<b>13</b>		<b>12</b>		

Total Hours: 54

## RN to BSN Program PRIOR TO ENROLLMENT

### Natural Sciences

Human Anatomy and Physiology I and II <sup>1,2,3,4,5</sup>	8
Microbiology or Bacteriology <sup>2,4,5</sup>	4

### English

Composition I and II <sup>3,6</sup>	6
Literature <sup>3,5</sup>	3
Technical Writing or Equivalent <sup>4,6,7</sup>	3

### History and Government

American History I and II <sup>3,5,8</sup>	6
U.S. Government and Texas State and Local Government <sup>3,5,8</sup>	6

### Behavioral Sciences

Introduction to Psychology <sup>4,5</sup>	3
Sociology or Anthropology <sup>3,4,5</sup>	3
Development Psychology (Lifespan) <sup>4,5</sup>	3

### Other

Fine Arts (architecture, art, dance, music or theatre arts) <sup>3,5</sup>	3	
MATH 1301	CONTEMPORARY MATHEMATICS (An applicant taking math at UT Arlington is encouraged to complete Contemporary Mathematics (MATH 1301)) <sup>3</sup>	3

Statistics <sup>3,4,6</sup>	3
Upper division elective <sup>5,9</sup>	3
1 If part of a two-semester sequence, both courses are required.	
2 Must contain a laboratory component.	
3 Degree Plan Core Curriculum courses.	
4 Degree Plan Program Specific courses.	
5 May be completed after enrollment in nursing program.	
6 Course must be completed with a grade of C or above prior to enrolling in the nursing program.	
7 Technical Writing is preferred. Equivalents include Literature, Speech, or Philosophy, as long as the courses are sophomore-level or higher, have a writing component, and are approved by an advisor.	
8 House Bill 935, passed by Sixtieth Legislature, provides that no person may receive an undergraduate degree unless she/he has taken and passed six semester hours in American political science and six semester hours in United States history.	
9 The upper division elective course is in addition to the 3 credit hour upper division nursing elective requirement included in the 35 credit RN to BSN Nursing Course listing. This general 3 credit requirement can be met by taking any upper division elective course (including a second nursing elective), or by providing documentation of being certified through a nationally recognized nursing certification examination, or by completing a work-based project in the Nursing Cooperative Education (Co-Op) Program	

## COURSE SEQUENCE

Third Year	Hours
NURS 3325	3
NURS 3645	6
NURS 3425	4
NURS 3355	3
Upper-division nursing electives <sup>1</sup>	3
	<b>19</b>
Fourth Year	Hours
NURS 4325	3
NURS 4455	4
NURS 4465	4
NURS 4585	5
	<b>16</b>
<hr/>	
Total Hours: 35	

<sup>1</sup> Elective credit may be awarded for national certifications. Electives may be taken as a junior or as a senior.

# College of Science

---

## UNDERGRADUATE:

### Overview

Pursuit of knowledge through scientific study has been the cornerstone of human accomplishment throughout history. The College of Science continues this tradition by providing undergraduate students with curricula that allow exploration and mastery of both the basic concepts and most recent advances of modern science and preparation for professional scientific careers. The College of Science consists of the departments of Biology, Chemistry and Biochemistry, Earth and Environmental Sciences, Mathematics, Physics, and Psychology. Bachelor of Science (B.S.) and Bachelor of Arts (B.A.) degrees offered by these departments prepare students to pursue a wide variety of rewarding, professional scientific careers or graduate study. Bachelor of Arts and Bachelor of Science degrees are offered in all departments. Bachelor of Arts degrees allow students to develop a broad liberal education with a concentration in science and are particularly appropriate for careers in science teaching. Bachelor of Science degrees provide students with a more intensive background in science, preparing them for advanced graduate study or entry into exciting technological careers in industry, medicine, government, business, or commerce. A wide range of degree options within departmental B.S. programs provide students with career-oriented course work required to pursue professional career paths in specific scientific fields. All departments within the college provide highly accessible student academic and career advising that support customization of degree plans to meet a student's specific career goals.

The College of Science fosters interaction between students and faculty. Faculty actively participate as advisors to student scientific societies and are readily available to assist or advise students both within and outside the classroom. Faculty members in all departments actively participate in research supported by world-class research facilities and modern scientific equipment. Undergraduate science majors are encouraged to engage in research under the supervision of a faculty member of their choice, many of whom have international reputations for their scholarly contributions. Students can receive course credit for supervised research.

Beyond the undergraduate degree, the College of Science offers programs leading to graduate degrees. All departments offer Master of Science degrees (M.S.) that allow students to pursue technologically intensive careers in public or private arenas. A Master of Arts in Science (M.A.I.S.) degree program specifically prepares students for careers as science teachers. The departments of Biology, Chemistry and Biochemistry, Earth and Environmental Sciences, Mathematics, Physics and Psychology offer the Doctor of Philosophy degrees (Ph.D.) that allow students to carry out independent dissertation research within a chosen scientific specialty, leading to careers in research and/or university teaching. The M.S. and Ph.D. degrees offered by the Graduate Program in Environmental Science and Engineering prepare students for careers as environmental professionals. The Graduate Catalog provides details of the college's master's and doctoral degree programs.

Also available to undergraduate students in the College of Science are unique and innovative combined degree programs leading to both a B.S. degree and a graduate or professional degree within an accelerated time frame. These combined degree programs include the five-year Bachelor of Science (B.S.) in Biology/Master of Business Administration (M.B.A.) degree programs in Health Care and Biomedical Sciences Management and a five-year B.S. in Biology/Master of Biomedical Engineering (M.B.E.) degree program (see the Department of Biology section of this catalog for detailed descriptions of these programs).

The College of Science takes pride in offering students outstanding degree programs in all of its departments. These programs are marked by excellent teaching, broad undergraduate research opportunities and superior academic and career advising. Graduates of these degree programs are highly competitive in the job market or when applying to nationally recognized graduate or health professions schools. Please visit the College of Science and speak with one of our advisors. Call 817.272.3491 to make an appointment.

### Opportunities in Science

The future marvels of the 21st century will spring from science just as did those of the 20th century. The human genome project, miracle drugs, efficient fuels, arrays of new synthetic materials, the transistor, the laser, nuclear power, solar energy, computers, the Worldwide Web, global information systems, the electron microscope, nanotechnology, bioinformatics and sophisticated techniques for locating mineral deposits are merely a few examples of the crowning scientific achievements of the past century. Discoveries of similar or greater magnitude lie ahead in this new century as scientists bring their talents to bear on modern society's pressing problems such as alternative energy sources, environmental protection, and improved health care. Students graduating from College of Science degree programs have the unique opportunity to participate in this century of new and unparalleled scientific discovery.

### Requirements for Admission to the College of Science

The University of Texas at Arlington does not admit students to specific degree programs. Instead students wishing to pursue a major in one of the College of Science undergraduate degree programs must apply to the appropriate academic unit for acceptance into that program. Students should familiarize themselves with the general requirements for acceptance to the degree program of their choice as well as the specific requirements for granting of the degree.

## ACADEMIC POLICIES FOR COLLEGE OF SCIENCE MAJORS

In the College of Science, students are required to maintain a minimum overall GPA of 2.25 in all their course work as well as a minimum GPA of 2.25 in their major course work in order to remain in good standing within their degree program. Students whose overall or major GPA falls below 2.25 will be dropped as a major in the College of Science and must select an alternative major.

The general College of Science policy on academic probation may be superseded by more rigorous policies within specific science degree programs.

## ACADEMIC POLICIES FOR SCIENCE MINORS

A science minor consists of 18 credit hours or more in any one of the departments within the college. At least 6 of the 18 hours must be in advanced 3000 or 4000 level courses. All classes that are to be used toward a minor must also be applicable toward a major in the same discipline. Non majors courses may not be applied toward a minor.

A 2.0 grade average must be maintained in the minor in order to be approved by the minor department. All classes for a science minor must be approved by an academic advisor in the minor department. Transfer students must complete at least nine hours toward the minor at UT Arlington, and six of the nine must be 3000 or 4000 level.

## Transfer Students

### Field of Study

Students who complete an approved field of study curriculum in whole or in part will receive academic credit for the equivalent courses within their selected field of study at UT Arlington. To view the field of study curriculums approved by the Texas Higher Education Coordinating Board, visit [www.theccb.state.tx.us](http://www.theccb.state.tx.us) (<http://www.theccb.state.tx.us>).

### Core Complete

Students who transfer from a Texas community college or university and are certified as core complete shall have satisfied the core requirements of UT Arlington. Academic departments may, in some instances, require specific courses outside the major as prerequisites for major course work.

### Academic Standards

Students who wish to be admitted to a department within the College of Science must have a grade point average of 2.25 or higher in all college course work completed prior to application for admission to the UT Arlington College of Science.

## COMPETENCE IN COMPUTER USE

Graduating students are expected to be proficient in the use of computers. Proficiency is considered to be the ability to utilize word-processing, database/spreadsheet, statistical, graphical and other representative software applications in a student's major discipline. Each student should be able to tap the communications, analytical, and information-retrieval potential of computers to solve scientific problems and evaluate research results. Students should consult with their individual department, school or college undergraduate advisors to determine the mechanisms by which they can demonstrate computer competency. A student may be required to pass a proficiency examination or complete a department- or college-designated computer proficiency course to meet this requirement.

## COMPETENCE IN ORAL PRESENTATIONS

Graduating students are expected to have proficiency in oral communication skills including interaction in classroom settings to meet the needs of their course work and utilization of acceptable grammar and pronunciation in formal presentations. Students should consult their individual department, school or college undergraduate advisors to determine the mechanisms by which they can demonstrate oral communication skills competency. A student may be required to pass a proficiency examination or complete a department- or college-designated oral communication skills course to meet this requirement.

## SUBSTITUTIONS FOR MODERN AND CLASSICAL LANGUAGES IN THE COLLEGE OF SCIENCE BACHELOR OF ARTS DEGREE REQUIREMENTS

With the approval of the major advisor and the Dean of Science, a student may substitute two courses in a single area cluster for six hours of a modern or classical language. The area clusters<sup>1</sup>:

### African American Area Cluster

HIST 3365	AFRICAN-AMERICAN HISTORY TO 1865	3
HIST 3366	AFRICAN-AMERICAN HISTORY, 1865-PRESENT	3
POLS 4318	POLITICS OF AFRICAN AMERICANS	3
HIST 4374	AFRICAN HISTORY I	3
HIST 4375	AFRICAN HISTORY II	3
HIST 4376	AFRICAN DIASPORA I	3
HIST 4377	AFRICAN DIASPORA II	3
ENGL 3345	AFRICAN AMERICAN LITERATURE	3

### Mexican Area Cluster

HIST 3368	MEXICAN AMERICAN HISTORY	3
HIST 3369	HISTORY OF LATINO RELIGIONS	3
HIST 4368	HISTORY OF MEXICO	3
POLS 3317	MEXICAN POLITICS AND U.S.-MEXICO RELATIONS	3
POLS 4319	POLITICS OF MEXICAN AMERICANS	3
ENGL 3346	MEXICAN AMERICAN LITERATURE	3

### American Indian Area Cluster

ANTH 3333	NORTH AMERICAN INDIANS	3
ANTH 3350	NORTH AMERICAN ARCHAEOLOGY	3
HIST 3367	AMERICAN INDIAN HISTORY	3
HIST 3370	THE IMAGE OF THE AMERICAN WEST	3

### Russian Area Cluster

ENGL 3301	RUSSIAN LITERATURE IN TRANSLATION	3
HIST 4359	HISTORY OF RUSSIA TO 1855	3
HIST 4360	HISTORY OF RUSSIA SINCE 1855	3
POLS 4365	FOREIGN POLICIES OF RUSSIA AND THE SUCCESSOR STATES	3

### Latin America Area Cluster

ART 3320	ART OF THE ANCIENT AMERICAS	3
HIST 4365	HISTORY OF SPAIN AND PORTUGAL	3
HIST 4366	LATIN AMERICAN HISTORY: ORIGINS THROUGH INDEPENDENCE	3
HIST 4367	LATIN AMERICAN HISTORY: POST-INDEPENDENCE TO THE PRESENT	3
POLS 3316	DICTATORSHIP AND DEMOCRACY IN LATIN AMERICAN POLITICS	3
POLS 4319	POLITICS OF MEXICAN AMERICANS	3

<sup>1</sup> One of ANTH 2322 GLOBAL CULTURES, or ANTH 3331 CULTURE AND PERSONALITY, or LING 2301 INTRODUCTION TO THE STUDY OF HUMAN LANGUAGES, may substitute for three hours in one of the area clusters.

## Premedical/Pre dental and Post Baccalaureate Professional Programs

Advising of premedical/dental/pharmacy/optometry and veterinary medicine students is provided by the Office of the Dean of Science, Room 206 in the Life Science Building. Services for students include preadmission counseling, career counseling, and assistance in applying to professional schools. Many medical and dental schools request a recommendation from the applicant's undergraduate institution. At The University of Texas at Arlington, this recommendation is provided by the Health Professions Advisory Committee. The purpose of the Committee is to interview and evaluate applicants for admission to medical or dental school. Criteria for obtaining a Committee recommendation are established by the Committee and are periodically reviewed. Students planning to apply to professional schools should contact the Health Professions Advisor in the Office of the Dean of Science at least one year prior to making application.

Medical and dental school applicants should begin the application process in January of the year preceding their intended entry to professional school. An applicant's file should be complete, including the Health Professions Advisory Committee evaluation by the following May 1.

Students who plan to enroll for the fall MCAT and DAT examinations are expected to follow the spring application process. The professional schools will hold the applicant's credentials until MCAT and DAT scores are received.

In general, medical and dental school admission committees do not state a preference regarding an applicant's undergraduate major, leaving students to choose a degree program best suited to their special abilities and interests. Therefore, a student may choose any major, after conferring with the Health Professions Advisor, as long as the minimum requirements for admission to the medical or dental school are met.

## Post Baccalaureate Premedical Program

The post baccalaureate premedical program is designed for those students who have previously completed a bachelor's degree and wish to pursue admission to medical school. Since student backgrounds may vary, each post baccalaureate program is custom designed for the individual student. Students in this program may complete premedical requirements in one to two years depending upon their undergraduate major and the time of entry to the program.

Post baccalaureate courses can be completed independently of a structured degree or certificate. The only concern on the part of the medical schools is that all requirements are completed. For those students who wish to receive a certificate in recognition of their studies, the College of Science offers a Certificate in Pre Professional Studies. The certificate requires completion of two upper division biology classes approved by the health professions advisor, two organic chemistry classes (CHEM 2321 ORGANIC CHEMISTRY & CHEM 2181 ORGANIC CHEMISTRY I LABORATORY, CHEM 2322 ORGANIC CHEMISTRY & CHEM 2182 ORGANIC CHEMISTRY II LABORATORY) and the second semester of physics (PHYS 1442 GENERAL COLLEGE PHYSICS II). In order to receive the certificate, students must maintain a 3.6 or higher grade point average in all required courses and the courses must be completed at UTA.

Students pursuing a major in the College of Science who plan to enter a health related profession may pursue courses related to their career goal either as electives or as a minor in Health Studies. A minor in Health Studies consists of 18 hours of course work selected from the following classes. SCIE 4301 ISSUES IN AMERICAN HEALTHCARE is required as a capstone course to pull together a comprehensive picture of healthcare in America.

ANTH 3369	MEDICAL ANTHROPOLOGY	3
BIOL 3309	NON-MAJORS SELECTED TOPICS	3
BIOL 4357	HEALTH PSYCHOLOGY	3
ECON 3301	THE ECONOMICS OF HEALTH (Pre Req. ECON 2306)	3
HEED 1340	HEALTHY LIFESTYLES	3
HEED 3305	WOMEN'S HEALTH ISSUES	3
HIST 3307	HISTORY OF DISABILITY	3
PHIL 1304	CONTEMPORARY MORAL PROBLEMS	3
PHIL 3319	BIOMEDICAL ETHICS	3
POLS 4350	HEALTH POLITICS AND POLICY	3
SCIE 4301	ISSUES IN AMERICAN HEALTHCARE	3
SOCI 4320	MEDICAL SOCIOLOGY	3

## Foreign Clinical Experience

Students who wish to gain experience providing care for underserved persons outside the U.S. may enroll in a summer Foreign Clinical Experience Program jointly coordinated by the School of Nursing and the College of Science. Students in this program first take a class that familiarizes them with the culture of the country they are visiting. They then travel to the host country where they assist in a designated clinical setting. Upon completion of the experience, students submit a paper summarizing what they have learned and are awarded course credit for their experience.

## Allied Health Programs

The University of Texas at Arlington offers prerequisites for a number of programs in the allied health sciences. Career counseling, degree plan evaluation and assistance in procuring hands-on experience are available for students seeking degrees in:

Health Care Administration  
 Physical Therapy  
 Dental Hygiene  
 Physician's Assistant  
 Prosthetics and Orthotics  
 Medical Technology<sup>1</sup>  
 Dietetics

as well as other related fields. These services are offered through the office of the Allied Health Coordinator, Department of Biology, Room 351, Life Science Building.

<sup>1</sup> The program leading to a Bachelor of Science Degree in Medical Technology is described under the Department of Biology.

## Teacher Certification in the Sciences

Programs leading to teacher certification at secondary levels are available in departments of the College of Science in coordination with the College of Education and Health Professions. Included among these are secondary certification in Composite Science offered in the Departments of Biology and Earth and Environmental Sciences; in Life Science offered in the Department of Biology; in Physical Science offered in the Departments of Physics and Chemistry and Biochemistry; in Chemistry offered in the Department of Chemistry and Biochemistry; in Physics/Mathematics offered in the Department of Physics; and in Mathematics offered in the Department of Mathematics. Descriptions of these programs are provided in each department's section of this catalog.



## Transfer Students

Students transferring from other institutions are invited to explore opportunities in the College of Science. Inquiries about the equivalency of their transferred courses and other questions related to transferring are welcome in the Office of the Dean of Science, 206 Life Science Building.

Students who plan to attend junior college or another senior college before entering UT Arlington can receive assistance in planning their course work programs and potentially avoid needless delay of graduation by consulting an advisor in the Office of the Dean of Science (206 Life Science Building) before matriculating.

## Science Constituency Council

The Science Constituency Council is the official representative student organization for the College of Science with Student Government. Meeting twice monthly, the SCC serves both the College and its students. The SCC strives to involve a greater number of students in all aspects of the College of Science. SCC members are majors in the departments of the College. At least half of the voting members are elected during Student Congress elections. Self-nomination is encouraged.

## Science Education and Career Center

501 S. Nedderman Dr. · 106 Life Science Bldg. · 817-272-2129

The Science Education and Career Center is an on-site resource facility designed to support student learning and course work in science and mathematics through self-study modules and a variety of study aids. In cooperation with College of Science faculty, the center offers a full spectrum of multimedia resource materials and study aids for students in biology, chemistry, geology, mathematics, physics and psychology classes. The Science Education and Career Center also provides students with a broad spectrum of information on career opportunities in science and career development presentations from a wide variety of scientific fields. The center also provides students with quiet study areas and a study lounge.

Materials currently available include:

- Videotapes
- VCR viewing stations
- Study guides and sample exams
- Lab notes and solutions manuals
- Interactive CD-ROMs
- Hands-on models
- Science careers resources and counseling
- On-site photocopiers
- Networked computers

## Math Clinic

The Math Clinic is a service provided on a walk-in basis for all math students enrolled in:

MATH 0302	FUNDAMENTALS OF ALGEBRA	3
MATH 1301	CONTEMPORARY MATHEMATICS	3
MATH 1302	COLLEGE ALGEBRA	3
MATH 1303	TRIGONOMETRY	3
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	3
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	3
MATH 1323	PRECALCULUS II	3
MATH 1324	ALGEBRA AND TRIGONOMETRY	3
MATH 1325	ANALYTIC GEOMETRY	3
MATH 1426	CALCULUS I	4
MATH 2326	CALCULUS III	3
MATH 2425	CALCULUS II	4
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3

It is located in Room 325, Pickard Hall, and is open seven days a week during the Fall and Spring semesters and with limited hours during the Summer semesters. The tutors are outstanding undergraduate students with demonstrated abilities for helping students.

## Physics Clinic

The Physics Clinic is a tutoring service provided on a walk-in basis for students enrolled in:

PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4

The tutors include graduate students, faculty and outstanding undergraduates. The location and times are posted in the Physics Department Office, 108 Science Hall.

## Science and Mathematics for the Non-Science Major

The College of Science provides a wide variety of science courses for non-science majors. These courses, including those listed below, have been specifically designed to be applicable to science and mathematics requirements for non-science majors. Non-major students should examine the requirements for their degrees before selecting science courses to meet those requirements. The listed courses are also intended to stimulate interest in science and mathematics beyond the specific degree requirements for non-science majors. The courses named have no prerequisites, few prerequisites, or prerequisites consisting of introductory courses only. The figures in parenthesis indicate the number of hours of instruction per week in the Fall and Spring Semesters. The first figure indicates the amount of time devoted to theory, and the second indicates the amount of time devoted to laboratory work.

### BIOLOGY

BIOL 1301	NUTRITION	3
BIOL 1333	INTRODUCTION TO BIOLOGY I	3
BIOL 1334	INTRODUCTION TO BIOLOGY II	3
BIOL 2317	BASIC CONCEPTS IN HUMAN SEXUALITY	3
BIOL 3303	DRUGS AND BEHAVIOR	3

### CHEMISTRY

CHEM 1300	INTRODUCTORY CHEMICAL PRINCIPLES	3
CHEM 1445	CHEMISTRY FOR NON-SCIENCE MAJORS	4
CHEM 1446	CHEMISTRY II FOR NON-SCIENCE MAJORS	4
CHEM 1451	CHEMISTRY FOR HEALTH SCIENCES	4

### GEOLOGY

GEOL 1360	GEOLOGIC HAZARDS	3
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 1330	GLOBAL WARMING	3
GEOL 1350	INTRODUCTION TO OCEANOGRAPHY	3
GEOL 1350	INTRODUCTION TO OCEANOGRAPHY	3
GEOL 2410	PLANETARY GEOLOGY	4

### MATHEMATICS

MATH 0302	FUNDAMENTALS OF ALGEBRA	3
MATH 1301	CONTEMPORARY MATHEMATICS	3
MATH 1302	COLLEGE ALGEBRA	3
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	3

### PHYSICS

PHYS 1300	INTRODUCTION TO MUSICAL ACOUSTICS	3
PHYS 1301	PHYSICS FOR NON SPECIALISTS I	3
PHYS 1302	PHYSICS FOR NON SPECIALISTS II	3

## PSYCHOLOGY

The psychology courses listed below are of general interest. Such courses contribute significantly to a well-balanced education even though they do not apply to any science requirement.

PSYC 1315	INTRODUCTION TO PSYCHOLOGY	3
PSYC 2317	BASIC CONCEPTS IN HUMAN SEXUALITY <sup>1</sup>	3
PSYC 2443	RESEARCH DESIGN & STATISTICS I	4
PSYC 3301	PSYCHOLOGY OF HUMAN RELATIONS	3
PSYC 3304	ANALYSIS & MANAGEMENT OF BEHAVIOR	3
PSYC 3303	DRUGS AND BEHAVIOR <sup>1</sup>	3
PSYC 3306	PSYCHOLOGY OF CREATIVITY AND CREATIVE THINKING	3
PSYC 3310	DEVELOPMENTAL PSYCHOLOGY	3
PSYC 3311	ADULTHOOD AND AGING	3
PSYC 3312	SOCIAL & PERSONALITY DEVELOPMENT	3
PSYC 3313	CULTURAL PSYCHOLOGY	3
PSYC 3314	PSYCHOLOGY OF PERSONALITY	3
PSYC 3315	SOCIAL PSYCHOLOGY	3
PSYC 3316	ENVIRONMENTAL PSYCHOLOGY	3
PSYC 3317	INTRODUCTION TO CLINICAL AND COUNSELING PSYCHOLOGY	3
PSYC 3318	ABNORMAL PSYCHOLOGY	3
PSYC 3326	ANIMAL BEHAVIOR <sup>1</sup>	3

<sup>1</sup> Course can be taken as biology.

### GRADUATE:

## Mission and Philosophy

The College of Science graduate programs are committed to excellence in graduate education and research and contribute, along with other institutions in this country and throughout the world, to the expansion of scientific knowledge. Graduates of our programs are highly trained and educated scientists who will be able to contribute to the economic and social well-being of our state and nation.

## OVERVIEW

With outstanding departments of Biology, Chemistry and Biochemistry, Earth and Environmental Sciences, Mathematics, Physics and Psychology, the College of Science offers comprehensive graduate studies with our world class faculty and research programs. In addition to providing our students with strong core training in the physical and life sciences, we have a graduate program in Materials Science and Engineering and offer specialized Masters degrees for educators to expand their core science training. Interdisciplinary programs and Research Centers provide students with opportunities to span disciplines, and student research activities are complemented by excellent research facilities and state-of-the-art instrumentation. The College and Departments host a series of seminars to further expose our students to cutting edge science developments.

Master's degrees are offered in all of our departments, and we award Ph.D. degrees in Quantitative Biology, Applied Chemistry, Environmental and Earth Sciences, Mathematics, Applied Physics, Experimental Psychology, and Materials Science and Engineering. For application and entrance requirements, or more on our graduate programs, please call us or visit our Web site at [www.uta.edu/cos](http://www.uta.edu/cos).

## Scholastic Activity and Research Interests of the Faculty

### BIOLOGY

The Department of Biology has a wide array of research programs ranging from molecular through ecosystem levels of integration. The program boasts strengths in ecology and systematics, evolution, microbiology, genomics, and molecular biology, and has active funding from a variety of private and public agencies. The department also hosts centers for genomics, biological macrofouling, electron microscopy and a collection of vertebrates. The research program emphasizes quantitative aspects of biology and provides students with strong training in statistics and experimental design.

### CHEMISTRY AND BIOCHEMISTRY

Research programs include synthetic work on natural products, medically active agents, novel ligands, new catalysts, luminescent materials, photocatalysts, supramolecular and metallosupramolecular compounds, molecular magnetism, molecular recognition, stabilization of reactive intermediates, solar energy conversion and electrically conducting polymers. Biochemical research includes studies of enzymology and molecular biology of bacterial metabolism, and studies on problems involved in anticancer therapy. Physical, analytical and electrochemical research includes studies of colloids and surfaces, electrode modification through thin film surface deposition, MALDI mass spectrometry and characterization of the

electrical properties of polymers and other materials. Theoretical studies involve both a major computational program applying molecular orbital theory to a variety of problems.

## EARTH AND ENVIRONMENTAL SCIENCES

Department research has a strong orientation toward the application of geochemistry, oceanography, geophysics and paleobiology to earth resources and the environment. Current research interests include analysis and modeling of geologic deformational structures, biostratigraphy of accreted terranes of the Pacific Northwest and the middle Permian of West Texas, sedimentology, paleoclimatology, hydrology, fluvial geomorphology, environmental health, and plate tectonics.

## MATHEMATICS

The Department of Mathematics at the University of Texas at Arlington is fast evolving into one of the premier centers in the Dallas/Fort Worth metroplex for mathematics research and education. Our active research faculty have strengths that lie in pure, applied mathematics, statistics, and mathematics education. Many of their research projects are supported by external grants. Recent faculty scholarly accomplishments attest to the high quality of research. The research interests of the faculty in the Mathematics Department include the following areas:

**Algebra:** homological theory of commutative Noetherian rings; noncommutative algebra using geometric methods: symbolic computations; representations of Lie Algebras and superalgebras.

**Differential Equations, Integral Equations and Dynamical Systems:** geometric study of integrable Hamiltonian systems; stability and instability of solitary waves; nonlinear dispersive waves; free boundary problems related to phase transition and multi-fluid flow; stochastic differential equations; control theory; inverse problems; computerized tomography.

**Geometry:** birational algebraic geometry and Mori theory; differential geometry and inverse spectral geometry; finite geometry related to nonassociative division algebras.

**Mathematical Biology:** mathematical modeling of microbial populations, biofilms and competition dynamics; population biology and epidemiology; neuronal dynamics.

**Mathematical Statistics, Probability Theory and Stochastic Process:** multivariate analysis, statistical inference, sample survey and statistical process control; stochastic processes and applications to stochastic differential equations, random graphs, path integrals, quantum mechanics.

**Mathematical Education:** mathematics program development, impact of reform mathematics learning strategies on mathematics teaching, mathematics problem solving for teaching.

**Numerical Analysis:** numerical solutions to ordinary and partial differential equations; moving grid, multigrid and multilevel adaptive methods; fluid dynamics (mechanics); numerical simulation and scientific computation; numerical combustion; software development.

## PHYSICS

Current research in the department is primarily in the areas of condensed matter physics, materials science and high energy physics. The theoretical condensed matter group is engaged in cluster, electron transport, electronic structure, molecular dynamics and path integral computations having relevance to the chemical, electrical and magnetic properties of surfaces, metals and semiconductors. The experimental condensed matter group is engaged in studies of diamond coatings, magnetic multilayers, metals, semiconductors and surfaces using electron, positron, optical and magnetic resonance spectroscopies. The experimental high energy group is involved in collider experiments at Fermilab, Brookhaven Laboratory and CERN to study QCD and to search for supersymmetry and other physics beyond the standard model. Other active research areas include high energy theory, optics, parallel computing and statistical physics.

## PSYCHOLOGY

Expertise and research activity include animal behavior, animal and human learning, cognitive processes, social psychology, psychobiology and developmental psychology. Current research interests include group brainstorming, verbal memory and neuropsychology, applied psychological measurement, pain systems, decision processes, naturalistic social cognition, stress, genetic and hormonal determinants of aggressive and defensive behaviors and parent-offspring interactions, sea turtle behavior, and infant mental representation of objects.

## SCIENCE EDUCATION

The Master of Arts in Interdisciplinary Science (MAIS), a 36 credit hour degree program without a thesis requirement, was designed and developed by science teachers for science teachers. The program will help science educators strengthen and update their knowledge of content in two or more of the following cognate areas: biology, chemistry, earth & environmental sciences, mathematics, and physics. In addition to enhancing content knowledge, the courses will help educators develop teaching strategies that lead to improved student learning, implement high quality instructional materials, and develop skills in using various strategies for assessing student learning. The MAIS degree will serve the needs of classroom teachers, content-area and staff development specialists, curriculum developers, program directors, school administrators, college/university faculty, and educators from informal science institutions who have responsibility for designing, delivering, evaluating, and/or continuously improving standards-based science, mathematics, and technology instruction for students, prekindergarten through the undergraduate degree.

While engaging in the coursework, educators will become learners themselves to deepen their own mastery of scientific and/or mathematical content. The laboratory-based learning activities in the program will help science educators see teaching as less a matter of knowledge transfer and more as an activity of facilitation in which knowledge is generated, content is investigated in depth, and meaning is developed from experience. Graduates of the program will take their place as master science educators who are recognized as proven practitioners in delivering rigorous and relevant instruction and are valued as effective coaches, mentors, and teacher trainers.

## Programs

### MASTER OF SCIENCE DEGREES

Biology  
Chemistry  
Earth & Environmental Sciences (Both Thesis and Non-thesis)  
Mathematics  
Physics  
Psychology

### MASTER OF ARTS DEGREE

Interdisciplinary Science (Non-thesis)  
Mathematics

### DOCTORAL DEGREES

Chemistry  
Experimental Psychology  
Physics and Applied Physics  
Quantitative Biology  
Mathematics  
Earth and Environmental Sciences

## Biology

### Undergraduate Degrees

- Bachelor of Arts in Biology (p. 485)
- Bachelor of Arts in Biology with Secondary Teacher Certification (p. 485)
- Bachelor of Arts in Biology with Composite Science Certification (p. 485)
- Bachelor of Science in Biology (p. 485)
- Bachelor of Science in Microbiology (p. 485)
- Bachelor of Science in Medical Technology (p. 485)
- Bachelor of Science in Biology and Master of Science in Biomedical Engineering (p. 485)
- Bachelor of Science in Biology and Master of Business Administration (p. 485)
- Bachelor of Science in Biology and Master of Science in Environmental and Earth Sciences (p. 485)
- Bachelor of Science in Biology and Master of Science in Health Care Administration (p. 485)
- Minor in Biology (p. 515)

### Graduate Degrees

- Biology, M.S. (p. 477)
- Quantitative Biology, B.S. to Ph.D. (p. 478)
- Quantitative Biology, Ph.D. (p. 478)

## Biology - Graduate Programs

### Objective

The program leading to the degree of Master of Science in biology is designed to provide graduate education that will prepare students for vocations in industry, government, and teaching, and to pursue further graduate education leading to the doctorate. The doctoral program is designed to train students to apply sophisticated quantitative techniques to solving basic and applied problems in biology. Students in this program will attain substantially greater quantitative skills than in traditional doctoral programs in the biological sciences, providing them with a competitive advantage in business, industry, government, and academia.

## Admission Requirements

The following are minimal requirements for entrance into the graduate program in Biology. However, satisfying or exceeding these requirements does not guarantee admission to the program. Admission to the program is determined solely by the Biology Graduate Studies Committee and the Graduate School and is based on an evaluation of all pertinent aspects of an applicant's record.

### MASTER OF SCIENCE

Admission status in the Master of Science program is determined as follows:

#### Unconditional Admission

Decisions are based on consideration of all the information listed below and are not based on any single criterion alone.

1. A Bachelor's degree in Biology or a Bachelor's degree in some other discipline with at least 12 hours of advanced level coursework (junior or senior level courses) in Biology.
2. A minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School. Applicants overall GPA in the Sciences and within Biology are also considered.
3. A satisfactory score on the Verbal and Quantitative sections of the Graduate Record Exam. Successful students tend to have a minimum combined total score of 1000 (old GRE scale), or 296 (new GRE scale) on the Verbal and Quantitative sections, with strong performance on the Quantitative section of the GRE exam.
4. Favorable letters of recommendation from at least three individuals able to assess the applicant's potential for success in graduate school.
5. Evidence of previous research experience may also be considered.
6. International students whose native language is not English must provide a score on the Test of Spoken English (TSE) of at least 45, a minimum score of 23 on the Speaking portion of the TOEFL iBT exam or a minimum score of 7 on the Speaking portion of the IELTS exam.

#### Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria listed above.

#### Probationary Admission

If an applicant does not meet a majority of standards for unconditional admission outlined above, he or she may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in his/her first two long semesters of graduate coursework at UT Arlington.

#### Deferred and Provisional Admission

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

#### Fellowships and Scholarships

Students that are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## Master's Degree Requirements

### MASTER OF SCIENCE

Non-thesis and thesis options are offered. The non-thesis option is designed to meet the needs of practicing teachers or those intending to enter the teaching profession. Students enrolled in the non-thesis option are required to complete 36 hours, including 24 hours of formal coursework in biology plus two hours of BIOL 5101 SPECIAL TOPICS IN BIOLOGY, BIOL 5391 INDIVIDUAL PROBLEMS IN BIOLOGY, and sufficient additional hours to complete course requirements. Students enrolled in the thesis option are required to complete 30 hours, including 18 hours of formal coursework (of which BIOL 5314 BIOMETRY is required), two hours of BIOL 5101 SPECIAL TOPICS IN BIOLOGY, BIOL 5698 THESIS, and sufficient additional hours to complete degree requirements.

## Admission Requirements

### DOCTOR OF PHILOSOPHY

Students interested in pursuing the Ph.D. in the Biology Department may apply for the B.S. - Ph.D. Track or the doctoral program directly depending on their background. The B.S. - Ph.D. Track is the point of entry into doctoral studies for students with a Bachelor's degree in Biology, but without 30 hours

of graduate level coursework in Biology or a master's degree in Biology. Students who have already accomplished these goals may apply directly for the doctoral program as Ph.D. students. Degree requirements are the same for both groups (see below).

## **B.S. - PH.D. TRACK STUDENTS**

Admission status in the B.S. - Ph.D. Track program is determined as follows:

### **Unconditional Admission**

Decisions are based on consideration of all the information listed below and are not based on any single criterion alone.

1. A Bachelor's degree in Biology or a Bachelor's degree in some other discipline with at least 12 hours of advanced level coursework (junior or senior level courses) in Biology.
2. A minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School. Applicants overall GPA in the Sciences and within Biology are also considered.
3. A satisfactory score on the Verbal and Quantitative sections of the Graduate Record Exam. Successful students tend to have a minimum combined total score of 1100 (old GRE scale), 301 (new GRE scale) on the Verbal and Quantitative sections, with strong performance on the Quantitative section of the GRE exam.
4. Favorable letters of recommendation from at least three individuals able to assess the applicant's potential for success in graduate school.
5. Evidence of previous research experience may also be considered.
6. International students whose native language is not English must provide a score on the Test of Spoken English (TSE) of at least 45, a minimum score of 23 on the Speaking portion of the TOEFL iBT exam or a minimum score of 7 on the Speaking portion of the IELTS exam.

### **Denial of Admission**

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria listed above.

### **Probationary Admission**

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first two long semesters of graduate coursework at UT Arlington.

### **Deferred and Provisional Admission**

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### **Fellowships and Scholarships**

Students that are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## **PH.D. STUDENTS**

Admission status in the doctoral program is determined as follows:

### **UNCONDITIONAL ADMISSION**

Decisions are based on consideration of all the information listed below and are not based on any single criterion alone.

1. A master's degree in Biology or at least 30 hours of graduate level coursework in Biology.
2. A minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School. If an Applicant has a Master's degree, the GPA from their Bachelor's degree, as calculated by the Graduate School, will also be considered. If they have 30 hours of graduate coursework but no degree, the GPA from that 30 hours, as calculated by the Graduate School, will also be considered.
3. A satisfactory score on the Verbal and Quantitative sections of the Graduate Record Exam. Successful students tend to have a minimum combined total score of 1100 (old GRE scale), or 301 (new GRE scale) on the Verbal and Quantitative sections, with strong performance on the Quantitative section of the GRE exam.
4. Favorable letters of recommendation from at least three individuals able to assess the applicant's potential for success in a doctoral program in quantitative biology.
5. Evidence of previous research experience including publications resulting from previous graduate work may also be considered.
6. International students whose native language is not English must provide a score on the Test of Spoken English (TSE) of at least 45, a minimum score of 23 on the Speaking portion of the TOEFL iBT exam, or a minimum score of 7 on the Speaking portion of the IELTS exam.

## Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria listed above.

## Probationary Admission

The Department of Biology does not as a matter of course admit doctoral students on a probationary basis. Under exceptional circumstances, an applicant that does not meet the standards for unconditional admission outlined above, may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first two long semesters of graduate coursework at UT Arlington.

## Deferred and Provisional Admission

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

## Fellowships and Scholarships

Students that have no provisional admission conditions to meet will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## Doctor of Philosophy Degree Requirements

The degree of Doctor of Philosophy in Quantitative Biology requires distinguished attainment both in scholarship and in research. In addition to meeting the minimum requirements of a planned course of study, the ultimate basis for conferring the degree must be the demonstrated ability to do independent and creative work and the exhibition of a profound grasp of the subject matter within the field.

**Mathematics:** Students will be expected to have (or complete during their first year of residence) a strong quantitative background including a formal course in differential and integral calculus (i.e., Calculus I).

**General Course Requirements:** A total of 45 credit hours should normally be completed including 24 hours of required and elective courses, and 21 hours of research courses. All students in the program are required to take BIOL 5314 (Biometry), Professional Development (BIOL 5102) and two seminar courses (2 x BIOL 5101) as part of their required courses.

**Other requirements:** Each student will make three research presentations that are open to the entire department. These may include the proposal defense, a research progress report, and the dissertation defense.

**Biology Tracks:** Students should follow one of the Biology Tracks described below: Ecology and Evolution, Genome Biology, or Microbiology and Molecular Biology.

Track Specific Quantitative Requirements:

**Ecology and Evolution:** Students in this track are required to take BIOL 5361 ADVANCED BIOMETRY and BIOL 5362 EXPERIMENTAL DESIGN. They will also be expected to have (or complete during their first year of residence) an additional calculus course (i.e., Calculus II).

**Genome Biology:** Students in this track are required to take one of the following courses in quantitative biology:

BIOL 5340	BIOINFORMATICS	3
BIOL 5420	GENETICS METHODS LAB	4
BIOL 5336	MOLECULAR EVOLUTION	3
BIOL 5364	POPULATION GENETICS	3

**Microbiology and Molecular Biology:** Students in this track are required to take one of the following courses in quantitative biology:

BIOL 5340	BIOINFORMATICS	3
BIOL 5333	BIOLOGICAL MODELING	3
BIOL 5421	Methods in Molecular Microbiology	4

Track Specific Additional Courses:

**Ecology and Evolution:** Students in this track are required to take 6 credit hours from among the following courses (or as advised by their supervisory committee):



BIOL 5344	AMPHIBIAN BIOLOGY	3
BIOL 5320	BIOGEOGRAPHY	3
BIOL 5333	BIOLOGICAL MODELING	3
BIOL 5315	COMMUNITY ECOLOGY	3
BIOL 5350	CONSERVATION BIOLOGY	3
BIOL 5351	ENVIRONMENTAL MICROBIOLOGY	3
BIOL 5311	EVOLUTION	3
BIOL 5328	LANDSCAPE ECOLOGY	3
BIOL 5354	LIMNOLOGY	3
BIOL 5357	MARINE BIOLOGY	3
BIOL 5325	PLANT ECOLOGY	3
BIOL 5310	SELECTED TOPICS IN BIOLOGY	3
BIOL 5367	THEORETICAL SYSTEMATICS	3
BIOL 5326	WETLANDS ECOLOGY	3

Genome Biology: Students in this track are required to take 9 credit hours from among the following courses (or as advised by their supervisory committee):

BIOL 5312	ADVANCED GENETICS	3
BIOL 5331	ADVANCED MOLECULAR BIOLOGY	3
BIOL 5335	ESSENTIALS OF GENOMICS	3
BIOL 5311	EVOLUTION	3
BIOL 5308	GENOME ANALYSIS	3
BIOL 5319	HUMAN GENETICS	3
BIOL 5334	MOBILE DNA MECHANISMS & REGULATION	3

Microbiology and Molecular Biology: Students in this track are required to take 9 credit hours from among the following courses including (or as advised by their supervisory committee):

BIOL 5351	ENVIRONMENTAL MICROBIOLOGY	3
BIOL 5309	IMMUNOBIOLOGY	3
BIOL 5302	MICROBIAL GENETICS	3
BIOL 5304	VIROLOGY	3

Additional Courses: Students in the program are required to take 6 hours of additional courses as advised by their supervisory committee.

Research hours:

BIOL 6999	DISSERTATION (final semester)	9
Select 21 hours of the following: <sup>1</sup>		21
BIOL 5101	SPECIAL TOPICS IN BIOLOGY	
BIOL 5291	INDIVIDUAL PROBLEMS IN BIOLOGY	
BIOL 5193 - BIOL 5693		
BIOL 5398	THESIS	
BIOL 5698	THESIS	
BIOL 5998	THESIS	
BIOL 6191	ADVANCED RESEARCH	
BIOL 6291	ADVANCED RESEARCH	
BIOL 6391	ADVANCED RESEARCH	
BIOL 6491	ADVANCED RESEARCH	
BIOL 6591	ADVANCED RESEARCH	
BIOL 6691	ADVANCED RESEARCH	

Total Hours

30

**Please Note:**

The grade of **R** (research in progress) is a permanent grade; completing course requirements in a later semester cannot change it. To receive credit for an **R**-graded course, the student must continue to enroll in the course until a passing grade is received. This is the case for dissertation hours.

An incomplete grade (the grade of **I**) cannot be given in a course that is graded **R**, nor can the grade of **R** be given in a course that is graded **I**. To receive credit for a course in which the student earned an **I**, the student must complete the course requirements. Enrolling again in the course in which an **I** was earned cannot change a grade of **I**. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded **R/F/W** only (except social work thesis courses.) The grade of **P** (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in three-, five-, six-, or nine-hour dissertation courses and nine-hour thesis courses and when the student has taken 9 or more hours of dissertation hours BIOL XX99. In the course listings below, **R**-graded courses are designated either "Graded **P/F/R**" or "Graded **R**." Occasionally, the valid grades for a course change. Students should consult the appropriate **graduate advisor** or instructor for valid grade information for particular courses. (See also the sections titled "**R**" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

<sup>1</sup> these courses can be repeated for credit.

## Biology - Undergraduate Programs

Academic Advising: 345 and 346 Life Science Bldg. • 817-272-2408

### Overview

The Department of Biology curriculum familiarizes students with basic concepts inherent to biological science and allows them to master new, cutting edge areas of biological research. Its degree programs prepare students to enter exciting and challenging careers in the many diverse and rapidly expanding areas of biological employment, including environmental biology, conservation, microbiology, the health sciences, science teaching, pharmacology, biotechnology, molecular biology, neurobiology, and forensics as well as in basic biological research. Superior teaching and faculty involvement with students is a high priority in the department. Many of its faculty have received university-wide awards for teaching excellence. Biology faculty have internationally recognized research programs in which students are actively encouraged to participate through credit for supervised research. Thus, students can prepare for careers in specific areas of biology by being actively engaged in research related to that career area under faculty supervision.

The Department of Biology offers four programs of study leading to an undergraduate degree. These are the Bachelor of Arts (B.A.) degree in Biology and the Bachelor of Science (B.S.) degrees in Biology, Microbiology or Medical Technology. The Microbiology B.S. degree prepares students to enter careers in the highly diverse field of microbiology, ranging from control of infectious diseases, through public health and environmental microbiology to genetic engineering and molecular biology or to pursue graduate study. The B.S. in Medical Technology combines course work with 16 months of clinical laboratory training in an accredited hospital school of medical technology. This degree prepares students for careers as technicians in medical laboratories, clinics, hospitals and industry. The Biology B.S. program provides students with a strong background in the fundamental tenets of the biological sciences while allowing them to customize their degree plans to meet specific career goals. The Biology B.A. program is suitable for career preparation in a number of biological fields and for teaching certification in Biology or Composite Science.

There are five degree plan options through which students can complete their Biology B.S. degree. Option one in General Biology allows students to choose elective courses beyond the biology core that prepare them to enter a specific professional field or graduate school for further study and research. Option two in Genomics specifically prepares students for careers in the rapidly expanding area of genetics research. Option three in Environmental Biology prepares students to enter a broad range of exciting and rewarding professions in environmental science and conservation. Option four, Pre-medical, Pre-dental and Pre-veterinary Biology, provides students with course work that makes them highly competitive for acceptance into medical, dental or veterinary schools. Option five in Forensics, provides students with the training necessary to pursue exciting careers in biological forensics, DNA testing or police department laboratories.

All Biology degrees and degree plan options are supported by providing students with ready access to both academic and career advice provided by full-time undergraduate advisors and faculty members knowledgeable with a student's particular areas of academic and/or career interests. Students are strongly encouraged to interact with departmental and faculty advisors throughout their academic careers, particularly through independent research under faculty supervision, to develop the skills and course work background that will allow them to achieve their future academic/career goals. Detailed information on Biology and degree plan options is provided later in this section.

Beyond the undergraduate B.A. and B.S. degrees, the Department of Biology offers programs leading to graduate degrees, including the Master of Science in Biology (M.S.) which allows students to pursue biological careers requiring a greater knowledge base than provided by an undergraduate B.A. or B.S. degree and a Doctor of Philosophy Degree in Quantitative Biology (Ph.D.) which allows students to carry out independent dissertation research within a chosen area of biological research leading to a career in research and/or university teaching. The Ph.D. degree in Biology provides students with a strong background in modern mathematical approaches to biological research, including biostatistics, experimental design and mathematical modeling of biological systems. The Graduate Catalog provides details of the Biology M.S. and Ph.D. degree programs.

The Department of Biology takes pride in offering students outstanding degree programs supported by excellent teaching, undergraduate research opportunities and superior academic advising. These programs make graduates highly competitive in the job market or when applying to graduate or professional degree programs. Please visit the Biology Department and speak with one of our advisors. Phone 817-272-2408 to make an appointment.

## Applying for Major Status in Biology

Freshmen who have no previous college work must complete the following courses before applying to the Biology Department to become a major:

**19 hours from the University core (consisting of courses in English, history, political science, et al. See list of general core curriculum requirements set by the University elsewhere in this catalog) and a minimum of 20 hours from the courses below:**

### BIOLOGY

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3

### MEDTECH

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 3444	GENERAL MICROBIOLOGY	4

### MICROBIOLOGY

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 3445	METHODS IN MOLECULAR MICROBIOLOGY	4
BIOL 4302	MICROBIAL GENETICS	3

### CHEMISTRY

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4

The applicant for status as a biology major **MUST** have a GPA of 2.25 or better in all courses taken, and 2.25 or better in biology courses. An application form is available from the undergraduate advisor (Room 345 or 346 LS).

A suggested course sequence for entering freshmen students for the first two years is:

#### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1323	3	MATH 1426	4
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442 or 2343 <sup>1</sup>	3-4
HIST 1311	3	HIST 1312	3
	<b>17</b>		<b>17-18</b>

#### Second Year

First Semester	Hours	Second Semester	Hours
ENGL or COMS	3	ENGL or COMS	3
CHEM 2321 & CHEM 2181	4	CHEM 2322 & CHEM 2182	4
BIOL 1442 or 2343	3-4	BIOL 3315	3

POLS 2311	3	POLS 2312	3
	13-14		13

Total Hours: 60-62

- <sup>1</sup> Micro majors will substitute BIOL 3444 GENERAL MICROBIOLOGY in the second semester of their freshman year, and another micro class in the first semester of their sophomore year. Med Tech majors will substitute BIOL 3444 GENERAL MICROBIOLOGY during the first semester of their sophomore year.

Transfer students interested in one of the degree programs in biology will, after admission to UT Arlington, be placed into pre-major status: BIOL intended, MEDT intended, or MICR intended major. To apply for status as a major in biology, microbiology, or medical technology, these students must have a minimum of 39 hours which include:

- At least 28 hours in the University core curriculum including eight hours of freshman chemistry, with lab (credit by transfer or earned at UT Arlington).
- At least 11 hours in biology courses taken at UT Arlington that apply to one of the three programs awarded by the department.

At the time of application for major status in biology, the student must have a GPA of 2.25 or better in courses taken at UT Arlington (both overall and in biology courses). An application form for requesting major status is available from the Department Advisor (Room 346 LS). Transfer students will be evaluated for major status only after completing 11 hours in biology in residence at UT Arlington.

## Maintaining Major Status

- Students who are accepted as majors in biology, microbiology, or medical technology must thereafter maintain a GPA of 2.25 or better in all courses and in biology courses. Any student whose GPA falls below 2.25 in either of these categories will be returned to undeclared status at the end of the semester in which the deficiency occurs.
- Students who fall into academic difficulty will be required to meet with their Advisor and/or Academic Dean in order to discuss academic consequences and their future status in the College of Science. Please refer to the College of Science section of the catalog, "Academic Policies for College of Science Majors".
- Students who have lost status as a major must have departmental permission to enroll in any junior or senior course in biology at UT Arlington.
- Students in the medical technology program should have a 2.8 GPA or higher after completing three years of course work to be competitive when applying for the final year of training in medical technology.

## General Information

- In order to receive a B.A. degree in Biology or a B.S. degree in Biology or Microbiology from UT Arlington, transfer students must complete a minimum of 18 hours of junior or senior level courses (12 of the 18 hours in Biology) at UT Arlington. Transfer students who are approved for admission to the medical technology program must complete at least 13 hours of junior or senior level courses in biology at UT Arlington to qualify for a B.S. Degree in Medical Technology from UT Arlington.
- No student working toward a B.A. degree in Biology or a B.S. degree in Biology, Medical Technology or Microbiology may take any biology course on a Pass/Fail basis other than:

BIOL 3149	COOPERATIVE PROGRAM IN BIOLOGY	1
BIOL 3249	COOPERATIVE PROGRAM IN BIOLOGY	2
BIOL 3349	COOPERATIVE PROGRAM IN BIOLOGY	3
BIOL 4179	DIRECTED STUDY	1
BIOL 4279	DIRECTED STUDY	2
BIOL 4379	DIRECTED STUDY	3
BIOL 4189	RESEARCH IN BIOLOGY	1
BIOL 4289	RESEARCH IN BIOLOGY	2

- Students are not allowed to receive credit for biology courses at the sophomore level or above by special examination.
- Exceptions to the core course prerequisites for advanced courses will be made only for specialized degree programs such as Medical Technology, Nursing, and Physical Education, and for selected non-majors with special needs.

## Computer and Oral Communication Competency Requirement

Students majoring in Biology, Microbiology, or Medical Technology are required to demonstrate computer use and oral communication competencies. In order to fulfill the University requirement of competency in computer usage, a student must take an approved computer literacy course or obtain a passing score on the University proficiency exam. Oral communication competency can be demonstrated by completion of COMS 1301 FUNDAMENTALS OF PUBLIC SPEAKING, COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING, or an approved substitute.

## Teacher Certification

A student interested in earning a Bachelor of Science degree with a major in biology with secondary teacher certification, or in biology or life-earth science as a second teaching field, should refer to the “Bachelor of Arts Degree in Biology – Secondary Teacher Certification” and the “Bachelor of Arts Degree in Biology – Composite Science Certification” degree plans for teacher certification requirements and for biology courses recommended for each teaching field option.

## Requirements for a Bachelor of Arts Degree in Biology

The Bachelor of Arts Degree in Biology is suitable for career preparation in a number of biological career fields and for students who desire teaching certification with a teaching field in biology or composite science. Students choosing this program are required to consult with the Department of Biology's undergraduate advisor to develop an acceptable degree plan. Students seeking teaching certification with a teaching field in biology or composite science are required to consult with the Department of Biology certification advisor in order to develop an acceptable teaching certification degree program.

### Pre-Professional Courses

General Core Requirements (p. 93)		39
RECOMMENDED CORE REQUIREMENTS		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Sciences <sup>1</sup>		3
Foundational Component Elective <sup>1</sup>		3
MATH 1302	COLLEGE ALGEBRA <sup>2</sup>	3
MATH 1303	TRIGONOMETRY <sup>2</sup>	3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
Select one of the following in computer literacy:		0-3
Pass the University proficiency exam		
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Select one of the following for oral communication competency:		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course		
Advanced elective courses (3000/4000 level courses)		12
Any level electives		6
Modern and Classical Languages <sup>3</sup>		8-9
<b>Professional Courses</b>		
Major		
Core Curriculum		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3

Diversity Courses		
BIOL 3427	PLANT SCIENCE	4
BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 3454	GENERAL ZOOLOGY	4
Select 7 hours of advanced core courses from the following:		7
BIOL 3310	SELECTED TOPICS IN BIOLOGY	
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3442	PRINCIPLES OF ANIMAL PHYSIOLOGY	
BIOL 3457	GENERAL ECOLOGY	
Advanced BIOL elective course - approved by advisor		3
Total Hours		159-163

- <sup>1</sup> See /degree requirements/general core requirements (p. 93)
- <sup>2</sup> Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses.
- <sup>3</sup> Eight hours in a single language or nine hours from one liberal arts cluster (see liberal arts cluster substitution list in the introductory information for the College of Science)

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1302	3	MATH 1303	3
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
HIST 1311	3		
	<b>17</b>		<b>14</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	BIOL 3427	4
Language, Philosophy and Culture	3	BIOL 3315	3
BIOL 2343	3	HIST 1312	3
Elective from Foundational Core	3	POLS 2312	3
POLS 2311	3	Social & Behavioral Sciences	3
	<b>15</b>		<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL 3444	4	BIOL 3454	4
PHYS 1441	4	PHYS 1442	4
Modern Language	4	Modern Language	4
Advanced Elective	3	Advanced Elective	3
	<b>15</b>		<b>15</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
BIOL Adv. Core	4	BIOL Adv. Core	3
COMS	3	Creative Arts	3
Advanced Elective	3	Adv. Elective	3
BIOL Adv. Elective	3	Electives	6
	<b>13</b>		<b>15</b>

Total Hours: 120

## Requirements for a Bachelor of Arts Degree in Biology -- Life Science Teacher Certification

This program is suitable preparation for students who desire secondary teacher certification in biology. Interested students should meet with the UTeach advisor.

**Pre-Professional Courses**

General Core Requirements (p. 93) 39

**RECOMMENDED CORE REQUIREMENTS**

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
MATH 1302	COLLEGE ALGEBRA	3
MATH 1303	TRIGONOMETRY	3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
Language, Philosophy & Culture		3
Social & Behavioral Science		3
Creative Arts		3
Foundational Component Elective		3
<b>Program Requirements</b>		
MODL 1441	TOPICS IN MODERN LANGUAGE LEVEL I (any language)	4
MODL 1442	TOPICS IN MODERN LANGUAGE LEVEL II (any language)	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
<b>Education - Teacher Preparation Courses</b>		
SCIE 1101	STEP 1: INQUIRY APPROACHES TO TEACHING (satisfies oral communication requirement)	1
SCIE 1102	STEP 2: INQUIRY-BASED LESSON DESIGN	1
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
SCIE 4107	STUDENT TEACHING SEMINAR	1
SCIE 4607	STUDENT TEACHING FOR SECONDARY GRADES	6
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE (satisfies computer literacy requirement)	3
EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3

**Professional Courses**

<b>Major</b>		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4

BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3
BIOL 3427	PLANT SCIENCE	4
BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 3454	GENERAL ZOOLOGY	4
BIOL 3310	SELECTED TOPICS IN BIOLOGY (Research Methods)	3
Select 7 hours from the following:		7
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3442	PRINCIPLES OF ANIMAL PHYSIOLOGY	
BIOL 3457	GENERAL ECOLOGY	
Advanced BIOL elective course approved by the biology advisor		3
Total Hours		162

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1302	3	MATH 1303	3
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
SCIE 1101	1	SCIE 1102	1
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	BIOL 3427	4
BIOL 2343	3	HIST 1312	3
HIST 1311	3	EDUC 4332	3
PHIL 2314	3	POLS 2312	3
EDUC 4331	3	Language, Philosophy & Culture	3
	<b>15</b>		<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL 3444	4	BIOL 3454	4
PHYS 1441	4	PHYS 1442	4
Modern Language	4	Modern Language	4
POLS 2311	3	Biology Advanced Elective	3
Foundational Component Elective	3	BIOL 3310 (Research Methods)	3
	<b>18</b>		<b>18</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
BIOL Advanced Core	4	BIOL Advanced Core	3
BIOL 3315	3	Social & Behavioral Science	3



EDUC 4333	3	SCIE 4607	6
Creative Arts	3	SCIE 4107	1
	<b>13</b>		<b>13</b>

Total Hours: 123

## Requirements for a Bachelor of Arts Degree in Biology - Composite Science Teacher Certification

This program is suitable preparation for students who desire secondary teacher certification in composite science. Interested students should meet with the UTeach advisor.

### Pre-Professional Courses

General Core Requirements (p. 93) 39

#### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
MATH 1302	COLLEGE ALGEBRA	3
MATH 1303	TRIGONOMETRY	3
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
Language, Philosophy & Culture		3
Creative Arts		3
Social & Behavioral Science		3
Foundational Component Elective		3

### Program Requirements

MODL 1441	TOPICS IN MODERN LANGUAGE LEVEL I (any language)	4
MODL 1442	TOPICS IN MODERN LANGUAGE LEVEL II (any language)	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4

#### Education - Teacher Preparation Courses

SCIE 1101	STEP 1: INQUIRY APPROACHES TO TEACHING (satisfies oral communication requirement)	1
SCIE 1102	STEP 2: INQUIRY-BASED LESSON DESIGN	1
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
SCIE 4107	STUDENT TEACHING SEMINAR	1
SCIE 4607	STUDENT TEACHING FOR SECONDARY GRADES	6
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE (satisfies computer literacy requirement)	3
EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3

### Professional Courses

Major		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3
BIOL 3427	PLANT SCIENCE	4

BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 3454	GENERAL ZOOLOGY	4
BIOL 3310	SELECTED TOPICS IN BIOLOGY (Research Methods)	3
Select 7 hours from the following:		7
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3442	PRINCIPLES OF ANIMAL PHYSIOLOGY	
BIOL 3457	GENERAL ECOLOGY	
Total Hours		165

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1302	3	MATH 1303	3
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
SCIE 1101	1	SCIE 1102	1
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	Modern Language	4
BIOL 2343	3	BIOL 3427	4
PHIL 2314	3	HIST 1312	3
HIST 1311	3	EDUC 4332	3
EDUC 4331	3	GEOL 1302	3
GEOL 1301	3		
	<b>18</b>		<b>17</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL 3444	4	BIOL 3454	4
PHYS 1441	4	PHYS 1442	4
Modern Language	4	BIOL 3310 (Research Methods)	3
Foundational Component Elective	3	POLS 2312	3
POLS 2311	3	Language, Philosophy & Culture	3
	<b>18</b>		<b>17</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
BIOL Advanced Core	4	BIOL Advanced Core	3
BIOL 3315	3	Social & Behavioral Science	3
EDUC 4333	3	SCIE 4607	6

Creative Arts	3 SCIE 4107	1
	<b>13</b>	<b>13</b>

Total Hours: 126

## Requirements for a Bachelor of Science Degree in Biology

The requirements to receive a Bachelor of Science Degree in Biology can be achieved through degree plans under any one of five options (i.e., Option 1-General Biology, Option 2-Genomics, Option 3-Environmental Biology, Option 4-Pre-Medical, Pre-Dental and Pre-Veterinary, and Option 5-Forensics) detailed in this section. Before choosing a B.S. degree program under one of these options, please consult with the biology undergraduate advisor and biology faculty associated with the chosen option.

### OPTION 1: GENERAL BIOLOGY

The General Biology Option is intended for students studying basic aspects of the biological sciences. It is not directed toward a specific biological career path as are Option 2 (Genomics), Option 3 (Environmental Biology), Option 4 (Pre-Medical, Pre-Dental and Pre-Veterinary), and Option 5 (Forensics). Students developing degree plans under the General Biology Option choose elective courses in Biology, other sciences and nonscience areas to develop either a broad knowledge-base in Biology or to focus their studies in a particular area of Biology (a list of potential areas of study in Biology and the faculty who can assist students in developing degree plan programs in these areas is available from the undergraduate biology advisor). The General Biology Option will prepare students for careers in the Biological Sciences not included in Options 2-5 or for graduate study in Biology at the Master's or Ph.D. levels.

#### Pre-Professional Courses

General Core Requirements (p. 93) 39

#### RECOMMENDED CORE REQUIREMENTS

ENGL 1301 RHETORIC AND COMPOSITION I 3

ENGL 1302 RHETORIC AND COMPOSITION II 3

Language, Philosophy & Culture <sup>1</sup> 3

POLS 2311 GOVERNMENT OF THE UNITED STATES 3

POLS 2312 STATE AND LOCAL GOVERNMENT 3

HIST 1311 HISTORY OF THE UNITED STATES TO 1865 3

HIST 1312 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3

Creative Arts <sup>1</sup> 3

Social & Behavioral Sciences <sup>1</sup> 3

Foundational Component Area Elective <sup>1</sup> 3

MATH 1323 PRECALCULUS II <sup>2</sup> 3

MATH 1426 CALCULUS I <sup>2</sup> 4

PHYS 1441 GENERAL COLLEGE PHYSICS I 4

PHYS 1442 GENERAL COLLEGE PHYSICS II 4

#### Program Requirements

CHEM 1441 GENERAL CHEMISTRY I 4

CHEM 1442 GENERAL CHEMISTRY II 4

CHEM 2321 ORGANIC CHEMISTRY 3

CHEM 2322 ORGANIC CHEMISTRY 3

CHEM 2181 ORGANIC CHEMISTRY I LABORATORY 1

CHEM 2182 ORGANIC CHEMISTRY II LABORATORY 1

Select one of the following in computer literacy: 0-3

Pass the University proficiency exam

CSE 1301 COMPUTER LITERACY

INSY 2303 INTRODUCTION TO M.I.S. AND DATA PROCESSING

Select one of the following in oral communication: 3

COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING

COMS 1301 FUNDAMENTALS OF PUBLIC SPEAKING

Or other approved communication course

Advanced elective courses (3000/4000 level) 8

Any level electives	6
<b>Professional Courses</b>	
Major	
Core Curriculum	
BIOL 1441	4
BIOL 1442	4
BIOL 2343	3
BIOL 3315	3
BIOL 2300	3
Select two of the following diversity courses:	8
BIOL 3427	4
BIOL 3444	4
BIOL 3454	4
Select two of the following advanced core courses:	7
BIOL 3339	4
BIOL 3442	4
BIOL 3457	4
BIOL 3301	4
Advanced BIOL elective courses - approved by advisor	10
<b>Total Hours</b>	<b>159-162</b>

<sup>1</sup> See /degreerequirements/generalcorerequirements (p. 93)

<sup>2</sup> Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses through transfer or placement examination.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1323	3	MATH 1426	4
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
HIST 1311	3		
	<b>17</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321 & CHEM 2181	4	CHEM 2322 & CHEM 2182	4
Language, Philosophy & Culture	3	BIOL 2300	3
BIOL 2343	3	BIOL 3315	3
Elective from Foundational Core	3	HIST 1312	3
POLS 2311	3	POLS 2312	3
	<b>16</b>		<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL Diversity	4	BIOL Diversity	4
BIOL Adv. Core	3	BIOL Adv. Core	3

PHYS 1441	4	PHYS 1442	4
COMS	3	Elective	3
	<b>14</b>		<b>14</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
BIOL Adv. Elective (with lab)	4	BIOL Adv. Elective (with lab)	4
BIOL Adv. Elective	3	Creative Arts	3
Social and Behavioral Science	3	Adv. Electives	8
Elective	3		
	<b>13</b>		<b>15</b>

Total Hours: 120

**OPTION 2: GENOMICS**

The genomics option is intended to prepare students for laboratory-oriented careers in genetics research and biotechnology industries as well as entry into graduate programs. Students are strongly advised to consult with appropriate faculty members to outline a course of study directed at their specific career goals (a list of faculty members who can assist students in developing a degree plan program in this area is available from the undergraduate biology advisor).

**Pre-Professional Courses**

General Core Requirements (p. 93) 39

**RECOMMENDED CORE REQUIREMENTS**

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Science <sup>1</sup>		3
Foundational Component Core Elective <sup>1</sup>		3
MATH 1323	PRECALCULUS II <sup>2</sup>	3
MATH 1426	CALCULUS I <sup>2</sup>	4
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4

**Program Requirements**

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4312	BIOCHEMISTRY II	3

Select one of the following in computer literacy: 0-3

Pass the University Proficiency exam

CSE 1301 COMPUTER LITERACY

INSY 2303 INTRODUCTION TO M.I.S. AND DATA PROCESSING

Select one of the following in oral communication:	3
COMS 2302                      PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301                      FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course	
Advanced Elective courses (3000/4000 level)	2
Any level electives	6
<b>Professional Courses</b>	
Major	
Core Curriculum	
BIOL 1441                      CELL AND MOLECULAR BIOLOGY	4
BIOL 1442                      STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343                      EVOLUTION & ECOLOGY	3
BIOL 3315                      GENETICS	3
BIOL 2300                      INTRODUCTION TO BIOSTATISTICS (or approved substitute)	3
Genomics Core Courses	
BIOL 3317                      GENOMICS	3
BIOL 3339                      INTRODUCTION TO EVOLUTION	3
Advanced biology electives:	19
Select no more than two courses from the following:	
BIOL 3427                      PLANT SCIENCE	
BIOL 3444                      GENERAL MICROBIOLOGY	
BIOL 3454                      GENERAL ZOOLOGY	
BIOL 4312                      INTRODUCTION TO VIROLOGY	
Select the remaining hours from the following:	
BIOL 3301                      CELL PHYSIOLOGY	
BIOL 3319                      HUMAN GENETICS	
BIOL 3420                      GENETICS METHODS LAB	
BIOL 4302                      MICROBIAL GENETICS	
BIOL 4307                      MOLECULAR EVOLUTION	
BIOL 4308                      GENOME ANALYSIS	

Total Hours 159-162

<sup>1</sup> See /degreerequirements/generalcorerequirements (p. 93)

<sup>2</sup> Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses through transfer or placement examination.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1323	3	MATH 1426	4
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
HIST 1311	3		
	<b>17</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
HIST 1312	3	POLS 2312	3

POLS 2311	3	CHEM 2322 & CHEM 2182	4
CHEM 2321 & CHEM 2181	4	PHYS 1442	4
BIOL 2343	3	BIOL 3315	3
PHYS 1441	4		
	<b>17</b>		<b>14</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
BIOL 3444	4	BIOL 2300	3
CHEM 4311	3	BIOL Advanced Electives	6
COMS	3	CHEM 4312	3
Language, Philosophy & Culture	3	Social & Behavioral Science	3
	<b>13</b>		<b>15</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
Electives	3	BIOL Adv. Electives	6
BIOL Adv. Electives	5	BIOL Adv. Elective with Lab	4
Creative Arts	3	Advanced Elective	2
Foundational Core Elective	3	Elective	3
	<b>14</b>		<b>15</b>

Total Hours: 120

**OPTION 3: ENVIRONMENTAL BIOLOGY**

The option in Environmental Biology is intended to prepare students to enter a wide range of environmental professions or graduate school in Environmental Science by emphasizing relevant courses in biology and other environmentally-related disciplines. Students pursuing this option are strongly encouraged to seek advice from appropriate faculty advisors (a list of biology faculty members who can assist students in developing degree plan programs in Environmental Biology is available from the undergraduate biology advisor).

**Pre-Professional Courses**

General Core Requirements (p. 93)		39
<b>RECOMMENDED CORE REQUIREMENTS</b>		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Science <sup>1</sup>		3
Foundational Component Core Elective <sup>1</sup>		3
MATH 1323	PRECALCULUS II <sup>2</sup>	3
MATH 1426	CALCULUS I <sup>2</sup>	4
MATH 2425	CALCULUS II <sup>2,3</sup>	4
PHYS 1441	GENERAL COLLEGE PHYSICS I	4

PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
Select one of the following in computer literacy:		0-3
Pass the University Proficiency exam		
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Select one of the following in oral communication:		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course		
3000/4000 level elective courses. Recommended courses include:		4
ECON 4302	ENVIRONMENTAL ECONOMICS	
MANA 3319	MANAGEMENT PROCESS THEORY	
May also use courses approved for the Minor Program in Environmental and Sustainability Studies		
Select two of the following electives from other sciences: <sup>4</sup>		6
GEOL 4320	HYDROGEOLOGY	
GEOL 4350	STABLE ISOTOPE GEOCHEMISTRY	
GEOL 4352	ANALYTICAL METHODS IN GEOCHEMISTRY	
PSYC 3316	ENVIRONMENTAL PSYCHOLOGY (or approved substitution)	
<b>Professional Courses</b>		
Major		
Core Curriculum		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3
BIOL 2300	INTRODUCTION TO BIostatISTICS (or approved substitute)	3
Diversity Courses		
BIOL 3427	PLANT SCIENCE	4
BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 3454	GENERAL ZOOLOGY	4
Select advanced biology courses (at least one course must have a laboratory component) from the following:		13
BIOL 3149 & BIOL 3249	COOPERATIVE PROGRAM IN BIOLOGY and COOPERATIVE PROGRAM IN BIOLOGY	
BIOL 3328	ENVIRONMENTAL MICROBIOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3318	LIMNOLOGY	
BIOL 3457	GENERAL ECOLOGY <sup>5</sup>	
BIOL 4338	COMMUNITY ECOLOGY	
BIOL 4444	VERTEBRATE NATURAL HISTORY <sup>5</sup>	
Total Hours		159-162

<sup>1</sup> See /degreerequirements/generalcorerequirements (p. 93)

<sup>2</sup> Transfer students must present a minimum of nine semester credit hours of equivalent or higher level mathematics courses through transfer or placement examination.



- 3 BIOL 2350 MATHEMATICAL MODELING IN ECOLOGY and BIOL 3350 DYNAMICAL SYSTEMS IN BIOLOGY may substitute for MATH 2425 CALCULUS II.
- 4 Majors level science courses from the Minor Program in Environmental and Sustainability Studies may also be taken.
- 5 Laboratory course.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1323	3	MATH 1426	4
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
HIST 1311	3		
	<b>17</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321 & CHEM 2181	4	CHEM 2322 & CHEM 2182	4
Language, Philosophy & Culture	3	BIOL 3315	3
BIOL 2343	3	BIOL 3427	4
BIOL 2300	3	HIST 1312	3
POLS 2311	3	POLS 2312	3
	<b>16</b>		<b>17</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL 3444	4	BIOL 3454	4
Social & Behavioral Science	3	BIOL Adv. Elective	3
MATH 2425	4	PHYS 1442	4
PHYS 1441	4	COMS	3
	<b>15</b>		<b>14</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
Other Science Elective	3	Other Science Elective	3
Creative Arts	3	BIOL Adv. Elective	3
Elective	4	BIOL Adv. Elective with Lab	4
BIOL Adv. Elective	3	Foundational Component Elective	3
	<b>13</b>		<b>13</b>

Total Hours: 120

## OPTION 4: PRE-MEDICAL, PRE-DENTAL AND PRE-VETERINARY BIOLOGY

The Pre-Medical, Pre-Dental, and Pre-Veterinary Option provides the most suitable combination of courses to prepare students for the study of medicine, dentistry, or veterinary medicine. Students interested in these career paths may select any other biology option or the degree program in

Microbiology and still satisfy minimum requirements for admission to professional schools. Students should maintain contact with the Health Professions Advisor who is available through the Dean of Science Office in Room 206, Life Science Building.

### Pre-Professional Courses

General Core Requirements (p. 93)		39
<b>RECOMMENDED CORE REQUIREMENTS</b>		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Science <sup>1</sup>		3
Foundational Component Core Elective <sup>1</sup>		3
MATH 1323	PRECALCULUS II <sup>2</sup>	3
MATH 1426	CALCULUS I <sup>2</sup>	4
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 4311	BIOCHEMISTRY I	3
Select one of the following in computer literacy:		0-3
Pass the University Proficiency exam		
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Select one of the following in oral communication:		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course		
Advanced Elective Courses (3000/4000 level)		5
Any level electives		6
<b>Professional Courses</b>		
Major		
Core Curriculum		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3
BIOL 2300	INTRODUCTION TO BIostatISTICS (or approved substitute)	3
Select two of the following diversity courses:		8
BIOL 3427	PLANT SCIENCE	
BIOL 3444	GENERAL MICROBIOLOGY	
BIOL 3454	GENERAL ZOOLOGY	
Advanced Core Courses		
BIOL 3442	PRINCIPLES OF ANIMAL PHYSIOLOGY	4

BIOL 3452	COMPARATIVE VERTEBRATE ANATOMY	4
Select 3 of the following advanced elective courses:		9
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3312	IMMUNOBIOLOGY	
BIOL 3345	HUMAN PHYSIOLOGY	
BIOL 4312	INTRODUCTION TO VIROLOGY	
CHEM 4312	BIOCHEMISTRY II	

Total Hours 159-162

- 1 See /degreerequirements/generalcorerequirements (p. 93)
- 2 Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses through transfer credit or placement examination.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1323	3	MATH 1426	4
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
HIST 1311	3		
	<b>17</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321 & CHEM 2181	4	CHEM 2322 & CHEM 2182	4
Language, Philosophy & Culture	3	BIOL 2300	3
BIOL 2343	3	BIOL 3315	3
COMS	3	HIST 1312	3
POLS 2311	3	POLS 2312	3
	<b>16</b>		<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL Diversity	4	BIOL Diversity	4
BIOL 3442	4	Elective	3
PHYS 1441	4	PHYS 1442	4
Foundational Component Elective	3	Creative Arts	3
	<b>15</b>		<b>14</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
BIOL Adv. Electives	3	Adv. Electives	5
BIOL 3452	4	Elective	3
Social & Behavioral Science	3	CHEM 4312	3

CHEM 4311	3 Advanced BIOL Elective	3
	<b>13</b>	<b>14</b>

Total Hours: 120

**OPTION 5: FORENSICS**

The option in forensics is intended to prepare students for a career in biological forensics by emphasizing relevant courses in biology and related disciplines. This option is designed for students who wish to seek employment in a forensics, DNA testing, or a police department laboratory upon graduation, and, as such, an internship (BIOL 3349 COOPERATIVE PROGRAM IN BIOLOGY) is recommended when possible. Students pursuing this option are encouraged to seek advice from the faculty forensics advisor.

**Pre-Professional Courses**

General Core Requirements (p. 93) 39

**RECOMMENDED CORE REQUIREMENTS**

ENGL 1301 RHETORIC AND COMPOSITION I 3

ENGL 1302 RHETORIC AND COMPOSITION II 3

Language, Philosophy & Culture <sup>1</sup> 3

POLS 2311 GOVERNMENT OF THE UNITED STATES 3

POLS 2312 STATE AND LOCAL GOVERNMENT 3

HIST 1311 HISTORY OF THE UNITED STATES TO 1865 3

HIST 1312 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3

Creative Arts <sup>1</sup> 3Social & Behavioral Science <sup>1</sup> 3Foundational Component Core Elective <sup>1</sup> 3MATH 1323 PRECALCULUS II <sup>2</sup> 3MATH 1426 CALCULUS I <sup>2</sup> 4

PHYS 1441 GENERAL COLLEGE PHYSICS I 4

PHYS 1442 GENERAL COLLEGE PHYSICS II 4

**Program Requirements**

CHEM 1441 GENERAL CHEMISTRY I 4

CHEM 1442 GENERAL CHEMISTRY II 4

CHEM 2321 ORGANIC CHEMISTRY 3

CHEM 2322 ORGANIC CHEMISTRY 3

CHEM 2181 ORGANIC CHEMISTRY I LABORATORY 1

CHEM 2182 ORGANIC CHEMISTRY II LABORATORY 1

CHEM 4311 BIOCHEMISTRY I 3

Select one of the following in computer literacy: 0-3

Pass the University Proficiency exam

CSE 1301 COMPUTER LITERACY

INSY 2303 INTRODUCTION TO M.I.S. AND DATA PROCESSING

Select one of the following in oral communication: 3

COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING

COMS 1301 FUNDAMENTALS OF PUBLIC SPEAKING

Or other approved communication course

Select a minimum of 9 hours in forensic electives: 9

ANTH 4406 HUMAN OSTEOLOGY

ANTH 4407 FORENSIC ANTHROPOLOGY

ANTH 4322 PROBLEMS IN ANTHROPOLOGY

BIOL 3303 DRUGS AND BEHAVIOR

CRCJ 3370 INTRODUCTION TO FORENSICS

CRCJ 4340 FORENSIC DEATH INVESTIGATION

CRCJ 4389 TOPICS IN LAW ENFORCEMENT AND PRIVATE SECURITY

Select a minimum of 2 hours of any level elective 2

**Professional Courses**

Major

Core Curriculum

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3
BIOL 2300	INTRODUCTION TO BIOSTATISTICS (or approved substitute)	3

Advanced Forensic courses

BIOL 3352	INTRODUCTION TO FORENSIC LAB SCIENCE <sup>3</sup>	3
BIOL 4352	FORENSIC BIOLOGY	3
BIOL 4355	METHODS IN FORENSIC BIOLOGY <sup>3</sup>	3

Select 16 hours of advanced biology electives from the following: 16

BIOL 3149	COOPERATIVE PROGRAM IN BIOLOGY	
BIOL 3249	COOPERATIVE PROGRAM IN BIOLOGY	
BIOL 3349	COOPERATIVE PROGRAM IN BIOLOGY	
BIOL 3317	GENOMICS	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 4317	BACTERIAL PATHOGENESIS	
BIOL 3427	PLANT SCIENCE <sup>3</sup>	
BIOL 3444	GENERAL MICROBIOLOGY <sup>3</sup>	
BIOL 4312	INTRODUCTION TO VIROLOGY	
BIOL 4331	ADVANCED MOLECULAR BIOLOGY	

Total Hours 159-162

- 1 See /degreerequirements/generalcorerequirements (p. 93)
- 2 Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses through transfer or placement examination.
- 3 Laboratory courses.

**SUGGESTED COURSE SEQUENCE**

**First Year**

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1323	3	MATH 1426	4
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
HIST 1311	3		
	<b>17</b>		<b>15</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
CHEM 2321 & CHEM 2181	4	CHEM 2322 & CHEM 2182	4
Language, Philosophy & Culture	3	Foundational Component Elective	3
BIOL 2343	3	BIOL 3315	3
BIOL 2300	3	HIST 1312	3

POLS 2311	3	POLS 2312	3
	<b>16</b>		<b>16</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
BIOL 3352	3	CHEM 4311	3
BIOL 4352	3	Advanced Elective	3
BIOL Adv. Elective	3	Creative Arts	3
Social & Behavioral Science	3	COMS	3
Advanced Elective	3	Elective	2
	<b>15</b>		<b>14</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
BIOL 4355	3	BIOL Adv. Electives	7
BIOL Adv. Elective	3	PHYS 1442	4
BIOL Adv. Elective with Lab	3	Advanced Elective	3
PHYS 1441	4		
	<b>13</b>		<b>14</b>

Total Hours: 120

## Bachelor of Science Degree in Medical Technology

A student who completes the special degree plan given below plus 16 months of clinical laboratory training in an accredited hospital school of medical technology may receive the degree of Bachelor of Science in Medical Technology, which will be conferred by The University of Texas at Arlington. Graduates may become certified in medical technology by passing the examination of the Board of Registry of the American Society of Clinical Pathologists (ASCP).

**Pre-Professional Courses**

General Core Requirements (p. 93) 39

## RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Science <sup>1</sup>		3
Foundational Component Core Elective <sup>1</sup>		3
MATH 1302	COLLEGE ALGEBRA	3
MATH 1303	TRIGONOMETRY	3
or MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4

CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 4311	BIOCHEMISTRY I	3
Select one of the following in computer literacy:		0-3
Pass the University Proficiency exam		
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Select one of the following in oral communication:		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course		
Elective credit from any discipline		1
<b>Professional Courses</b>		
Major		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	4
BIOL 2458	HUMAN ANATOMY AND PHYSIOLOGY II	4
BIOL 3312	IMMUNOBIOLOGY	3
BIOL 3315	GENETICS	3
BIOL 4317	BACTERIAL PATHOGENESIS	3
BIOL 3444	GENERAL MICROBIOLOGY	4
3000/4000-level of biology electives selected with the advice of the undergraduate advisor		7
Total Hours		142-145

Note: This option is a total of 103 hours, of which 16 must be 3000/4000 level, in addition to 16 months training in a school of medical technology approved by the Committee on Allied Health Education and Accreditation (CAHEA) in conjunction with the National Accrediting Agency for Clinical Laboratory Science (NAACLS).

<sup>1</sup> See /degreerequirements/generalcorerequirements (p. 93)

## SENIOR YEAR

Sixteen-month program in a school of medical technology which has been certified by the Committee of Allied Health Education and Accreditation (CAHEA) in conjunction with the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

## Requirements for a Bachelor of Science Degree in Microbiology

<b>Pre-Professional Courses</b>		
General Core Requirements (p. 93)		39
RECOMMENDED CORE REQUIREMENTS		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Science <sup>1</sup>		3
Foundational Component Core Elective <sup>1</sup>		3
MATH 1323	PRECALCULUS II <sup>2</sup>	3

MATH 1426	CALCULUS I <sup>2</sup>	4
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 4311	BIOCHEMISTRY I	3
Select one of the following in computer literacy:		0-3
Pass the University Proficiency exam		
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Select one of the following in oral communication:		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course		
Electives at any level		11
<b>Professional Courses</b>		
Major		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 3445	METHODS IN MOLECULAR MICROBIOLOGY	4
BIOL 4302	MICROBIAL GENETICS	3
Select 27 additional hours from the following:		27
BIOL 3311	SELECTED TOPICS IN MICROBIOLOGY	
BIOL 3312	IMMUNOBIOLOGY	
BIOL 3318	LIMNOLOGY	
BIOL 3327	MICROBIAL DIVERSITY	
BIOL 3328	ENVIRONMENTAL MICROBIOLOGY	
BIOL 4312	INTRODUCTION TO VIROLOGY	
BIOL 4317	BACTERIAL PATHOGENESIS	
BIOL 4345	MICROBIAL PHYSIOLOGY	
BIOL 4440	LABORATORY METHODS IN BACTERIAL PATHOGENESIS	
BIOL 4388	INSTRUCTIONAL TECHNIQUES IN BIOLOGY <sup>3</sup>	
BIOL 4189	RESEARCH IN BIOLOGY	
BIOL 4289	RESEARCH IN BIOLOGY <sup>3</sup>	
Total Hours		159-162

1 See /degreerequirements/generalcorerequirements (p. 93)

2 Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses through transfer or placement examination.

3 Must be taken under the supervision of approved faculty members.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1323	3	MATH 1426	4



CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 3444	4
HIST 1311	3		
	<b>17</b>		<b>15</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
HIST 1312	3	POLS 2312	3
POLS 2311	3	CHEM 2322	3
CHEM 2321 & CHEM 2181	4	CHEM 2182	1
BIOL 4302	3	PHYS 1442	4
PHYS 1441	4	BIOL 3445	4
	<b>17</b>		<b>15</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
BIOL, Microbial Electives	4	BIOL, Microbial Electives	9
CHEM 4311	3	Social & Behavioral Science	3
COMS	3	Elective	3
Language, Philosophy & Culture	3		
	<b>13</b>		<b>15</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
BIOL, Microbial Electives	8	BIOL, Microbial Electives	6
Creative Arts	3	Electives	8
Foundational Component Elective	3		
	<b>14</b>		<b>14</b>

---

Total Hours: 120

## Dual Degree Plan: Bachelor of Science in Biology and Master of Science in Biomedical Engineering

This five-year curriculum prepares students for careers in the fast growing biotechnology and biomedical engineering industries. The curriculum also prepares students for medical school and advanced study. Students are required to take courses from engineering, life sciences and liberal arts, culminating in a five-year Master of Science Degree in Biomedical Engineering, and a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Engineering and the College of Science. In this program, two areas of emphasis are offered:

1. Bioimaging and
2. Biomaterials and Tissue Engineering.

### DESCRIPTION

Biomedical engineers use quantitative methods and innovation to analyze and solve problems in biology and medicine. Students choose the biomedical engineering field to be of service to people, to partake in the excitement of working with living systems, and to apply advanced technology to the complex problems of medical care.

Through this program, students learn the essentials of life science, engineering theory, and the analytical and practical tools that enable them to be successful in the biotechnology and biomedical engineering industries. The program includes course work in the basic sciences, core engineering,

biomedical engineering, and advanced biotechnology disciplines. Both didactic classroom lectures and hands-on laboratory experience are emphasized. Additionally, students are required to take general educational courses in literature, fine arts, history, political science, and social science.

## CAREER OPPORTUNITIES

The program prepares students as biomedical engineers for careers in industry, in hospitals, in research facilities of educational and medical institutions, and in government regulatory agencies. It also provides a solid foundation for those wishing to continue for advanced degrees. For those planning to pursue a medical degree, this cross-disciplinary curriculum offers a solid foundation in engineering, which is an advantage in preparing for a medical career.

## REQUIREMENTS

Regardless whether a student chooses Bioimaging or Biomaterials and Tissue Engineering emphasis, after completion of 120 semester credit hours of the undergraduate courses from the list for the emphasis (below) and prior to taking any graduate course, the student must apply to the UT Arlington Graduate School for admission to the Bioengineering Department. A minimum grade point average of 3.0 in the 120 semester credit hours as well as a minimum average of 3.0 in the required English courses (ENGL 1301 RHETORIC AND COMPOSITION I and ENGL 1302 RHETORIC AND COMPOSITION II) and a minimum average of 3.0 in the required Mathematics courses (MATH 1426 CALCULUS I, MATH 2425 CALCULUS II, MATH 2326 CALCULUS III and MATH 3319 DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA) is required for admission to the Biomedical Engineering Graduate Program. The student should also submit two letters of recommendation, one from a faculty member and one from the Biology undergraduate advisor.

For course listings and suggested course sequences, please see Biomedical Engineering in the Engineering section of this catalog.

## Dual Degree Plan: Bachelor of Science in Biology and Master of Business Administration

A five-year program designed to prepare students for careers as managers with specific knowledge of the biomedical science field. Students are required to take courses from life sciences, business, and liberal arts, culminating in a dual Master of Business Administration Degree (MBA), including a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Business and the College of Science. The BS in Biology will be conferred at the same time as the MBA. If students in this joint degree program are not accepted into the MBA program, or if students enter the MBA program and fail to complete the requirements for the MBA, then, in order to earn a BS in Biology they must take the same, full complement of courses required for a BS as students not enrolled in the joint program.

## DESCRIPTION

This degree program is designed to provide students with a strong background in the life sciences and with a contemporary education in business administration that will impart the necessary knowledge and skills to enable them to perform effectively in many career fields. The program includes course work in the basic sciences as well as accounting, economics, finance, marketing, and management. Additionally, students are required to take general education courses in literature, fine arts, history, political science, and social science.

## CAREER OPPORTUNITIES

The program prepares students for managerial and leadership positions in the biomedical sciences and biosciences research fields. It is essential that science managers have a base of technical knowledge that allows them to understand and guide the work of their subordinates and to explain the work in non-technical terms to senior management and potential customers. The program also prepares students for managerial positions in fields outside of science. Additionally, it provides a solid foundation for those planning to pursue advanced degrees.

## COURSE REQUIREMENTS

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Science		3
ECON 2306	PRINCIPLES OF MICROECONOMICS	

Foundational Component Core Elective <sup>1</sup>		3
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	3
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
Select one of the following in computer literacy:		0-3
Pass the University Proficiency Exam		
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Oral Communication Competency		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
Core Business		9
BSTAT 3321	BUSINESS STATISTICS I	
OPMA 3306	OPERATIONS MANAGEMENT	
MARK 3321	PRINCIPLES OF MARKETING	
Advanced Electives (3000 or 4000 level coursework) BCOM 3360 is recommended		3
<b>Professional Courses</b>		
Major		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 3315	GENETICS	3
Select 22 hours from the following (must include at least 2 laboratory classes):		22
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I <sup>2</sup>	
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3312	IMMUNOBIOLOGY	
BIOL 3442	PRINCIPLES OF ANIMAL PHYSIOLOGY <sup>2</sup>	
BIOL 3309	NON-MAJORS SELECTED TOPICS	
BIOL 4312	INTRODUCTION TO VIROLOGY	
BIOL 4315	GENERAL ENDOCRINOLOGY	
BIOL 4357	HEALTH PSYCHOLOGY	
<b>Graduate Program</b>		
Graduate Courses		45
Total Hours		196-199

<sup>1</sup> See /degreerequirements/generalcorerequirements (p. 93)

<sup>2</sup> Laboratory course.

**Note:** This program consists of 112 undergraduate credit hours, plus 45 graduate credit hours. A grand total of 157 credit hours. A 3.0 cumulative GPA for the last 60 hours at UTA, and an acceptable score on the GMAT are required for admittance to the MBA program.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3

MATH 1315	3	MATH 1316	3
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
HIST 1311	3	HIST 1312	3
	<b>17</b>		<b>17</b>

**Second Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
POLS 2311	3	CHEM 2322 & CHEM 2182	4
ECON 2306	3	BIOL 3315	3
CHEM 2321 & CHEM 2181	4	Language, Philosophy & Culture	3
BIOL 3444	4	POLS 2312	3
		BSTAT 3321	3
	<b>14</b>		<b>16</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
PHYS 1441	4	BIOL Elective	3
COMS	3	BIOL Elective	4
BIOL Elective	4	PHYS 1442	4
BIOL Elective	3	MARK 3321	3
		BCOM 3360	3
	<b>14</b>		<b>17</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Creative Arts	3	Approved graduate business courses- may take summer classes	15
BIOL elective	4		
Foundational Component Core Elective	3		
OPMA 3306	3		
BIOL elective	4		
	<b>17</b>		<b>15</b>

**Fifth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Approved graduate business courses - may take summer classes	15	Approved graduate business courses - summer classes recommended	15
	<b>15</b>		<b>15</b>

---

 Total Hours: 157

## Dual Degree Plan: Bachelor of Science in Biology and Master of Science in Environmental and Earth Sciences

This five-year curriculum provides a common ground for interdisciplinary communication, an understanding of the environment, and the competence necessary for evaluating and solving complex environmental problems. The degree program prepares students for applied work in the private sector and governmental positions, and serves as the professional preparation required for applied technology and environmental management.

### DESCRIPTION

Environmental scientists apply elements of engineering, biology, chemistry, and geology in an integrated approach to environmental systems. They also need an understanding of the forces that shape implementation of alternative environmental science and engineering solutions, and an understanding of how regulatory and political entities influence the implementation of viable technical solutions.

### CAREER OPPORTUNITIES

This program prepares students for a range of positions in local, state and federal agencies responsible for managing air and water quality, land use, and other aspects of the environment. It also prepares students for careers in private consulting agencies providing advice to government and industry.

### REQUIREMENTS

#### Pre-Professional Courses

General Core Requirements (p. 93)	39
-----------------------------------	----

#### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
-----------	----------------------------	---

ENGL 1302	RHETORIC AND COMPOSITION II	3
-----------	-----------------------------	---

Language, Philosophy & Culture <sup>1</sup>		3
---	--	---

POLS 2311	GOVERNMENT OF THE UNITED STATES	3
-----------	---------------------------------	---

POLS 2312	STATE AND LOCAL GOVERNMENT	3
-----------	----------------------------	---

HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
-----------	--------------------------------------	---

HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
-----------	---	---

Creative Arts <sup>1</sup>		3
----------------------------	--	---

Social & Behavioral Science <sup>1</sup>		3
--	--	---

Foundational Component Core Elective <sup>1</sup>		3
---	--	---

MATH 1323	PRECALCULUS II	3
-----------	----------------	---

MATH 1426	CALCULUS I	4
-----------	------------	---

MATH 2425	CALCULUS II	4
-----------	-------------	---

PHYS 1441	GENERAL COLLEGE PHYSICS I	4
-----------	---------------------------	---

PHYS 1442	GENERAL COLLEGE PHYSICS II	4
-----------	----------------------------	---

#### Program Requirements

CHEM 1441	GENERAL CHEMISTRY I	4
-----------	---------------------	---

CHEM 1442	GENERAL CHEMISTRY II	4
-----------	----------------------	---

CHEM 2321	ORGANIC CHEMISTRY	3
-----------	-------------------	---

CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
-----------	--------------------------------	---

CHEM 2322	ORGANIC CHEMISTRY	3
-----------	-------------------	---

CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
-----------	---------------------------------	---

Select approved Geology or Chemistry courses from the following:		10
--	--	----

GEOL 1301	EARTH SYSTEMS	
-----------	---------------	--

GEOL 4320	HYDROGEOLOGY	
-----------	--------------	--

GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	
-----------	--	--

GEOL 4331	ANALYSIS OF SPATIAL DATA	
-----------	--------------------------	--

GEOL 4333	REMOTE SENSING FUNDAMENTALS	
-----------	-----------------------------	--

CHEM 2335	QUANTITATIVE CHEMISTRY	
-----------	------------------------	--

Select one of the following in computer literacy:		0-3
---	--	-----

Pass the University proficiency exam		
--------------------------------------	--	--

Take an approved computer literacy course		
---	--	--

Oral Communication Competency		3
-------------------------------	--	---

COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
<b>Non-science Electives</b>		
Select six hours from disciplines outside the natural sciences, recommended courses include:		6
ECON 2306	PRINCIPLES OF MICROECONOMICS	
ECON 4302	ENVIRONMENTAL ECONOMICS	
ARCH 4307	THE LIFE OF CITIES	
HIST 3350	READING THE LANDSCAPE	
GEOG 3355	ENVIRONMENTAL HISTORY OF THE UNITED STATES	
POLS 3303	INTRODUCTION TO PUBLIC ADMINISTRATION	
POLS 3305	GOVERNMENT IN URBAN AMERICA	
POLS 3307	COMPARATIVE STATE AND LOCAL POLITICS	
POLS 4351	ENERGY POLICY AND ADMINISTRATION	
CIRP 4391	STUDIES CIRP	
<b>Professional Courses</b>		
Major		
Core Curriculum		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2300	INTRODUCTION TO BIOSTATISTICS (or approved equivalent)	3
BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3
Select two of the following biological diversity courses:		8
BIOL 3427	PLANT SCIENCE	
BIOL 3444	GENERAL MICROBIOLOGY	
BIOL 3454	GENERAL ZOOLOGY	
Environmental Courses		
BIOL 3356	ENVIRONMENTAL SYSTEMS, BIOLOGICAL ASPECTS	3
Select 10 hours of approved upper division electives (at least one of which must have a lab):		10
BIOL 3149 & BIOL 3249	COOPERATIVE PROGRAM IN BIOLOGY and COOPERATIVE PROGRAM IN BIOLOGY	
BIOL 3328	ENVIRONMENTAL MICROBIOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3318	LIMNOLOGY	
BIOL 3325	PLANT ECOLOGY	
BIOL 3457	GENERAL ECOLOGY	
BIOL 4338	COMMUNITY ECOLOGY	
BIOL 4350	CONSERVATION BIOLOGY	
BIOL 4444	VERTEBRATE NATURAL HISTORY	
Graduate Courses		
Environmental and Earth Sciences Core		
CE 5321	ENGINEERING FOR ENVIRONMENTAL SCIENTISTS	3
CE 5319	PHYSICAL-CHEMICAL PROCESSES II	3
EVSE 5310	ENVIRONMENTAL SYSTEMS-CHEMICAL ASPECTS	3
EVSE 5311	ENVIRONMENTAL SYSTEMS-GEOLOGICAL ASPECTS	3
CIRP 5341 or CIRP 5350	ENVIRONMENTAL REGULATIONS: LAWS AND PLANNING ENVIRONMENTAL PLANNING	3
Select nine hours of biology electives at the graduate level (5000 and above)		9
Twelve hours in Biology, Chemistry and Biochemistry, Civil and Environmental Engineering, City and Regional Planning, or Geology; must include 6 hours outside Biology		12
Select two hours of the following:		2
EVSE 6100	SEMINAR IN ENVIRONMENTAL & EARTH SCIENCES	
Total Hours		199-202

<sup>1</sup> See /degreerequirements/generalcorerequirements (p. 93)

A 3.0 cumulative GPA for the last 60 hours at UTA, and an acceptable score on the GMAT, are required for admittance to the MS program.

#### Suggested Course Sequence

##### First Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
ENGL 1301	3	ENGL 1302	3	BIOL 2343	3
MATH 1323	3	MATH 1426	4		
CHEM 1441	4	CHEM 1442	4		
BIOL 1441	4	BIOL 1442	4		
HIST 1311	3				
	<b>17</b>		<b>15</b>		<b>3</b>

##### Second Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
CHEM 2321	3	PHYS 1441	4	BIOL 2300	3
CHEM 2181	1	CHEM 2322	3		
MATH 2425	4	CHEM 2182	1		
Language, Philosophy & Culture	3	BIOL 3315	3		
HIST 1312	3	POLS 2311	3		
	<b>14</b>		<b>14</b>		<b>3</b>

##### Third Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
BIOL elective w/lab	4	BIOL diversity course	4	Foundational Component Elective	3
BIOL elective	3	Social & Behavioral Science	3		
PHYS 1442	4	BIOL 3356	3		
Creative Arts	3	POLS 2312	3		
Non-science electives - see approved list	3	COMS 2302	3		
	<b>17</b>		<b>16</b>		<b>3</b>

##### Fourth Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
BIOL elective	4	GEOL elective	4	EVSE 5310	3
BIOL elective	3	CE 5321	3		
GEOL elective	6	CIRP 5350 or 5341	3		
Non-science electives - see approved list	3	Graduate BIOL electives	6		
	<b>16</b>		<b>16</b>		<b>3</b>

**Fifth Year**

First Semester	Hours	Second Semester	Hours
CE 5319	3	Other grad electives	9
EVSE 5311	3	EVSE seminar	1
Graduate BIOL elective	3		
Other grad elective	3		
EVSE seminar	1		
	<b>13</b>		<b>10</b>

---

 Total Hours: 160

## Dual Degree Plan: Bachelor of Science in Biology and Master of Science in Health Care Administration

This dual curriculum is designed to prepare students for careers in health care administration. The curriculum also prepares students for medical school and advanced study. Students are required to take courses from life sciences, business and liberal arts, culminating in a dual Master of Science Degree in Health Care Administration (HCA), including a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Business and the College of Science. The BS in Biology will be conferred at the same time that the student is awarded the MS in Health Care Administration. If students engaged in this joint degree program are not accepted into the HCA graduate program, or enter the HCA program and fail to complete the requirements for the master's degree in HCA, then, in order to earn a BS in Biology, they must take the same, full complement of courses required to earn the BS as taken by students not enrolled in the BIOL/HCA joint program.

### DESCRIPTION

Rapid and radical changes in the health care industry are forcing administrators to adopt new paradigms for cost management and the redesign of health care delivery processes, while increasing the quality of care delivered. The new health industry is shifting quickly toward managed care and capitation. This change has created a pressing need for health care delivery administrators, and the dual Biology/Health Care Administration BS/MS degree will help fulfill this need. This degree program is designed to provide students with a strong background in the life sciences and with a contemporary education in health care administration that will impart the necessary knowledge, skills and abilities to enable them to perform effectively in health care delivery. The program includes course work in the basic sciences and in health care administration. Additionally, students are required to take general education courses in literature, fine arts, history, political science and social science.

### CAREER OPPORTUNITIES

The program prepares students as health care administrators for leadership roles in provider organizations such as inpatient and outpatient hospitals, rehabilitation centers, psychiatric centers, chemical dependency units, nursing homes, retirement communities, institutional clinics, physician group practices, home health agencies, and in government regulatory agencies. It also provides a solid foundation for those wishing to continue for advanced degrees. For those planning to pursue a medical degree, this cross-disciplinary curriculum offers a solid foundation in health care administration, which is an advantage in preparing for a medical career.

### COURSE REQUIREMENTS

#### Pre-Professional Courses

General Core Requirements (p. 93)	39
-----------------------------------	----

#### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Science		3
ECON 2305	PRINCIPLES OF MACROECONOMICS	3
Foundational Component Core Elective <sup>1</sup>		3



MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	3
or MATH 1302	COLLEGE ALGEBRA	
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
Oral Communication Competency		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
Select one of the following in computer literacy:		0-3
Pass the University Proficiency Exam		
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING (or equivalent)	
<b>Professional Courses</b>		
Major		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 3444	GENERAL MICROBIOLOGY	4
BIOL 3315	GENETICS	3
Select 22 hours from the following:		22
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I <sup>2</sup>	
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3312	IMMUNOBIOLOGY	
BIOL 3442	PRINCIPLES OF ANIMAL PHYSIOLOGY <sup>2</sup>	
BIOL 3309	NON-MAJORS SELECTED TOPICS (medical terminology)	
BIOL 4312	INTRODUCTION TO VIROLOGY	
BIOL 4315	GENERAL ENDOCRINOLOGY	
BIOL 4357	HEALTH PSYCHOLOGY	
Advanced Business Electives (3000/4000)		9-11
Graduate Course Sequence (see below)		39
Total Hours		187-192

<sup>1</sup> See /degreerequirements/generalcorerequirements (p. 93)

<sup>2</sup> Laboratory course.

**This program consists of 109 undergraduate credit hours, plus 39 graduate credit hours. Total of 148 hours.**

A 3.2 cumulative GPA for the last 60 hours at UTA, and an acceptable GRE score, are required for admittance to the MS program.

### SUGGESTED COURSE SEQUENCE

#### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1315	3	MATH 1316	3
CHEM 1441	4	CHEM 1442	4

BIOL 1441	4	BIOL 1442	4		
	<b>14</b>		<b>14</b>		
<b>Second Year</b>					
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>		
ECON 2305	3	CHEM 2322 & CHEM 2182	4		
POLS 2311	3	BIOL 3315	3		
CHEM 2321 & CHEM 2181	4	POLS 2312	3		
BIOL 3444	4	Foundational Component Elective	3		
	<b>14</b>		<b>13</b>		
<b>Third Year</b>					
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>		
PHYS 1441	4	BIOL electives	7		
Language, Philosophy & Culture	3	PHYS 1442	4		
BIOL elective	3	Advanced undergraduate business elective	3		
Advanced undergraduate business elective	3				
	<b>13</b>		<b>14</b>		
<b>Fourth Year</b>					
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>		
BIOL elective	3	BIOL electives	9		
Approved undergraduate business elective	3	HIST 1312	3		
Creative Arts	3	COMS 2302	3		
HIST 1311	3				
	<b>12</b>		<b>15</b>		
<b>Fifth Year</b>					
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>	<b>Summer Session</b>	<b>Hours</b>
HCAD 5301	3	HCAD 5306	3	HCAD 5310	3
HCAD 5305	3	FINA 5315	3	INSY 5350	3
HCAD 5337	3				
	<b>9</b>		<b>6</b>		<b>6</b>
<b>Sixth Year</b>					
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>	<b>Summer Session</b>	<b>Hours</b>
OPMA 5377	3	MARK 5330	3	HCAD 5390	3

BSTAT 5315	3	ECON 5333	3	HCAD 5399	3
	6		6		6

Total Hours: 148

## Requirements for a Minor in Biology

A minor in biology will consist of a minimum of 18 credit hours of approved biology classes that would be applicable toward a major in Biology. Non-majors' courses will not apply toward a minor in biology, such as:

BIOL 1301	NUTRITION	3
BIOL 2317	BASIC CONCEPTS IN HUMAN SEXUALITY	3
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	4
BIOL 2458	HUMAN ANATOMY AND PHYSIOLOGY II	4
BIOL 2460	NURSING MICROBIOLOGY	4
BIOL 3303	DRUGS AND BEHAVIOR	3
BIOL 3309	NON-MAJORS SELECTED TOPICS	3

Non-lecture courses such as research, directed study, co-op, or lab TA credit may not be used toward a minor in Biology. A minimum of six of the 18 credit hours required for the minor must be at the 3000 or 4000 level. Limitations may be placed on certain courses, such as those in the UTTER program. BIOL 1441 CELL AND MOLECULAR BIOLOGY and BIOL 1442 STRUCTURE AND FUNCTION OF ORGANISMS, or equivalent, are required for the minor. The remaining 10 hours must be chosen with and approved by a Biology Advisor.

A 2.0 grade average must be maintained in the minor. Transfer students must complete at least nine hours toward the minor at UT Arlington, and six of the nine hours must be 3000 or 4000 level.

## Chemistry and Biochemistry

### Undergraduate Degrees

- Bachelor of Arts in Chemistry (p. 521)
- Bachelor of Arts in Chemistry with UTeach Physical Science Teacher Certification (p. 521)
- Bachelor of Science in Chemistry - American Chemical Society certified (p. 521)
- Bachelor of Science in Biochemistry - American Chemical Society certified (p. 521)
- Bachelor of Science in Biological Chemistry (p. 521)
- Bachelor of Science-Master of Science in Chemistry (p. 521)
- Minor in Chemistry (p. 533)

### Graduate Degrees

- Chemistry, M.S. (p. 516)
- Chemistry, M.S. Thesis Substitute (p. 516)
- Chemistry, M.S. Non-Thesis (p. 516)
- Chemistry, B.S. to Ph.D.
- Chemistry, Ph.D. (p. 518)

## Chemistry and Biochemistry - Graduate Programs

### Objective: Master of Science

The objectives of the Chemistry and Biochemistry Department's program leading to the Master of Science degree include:

1. developing the individual's ability to do independent research,
2. preparing students for more advanced study in chemistry and
3. providing advanced training to professional chemists and those employed in technical and business areas in which chemistry at this level is necessary for efficient performance.

Research areas include analytical chemistry, biochemistry, bioinorganic chemistry, colloid and surface chemistry, electrochemistry, inorganic chemistry, medicinal chemistry, organic chemistry, physical chemistry, polymer chemistry, and theoretical chemistry.

## Objective: Ph.D. in Chemistry

The program leading to the Doctor of Philosophy degree in Chemistry is designed primarily to prepare doctoral-level chemists for industrial research careers. The student must:

1. demonstrate the ability to carry out independent research and
2. acquire the practical knowledge of the type of research conducted in industry and of the constraints (both practical and philosophical) under which such research is conducted.

The areas of research include analytical chemistry, biochemistry, bioinorganic chemistry, colloid and surface chemistry, electrochemistry, inorganic chemistry, medicinal chemistry, organic chemistry, organometallic chemistry, physical chemistry, polymer chemistry, and theoretical chemistry.

## Admission Criteria

In evaluating candidates for admission to its graduate degree programs, the Department of Chemistry and Biochemistry emphasizes the preparedness of the student as evidenced by quality and quantity of coursework and the student's previous research experience. Recommendations from our own faculty, based on firsthand knowledge of the applicant or a faculty member at the applicant's institution, are also very important.

### UNCONDITIONAL ADMISSION

Unconditional admission may be granted under any one of the following options. The minimum undergraduate GPA requirement for all options is 3.0, as calculated by Graduate Admissions.

#### Option 1

A satisfactory completion of a Bachelor's degree or equivalent, official transcripts, and GRE scores, and three letters of recommendation.

#### Option 2

A satisfactory completion of a Bachelor's degree or equivalent, official transcripts, and a letter of recommendation from a faculty member at the applicant's undergraduate institution, *plus a recommendation from a UT Arlington Chemistry and Biochemistry faculty member.*

#### Option 3

A satisfactory completion of a bachelor's degree or equivalent, official transcripts, and a letter of recommendation from a faculty member at the undergraduate institution, *plus a recommendation from a UT Arlington Chemistry and Biochemistry faculty member based on a face-to-face interview.*

## Language Requirements

An applicant whose native language is not English must submit a TOEFL score of at least 550 or a score of at least 213 on the computer-based test. A TSE-A score of 45 or higher can be substituted for the TOEFL. Those who have completed their undergraduate education in English may be *eligible for a TOEFL waiver* based on the recommendation letters.

### PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### PROBATIONARY ADMISSION

In rare cases, probationary admission may be granted as the result of a substandard performance on one or more of the admission criteria. In this case, the Graduate Advisor will set additional conditions for admission including, but not limited to, additional undergraduate coursework and/or achieving a B or better in the first 9 hours of graduate coursework.

### DENIAL OF ADMISSION

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

### ELIGIBILITY FOR SCHOLARSHIPS/FELLOWSHIPS

Students that have no provisional admission conditions to meet will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by Graduate Admissions, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships. (Students with graduate teaching or research assistantships, however, must be enrolled in a minimum of 9 hours of coursework in both long semesters and 6 hours of coursework in the summer sessions.)

## Master's Degree Requirements

A candidate for graduate study must satisfy the general admission requirements of the program.

### MASTER'S DEGREE WITH THESIS

This degree requires a minimum of 24 credit hours in course work plus a 6 credit hour thesis class. A minimum of 18 credit hours course work in chemistry, and up to 6 credit hours electives are required. The 6 credit hour thesis class (CHEM 5698 THESIS) must be taken in the final semester. Courses in chemistry will be taken from at least four (4) of the chemistry disciplines (Analytical, Biochemistry, Inorganic, Organic, Physical); suggested classes are:

CHEM 5301	Introduction to Graduate Physical Chemistry	3
or CHEM 5302	ADVANCED GRADUATE PHYSICAL CHEMISTRY	
CHEM 5309	ORGANIC CHEMISTRY I	3
Select one of the following:		3
CHEM 5304	ANALYTICAL MASS SPECTROMETRY AND SPECTROSCOPY	
CHEM 5305	SEPARATION SCIENCE	
CHEM 5307	ANALYTICAL ELECTROCHEMISTRY	
CHEM 5311	ANALYTICAL CHEMISTRY - CONCEPTS AND IMPLEMENTATION	
CHEM 5315	INORGANIC CHEMISTRY	3
CHEM 5318	PRINCIPLES OF BIOCHEMISTRY	3
or CHEM 5321	METABOLISM AND REGULATION	

Electives may be senior or graduate division courses in a science or engineering subject selected by the candidate with the approval of the graduate advisor.

### MASTER'S DEGREE WITH THESIS SUBSTITUTE

This degree requires a minimum of 33 credit hours, of which at least 27 must be in coursework and 3 in a suitable project. Courses in chemistry will be taken from at least four (4) of the chemistry disciplines (Analytical, Biochemistry, Inorganic, Organic, Physical); suggested classes are:

CHEM 5301	Introduction to Graduate Physical Chemistry	3
or CHEM 5302	ADVANCED GRADUATE PHYSICAL CHEMISTRY	
CHEM 5309	ORGANIC CHEMISTRY I	3
Select one of the following:		3
CHEM 5304	ANALYTICAL MASS SPECTROMETRY AND SPECTROSCOPY	
CHEM 5305	SEPARATION SCIENCE	
CHEM 5307	ANALYTICAL ELECTROCHEMISTRY	
CHEM 5311	ANALYTICAL CHEMISTRY - CONCEPTS AND IMPLEMENTATION	
CHEM 5315	INORGANIC CHEMISTRY	3
CHEM 5318	PRINCIPLES OF BIOCHEMISTRY	3
or CHEM 5321	METABOLISM AND REGULATION	

Electives may be senior or graduate division courses in a science or engineering subject selected by the candidate with the approval of the graduate advisor. Minimal registration of a project course is also required:

Select one of the following:		3-6
CHEM 5391	READINGS IN CHEMISTRY	
CHEM 5691	READINGS IN CHEMISTRY	
CHEM 5392	RESEARCH IN CHEMISTRY	
CHEM 5692	RESEARCH IN CHEMISTRY	

Admission to the program requires approval of the Graduate Studies Committee. At the time the degree is awarded the candidate is expected to have completed at least five years of suitable professional experience in an industrial, government, or other chemistry laboratory. All potential applicants must contact the Graduate Advisor prior to registration.

### MASTER'S DEGREE NON-THESIS

This option requires a minimum of 36 hours of coursework of which at least 24 hours must be in chemistry. Courses in chemistry will be taken from at least four (4) of the chemistry disciplines (Analytical, Biochemistry, Inorganic, Organic, Physical); suggested classes are:

CHEM 5301 or CHEM 5302	Introduction to Graduate Physical Chemistry ADVANCED GRADUATE PHYSICAL CHEMISTRY	3
CHEM 5309	ORGANIC CHEMISTRY I	3
Select one of the following:		3
CHEM 5304	ANALYTICAL MASS SPECTROMETRY AND SPECTROSCOPY	
CHEM 5305	SEPARATION SCIENCE	
CHEM 5307	ANALYTICAL ELECTROCHEMISTRY	
CHEM 5311	ANALYTICAL CHEMISTRY - CONCEPTS AND IMPLEMENTATION	
CHEM 5315	INORGANIC CHEMISTRY	3
CHEM 5318 or CHEM 5321	PRINCIPLES OF BIOCHEMISTRY METABOLISM AND REGULATION	3

Electives may be senior or graduate division courses in a science or engineering subject. All courses must be approved by the graduate advisor.

## Admission Criteria

In evaluating candidates for admission to its graduate degree programs, the Department of Chemistry and Biochemistry emphasizes the preparedness of the student as evidenced by quality and quantity of coursework and the student's previous research experience. Recommendations from our own faculty, based on firsthand knowledge of the applicant or a faculty member at the applicant's institution, are also very important.

### UNCONDITIONAL ADMISSION

Unconditional admission may be granted under any one of the following options. The minimum undergraduate GPA requirement for all options is 3.0, as calculated by Graduate Admissions.

#### Option 1

A satisfactory completion of a Bachelor's degree or equivalent, official transcripts, and GRE scores, and three letters of recommendation.

#### Option 2

A satisfactory completion of a Bachelor's degree or equivalent, official transcripts, and a letter of recommendation from a faculty member at the applicant's undergraduate institution, *plus a recommendation from a UT Arlington Chemistry and Biochemistry faculty member.*

#### Option 3

A satisfactory completion of a bachelor's degree or equivalent, official transcripts, and a letter of recommendation from a faculty member at the undergraduate institution, *plus a recommendation from a UT Arlington Chemistry and Biochemistry faculty member based on a face-to-face interview.*

## Language Requirements

An applicant whose native language is not English must submit a TOEFL score of at least 550 or a score of at least 213 on the computer-based test. A TSE-A score of 45 or higher can be substituted for the TOEFL. Those who have completed their undergraduate education in English may be *eligible for a TOEFL waiver* based on the recommendation letters.

### PROVISIONAL ADMISSION

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### PROBATIONARY ADMISSION

In rare cases, probationary admission may be granted as the result of a substandard performance on one or more of the admission criteria. In this case, the Graduate Advisor will set additional conditions for admission including, but not limited to, additional undergraduate coursework and/or achieving a B or better in the first 9 hours of graduate coursework.

### DENIAL OF ADMISSION

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

### ELIGIBILITY FOR SCHOLARSHIPS/FELLOWSHIPS

Students that have no provisional admission conditions to meet will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by Graduate Admissions, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships. (Students with

graduate teaching or research assistantships, however, must be enrolled in a minimum of 9 hours of coursework in both long semesters and 6 hours of coursework in the summer sessions.)

## Ph.D. Degree Requirements

To be admitted to the Ph.D. program, an applicant must satisfy the general admission requirements of the program and his or her academic record must show preparation for advanced work in chemistry.

Each candidate must complete the following program requirements:

### 1. Courses for students emphasizing analytical chemistry

Select three of the following: 9

CHEM 5304	ANALYTICAL MASS SPECTROMETRY AND SPECTROSCOPY (Analytical Chemistry Core Course)
CHEM 5305	SEPARATION SCIENCE
CHEM 5307	ANALYTICAL ELECTROCHEMISTRY
CHEM 5311	ANALYTICAL CHEMISTRY - CONCEPTS AND IMPLEMENTATION (Analytical Chemistry Core Course)

Plus any two (2) courses from two divisions outside of analytical chemistry (biochemistry, inorganic, organic, or physical) <sup>1</sup>

Plus: One of the courses listed in item 7

### 2. Courses for students emphasizing biochemistry:

CHEM 5321	METABOLISM AND REGULATION (Biochemistry Core Course)	3
CHEM 5325	ENZYMولوجY (Biochemistry Core Course)	3
CHEM 5327	BIOCHEMICAL GENETICS (Biochemistry Core Course)	3

Students emphasizing biochemistry who have not had one full year of General Biochemistry must also take the following courses BEFORE taking CHEM 5321, CHEM 5325, and CHEM 5327:

CHEM 5318	PRINCIPLES OF BIOCHEMISTRY	3
or CHEM 5319	GENERAL BIOCHEMISTRY I	
CHEM 5320	GENERAL BIOCHEMISTRY II	3

Select two of the following: 6

CHEM 5203 & CHEM 5180	COMPUTATIONAL CHEMISTRY and QUANTUM CHEMISTRY LABORATORY
CHEM 5309	ORGANIC CHEMISTRY I
CHEM 5315	INORGANIC CHEMISTRY
CHEM 5308	DETERMINATION OF MOLECULAR STRUCTURE BY PHYSICAL METHODS
CHEM 5304 or CHEM 5311	ANALYTICAL MASS SPECTROMETRY AND SPECTROSCOPY (one of the Analytical Core Courses) ANALYTICAL CHEMISTRY - CONCEPTS AND IMPLEMENTATION

Plus: One of the courses listed in item 7

### 3. Courses for students emphasizing inorganic chemistry:

CHEM 5315	INORGANIC CHEMISTRY (Inorganic Chemistry Core Course)	3
CHEM 5308	DETERMINATION OF MOLECULAR STRUCTURE BY PHYSICAL METHODS (Inorganic Chemistry Core Course)	3

Select two of the following: 6

CHEM 5203 & CHEM 5180	COMPUTATIONAL CHEMISTRY and QUANTUM CHEMISTRY LABORATORY
CHEM 5309	ORGANIC CHEMISTRY I
CHEM 5304 or CHEM 5311	ANALYTICAL MASS SPECTROMETRY AND SPECTROSCOPY (one of the Analytical Core Courses) ANALYTICAL CHEMISTRY - CONCEPTS AND IMPLEMENTATION
CHEM 5318	PRINCIPLES OF BIOCHEMISTRY

Plus: One of the courses listed in item 7

### 4. Courses for students emphasizing organic chemistry:

CHEM 5308	DETERMINATION OF MOLECULAR STRUCTURE BY PHYSICAL METHODS (Organic Chemistry Core Course)	3
CHEM 5309	ORGANIC CHEMISTRY I (Organic Chemistry Core Course)	3
CHEM 5310	ORGANIC CHEMISTRY II (Organic Chemistry Core Course)	3
CHEM 5312	ADVANCED ORGANIC SYNTHESIS (Organic Chemistry Core Course)	3

Select two of the following: 6

CHEM 5203 & CHEM 5180	COMPUTATIONAL CHEMISTRY and QUANTUM CHEMISTRY LABORATORY	
CHEM 5304 or CHEM 5311	ANALYTICAL MASS SPECTROMETRY AND SPECTROSCOPY (one of the Analytical Core Courses) ANALYTICAL CHEMISTRY - CONCEPTS AND IMPLEMENTATION	
CHEM 5315	INORGANIC CHEMISTRY	
CHEM 5318	PRINCIPLES OF BIOCHEMISTRY	
Plus: one of the courses listed in item 7		
5. Courses for students emphasizing physical chemistry:		
CHEM 5301	Introduction to Graduate Physical Chemistry (Physical Chemistry Core Course)	3
CHEM 5302	ADVANCED GRADUATE PHYSICAL CHEMISTRY (Physical Chemistry Core Course)	3
CHEM 5300	SELECTED TOPICS IN ADVANCED CHEMISTRY	3
Select two of the following:		6
CHEM 5309	ORGANIC CHEMISTRY I	3
CHEM 5304 or CHEM 5311	ANALYTICAL MASS SPECTROMETRY AND SPECTROSCOPY (one of the Analytical Core Courses) ANALYTICAL CHEMISTRY - CONCEPTS AND IMPLEMENTATION	3
CHEM 5315	INORGANIC CHEMISTRY	3
CHEM 5318	PRINCIPLES OF BIOCHEMISTRY	3
Plus: One of the courses listed in item 7		
6. Courses for students emphasizing polymer chemistry:		
All required courses for any of the other emphasis areas 1-5 plus:		
CHEM 5350	ADVANCED POLYMER CHEMISTRY	3
7. Chemistry Internship - Select one of the following: <sup>2</sup>		
CHEM 6104	CHEMISTRY CAREER DEVELOPMENT	
CHEM 6304	CHEMISTRY CAREER DEVELOPMENT	
CHEM 6904	CHEMISTRY CAREER DEVELOPMENT	
8. Additional research and elective courses chosen according to the student's dissertation topic and area of specialization under the guidance of the supervising committee		
Total Hours		90

<sup>1</sup> CHEM 5308 DETERMINATION OF MOLECULAR STRUCTURE BY PHYSICAL METHODS cannot be used to fulfill this requirement. Students who do not have a good instrumentation background should consider taking CHEM 5461 ANALYTICAL INSTRUMENTATION.

<sup>2</sup> Each student is required to spend three months in a nonacademic chemical laboratory; credit may be given for a student's previous industrial research experience.

A course grade may be used to satisfy degree requirements for no more than seven years after the course has been completed.

After admission to the doctoral program the student must successfully complete the appropriate examination(s) required by the faculty of the student's discipline.

A supplementary set of guidelines, published by the Department of Chemistry and Biochemistry, should be consulted.

## Chemistry and Biochemistry - Undergraduate Programs

**Academic Advising: 817-272-9685**

### Overview

The Department of Chemistry and Biochemistry offers four programs of study leading to the bachelor's degree and one leading to both the bachelor's and master's degree. They are the Bachelor of Arts in Chemistry, the Bachelor of Science in Chemistry - American Chemical Society certified, the Bachelor of Science in Biochemistry - American Chemical Society certified, the Bachelor of Science in Biological Chemistry and a combined Bachelor of Science-Master of Science in Chemistry.

- **Professional Chemist:** Students who wish to become professional chemists or whose goals include graduate education in chemistry should pursue the Bachelor of Science in Chemistry - American Chemical Society certified. Alternatively, students may choose the Bachelor of Science-Master of Science combined program. Prospective students should contact the departmental undergraduate advisor.
- **Professional Biochemist:** Students who wish to become professional biochemists or whose goals include graduate education in biochemistry, should pursue the Bachelor of Science in Biochemistry - American Chemical Society certified. Prospective students should contact the departmental undergraduate advisor.



- **Premedical and Predental Programs:** Students who wish to prepare for entry into medical or dental school may choose to major in chemistry or biochemistry. While any of the four bachelor's programs will meet the minimum requirements, the department recommends either the Bachelor of Arts in Chemistry or the Bachelor of Science in Biological Chemistry. Prospective students should contact both the departmental undergraduate advisor and the premedical advisor in the College of Science.
- **Preallied Health Programs:** Students who wish to prepare for entry into pharmacy or veterinary school, nursing, medical technology, physical therapy, or occupational therapy may choose to major in chemistry. Prospective students should contact the departmental undergraduate advisor.
- **Chemistry as a Teaching Field:** Although students who intend to teach chemistry at the secondary school level may pursue any of the degrees, the Bachelor of Arts Degree offers the greatest flexibility.

## Declaring a Major in Chemistry or Biochemistry

Beginning freshmen who intend to declare chemistry or biochemistry as a major must complete the following courses with a minimum GPA of 2.25 in chemistry and an overall GPA of 2.25.

- CHEM 1441 GENERAL CHEMISTRY I and CHEM 1442 GENERAL CHEMISTRY II.
- Six hours of mathematics approved by the department.
- Three hours of biology or geology.
- 12 hours from courses in the University core curriculum other than science or mathematics (English, history, political science, social and cultural studies, and fine arts).

Transfer students who transfer part or all of the above requirements must complete a minimum of 11 hours of approved science and mathematics courses in residence with a minimum GPA of 2.25 to be eligible to major in chemistry or biochemistry.

All new students who intend to major in chemistry or biochemistry should schedule an appointment for advising with the departmental undergraduate advisor.

## Declaring a Second Major in Chemistry or Biochemistry

A person who satisfies the requirements for any other baccalaureate degree qualifies for having chemistry named as a second major upon completion of 25 semester hours from among:

CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
Chemistry courses with higher numbers		17
Total Hours		25

The specific courses to be used must be approved by the undergraduate advisor and the chair of the Department of Chemistry and Biochemistry.

## Teacher Certification

Students interested in earning a Bachelor of Arts or Bachelor of Science degree with a major in chemistry with secondary teacher certification, chemistry as a concentration in the science composite certification, or in chemistry or physical science as a second teaching field should refer to the "Bachelor of Arts Degree in Chemistry with UTeach Physical Science Certification" degree plan for teacher certification requirements.

## Calculation of Chemistry Grade Point Average

Only chemistry courses required in the degree program will be used in calculating the chemistry grade point average for chemistry degree candidates.

## Honors Program

Students who qualify are encouraged to participate in the University Honors College. Students should enroll in honors sections of chemistry courses when available and should include CHEM 4381 HONORS RESEARCH as approved by the departmental undergraduate advisor.

## Requirements for a Bachelor of Science Degree in Chemistry - American Chemical Society Certified

This program meets the standards for professional baccalaureate programs established by the American Chemical Society. It is recommended to students who plan to enter into graduate study in chemistry and for those who anticipate professional careers as chemists.

### Pre-Professional Courses

General Core Requirements (p. 93)

**Recommended Core Requirements**

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
See General Core Requirements for Foundational Component Area		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4

**Program Requirements**

MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
or MATH 3318	DIFFERENTIAL EQUATIONS	
CSE 1301	COMPUTER LITERACY <sup>1A</sup>	3
Advanced PHYS course at 3000 level or above:		3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	
Biology or Geology for science majors courses <sup>1B</sup>		8

**Professional Courses**

Major		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2285	QUANTITATIVE CHEMISTRY LABORATORY	2
CHEM 3321	PHYSICAL CHEMISTRY I	3
CHEM 3181	PHYSICAL CHEMISTRY I LABORATORY	1
CHEM 3322	PHYSICAL CHEMISTRY II	3
CHEM 3182	PHYSICAL CHEMISTRY II LABORATORY	1
CHEM 3317	INORGANIC CHEMISTRY	3
CHEM 4101	SEMINAR IN CHEMISTRY	1
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4318	INORGANIC CHEMISTRY	3
CHEM 4346	ADVANCED SYNTHETIC METHODS	3
CHEM 4461	INSTRUMENTAL ANALYSIS	4
CHEM 3000 level or above pre-approved by the undergraduate advisor		3
Advanced electives at the 3000 or 4000 level sufficient to meet the 36 advanced hours requirement		2
Electives sufficient to complete the total hours required for the degree		3
All students are strongly encouraged to enroll in undergraduate research		

Total Hours

159

**SUGGESTED COURSE SEQUENCE****First Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
CHEM 1441	4	CHEM 1442	4
MATH 1426	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
BIOL 1441 or GEOL 1301 <sup>1B</sup>	4	BIOL 1442 or GEOL 1302 <sup>1B</sup>	4
	<b>15</b>		<b>15</b>

**Second Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
CHEM 2321	3	CHEM 2322	3
CHEM 2181	1	CHEM 2182	1
MATH 2326	3	CHEM 2335	3
PHYS 1443	4	CHEM 2285	2
Language, Philosophy, and Culture	3	PHYS 1444	4
		MATH 3319 or 3318	3
	<b>14</b>		<b>16</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
CHEM 3321	3	CHEM 3322	3
CHEM 3181	1	CHEM 3182	1
CHEM 3317	3	CHEM 4318	3
PHYS 3313	3	POLS 2312	3
POLS 2311	3	Creative Arts	3
Social and Behavioral Sciences	3	Foundational Component Area	3
	<b>16</b>		<b>16</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
CHEM 4311	3	CHEM 4346	3
CHEM 4101	1	CHEM 3000 level or above	3
CHEM 4461	4	HIST 1312	3
HIST 1311	3	CSE 1301 <sup>1A</sup>	3
Advanced Electives	2	Electives (can be up to 4 hrs)	3
	<b>13</b>		<b>15</b>

Total Hours: 120

1A Student may pass the University Computer Proficiency Test to meet requirement. This will affect the number of electives needed to reach 120 hours.

1B Student may take GEOL 1301 and 1302 to meet requirement. This will affect the number of electives needed to reach 120 hours.

## Requirements for a Bachelor of Arts Degree in Chemistry

This program is suitable preparation for admission to medical and dental schools, and other health-related professions.

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
See General Core Requirements for Foundational Component Area		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4

### Program Requirements

14 hours in a single modern/classical language or eight hours in a language plus six advanced hours from one liberal arts area cluster to be chosen with the guidance of the undergraduate advisor <sup>2A</sup> 14

A passing score on the University Computer Proficiency Test meets the Computer Competency requirement. <sup>2B</sup>

Biology or Geology for science majors courses <sup>2C</sup> 8

### Professional Courses

Major		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2285	QUANTITATIVE CHEMISTRY LABORATORY	2
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	3
CHEM 3175	BIOPHYSICAL CHEMISTRY LABORATORY	1
CHEM 3317	INORGANIC CHEMISTRY	3
CHEM 4101	SEMINAR IN CHEMISTRY	1
CHEM 4311	BIOCHEMISTRY I	3
Select one from the following:		2
CHEM 3307	INTRODUCTION TO POLYMER CHEMISTRY	
CHEM 4242	LABORATORY TECHNIQUES IN BIOCHEMISTRY	
CHEM 4312	BIOCHEMISTRY II	
CHEM 4318	INORGANIC CHEMISTRY	
CHEM 4346	ADVANCED SYNTHETIC METHODS	

Advanced electives at the 3000 or 4000 level sufficient to meet the 36 advanced hours requirement 17

Electives sufficient to complete the total hours required for the degree 1

All students are strongly encouraged to enroll in undergraduate research

Total Hours

159

The minimum biology requirement for premedical students is BIOL 1441 CELL AND MOLECULAR BIOLOGY and three additional courses. Specifically, BIOL 3444 GENERAL MICROBIOLOGY and BIOL 3345 HUMAN PHYSIOLOGY are recommended plus three additional hours.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
CHEM 1441	4	CHEM 1442	4
MATH 1426	4	MATH 2425	4
BIOL 1441 or GEOL 1301 <sup>2C</sup>	4	BIOL 1442 or GEOL 1302 <sup>2C</sup>	4
ENGL 1301	3	ENGL 1302	3
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2181	1	CHEM 2182	1
PHYS 1441	4	CHEM 2335	3
Language, Philosophy, and Culture	3	CHEM 2285	2
Modern/Classical Language <sup>2A</sup>	4	PHYS 1442	4
		Modern/Classical Language <sup>2A</sup>	4
	<b>15</b>		<b>17</b>

### Third Year

First Semester	Hours	Second Semester	Hours
CHEM 3315	3	CHEM 4311	3
CHEM 3175	1	POLS 2312	3
POLS 2311	3	Modern/Classical Language <sup>2A</sup>	3
Modern/Classical Language <sup>2A</sup>	3	Creative Arts	3
Advanced Elective	6	Advanced Elective	3
	<b>16</b>		<b>15</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
CHEM 3317	3	CHEM 3000 level or above (can be up to 3 hrs)	2
CHEM 4101	1	HIST 1312	3
HIST 1311	3	Social and Behavioral Sciences	3
Foundational Component Area	3	Elective	1
Advanced Electives	5	Advanced Electives	3
	<b>15</b>		<b>12</b>

Total Hours: 120

2A See approved list of courses (p. 469) for the College of Science's liberal arts area clusters.

2B Student may take CSE 1301 COMPUTER LITERACY to meet requirement. This may add hours to the degree plan.

2C Student may take GEOL 1301 and 1302 to meet degree requirement. This will affect the number of electives needed to reach 120 hours.

## Requirements for a Bachelor of Arts Degree in Chemistry with Physical Science Teacher Certification

This program is suitable preparation for students who desire certification with a teaching field in chemistry and/or physical science.

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
See General Core Requirement for Foundational Component Area		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4

### Program Requirements

PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
PHYS 2315	INTRODUCTORY ASTROPHYSICS	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3445	OPTICS	4
PHYS 3455	ELECTRONICS	4
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4

A passing score on the University Computer Proficiency Test (CPT) fulfills the University requirement of competency in computer usage

### Professional Courses

SCIE 1101	STEP 1: INQUIRY APPROACHES TO TEACHING	1
SCIE 1102	STEP 2: INQUIRY-BASED LESSON DESIGN	1
SCIE 4107	STUDENT TEACHING SEMINAR	1
SCIE 4607	STUDENT TEACHING FOR SECONDARY GRADES	6
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE	3
EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3

### Major

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2285	QUANTITATIVE CHEMISTRY LABORATORY	2
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	3
CHEM 3175	BIOPHYSICAL CHEMISTRY LABORATORY	1
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4392	ADVANCED TOPICS IN CHEMISTRY (Research Methods)	3
CHEM 3317	INORGANIC CHEMISTRY	3

or CHEM 4318 **INORGANIC CHEMISTRY**

All students are strongly encouraged to enroll in undergraduate research.

Total Hours 162

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
CHEM 1441	4	CHEM 1442	4
MATH 1426	4	MATH 2425	4
SCIE 1101	1	PHYS 1443	4
ENGL 1301	3	SCIE 1102	1
POLS 2311	3	ENGL 1302	3
	<b>15</b>		<b>16</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2181	1	CHEM 2182	1
EDUC 4331	3	CHEM 2335	3
PHYS 1444	4	CHEM 2285	2
HIST 1311	3	EDUC 4332	3
		PHYS 2315	3
	<b>14</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours
CHEM 4311	3	CHEM 3317	3
POLS 2312	3	CHEM 3315	3
PHYS 3313	3	CHEM 3175	1
PHIL 2314	3	CHEM 4392	3
HIST 1312	3	PHYS 3445	4
	<b>15</b>		<b>14</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
EDUC 4333	3	SCIE 4107	1
BIOL 1441	4	SCIE 4607	6
PHYS 3455	4	BIOL 1442	4
Language, Philosophy, and Culture	3	Creative Arts	3
Social and Behavioral Sciences	3	Foundational Component Area	3
	<b>17</b>		<b>17</b>

Total Hours: 123

## Requirements for a Bachelor of Science Degree in Biochemistry - American Chemical Society Certified

This program is recommended to students who plan to enter into graduate study in biochemistry and for those who anticipate professional careers as biochemists. This program is also suitable for premedical and pre dental students and for training in allied health sciences.

<b>Pre-Professional Courses</b>		
General Core Requirements (p. 93)		39
<b>Recommended Core Requirements</b>		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
See General Core Requirements for Foundational Component Area		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
<b>Program Requirements</b>		
CSE 1301	COMPUTER LITERACY <sup>3A</sup>	3
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 3315	GENETICS	3
BIOL 3444	GENERAL MICROBIOLOGY	4
<b>Professional Courses</b>		
Major		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2285	QUANTITATIVE CHEMISTRY LABORATORY	2
CHEM 3321	PHYSICAL CHEMISTRY I	3
CHEM 3181	PHYSICAL CHEMISTRY I LABORATORY	1
CHEM 3322	PHYSICAL CHEMISTRY II	3
CHEM 3182	PHYSICAL CHEMISTRY II LABORATORY	1
CHEM 4242	LABORATORY TECHNIQUES IN BIOCHEMISTRY	2
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4312	BIOCHEMISTRY II	3
CHEM 4313	METABOLISM AND REGULATION	3
or CHEM 4316	BIOCHEMICAL GENETICS	
CHEM 4314	ENZYMOLGY	3
CHEM 3317	INORGANIC CHEMISTRY	3
or CHEM 4318	INORGANIC CHEMISTRY	
CHEM 4346	ADVANCED SYNTHETIC METHODS	3
CHEM 4461	INSTRUMENTAL ANALYSIS	4



Electives sufficient to complete the total hours required for the degree	4
All students are strongly encouraged to enroll in undergraduate research	
<b>Total Hours</b>	<b>159</b>

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
CHEM 1441	4	CHEM 1442	4
MATH 1426	4	MATH 2425	4
BIOL 1441	4	ENGL 1302	3
ENGL 1301	3	Creative Arts	3
	<b>15</b>		<b>14</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2181	1	CHEM 2182	1
PHYS 1443	4	CHEM 2335	3
MATH 2326	3	CHEM 2285	2
Language, Philosophy, and Culture	3	PHYS 1444	4
		BIOL 3315	3
	<b>14</b>		<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
CHEM 3321	3	CHEM 3322	3
CHEM 3181	1	CHEM 3182	1
CHEM 4311	3	CHEM 4312	3
BIOL 3444	4	CHEM 4242	2
HIST 1311	3	HIST 1312	3
Social and Behavioral Science	3	Foundational Component Area	3
	<b>17</b>		<b>15</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
CHEM 4313 or 4316	3	CHEM 4346	3
CHEM 3317 or 4318	3	CHEM 4314	3
CHEM 4461	4	POLS 2312	3
POLS 2311	3	Electives	4
Electives	3		
	<b>16</b>		<b>13</b>

Total Hours: 120

- 3A Student may pass the University Computer Proficiency Test to meet requirement. This will affect the number of electives needed to reach 120 hours.

## Requirements for a Bachelor of Science Degree in Biological Chemistry

This program is recommended to students who plan to enter into premedical and pre dental school and for training in allied health sciences. This program is also suitable for students who anticipate professional careers in the field of biotechnology or graduate training in biochemistry.

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1323	PRECALCULUS II	3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
See General Core Requirements for Foundational Component Area		
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4

### Program Requirements

CSE 1301	COMPUTER LITERACY <sup>4A</sup>	3
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 3444	GENERAL MICROBIOLOGY	4
Select two of the following:		6
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3312	IMMUNOBIOLOGY	
BIOL 3315	GENETICS (recommended)	
BIOL 3345	HUMAN PHYSIOLOGY	

### Professional Courses

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2285	QUANTITATIVE CHEMISTRY LABORATORY	2
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	3
CHEM 3175	BIOPHYSICAL CHEMISTRY LABORATORY	1
CHEM 4242	LABORATORY TECHNIQUES IN BIOCHEMISTRY	2
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4312	BIOCHEMISTRY II	3
CHEM 4313	METABOLISM AND REGULATION	3
or CHEM 4316	BIOCHEMICAL GENETICS	
CHEM 4314	ENZYMOLGY	3
CHEM 3317	INORGANIC CHEMISTRY	3

or CHEM 4318	INORGANIC CHEMISTRY	
CHEM 4461	INSTRUMENTAL ANALYSIS	4
Advanced electives at the 3000 or 4000 level sufficient to meet the 36 advanced hours requirement		1
Electives sufficient to complete the total hours required for the degree		6
All students are strongly encouraged to enroll in undergraduate research		
Total Hours		159

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
CHEM 1441	4	CHEM 1442	4
BIOL 1441	4	BIOL 1442	4
ENGL 1301	3	MATH 1426	4
MATH 1323	3	ENGL 1302	3
	<b>14</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2181	1	CHEM 2182	1
PHYS 1441	4	CHEM 2335	3
MATH 2425	4	CHEM 2285	2
Language, Philosophy, and Culture	3	PHYS 1442	4
		BIOL 3315	3
	<b>15</b>		<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
CHEM 3315	3	CHEM 4242	2
CHEM 3175	1	CHEM 4312	3
CHEM 4311	3	CHEM 4314	3
BIOL 3444	4	BIOL 3301, 3312, or 3345	3
HIST 1311	3	HIST 1312	3
Social and Behavioral Sciences	3	Foundational Component Area	3
	<b>17</b>		<b>17</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
CHEM 3317 or 4318	3	CHEM 4461	4
CHEM 4313 or 4316	3	POLS 2312	3
POLS 2311	3	Creative Arts	3
Elective	4	Elective	3
	<b>13</b>		<b>13</b>

Total Hours: 120

- 4A Student may pass the University Computer Proficiency Test to meet requirement. This will affect the number of electives needed to reach 120 hours.

## Requirements for a Combined B.S.-M.S. Degree in Chemistry

This program is recommended for students who wish to earn graduate level course credit and who wish to obtain graduate level research experience. This program is suitable for those students who plan to pursue doctoral graduate studies in chemistry and for those who anticipate professional careers as chemists.

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

ENGL 1301 RHETORIC AND COMPOSITION I 3

ENGL 1302 RHETORIC AND COMPOSITION II 3

See General Core Requirements for Creative Arts 3

POLS 2311 GOVERNMENT OF THE UNITED STATES 3

POLS 2312 STATE AND LOCAL GOVERNMENT 3

See General Core Requirements for Language, Philosophy, and Culture 3

HIST 1311 HISTORY OF THE UNITED STATES TO 1865 3

HIST 1312 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3

See General Core Requirements for Social and Behavioral Sciences 3

MATH 1426 CALCULUS I 4

MATH 2425 CALCULUS II 4

MATH 2326 CALCULUS III 3

See General Core Requirements for Foundational Component Area 3

PHYS 1443 GENERAL TECHNICAL PHYSICS I 4

PHYS 1444 GENERAL TECHNICAL PHYSICS II 4

### Program Requirements

A passing score on the University Computer Proficiency Test meets the Computer Competency requirement.

MATH 3318 DIFFERENTIAL EQUATIONS 3

or MATH 3319 DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA

Advanced PHYS course at 3000 level or above: 3

PHYS 3313 INTRODUCTION TO MODERN PHYSICS

Biology or Geology for science majors courses 6-8

### Professional Courses

CHEM 1441 GENERAL CHEMISTRY I 4

CHEM 1442 GENERAL CHEMISTRY II 4

CHEM 2321 ORGANIC CHEMISTRY 3

CHEM 2181 ORGANIC CHEMISTRY I LABORATORY 1

CHEM 2322 ORGANIC CHEMISTRY 3

CHEM 2182 ORGANIC CHEMISTRY II LABORATORY 1

CHEM 2335 QUANTITATIVE CHEMISTRY 3

CHEM 2285 QUANTITATIVE CHEMISTRY LABORATORY 2

CHEM 3317 INORGANIC CHEMISTRY 3

CHEM 3321 PHYSICAL CHEMISTRY I 3

CHEM 3322 PHYSICAL CHEMISTRY II 3

CHEM 3182 PHYSICAL CHEMISTRY II LABORATORY 1

CHEM 3181 PHYSICAL CHEMISTRY I LABORATORY 1

CHEM 4101 SEMINAR IN CHEMISTRY 1

CHEM 4311 BIOCHEMISTRY I 3

CHEM 4318 INORGANIC CHEMISTRY 3

CHEM 4346 ADVANCED SYNTHETIC METHODS 3

CHEM 4380 UNDERGRADUATE RESEARCH 3

CHEM 4461 INSTRUMENTAL ANALYSIS 4

CHEM 3000 level or above pre-approved by the undergraduate advisor	3
Refer to the Graduate Catalog and the graduate advisor for MS in Chemistry degree requirements (Master's Degree with Thesis).	30
Total Hours	182-184

## SUGGESTED COURSE SEQUENCE

Refer to the suggested course sequence for the BS in Chemistry degree and then refer to the graduate advisor for the graduate course sequence.

Nine hours of graduate-level courses chosen with the approval of the graduate advisor will be used to complete the total hours required for the BS in Chemistry degree.

## Fast Track Program for the Bachelor of Science in Biochemistry and Master of Science in Biomedical Engineering

This program enables outstanding senior undergraduate students in Biochemistry to satisfy degree requirements leading to a master's (M. Engr.) degree in Biomedical Engineering while completing their undergraduate studies.

Undergraduate students at the end of their freshmen year who have completed CHEM 1441 GENERAL CHEMISTRY I and CHEM 1442 GENERAL CHEMISTRY II with a GPA of 3.0 and express an interest in the Fast Track Program will be designated as "BioChem-BE FAST TRACK BOUND". Students who have been identified as "BioChem-BE FAST TRACK BOUND" as well as other outstanding undergraduates in Biochemistry can apply for the Fast Track Program when they are within 30 hours of completing their bachelor degrees. They must have completed at least 30 hours at UTA, achieving a GPA of at least 3.0 in those courses, and have an overall GPA of 3.0 or better in all college courses. Additionally, they must have completed at least 10 hours of specified undergraduate Foundation Courses that are listed below with a GPA of 3.3 in these courses.

Foundation Courses Required for Admission into the Fast Track program:

BIOL 3345	HUMAN PHYSIOLOGY	3
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 4311	BIOCHEMISTRY I	3

When senior-level students are within 15 hours of completing their undergraduate degree requirements, they may take up to 12 hours of graduate level coursework designated by the Biochemistry and Bioengineering Program to satisfy both undergraduate and graduate degree requirements. This will be the maximum amount of credit that can be used as joint credit.

Students pursuing the Fast Track master's degree must take courses specified by the Department of Biomedical Engineering.

## Oral Communication and Computer Competency Requirements

For all chemistry degree programs, the university computer competency requirement will be met by taking appropriate course work (CSE 1301 COMPUTER LITERACY recommended) or by passing the University computer proficiency examination.

The University oral communication competency requirement may be satisfied by taking CHEM 4101 SEMINAR IN CHEMISTRY (required for the Bachelor of Science degree in Chemistry, the Bachelor of Arts degree in Chemistry, and the combined BS-MS degree in Chemistry) or by taking CHEM 4313 METABOLISM AND REGULATION or CHEM 4314 ENZYMOLOGY (required for the Bachelor of Science degree in Biochemistry and the Bachelor of Science degree in Biological Chemistry).

Students should refer to the specific degree plans and the chemistry undergraduate advisor for details regarding these requirements.

## Declaring a Minor in Chemistry

Students who wish to obtain a minor in Chemistry must take at least 18 semester hours of chemistry of which at least 6 semester hours must be at the 3000/4000 level. Only courses which satisfy a degree requirement for one of the degrees offered by the Department of Chemistry and Biochemistry may be used.

## Earth and Environmental Sciences

### Undergraduate Degrees

- Bachelor of Science in Geology - Professional Option (p. 540)
- Bachelor Science in Geology - Environmental Science Option (p. 540)
- Bachelor of Science in Geology - Engineering Geology Option (p. 540)
- Bachelor of Science in Environmental Science (p. 540)
- Bachelor of Science in Geoinformatics - General Option (p. 540)

- Bachelor of Science in Geoinformatics - Earth Science Option (p. 540)
- Bachelor of Arts in Geology - General Option (p. 540)
- Bachelor of Arts in Geology - Geographic Information Systems Option (p. 540)
- Bachelor of Arts in Geology - Composite Science Teacher Certification Option (UTeach) (p. 540)

## Minors

- Minor in Geology (p. 561)
- Minor in Biology (for Majors in Earth and Environmental Sciences) (p. 561)

## Undergraduate Certificates

- Certificate in Geographic Information Systems (p. 561)

## Graduate Degrees

- Earth and Environmental Science / Geology, M.S. (p. 535)
- Earth and Environmental Science, Ph.D. (p. 538)

# Earth and Environmental Sciences - Graduate Programs

## Program Objectives

**The MS in Environmental and Earth Sciences** has four options: an Environmental Science Option; a Geoscience Option; a Professional Environmental Science Option; and a Petroleum Geoscience Option.

*The Environmental Science Option* provides graduate students with an integrated, multidisciplinary education, requiring a breadth of understanding and mastery of a spectrum of scientific and engineering principles. The thesis option, designed for those interested in an in-depth experience in some particular topic, and a non-thesis option are available.

*The Geoscience Option* is a two year program with specializations in stratigraphy, petrology, paleontology, sedimentology, structural geology, tectonics, plate tectonics, computer modeling, geochemistry or paleoclimatology. Students in this program are prepared for additional graduate work at the PhD level, or for positions in industry and government. Thesis or non thesis options are available.

*The Environmental Science Professional Option* is a Professional Master's Degree for those interested in a career in Environmental Science. Instead of a thesis, students are participate in a mentoring program, take a course in project economics, work as an intern or in a part time job in the Environmental Science Profession, and participate in course experiences involving business ethics, teamwork, a small research project, and communication. This is a non thesis program.

*The Petroleum Geoscience Professional Option* is a Professional Masters Degree for those interested in a career in Petroleum Geoscience. In addition to core geology courses, students are required to participate in a mentoring program with industry professionals, work as an intern or in a part time job in petroleum geoscience, take a course in project economics, and participate in course activities that emphasize business ethics, teamwork and communications. A thesis research project is required.

**The PhD in Environmental and Earth Sciences.** The program leading to the Doctor of Philosophy degree in Environmental and Earth Sciences is designed primarily to prepare doctoral-level students for research careers in industry, government or academic institutions. Students carry out independent research and acquire practical knowledge of the type of research conducted and the constraints (both practical and philosophical) under which such research is conducted. The areas of research are interdisciplinary using the Earth's environment, interpreted broadly, as the theme. Research normally comes from the disciplines of Geoscience, Biology, Chemistry and Engineering, but contributions from other disciplines are welcome. The program is designed to provide graduate students an integrated, multidisciplinary education, requiring a breadth of understanding and mastery of a spectrum of scientific and engineering principles. Among the goals is to provide students who have earned engineering or science undergraduate degrees a common ground for interdisciplinary communication, an understanding of the environment, and competence in a research area that will enable them to evaluate complex environmental problems.

## Admission

Students applying for MS or PhD degrees should apply to the Graduate School for regular admission to a particular degree program.

### CATEGORIES OF ADMISSION

Unconditional - all the admission criteria are met and there are no conditions placed on continued enrollment in the program.

Probationary - Applicants that do not meet the standards for unconditional admission may be considered for probationary admission after careful examination of their application materials. Probationary admission normally requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UT Arlington.

Deferred and Provisional Admission - A deferred admission may be granted when an application is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but whom otherwise appears to meet admission requirements may be granted provisional admission.

## INTERNATIONAL STUDENTS

An applicant whose native language is not English must demonstrate a sufficient level of skill with the English language to assure success in graduate studies. Applicants must submit a score of at least 550 on the paper-based TOEFL, a score of at least 213 on the computer-based TOEFL, a minimum score of 40 on the TSE, a minimum score of 6.5 on the IELTS, or a minimum TOEFL iBT total score of 79 with sectional scores that meet or exceed 22 for the writing section, 21 for the speaking section, 20 for the reading section, and 16 for the listening section to meet this requirement.

An applicant holding either a bachelor's or a master's degree from a regionally accredited U.S. college or university is not required to submit a TOEFL, TOEFL iBT, TSE or IELTS score for admission purposes. Any other waivers of the score requirements must be recommended by the applicant's Graduate Advisor and approved by the Dean of Graduate Studies.

## FINANCIAL AID

Students that are unconditionally admitted into the PhD program can also apply for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 9 hours of coursework in both long semesters to retain their fellowships. In addition, an applicant who is a non-native speaker of English must submit a TOEFL iBT score of at least 23, or a score of at least 7 on the Speaking section of the IELTS, or take and pass the UTA Developmental English course to be eligible for a Graduate Teaching Assistantship.

## DENIAL OF ADMISSION

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

## Environmental and Earth Sciences Master's Program Admissions

For unconditional admission a student must meet the following requirements:

For the Environmental Science Options: A B.S. degree in biology, chemistry, geoscience, mathematics, or engineering with the following courses or their equivalent: 1 semester of introductory physics for science majors; 2 semesters of introductory chemistry for science majors; and 2 semesters of calculus. Students with a Bachelor's Degree in other sciences will also be considered, subject to satisfactory completion of deficiency courses.

For the Geoscience Options: A B.S. degree in an Earth Science discipline with the following courses or their equivalent: Mineralogy, Petrology, Structure, Stratigraphy, Field Geology and Geophysics or Paleontology. In addition, students need a year of Chemistry, Biology, Physics and Calculus.

For all Options:

1. A minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School.
2. Graduate Record Examination (GRE) scores are considered in admission decisions. Masters students who have succeeded in the Environmental and Earth Sciences Program typically score higher than the 60th Percentile on the verbal and quantitative portion of the GRE.
3. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or an equivalent score on a computer-based test) or a score of 40 on the Test of Spoken English.
4. Favorable letters of recommendation from people familiar with the applicant's academic work.
5. Students may be considered for unconditional admission if further review of their transcripts, recommendation letters, correspondence or direct interactions with Environmental and Earth Sciences faculty, and statement of professional or research interests indicates that they are qualified to enter the Masters Program.

## Master's Degree Requirements

### ENVIRONMENTAL AND EARTH SCIENCES MASTER'S DEGREE

There are additional requirements for all Master's programs listed in this catalogue under the Graduate School

#### Environmental Science Option

##### Thesis Option

##### Core Courses

CE 5321	ENGINEERING FOR ENVIRONMENTAL SCIENTISTS	3
CE 5319	PHYSICAL-CHEMICAL PROCESSES II	3
or CE 5328	FUNDAMENTALS OF AIR POLLUTION	
Select two of the following in science:		6

EVSE 5309	ENVIRONMENTAL SYSTEMS-BIOLOGICAL ASPECTS <sup>1</sup>	
EVSE 5310	ENVIRONMENTAL SYSTEMS-CHEMICAL ASPECTS <sup>1</sup>	
EVSE 5311	ENVIRONMENTAL SYSTEMS-GEOLOGICAL ASPECTS <sup>1</sup>	
Select one of the following in City and Regional Planning:		3
CIRP 5342	ENVIRONMENTAL POLICY	
CIRP 5343	FOUNDATIONS OF ENVIRONMENTAL POLICY	
CIRP 5351	TECHNIQUES OF ENVIRONMENTAL ASSESSMENT	
<b>Thesis Option Requirements</b>		
Electives within one of the following departments: Biology, Chemistry, Earth and Environmental Sciences, Civil and Environmental Engineering, or Urban and Public Affairs		9
Additional Electives		6
EVSE Seminar		2
Thesis and the successful defense of the thesis before the supervising committee		6
Total Hours		38

<sup>1</sup> Students with less than 20 undergraduate hours in biology, chemistry, or geology will need to take a third environmental systems course as a deficiency. Students entering with a BS degree in one of these areas must take their two courses in the other areas.

### Non-Thesis Option

#### Core Courses

CE 5321	ENGINEERING FOR ENVIRONMENTAL SCIENTISTS	3
CE 5319	PHYSICAL-CHEMICAL PROCESSES II	3
or CE 5328	FUNDAMENTALS OF AIR POLLUTION	
Select two of the following in science:		6
EVSE 5309	ENVIRONMENTAL SYSTEMS-BIOLOGICAL ASPECTS <sup>1</sup>	
EVSE 5310	ENVIRONMENTAL SYSTEMS-CHEMICAL ASPECTS <sup>1</sup>	
EVSE 5311	ENVIRONMENTAL SYSTEMS-GEOLOGICAL ASPECTS <sup>1</sup>	
Select one of the following in City and Regional Planning		3
CIRP 5342	ENVIRONMENTAL POLICY	
CIRP 5343	FOUNDATIONS OF ENVIRONMENTAL POLICY	
CIRP 5351	TECHNIQUES OF ENVIRONMENTAL ASSESSMENT	

#### Non-Thesis Option Requirements

Electives within one of the following departments: Biology, Chemistry, Earth and Environmental Sciences, Civil and Environmental Engineering, or Urban and Public Affairs		9
Additional Electives <sup>2</sup>		12
EVSE Seminar		2
Successful completion of the Master's Comprehensive Examination in the final semester		
Total Hours		38

<sup>1</sup> Students with less than 20 undergraduate hours in biology, chemistry, or geology will need to take a third environmental systems course as a deficiency. Students entering with a BS degree in one of these areas must take their two courses in the other areas.

<sup>2</sup> Must include at least 6 hours in department(s) outside that in which the first 9 hours of electives are taken.

### The Geoscience Option

#### Thesis Option

#### Core Courses

Select one of the following in engineering:		3
CE 5321	ENGINEERING FOR ENVIRONMENTAL SCIENTISTS	
IE 3312	ECONOMICS FOR ENGINEERS	
Or advisor approved		
Select one of the following in an outside science:		3
EVSE 5309	ENVIRONMENTAL SYSTEMS-BIOLOGICAL ASPECTS	



EVSE 5310	ENVIRONMENTAL SYSTEMS-CHEMICAL ASPECTS	
Or advisor approved		
Select two hours in the following seminars:		2
GEOL 5199	TECHNICAL SESSIONS	
EVSE 6100	SEMINAR IN ENVIRONMENTAL & EARTH SCIENCES	
<b>Thesis Option Requirements</b>		
Advisor Approved Electives		18
GEOL 5698	THESIS	6
Total Hours		32

### Non-Thesis Option

#### Core Courses

Select one of the following in engineering:		3
CE 5321	ENGINEERING FOR ENVIRONMENTAL SCIENTISTS	
IE 3312	ECONOMICS FOR ENGINEERS	
Or advisor approves		
Select one of the following in an outside science:		3
EVSE 5309	ENVIRONMENTAL SYSTEMS-BIOLOGICAL ASPECTS	
EVSE 5310	ENVIRONMENTAL SYSTEMS-CHEMICAL ASPECTS	
Or advisor approved		
Select two hours in the following seminars:		2
GEOL 5199	TECHNICAL SESSIONS	
EVSE 6100	SEMINAR IN ENVIRONMENTAL & EARTH SCIENCES	
<b>Non-Thesis Option Requirements</b>		
Advisor Approved Electives		27
Total Hours		35

### Environmental Science Professional Option

The minimum requirements for the Professional Option include:

IE 3312	ECONOMICS FOR ENGINEERS	3
CE 5321	ENGINEERING FOR ENVIRONMENTAL SCIENTISTS	3
Select two of the following in science:		6
EVSE 5309	ENVIRONMENTAL SYSTEMS-BIOLOGICAL ASPECTS <sup>1</sup>	
EVSE 5310	ENVIRONMENTAL SYSTEMS-CHEMICAL ASPECTS <sup>1</sup>	
EVSE 5311	ENVIRONMENTAL SYSTEMS-GEOLOGICAL ASPECTS <sup>1</sup>	
Select one of the following in City and Regional Planning:		3
CIRP 5342	ENVIRONMENTAL POLICY	
CIRP 5343	FOUNDATIONS OF ENVIRONMENTAL POLICY	
CIRP 5351	TECHNIQUES OF ENVIRONMENTAL ASSESSMENT	
<b>Professional Courses</b>		
Take two semesters of the following:		2
EVSE 5120	ENVIRONMENTAL PROFESSIONAL MENTORING & BUSINESS ETHICS	
EVSE 5315	PROFESSIONAL EXPERIENCE	3
EVSE 5395	MASTER'S PROJECT	3
<b>Other Electives</b>		
Electives within one of the following departments: Biology, Chemistry, Earth and Environmental Sciences, Civil and Environmental Engineering, or Urban and Public Affairs		9
Additional Electives		6
Successful completion of the Master's Comprehensive Examination in final semester.		
Total Hours		38

- <sup>1</sup> Students with less than 20 undergraduate hours in biology, chemistry, or geology will need to take a third environmental systems course as a deficiency. Students entering with a BS degree in one of these areas must take their two courses in the other areas.

## The Petroleum Geoscience Professional Option

The minimum requirements for the Petroleum Geoscience Professional Option include:

IE 3312	ECONOMICS FOR ENGINEERS (or advisor approved)	3
Professional Courses		
GEOL 5180	PROFESSIONAL ORIENTATION AND BUSINESS ETHICS	1
GEOL 5190	GEOSCIENCE INTERNSHIP	1
Other courses		
GEOL 5345	PETROLEUM GEOLOGY	3
GEOL 5369	SEQUENCE STRATIGRAPHY	3
GEOL 5371	BASIN ANALYSIS	3
GEOL 5372	STRUCTURAL GEOMETRY AND TECTONICS OF PETROLEUM FIELDS	3
GEOL 5373	RESERVOIR CHARACTERIZATION	3
GEOL 5374	SEISMIC INTERPRETATION	3
GEOL 5375	INTRODUCTION TO WELL LOG INTERPRETATION AND MAPPING	3
GEOL 5698	THESIS	6
Total Hours		32

## DUAL DEGREE PROGRAM

Dual master's degrees can be arranged with any suitable program. By participating in a dual degree program, students may apply 6-18 total semester credit hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from six to 18, subject to the approval of Graduate Advisors from both programs. Degree plans, thesis or professional report proposals and programs of work must be approved by Graduate Advisors from both programs. The successful candidate will be awarded both degrees rather than one joint degree.

To participate in the dual degree program, students must make separate application to each program and must submit a separate program of work for each degree. Those interested in the dual degree program should consult the appropriate Graduate Advisors for further information on course requirements. See also the statement on Dual Degree Programs in the general information section of this catalog.

Arrangements to offer a dual degree have already been made between Environmental and Earth Sciences and the Program in City and Regional Planning (M.C.R.P. degree), School of Urban and Public Affairs.

## Admission Requirements

For unconditional admission a student must meet the following requirements:

1. A Masters Degree or at least 30 hours of graduate coursework in environmental science, biology, chemistry, geology, mathematics or engineering. Students with a Bachelor's degree in biology, chemistry, geology, mathematics, or engineering will be considered for the B.S. to Ph.D. track if they meet the other requirements for admission to doctoral studies. Students with a Bachelor's Degree in other sciences will also be considered, subject to satisfactory completion of courses to make up deficiencies.
2. A minimum graduate coursework GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School.
3. Graduate Record Examination (GRE) scores are considered in admission decisions. Doctoral students who have succeeded in the Environmental and Earth Sciences Program typically score higher than the 60th percentile the verbal and the quantitative portion of the GRE.
4. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or an equivalent score on a computer-based test) or a score of 40 on the Test of Spoken English.
5. Favorable letters of recommendation from people familiar with the applicant's academic work and/or professional work.
6. A statement must be submitted to the program detailing the applicant's specific research interests and identifying the faculty member who is requested as supervisor of the dissertation research.
7. Students may be considered for unconditional admission if further review of their transcripts, recommendation letters, correspondence or direct interactions with Environmental and Earth Sciences faculty, and statement of research interests indicates that they are qualified to enter the Doctoral Program.

## Doctoral Degree Requirements

### ENVIRONMENTAL AND EARTH SCIENCES DOCTORAL DEGREE

The Doctoral Program provides students with the interdisciplinary knowledge and skills to conduct independent research in Environmental and Earth Sciences. Students conduct dissertation research under the supervision of a faculty member in one of the participating departments (Biology, Chemistry, Earth and Environmental Sciences, Civil and Environmental Engineering, or Urban and Public Affairs). The supervising professor and a faculty committee assign courses in this primary area of emphasis to support the student's research and professional goals. To provide interdisciplinary training, additional courses are assigned in a secondary area of emphasis.

If they have not already done so in their previous work, all Doctoral students must take two engineering courses; two or three science courses (two if their prior training is in science, three if in engineering or another non-science field); and one course in policy or planning.

Students who enter the Doctoral Program with a Master's degree in a science or engineering field, or with 30 semester hours of graduate coursework, take a Diagnostic Examination in the first year of residence to evaluate this previous work. The student's supervising committee must approve all courses taken to meet degree requirements.

Students who enter the Doctoral Program with a Bachelor's degree take 30 semester hours of graduate coursework that includes Engineering, Science and Public Policy courses. These students are encouraged to take the diagnostic exam in their first year of enrollment. The student's supervising committee must approve all courses taken to meet degree requirements.

Students may choose among any of the five participating units for their primary and secondary areas of emphasis. Course selection within these areas of emphasis is guided by the student's supervising committee and must result in a cohesive program that supports the dissertation research.

Other requirements include:

1. Successful completion of the Diagnostic Examination at the end of the first year of residence.
2. Successful completion of the Comprehensive Examination, an oral defense of a research proposal to be pursued for the dissertation, and a specialization examination over areas of the student's proposed research.
3. Demonstration of proficiency in one foreign language or a research tool such as advanced computer skills, statistics, or operations research.
4. Successful defense of the dissertation and acceptance of the dissertation by the supervising committee.

## Earth and Environmental Sciences - Undergraduate Programs

Academic Advising: 107 Life Science Building · 817.272.9685

### Degree Programs

#### BACHELOR OF SCIENCE IN GEOLOGY

This degree has three options:

1. The **Professional Option** is for students who plan to enter the profession or go to graduate school but are uncertain where they want to concentrate. The program emphasizes breadth and exposes students to most of the geological disciplines.
2. The **Environmental Science Option** emphasizes the application of earth science to environmental problems associated with the hydrosphere, atmosphere and natural hazards.
3. The **Engineering Geology Option** is for students who are interested in combining Geology with Civil Engineering coursework to work with engineering firms on construction and environmental problems.

#### BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE

This degree is designed for students who plan to enter the profession or go to graduate school. It consists of equal numbers of credit hours in Geology and Biology, either Organic or Physical Chemistry, and Math through Calculus II.

#### BACHELOR OF SCIENCE IN GEOINFORMATICS

Geoinformatics is the analysis, integration and dissemination of the vast quantities of scientific data that are associated with a geographic location. The informatics concept integrates web-based, data management technologies with scientific and technical disciplines as well as business and liberal arts disciplines. This degree has two options:

1. The **General Option** is for students who want to apply informatics to some discipline, which is represented by the minor.
2. The **Earth Science Option** is for students who want to apply informatics to Geoscience.

#### BACHELOR OF ARTS IN GEOLOGY

This degree has three options:

1. The **General Option** is for students who want to combine Geology with other professional interests.
2. The **Geographic Information Systems Option** is for students who want to combine Geology with computer technology to store and analyze spatial data using GIS software.
3. The **Composite Science Teacher Certification Option** is for students who want teacher certification, and it is offered through the UTeach program.

## Requirements for a Bachelor of Science in Geology - Professional Option

This degree is for students who plan to enter the profession or go to graduate school but are uncertain where they want to concentrate. The program emphasizes breadth and exposes students to most of the geological disciplines.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93)		39
RECOMMENDED CORE REQUIREMENTS		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
or PHYS 1443	GENERAL TECHNICAL PHYSICS I	
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
or PHYS 1444	GENERAL TECHNICAL PHYSICS II	
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - pass Computer Skills Placement test or any computer-related course such as:

GEOL 4330 UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS

### PROFESSIONAL COURSES

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
MATH 3316	STATISTICAL INFERENCE	3
MINOR: 18 or more hours as required for Biology, Chemistry, Mathematics, or Physics		10
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 2446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3441	PALEONTOLOGY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3387	FIELD GEOLOGY I	3
GEOL 3388	FIELD GEOLOGY II	3
GEOL 4000-level elective - select one of the following:		3
GEOL 4302	PLATE TECTONICS	

GEOL 4308	ENVIRONMENTAL GEOCHEMISTRY	
GEOL 4320	HYDROGEOLOGY	
GEOL 4402	COMPUTER MODELING IN EARTH SCIENCE	
GEOL 4000-level electives approved by the Earth and Environmental Sciences undergraduate advisor; no more than 3 hours may be used from the following:		6
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	
GEOL 4331	ANALYSIS OF SPATIAL DATA	
GEOL 4333	REMOTE SENSING FUNDAMENTALS	
GEOL 4334	GEOGRAPHIC DATA ANALYSIS	
<b>General Elective(s)</b>		4
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
Total Hours		159

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Students should also consult with the appropriate department for minor requirements; Biology minors should consult with the Earth and Environmental Sciences undergraduate advisor.

### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	GEOL 1302	3
MATH 1426	4	MATH 2425	4
ENGL 1301	3	CHEM 1441	4
HIST 1311	3	ENGL 1302	3
	<b>13</b>		<b>14</b>

### Second Year

First Semester	Hours	Second Semester	Hours
GEOL 2445	4	GEOL 2446	4
CHEM 1442	4	BIOL 1442	4
BIOL 1441	4	PHYS 1441 or 1443	4
HIST 1312	3	POLS 2311	3
	<b>15</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
GEOL 3441	4	GEOL 3442	4	GEOL 3387	3
GEOL 3443	4	approved GEOL 4000-level elective	3	GEOL 3388	3
MATH 3316	3	minor course**	3		
PHYS 1442 or 1444	4	Creative Arts*	3		
	<b>15</b>		<b>13</b>		<b>6</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
GEOL 4302, 4308, 4320, or 4402	3	approved GEOL 4000-level elective	3

minor course **	3	minor course **	4
POLS 2312	3	Foundational Component Area *	3
Language, Philosophy and Culture *	3	General Elective(s)	4
Social/Behavioral Science *	3		
	<b>15</b>		<b>14</b>

---

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Science in Geology - Environmental Science Option

This degree emphasizes the application of earth science to environmental problems associated with the hydrosphere, atmosphere and natural hazards.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
or PHYS 1443	GENERAL TECHNICAL PHYSICS I	
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
or PHYS 1444	GENERAL TECHNICAL PHYSICS II	
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3443 or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - satisfied by GEOL 4330

### PROFESSIONAL COURSES

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
MATH 3316	STATISTICAL INFERENCE	3
MINOR: 18 or more hours as required by the department of Biology or Chemistry and Biochemistry		10
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4

GEOL 2446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3387	FIELD GEOLOGY I	3
GEOL 3388	FIELD GEOLOGY II	3
GEOL 4308	ENVIRONMENTAL GEOCHEMISTRY	3
GEOL 4320	HYDROGEOLOGY	3
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
GEOL 4405	METEOROLOGY AND CLIMATOLOGY	4
<b>General Elective(s)</b>		<b>4</b>
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
Total Hours		159

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Biology minors should consult with the Earth and Environmental Sciences undergraduate advisor for minor requirements, and Chemistry minors should consult with the Chemistry and Biochemistry undergraduate advisor for minor requirements.

### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	GEOL 1302	3
MATH 1426	4	MATH 2425	4
ENGL 1301	3	CHEM 1441	4
HIST 1311	3	ENGL 1302	3
	<b>13</b>		<b>14</b>

### Second Year

First Semester	Hours	Second Semester	Hours
GEOL 2445	4	GEOL 2446	4
CHEM 1442	4	BIOL 1442	4
BIOL 1441	4	PHYS 1441 or 1443	4
Creative Arts*	3	Language, Philosophy and Culture*	3
	<b>15</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
GEOL 3443	4	GEOL 3442	4	GEOL 3387	3
MATH 3316	3	GEOL 4330	3	GEOL 3388	3
PHYS 1442 or 1444	4	minor course**	3		
POLS 2311	3	POLS 2312	3		
	<b>14</b>		<b>13</b>		<b>6</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
GEOL 4308	3	GEOL 4405	4

GEOL 4320	3	minor course**	4
minor course**	3	Foundational Component Area*	3
HIST 1312	3	General Elective(s)	4
Social/Behavioral Science*	3		
	<b>15</b>		<b>15</b>

---

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Science in Geology - Engineering Geology Option

This degree is for students who are interested in combining Geology with Civil Engineering coursework to work with engineering firms on construction and environmental problems.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93)			39
<b>RECOMMENDED CORE REQUIREMENTS</b>			
ENGL 1301	RHETORIC AND COMPOSITION I		3
ENGL 1302	RHETORIC AND COMPOSITION II		3
Creative Arts*			3
POLS 2311	GOVERNMENT OF THE UNITED STATES		3
POLS 2312	STATE AND LOCAL GOVERNMENT		3
Language, Philosophy and Culture*			3
PHYS 1443	GENERAL TECHNICAL PHYSICS I		4
PHYS 1444	GENERAL TECHNICAL PHYSICS II		4
MATH 1426	CALCULUS I		4
MATH 2425	CALCULUS II		4
Social/Behavioral Science*			3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865		3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT		3
Foundational Component Area*			3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3443 or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - satisfied by GEOL 4330

### PROFESSIONAL COURSES

CHEM 1441	GENERAL CHEMISTRY I		4
CHEM 1442	GENERAL CHEMISTRY II		4
CE 2311	STATICS		3
CE 2221	DYNAMICS		2
CE 2313	MECHANICS OF MATERIALS I		3
Select one of the following options:			10-20
<b>FLUID DYNAMICS OPTION</b>			
CE 3301	STOCHASTIC MODELS FOR CIVIL ENGINEERING		
CE 3305	BASIC FLUID MECHANICS		
CE 3309	INTRODUCTION TO HYDROLOGY		
CE 3142	APPLIED FLUID MECHANICS LAB		
CE 3334	PRINCIPLES OF ENVIRONMENTAL ENGINEERING		



CE 3131	ENVIRONMENTAL ANALYSIS	
MATH 2326	CALCULUS III	
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	
SOIL MECHANICS OPTION		
CE 3343	SOIL MECHANICS	
CE 3143	PROPERTIES AND BEHAVIOR OF SOILS	
CE 4320	EARTH STRUCTURES DESIGN	
CE 4324	MECHANICS OF MATERIALS II	
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 2446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3387	FIELD GEOLOGY I	3
GEOL 3388	FIELD GEOLOGY II	3
GEOL 4308	ENVIRONMENTAL GEOCHEMISTRY	3
GEOL 4320	HYDROGEOLOGY	3
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
<b>General Elective(s) as needed to total 120 hours for degree</b>		
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
<b>Total Hours</b>		<b>120</b>

\* See General Core Requirements (p. 93) for approved courses.

### TYPICAL COURSE SEQUENCE - FLUID DYNAMICS OPTION

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester.

#### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	PHYS 1443	4
MATH 1426	4	GEOL 1302	3
CHEM 1441	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
	<b>14</b>		<b>14</b>

#### Second Year

First Semester	Hours	Second Semester	Hours
GEOL 2445	4	GEOL 2446	4
MATH 2326	3	CHEM 1442	4
PHYS 1444	4	CE 2313	3
CE 2311	3	CE 2221	2
	<b>14</b>		<b>13</b>

#### Third Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
Creative Arts*	3	Language, Philosophy and Culture*	3	GEOL 3387	3

CE 3301	3	GEOL 3442	4	GEOL 3388	3
GEOL 3443	4	POLS 2312	3		
MATH 3319	3	CE 3305	3		
POLS 2311	3	Social/Behavioral Science*	3		
	<b>16</b>		<b>16</b>		<b>6</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
CE 3309	3	GEOL 4330	3
GEOL 4308	3	CE 3334	3
GEOL 4320	3	CE 3131	1
CE 3142	1	HIST 1312	3
HIST 1311	3	Foundational Component Area*	3
		General Elective	1
	<b>13</b>		<b>14</b>

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

**TYPICAL COURSE SEQUENCE - SOIL MECHANICS OPTION**

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester.

**First Year**

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	PHYS 1443	4
MATH 1426	4	GEOL 1302	3
CHEM 1441	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
	<b>14</b>		<b>14</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
GEOL 2445	4	GEOL 2446	4
PHYS 1444	4	CHEM 1442	4
CE 2311	3	CE 2221	2
Social/Behavioral Science*	3	CE 2313	3
	<b>14</b>		<b>13</b>

**Third Year**

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
POLS 2311	3	General Elective	3	GEOL 3387	3

Creative Arts *	3	Language, Philosophy and Culture *	3	GEOL 3388	3
CE 3343	3	POLS 2312	3		
CE 3143	1	GEOL 3442	4		
GEOL 3443	4				
	<b>14</b>		<b>13</b>		<b>6</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
CE 4324	3	GEOL 4330	3	CE 4320	3
GEOL 4308	3	HIST 1312	3		
GEOL 4320	3	Foundational Component Area *	3		
HIST 1311	3	General Electives	5		
General Elective	3				
	<b>15</b>		<b>14</b>		<b>3</b>

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

## Requirements for a Bachelor of Science in Environmental Science

This degree is designed for students who plan to enter the profession or go to graduate school. It consists of equal numbers of credit hours in Geology and Biology, either Organic or Physical Chemistry, and Math through Calculus II.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1443 or PHYS 1441	GENERAL TECHNICAL PHYSICS I (for Quantitative and Physical Chemistry Option) GENERAL COLLEGE PHYSICS I	4
PHYS 1444 or PHYS 1442	GENERAL TECHNICAL PHYSICS II (for Quantitative and Physical Chemistry Option) GENERAL COLLEGE PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL or BIOL course, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - pass Computer Skills Placement test or any computer-related course such as:

GEOL 4330 UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS

### PROFESSIONAL COURSES

MATH 3316	STATISTICAL INFERENCE	3
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 2445	MINERALOGY	4
GEOL 4308	ENVIRONMENTAL GEOCHEMISTRY	3
GEOL 4320	HYDROGEOLOGY	3
GEOL 4405	METEOROLOGY AND CLIMATOLOGY	4
GEOL 4465	PHYSICAL OCEANOGRAPHY	4
GEOL advanced electives - select from the following:		9
GEOL 4301	MARINE GEOLOGY & GEOCHEMISTRY	
GEOL 4322	CONTAMINANT HYDROGEOLOGY	
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	
GEOL 4331	ANALYSIS OF SPATIAL DATA	
GEOL 4350	STABLE ISOTOPE GEOCHEMISTRY	
GEOL 4352	ANALYTICAL METHODS IN GEOCHEMISTRY	
GEOL 4360	GEOLOGICAL PROCESSES OF OCEANS	
other GEOL advanced elective(s) approved by Earth and Environmental Sciences undergraduate advisor		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3
BIOL 3356	ENVIRONMENTAL SYSTEMS, BIOLOGICAL ASPECTS	3
BIOL 3457	GENERAL ECOLOGY	4
or BIOL 3444	GENERAL MICROBIOLOGY	
BIOL advanced electives - select from the following:		9
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3318	LIMNOLOGY	
BIOL 3170	LIMNOLOGY LABORATORY	
BIOL 3325	PLANT ECOLOGY	
BIOL 3328	ENVIRONMENTAL MICROBIOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3355	TOXICOLOGY	
BIOL 3357	MARINE BIOLOGY	
BIOL 3427	PLANT SCIENCE	
BIOL 3445	METHODS IN MOLECULAR MICROBIOLOGY	
BIOL 3454	GENERAL ZOOLOGY	
BIOL 4312	INTRODUCTION TO VIROLOGY	
BIOL 4338	COMMUNITY ECOLOGY	
BIOL 4350	CONSERVATION BIOLOGY	
BIOL 4444	VERTEBRATE NATURAL HISTORY	
other BIOL advanced elective(s) approved by Earth and Environmental Sciences undergraduate advisor		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
Select one of the following options:		8-11
ORGANIC CHEMISTRY OPTION		
CHEM 2321	ORGANIC CHEMISTRY	
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	
CHEM 2322	ORGANIC CHEMISTRY	
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	
QUANTITATIVE AND PHYSICAL CHEMISTRY OPTION		
CHEM 2335	QUANTITATIVE CHEMISTRY	
CHEM 2285	QUANTITATIVE CHEMISTRY LABORATORY	

CHEM 3321 PHYSICAL CHEMISTRY I (additional coursework needed to meet prerequisites)

MATH 2326 CALCULUS III

36 hours of coursework must be advanced (3000/4000-level) to earn degree.

**Total Hours**

125-128

\* See General Core Requirements (p. 93) for approved courses.

**TYPICAL COURSE SEQUENCE - ORGANIC CHEMISTRY OPTION**

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester.

**First Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
GEOL 1301	3	BIOL 1442	4
MATH 1426	4	MATH 2425	4
BIOL 1441	4	CHEM 1441	4
ENGL 1301	3	ENGL 1302	3
	<b>14</b>		<b>15</b>

**Second Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
GEOL 2445	4	GEOL advanced elective	3
BIOL 2343	3	CHEM 2321	3
CHEM 1442	4	CHEM 2181	1
Creative Arts*	3	PHYS 1441 or 1443	4
		Language, Philosophy and Culture*	3
		Social/Behavioral Science*	3
	<b>14</b>		<b>17</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
GEOL 4320	3	GEOL advanced elective	3
BIOL 3315	3	BIOL 3457 or 3444	4
CHEM 2322	3	BIOL advanced elective	3
CHEM 2182	1	HIST 1311	3
PHYS 1442 or 1444	4	POLS 2312	3
POLS 2311	3		
	<b>17</b>		<b>16</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
GEOL 4308	3	GEOL 4405	4
GEOL 4465	4	GEOL advanced elective	3
MATH 3316	3	BIOL 3356	3
BIOL advanced elective	3	BIOL advanced elective	3

HIST 1312	3	Foundational Component Area *	3
	<b>16</b>		<b>16</b>

Total Hours: 125

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE - QUANTITATIVE AND PHYSICAL CHEMISTRY OPTION

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester.

### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	BIOL 1442	4
MATH 1426	4	MATH 2425	4
BIOL 1441	4	CHEM 1441	4
ENGL 1301	3	ENGL 1302	3
	<b>14</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
GEOL 2445	4	GEOL advanced elective	3
BIOL 2343	3	CHEM 2335	3
CHEM 1442	4	CHEM 2285	2
MATH 2326	3	PHYS 1443	4
HIST 1311	3	Creative Arts *	3
		Language, Philosophy and Culture *	3
	<b>17</b>		<b>18</b>

### Third Year

First Semester	Hours	Second Semester	Hours
GEOL 4320	3	GEOL advanced elective	3
BIOL 3315	3	BIOL 3457 or 3444	4
PHYS 1444	4	BIOL advanced elective	3
POLS 2311	3	HIST 1312	3
Social/Behavioral Science *	3	POLS 2312	3
	<b>16</b>		<b>16</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
GEOL 4308	3	GEOL 4405	4
GEOL 4465	4	GEOL advanced elective	3
BIOL advanced elective	3	BIOL 3356	3
CHEM 3321	3	BIOL advanced elective	3

MATH 3316	3 Foundational Component Area *	3
	<b>16</b>	<b>16</b>

Total Hours: 128

\* See General Core Requirements (p. 93) for approved courses.

## Requirements for a Bachelor of Science in Geoinformatics - General Option

This degree is for students who want to apply informatics to some discipline, which is represented by the minor.

<b>PRE-PROFESSIONAL COURSES</b>		
General Core Requirements (p. 93)		39
<b>RECOMMENDED CORE REQUIREMENTS</b>		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
MATH 1324	ALGEBRA AND TRIGONOMETRY	3
or MATH 1302 & MATH 1303	COLLEGE ALGEBRA and TRIGONOMETRY	
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3
<b>PROGRAM REQUIREMENTS</b>		
Communication Competence - complete COMS 1301, COMS 2302, or other equivalent course		3
Computer Competence - satisfied by GEOL 4330		
<b>PROFESSIONAL COURSES</b>		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
MINOR: 18 or more hours as required by the appropriate department		18
<b>MAJOR</b>		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
GEOL 4331	ANALYSIS OF SPATIAL DATA	3
GEOL 4333	REMOTE SENSING FUNDAMENTALS	3
GEOL 4334	GEOGRAPHIC DATA ANALYSIS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
INSY 3300	OBJECT-ORIENTED PROGRAMMING	3
INSY 3303	COMPUTER NETWORKS AND DISTRIBUTED COMPUTING	3
INSY 3304	DATABASE MANAGEMENT SYSTEMS	3
INSY 3305	INFORMATION SYSTEMS ANALYSIS AND DESIGN	3
INSY 4305	ADVANCED APPLICATION DEVELOPMENT	3
INSY 4306	ADVANCED SYSTEMS DEVELOPMENT	3

INSY elective - select one of the following: 3

INSY 4308	APPLIED SOFTWARE DEVELOPMENT
INSY 4310	ADVANCED COMPUTER NETWORKS
INSY 4312	FUNDAMENTALS OF INFORMATION SECURITY
INSY 4315	ADVANCED WEB DEVELOPMENT

36 hours of coursework must be advanced (3000/4000-level) to earn degree.

**Total Hours** 120-123

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Students should also consult with the appropriate department for minor requirements.

### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	GEOL 1302	3
MATH 1324	3	MATH 1308	3
ENGL 1301	3	INSY 2303	3
HIST 1311	3	ENGL 1302	3
Creative Arts*	3	Language, Philosophy and Culture*	3
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
INSY 3300	3	INSY 3303	3
CHEM 1441	4	CHEM 1442	4
minor course**	3	BIOL 1441	4
HIST 1312	3	minor course**	3
COMS 1301 or 2302 (or other equivalent course)	3		
	<b>16</b>		<b>14</b>

### Third Year

First Semester	Hours	Second Semester	Hours
GEOL 4330	3	GEOL 4331	3
INSY 3304	3	INSY 3305	3
INSY 4305	3	BIOL 1442	4
minor course**	3	minor course**	3
POLS 2311	3	POLS 2312	3
	<b>15</b>		<b>16</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
GEOL 4333	3	GEOL 4334	3
INSY 4306	3	INSY elective (4308, 4310, 4312, or 4315)	3
PHYS 1441	4	PHYS 1442	4



minor course **	3	minor course **	3
Social/Behavioral Science *	3	Foundational Component Area *	3
	<b>16</b>		<b>16</b>

Total Hours: 123

\* See General Core Requirements (p. 93) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Science in Geoinformatics - Earth Science Option

This degree is for students who want to apply informatics to Geoscience.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
or PHYS 1443	GENERAL TECHNICAL PHYSICS I	
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
or PHYS 1444	GENERAL TECHNICAL PHYSICS II	
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - satisfied by GEOL 4330

### PROFESSIONAL COURSES

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
MATH 3316	STATISTICAL INFERENCE	3
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 2446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3441	PALEONTOLOGY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3387	FIELD GEOLOGY I	3
GEOL 3388	FIELD GEOLOGY II	3

GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
GEOL 4331	ANALYSIS OF SPATIAL DATA	3
GEOL 4333	REMOTE SENSING FUNDAMENTALS	3
GEOL 4334	GEOGRAPHIC DATA ANALYSIS	3
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	3
INSY 3300	OBJECT-ORIENTED PROGRAMMING	3
INSY 3303	COMPUTER NETWORKS AND DISTRIBUTED COMPUTING	3
INSY 3304	DATABASE MANAGEMENT SYSTEMS	3
INSY 3305	INFORMATION SYSTEMS ANALYSIS AND DESIGN	3
INSY 4305	ADVANCED APPLICATION DEVELOPMENT	3
INSY 4306	ADVANCED SYSTEMS DEVELOPMENT	3
INSY elective - select one of the following:		3
INSY 4308	APPLIED SOFTWARE DEVELOPMENT	
INSY 4310	ADVANCED COMPUTER NETWORKS	
INSY 4312	FUNDAMENTALS OF INFORMATION SECURITY	
INSY 4315	ADVANCED WEB DEVELOPMENT	

36 hours of coursework must be advanced (3000/4000-level) to earn degree.

**Total Hours** 133

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester.

### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	MATH 2425	4
MATH 1426	4	INSY 2303	3
ENGL 1301	3	CHEM 1441	4
HIST 1311	3	ENGL 1302	3
Creative Arts*	3		
	<b>16</b>		<b>14</b>

### Second Year

First Semester	Hours	Second Semester	Hours
GEOL 1302	3	GEOL 2446	4
GEOL 2445	4	INSY 3303	3
INSY 3300	3	BIOL 1442	4
CHEM 1442	4	PHYS 1441	4
BIOL 1441	4		
	<b>18</b>		<b>15</b>

### Third Year

First Semester	Hours	Second Semester	Hours	Summer Session	Hours
GEOL 3441	4	GEOL 3442	4	GEOL 3387	3
GEOL 3443	4	GEOL 4331	3	GEOL 3388	3
GEOL 4330	3	INSY 3305	3		

INSY 3304	3	POLS 2311	3	
INSY 4305	3	Social/Behavioral Science *	3	
	<b>17</b>		<b>16</b>	<b>6</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours	
GEOL 4333	3	GEOL 4334	3	
MATH 3316	3	INSY elective (4308, 4310, 4312, or 4315)	3	
INSY 4306	3	POLS 2312	3	
PHYS 1442	4	Language, Philosophy and Culture *	3	
HIST 1312	3	Foundational Component Area *	3	
	<b>16</b>		<b>15</b>	

Total Hours: 133

\* See General Core Requirements (p. 93) for approved courses.

**Requirements for a Bachelor of Arts in Geology - General Option**

This degree is for students who want to combine Geology with other professional interests.

**PRE-PROFESSIONAL COURSES**

General Core Requirements (p. 93) 39

**RECOMMENDED CORE REQUIREMENTS**

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
MATH 1324	ALGEBRA AND TRIGONOMETRY	3
or MATH 1302 & MATH 1303	COLLEGE ALGEBRA and TRIGONOMETRY	3
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

**PROGRAM REQUIREMENTS**

Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - pass Computer Skills Placement test or any computer-related course such as:

GEOL 4330 UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS

**PROFESSIONAL COURSES**

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
MINOR: 18 or more hours as required by the appropriate department		18
<b>MAJOR</b>		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 2446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3441	PALEONTOLOGY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL advanced (3000/4000-level) electives approved by the Earth and Environmental Sciences undergraduate advisor		6
GEOL 4000-level elective approved by the Earth and Environmental Sciences undergraduate advisor		3
<b>General Electives</b>		4-7
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
<b>Total Hours</b>		120

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Students should also consult with the appropriate department for minor requirements.

### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	GEOL 1302	3
MATH 1324	3	MATH 1308	3
ENGL 1301	3	CHEM 1441	4
HIST 1311	3	ENGL 1302	3
Creative Arts*	3		
	<b>15</b>		<b>13</b>

### Second Year

First Semester	Hours	Second Semester	Hours
GEOL 2445	4	GEOL 2446	4
CHEM 1442	4	PHYS 1441	4
minor course**	3	minor course**	3
HIST 1312	3	POLS 2311	3
	<b>14</b>		<b>14</b>

### Third Year

First Semester	Hours	Second Semester	Hours
GEOL 3443	4	GEOL 3442	4
PHYS 1442	4	approved GEOL advanced (3000/4000-level) elective	3
BIOL 1441	4	BIOL 1442	4
minor course**	3	minor course**	3
		POLS 2312	3
	<b>15</b>		<b>17</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
GEOL 3441	4	approved GEOL 4000-level elective	3
approved GEOL advanced (3000/4000-level) elective	3	minor course**	3
minor course**	3	Language, Philosophy and Culture*	3
Social/Behavioral Science*	3	Foundational Component Area*	3
General Elective	3	General Elective(s)	4
	<b>16</b>		<b>16</b>

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Arts in Geology - Geographic Information Systems Option

This degree is for students who want to combine Geology with computer technology to store and analyze spatial data using GIS software.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts*		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture*		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
MATH 1324 or MATH 1302 & MATH 1303	ALGEBRA AND TRIGONOMETRY COLLEGE ALGEBRA and TRIGONOMETRY	3
Social/Behavioral Science*		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area*		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - satisfied by GEOL 4330

### PROFESSIONAL COURSES

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
MINOR: 18 hours as required by appropriate department		18
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3

GEOL 2445	MINERALOGY	4
GEOL 2446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3441	PALEONTOLOGY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
GEOL 4331	ANALYSIS OF SPATIAL DATA	3
GEOL 4333	REMOTE SENSING FUNDAMENTALS	3
GEOL 4334	GEOGRAPHIC DATA ANALYSIS	3
<b>General Elective(s)</b>		1-4
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
<b>Total Hours</b>		120

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Students should also consult with the appropriate department for minor requirements.

### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	GEOL 1302	3
MATH 1324	3	MATH 1308	3
ENGL 1301	3	CHEM 1441	4
HIST 1311	3	ENGL 1302	3
Creative Arts*	3	Language, Philosophy and Culture*	3
	<b>15</b>		<b>16</b>

### Second Year

First Semester	Hours	Second Semester	Hours
GEOL 2445	4	GEOL 2446	4
CHEM 1442	4	PHYS 1441	4
minor course**	3	minor course**	3
HIST 1312	3	POLS 2311	3
		Social/Behavioral Science*	3
	<b>14</b>		<b>17</b>

### Third Year

First Semester	Hours	Second Semester	Hours
GEOL 3443	4	GEOL 3442	4
GEOL 4330	3	GEOL 4331	3
BIOL 1441	4	BIOL 1442	4
minor course**	3	minor course**	3
	<b>14</b>		<b>14</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
GEOL 3441	4	GEOL 4334	3
GEOL 4333	3	minor course**	3
PHYS 1442	4	POLS 2312	3
minor course**	3	Foundational Component Area*	3
		General Elective(s)	4
	<b>14</b>		<b>16</b>

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Arts in Geology - Composite Science Teacher Certification Option (UTeach)

This degree is for students who want teacher certification, and it is offered through the UTeach program.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts*		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture*		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
MATH 1324 or MATH 1302 & MATH 1303	ALGEBRA AND TRIGONOMETRY COLLEGE ALGEBRA and TRIGONOMETRY	3
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
Social/Behavioral Science*		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area*		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - satisfied by EDUC 4331

### PROFESSIONAL COURSES

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343	EVOLUTION & ECOLOGY	3
BIOL 3315	GENETICS	3
BIOL 3427	PLANT SCIENCE	4
BIOL 3454	GENERAL ZOOLOGY	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4

TEACHER CERTIFICATION (UTEACH)		
SCIE 1101	STEP 1: INQUIRY APPROACHES TO TEACHING	1
SCIE 1102	STEP 2: INQUIRY-BASED LESSON DESIGN	1
SCIE 4107	STUDENT TEACHING SEMINAR	1
SCIE 4607	STUDENT TEACHING FOR SECONDARY GRADES	6
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE	3
EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 2446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3441	PALEONTOLOGY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 4305	SELECTED TOPICS IN GEOLOGY (Research Methods)	3
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
Total Hours		163

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the UTeach advisor, particularly since many GEOL courses are not offered every semester.

### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301	3	GEOL 1302	3
MATH 1324	3	MATH 1308	3
BIOL 1441	4	CHEM 1441	4
ENGL 1301	3	ENGL 1302	3
SCIE 1101	1	SCIE 1102	1
	<b>14</b>		<b>14</b>

### Second Year

First Semester	Hours	Second Semester	Hours
GEOL 2445	4	GEOL 2446	4
BIOL 1442	4	BIOL 2343	3
CHEM 1442	4	PHYS 1441	4
EDUC 4331	3	Creative Arts*	3
		EDUC 4332	3
	<b>15</b>		<b>17</b>

### Third Year

First Semester	Hours	Second Semester	Hours
GEOL 3443	4	GEOL 3442	4
BIOL 3315	3	GEOL 4305 (Research Methods)	3



PHYS 1442	4	BIOL 3454	4
HIST 1311	3	HIST 1312	3
PHIL 2314	3		
	<b>17</b>		<b>14</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
GEOL 3441	4	POLS 2312	3
BIOL 3427	4	Language, Philosophy and Culture *	3
POLS 2311	3	Foundational Component Area *	3
Social/Behavioral Science *	3	SCIE 4107	1
EDUC 4333	3	SCIE 4607	6
	<b>17</b>		<b>16</b>

Total Hours: 124

\* See General Core Requirements (p. 93) for approved courses.

### Requirements for a Minor in Geology

A minimum total of 18 credit hours (including a minimum of 6 hours at the 3000-4000 level) are required. Transfer students must complete a minimum of 9 hours at UTA, 6 of which must be 3000-4000 level. A 2.0 GPA is required for coursework in the minor.

**The following courses cannot be used for the minor:** GEOL 3100, GEOL 3340, GEOL 4189, GEOL 4190, GEOL 4289, GEOL 4393.

### Requirements for a Minor in Biology (for Majors in Earth and Environmental Sciences)

Students who are pursuing a major in the Department of Earth and Environmental Sciences and a minor in Biology must choose their minor courses from the approved list below.

A minimum total of 18 credit hours (including a minimum of 6 hours at the 3000-4000 level) are required. Transfer students must complete a minimum of 9 hours at UTA, 6 of which must be 3000-4000 level. A 2.0 GPA is required for coursework in the minor.

**REQUIRED COURSES**

BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL 2343	EVOLUTION & ECOLOGY	3
ADVANCED ELECTIVES - choose from the following:		7
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3315	GENETICS	
BIOL 3318	LIMNOLOGY	
BIOL 3170	LIMNOLOGY LABORATORY	
BIOL 3327	MICROBIAL DIVERSITY	
BIOL 3328	ENVIRONMENTAL MICROBIOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3355	TOXICOLOGY	
BIOL 3444	GENERAL MICROBIOLOGY	
BIOL 3457	GENERAL ECOLOGY	
BIOL 4338	COMMUNITY ECOLOGY	

other BIOL advanced elective(s) approved by Earth and Environmental Sciences undergraduate advisor

Total Hours

18

## Requirements for Certification in Geographic Information Systems

Certification in Geographic Information Systems is designed for students in non-Earth and Environmental Sciences majors who want to become proficient in spatial data analysis, which is used in business, liberal arts, engineering and architecture disciplines.

This is a certification program and it does not lead to a second major or minor. However, students may use these courses to count towards a Geology minor. Students who are in the Geology B.A. Geographic Information Systems Option or Geoinformatics B.S. degree plans may not also earn this certificate, as the certificate courses are required for those degrees.

Students must obtain a 3.0 cumulative GPA in the required courses in order to earn the certificate.

### REQUIRED COURSES

GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
GEOL 4331	ANALYSIS OF SPATIAL DATA	3
GEOL 4333	REMOTE SENSING FUNDAMENTALS	3
GEOL 4334	GEOGRAPHIC DATA ANALYSIS	3
Total Hours		12

## Interdisciplinary Science - Graduate Programs

### Graduate Degree

- Interdisciplinary Science, M.A. (p. 562)

### Objective

The Master of Arts in Interdisciplinary Science program is designed to strengthen and update the knowledge and skills necessary to teach science at the elementary, middle school, or secondary level. The MAIS degree is intended to help prepare teachers who desire certification in science, teachers who may wish to expand their knowledge of specific science disciplines, or those who wish to update their knowledge in rapidly changing science disciplines. Traditional masters degrees focus on classes in a single science department and encourage mastery of material in a sub specialty within the discipline. A thesis involving scientific research in the area of specialization is usually encouraged. In contrast, the MAIS program allows students to explore two or three areas of interest, and the courses are designed to provide an overview of current knowledge in each field. Since this is not a research-oriented degree, no thesis is required.

The content of the required courses was developed to contain material consistent with TEKS standards and to provide as much replicable laboratory experience as possible. While these classes are drawn from the foundational classes in each discipline, they are designed to cover the areas in greater depth, deal with historical aspects of the topics not covered in undergraduate classes, and focus on teaching and laboratory methodologies.

### Admission

#### UNCONDITIONAL

Students applying for unconditional admission to the MAIS program must meet the general graduate school admission requirements as outlined in the graduate catalog and earn a combined score of 1000 on the Graduate Record Exam (GRE).

#### ADMISSION AS SPECIAL STUDENT

Students may apply for admission to the MAIS program as a "special student." Special student admission will allow an individual to enroll for 9 credit hours of MAIS coursework. Upon completion of 9 credit hours, the student must apply for unconditional admission to the MAIS program and pay an additional \$40 application fee. If the applicant has completed 9 credit hours of coursework with a 3.0 or higher, the completed coursework will substitute for the GRE examination.

### Degree Requirements

The MAIS degree is a 36 credit hour, non-thesis degree. Beginning students are encouraged to enroll in SCIE 5301 CONTEMPORARY SCIENCE, and students completing the degree enroll in SCIE 5302 CAPSTONE SCIENCE SEMINAR. These two courses constitute the 6 credit hour science core.

Students can select two or three areas of concentration from biology, chemistry, earth & environmental sciences, mathematics, and physics. If the student chooses two concentration areas, each concentration will consist of four 3 credit hour courses for a total of 12 credit hours each. The remaining six credit hours may be taken as unrestricted science and math electives. If the student chooses three concentration areas, each concentration will consist of three 3 credit hour courses for a total of 9 credit hours each. The remaining three credit hours may be taken as unrestricted science or math electives. Students may also choose to select elective courses from College of Education and Health Professions graduate coursework with advisor approval.

Students must file a degree plan approved by the graduate advisor two long semesters prior to graduation.

# Mathematics

## Undergraduate Degrees

- Bachelor of Science in Mathematics (p. 572)
- Bachelor of Science in Mathematics (Actuarial Science Option) (p. 572)
- Bachelor of Science in Mathematics (Statistics Option) (p. 572)
- Bachelor of Science in Mathematics (Management Science / Operations Research Option) (p. 572)
- Bachelor of Science in Mathematics (Industrial and Applied Mathematics Option) (p. 572)
- Bachelor of Science in Mathematics (Mathematical Biology Option) (p. 572)
- Bachelor of Science in Mathematics (Pure Mathematics Option) (p. 572)
- Bachelor of Arts in Mathematics (p. 572)
- Bachelor of Arts in Mathematics with Secondary Teaching Certification (p. 572)
- Minor in Mathematics (p. 588)

## Graduate Degrees

- Mathematics (General Mathematics), M.S. (p. 563)
- Mathematics (General Statistics), M.S. (p. 563)
- Mathematics, M.A. (p. 563)
- Mathematics (General Mathematics), B.S. to Ph.D. (p. 566)
- Mathematics (General Mathematics), Ph.D. (p. 566)
- Mathematics (General Statistics), B.S. to Ph.D. (p. 566)
- Mathematics (General Statistics), Ph.D. (p. 566)

## Certificate

- Applied Statistics Certificate (p. 569)

## Mathematics - Graduate Programs

### Objective

The objectives of the UT Arlington Mathematics Department's graduate program are:

- Develop the students' ability to do independent research and prepare them for more advanced studies in mathematics.
- Provide advanced training and preparation for professional careers as mathematicians, mathematics teachers, and those employed in engineering, scientific and business fields.

Graduate work will be offered in algebra, complex and real variables, differential equations, functional analysis, geometry, mathematics education, numerical analysis, probability, statistics and topology.

## Admissions Requirements

### MASTER OF SCIENCE PROGRAM

For unconditional admission, a student must meet the following requirements:

1. A B.A. or B.S. degree in mathematics or closely related field.
2. An overall GPA in the final 60 hours of coursework of a 3.0 or better, as calculated by the Graduate School, on a 4.0 scale.
3. Minimum of 350 on the verbal and 650 on the quantitative portions of the Graduate Record Examination (GRE) if taken prior to August 2011. Minimum of 143 on the verbal and 151 on the quantitative portions of the GRE if taken after August 2011.
4. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or a minimum score of 213 on a computer-based test, or a minimum score of 79 on an internet-based test) or a minimum score of 40 on the Test of Spoken English.
5. Three favorable letters of recommendation from people familiar with the applicant's academic work.

Applicants who do not satisfy requirements 2 or 3 above may be considered for unconditional admission if further review of their undergraduate transcript, recommendation letters, correspondence or direct interactions with mathematics faculty, and statement of professional or research interests indicates that they are qualified to enter the Master's Program without deficiency.

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in the first 12 hours of graduate coursework at UT Arlington.

Students who are unconditionally admitted or admitted on probation will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the fall semester, must have a GPA of 3.0 in the last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain the fellowship.

Applicants may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

## MASTER OF ARTS PROGRAM

For unconditional admission a student must meet items 1-3 or 3-5.

1. A B.S. or B.A. degree with at least 24 hours of mathematics coursework with a GPA of at least 3.0, as calculated by the Graduate School on a 4.0 scale.
2. Minimum of 400 on the verbal and 600 on the quantitative portions of the Graduate Record Examination (GRE) if taken prior to August 2011. Minimum of 146 on the verbal and 148 on the quantitative portions of the GRE if taken after August 2011.
3. Three favorable letters of recommendation from people familiar with the applicant's academic work and/or professional work.
4. A B.S. or B.A. degree with a GPA of at least 3.0, as calculated by the Graduate School on a 4.0 scale.
5. Certified to teach mathematics at the Secondary Level (Secondary Mathematics Certification).

Applicants who do not satisfy requirements 1 or 2 above may be considered for unconditional admission if further review of their undergraduate transcript, recommendation letters, correspondence or direct interactions with mathematics faculty, and statement of professional or research interests indicates that they are qualified to enter the Master's Program without deficiency.

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in the first 12 hours of graduate coursework at UT Arlington.

Applicants may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

## Master of Science Degree Requirements

The Department of Mathematics offers master's degree programs in mathematics with additional emphasis in applied mathematics, computer science, mathematics education, pure mathematics, and statistics. All students are to use either the thesis or thesis-substitute plan.

All students in Master of Science program must complete one of the following:

1. General Mathematics core requirements<sup>1</sup>:

MATH 5300	INTRODUCTION TO SCIENTIFIC COMPUTING	3
MATH 5307	MATHEMATICAL ANALYSIS I	3
MATH 5308	MATHEMATICAL ANALYSIS II	3
MATH 5333	LINEAR ALGEBRA AND MATRICES	3
Select one of the following tracks:		9
Applied Mathematics:		
MATH 5350	APPLIED MATHEMATICS I	
MATH 5351	APPLIED MATHEMATICS II	
MATH 5320	APPLIED DIFFERENTIAL EQUATIONS	
or MATH 5321	APPLIED PARTIAL DIFFERENTIAL EQUATIONS	
Computer Science:		
MATH 5338	NUMERICAL ANALYSIS I	
MATH 5339	NUMERICAL ANALYSIS II	
MATH 5371	APPLIED NUMERICAL LINEAR ALGEBRA	

or MATH 5373 NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS

and up to six approved hours in computer science engineering

Mathematics Education:

Select three of the following:

MATH 5336	CONCEPTS AND TECHNIQUES IN NUMBER THEORY
MATH 5337	CONCEPTS AND TECHNIQUES IN CALCULUS
MATH 5340	CONCEPTS AND TECHNIQUES IN DISCRETE MATHEMATICS
MATH 5341	CONCEPTS AND TECHNIQUES IN GEOMETRY
MATH 5342	CONCEPTS AND TECHNIQUES IN ALGEBRA
MATH 5343	CONCEPTS AND TECHNIQUES IN PROBABILITY AND STATISTICS
MATH 5344	MATHEMATICS-SPECIFIC TECHNOLOGIES
MATH 5345	CONCEPTS AND TECHNIQUES IN ANALYSIS
MATH 5346	CONCEPTS AND TECHNIQUES IN PROBLEM SOLVING
MATH 5347	CONCEPTS AND TECHNIQUES IN MATHEMATICAL MODELING WITH APPLICATIONS
MATH 5348	ADVANCED ALGEBRA IN SECONDARY SCHOOL MATHEMATICS
MATH 5352	CONCEPTS AND TECHNIQUES IN PRECALCULUS

Pure Mathematics:

MATH 5331	ABSTRACT ALGEBRA I (replaces MATH 5300)
MATH 5317	REAL ANALYSIS FOR THE MATHEMATICAL SCIENCES
or MATH 5322	COMPLEX VARIABLES I
MATH 5332	ABSTRACT ALGEBRA II
or MATH 5334	DIFFERENTIAL GEOMETRY
MATH 5304	GENERAL TOPOLOGY
or MATH 5326	ALGEBRAIC TOPOLOGY

Total Hours

21

2. General Statistics core requirements<sup>1</sup>:

MATH 5300	INTRODUCTION TO SCIENTIFIC COMPUTING	3
MATH 5307	MATHEMATICAL ANALYSIS I	3
MATH 5333	LINEAR ALGEBRA AND MATRICES	3
MATH 5305	STATISTICAL METHODS	3
MATH 5312	MATHEMATICAL STATISTICS I	3
MATH 5313	MATHEMATICAL STATISTICS II	3
Select one of the following:		3
MATH 5356	APPLIED MULTIVARIATE STATISTICAL ANALYSIS	
MATH 5357	SAMPLE SURVEYS	
MATH 5392	SELECTED TOPICS IN MATHEMATICS	

Total Hours

21

• In addition:

- i Those students enrolled in the thesis substitute plan must take MATH 5395 SPECIAL PROJECT, and all except those in the computer science track must take at least nine other hours of electives<sup>2</sup>.
- ii Those students enrolled in the thesis plan must take at least six hours of MATH 5398 THESIS - MATH 5698 THESIS, and all except those in the computer science track must take at least three other hours of electives<sup>2</sup>.

- 1 Core requirements can also be fulfilled by completing core requirements in the BS-Ph.D. track in the Doctoral program.
- 2 Electives may not be chosen from MATH 5336 CONCEPTS AND TECHNIQUES IN NUMBER THEORY, MATH 5337 CONCEPTS AND TECHNIQUES IN CALCULUS, MATH 5340 CONCEPTS AND TECHNIQUES IN DISCRETE MATHEMATICS, MATH 5341 CONCEPTS AND TECHNIQUES IN GEOMETRY, MATH 5342 CONCEPTS AND TECHNIQUES IN ALGEBRA, MATH 5343 CONCEPTS AND TECHNIQUES IN PROBABILITY AND STATISTICS, MATH 5344 MATHEMATICS-SPECIFIC TECHNOLOGIES, MATH 5345 CONCEPTS AND TECHNIQUES IN ANALYSIS, MATH 5346 CONCEPTS AND TECHNIQUES IN PROBLEM SOLVING, MATH 5347 CONCEPTS AND TECHNIQUES IN MATHEMATICAL MODELING WITH APPLICATIONS, MATH 5348 ADVANCED ALGEBRA IN SECONDARY SCHOOL MATHEMATICS, MATH 5352 CONCEPTS AND TECHNIQUES IN PRECALCULUS, MATH 5370 PROBLEM SOLVING IN K-8 MATHEMATICS, MATH 5375 CONSTRUCTING WHOLE NUMBER AND OPERATIONS IN K-8 MATHEMATICS, MATH 5376 CONSTRUCTING RATIONAL NUMBER AND OPERATIONS IN K-8 MATH, MATH 5377 ALGEBRAIC THINKING IN K-8 MATHEMATICS, MATH 5378 GEOMETRY CONCEPTS IN K-8 MATHEMATICS, MATH 5379 MEASUREMENT CONCEPTS IN K-8 MATHEMATICS.

Students in every degree plan must pass a final exam.

## Master of Arts Degree Requirements

The master of arts program in the Department of Mathematics is designed for those who are interested in strengthening their understanding of mathematics and enriching their mathematics teaching. The program focuses on enhancing mathematics teaching through preparation in topics grounded in secondary school mathematics from an advanced standpoint. The program embraces a philosophy of teaching and learning mathematics that is consistent with the landmark *Standards* documents produced by the National Council of Teachers of Mathematics.

The requirements for the master of arts degree are 30 hours of graduate courses from the Department of Mathematics and a 3 hour project.

All students must complete the following:

### Required Courses and Project

MATH 5341	CONCEPTS AND TECHNIQUES IN GEOMETRY	3
MATH 5342	CONCEPTS AND TECHNIQUES IN ALGEBRA	3
MATH 5343	CONCEPTS AND TECHNIQUES IN PROBABILITY AND STATISTICS	3
MATH 5344	MATHEMATICS-SPECIFIC TECHNOLOGIES	3
MATH 5345	CONCEPTS AND TECHNIQUES IN ANALYSIS	3
MATH 5346	CONCEPTS AND TECHNIQUES IN PROBLEM SOLVING	3
MATH 5395	SPECIAL PROJECT (Individual, Director-Approved Research)	3

### Elective Courses

Select four of the following:		12
MATH 5300	INTRODUCTION TO SCIENTIFIC COMPUTING	
MATH 5305	STATISTICAL METHODS	
MATH 5307	MATHEMATICAL ANALYSIS I	
MATH 5308	MATHEMATICAL ANALYSIS II	
MATH 5333	LINEAR ALGEBRA AND MATRICES	
MATH 5336	CONCEPTS AND TECHNIQUES IN NUMBER THEORY	
MATH 5337	CONCEPTS AND TECHNIQUES IN CALCULUS	
MATH 5340	CONCEPTS AND TECHNIQUES IN DISCRETE MATHEMATICS	
MATH 5347	CONCEPTS AND TECHNIQUES IN MATHEMATICAL MODELING WITH APPLICATIONS	
MATH 5348	ADVANCED ALGEBRA IN SECONDARY SCHOOL MATHEMATICS	
MATH 5352	CONCEPTS AND TECHNIQUES IN PRECALCULUS	
MATH 5380	SEMINAR (Study of Current Mathematics Topics)	
MATH 5392	SELECTED TOPICS IN MATHEMATICS	

Total Hours

33

## Admission Requirements

For unconditional admission a student must meet the following requirements:

1. A master's degree or at least 30 hours of graduate coursework in mathematics or closely related fields.
2. A minimum GPA of 3.0, as calculated by the Graduate School, on a 4.0 scale in graduate coursework.

3. Minimum of 350 on the verbal and 700 on the quantitative portions of the Graduate Record Examination (GRE) if taken prior to August 2011. Minimum of 143 on the verbal and 155 on the quantitative portions of the GRE if taken after August 2011.
4. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or a minimum score of 213 on a computer-based test, or a minimum score of 79 on an internet-based test) or a minimum score of 40 on the Test of Spoken English.
5. Three favorable letters of recommendation from people familiar with the applicant's academic work and/or professional work.

Applicants who do not satisfy requirements 2 or 3 above may be considered for unconditional admission if further review of their undergraduate transcript, recommendation letters, correspondence or direct interactions with mathematics faculty, and statement of professional or research interests indicates that they are qualified to enter the Doctoral Program without deficiency.

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in the first 12 hours of graduate coursework at UT Arlington.

Applicants may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

## DOCTORAL PROGRAM (B.S.-PH.D. TRACK)

For unconditional admission a student must meet the following requirements:

1. A bachelor's degree in mathematics or in a closely related field.
2. A minimum GPA of 3.00 on the 4.00 scale in undergraduate course work, as calculated by the UT Arlington Graduate School.
3. A minimum of 350 on the verbal part and 700 on the quantitative part of the Graduate Record Examination (GRE) if taken prior to August 2011. Minimum of 143 on the verbal and 155 on the quantitative portions of the GRE if taken after August 2011.
4. For an applicant whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or a minimum score of 213 on a computer-based test, or a minimum score of 79 on an internet-based test) or a minimum score of 40 on the Test of Spoken English.
5. At least three letters of recommendation from people familiar with the applicant's academic work and/or professional work.

Applicants who do not satisfy requirement 2 or/and 3 above may be considered for an unconditional admission if a further review of their undergraduate transcript(s), recommendation letters, correspondence or direct interactions with mathematics faculty, and statement of professional or research interests indicates that they are qualified to enter the B.S.-Ph.D. track program without deficiency.

If an applicant does not meet a majority of standards for an unconditional admission outlined above, he/she may be considered for a probationary admission after a careful examination of his/her application materials. A probationary admission requires that the applicant receive grades of B or better in the first 12 hours of graduate course work at UT Arlington.

An applicant may be denied admission if he/she has less than satisfactory performance on a majority of the admission criteria described above.

A deferred decision may be granted when the applicant's file is incomplete or when a denial on his/her admission is not appropriate. An applicant who is unable to supply all required documentation prior to the admission deadline but who otherwise appears to have met admission requirements may be granted provisional admission.

Students who are unconditionally admitted or admitted on probation will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the fall semester, must have a GPA of 3.0 in the last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain the fellowship.

## Ph.D. Degree Requirements

A dynamic program leading to the Doctor of Philosophy degree in the mathematics will aim at both real and demonstrated competency on the part of the student over material from various branches of mathematics. The Doctor of Philosophy degree in Mathematics provides a program of study that may be tailored to meet the needs of those interested in applied or academic careers. This program allows students to pursue topics ranging from traditional mathematics studies to applied mathematical problems in engineering and sciences. The nature of the dissertation will range from research in mathematics to the discovery and testing of mathematical models for analyzing given problems in engineering and sciences and in locating and developing mathematical and computational techniques for deducing the properties of these models as to solve these problems effectively and efficiently. Such dissertations will be concerned with research problems from pure mathematics, applied mathematics, mathematics education and statistics.

The Department of Mathematics offers doctoral degree programs in Mathematics (algebra, applied mathematics, geometry, mathematics education, numerical analysis and statistics).

All doctoral students must complete one of the following:

1. General MATHEMATICS core requirements:

MATH 5308	MATHEMATICAL ANALYSIS II	3
MATH 5317	REAL ANALYSIS FOR THE MATHEMATICAL SCIENCES	3
MATH 5320	APPLIED DIFFERENTIAL EQUATIONS	3
MATH 5322	COMPLEX VARIABLES I	3
MATH 5327	FUNCTIONAL ANALYSIS I	3
MATH 5331	ABSTRACT ALGEBRA I	3

Select one of the following:

MATH 5319	PROBABILITY THEORY	
MATH 5321	APPLIED PARTIAL DIFFERENTIAL EQUATIONS	
MATH 5334	DIFFERENTIAL GEOMETRY	
MATH 5339	NUMERICAL ANALYSIS II	

In addition to the mathematics core requirements, the student is required to take three area-related courses.

---

Total Hours 18

2. General STATISTICS core requirements:

MATH 5308	MATHEMATICAL ANALYSIS II	3
MATH 5312	MATHEMATICAL STATISTICS I	3
MATH 5313	MATHEMATICAL STATISTICS II	3
MATH 5314	EXPERIMENTAL DESIGN	3
MATH 5317	REAL ANALYSIS FOR THE MATHEMATICAL SCIENCES	3
MATH 5319	PROBABILITY THEORY	3
MATH 5322	COMPLEX VARIABLES I	3
or MATH 5327	FUNCTIONAL ANALYSIS I	
MATH 5356	APPLIED MULTIVARIATE STATISTICAL ANALYSIS	3

In addition to the statistics core requirements, the student is also required to take two statistics courses from the following: 6

MATH 5311	APPLIED PROBABILITY AND STOCHASTIC PROCESSES	
MATH 5318	FUNDAMENTALS OF STOCHASTIC ANALYSIS	
MATH 5353	APPLIED LINEAR MODELS	
MATH 5354	CATEGORICAL DATA ANALYSIS	
MATH 5357	SAMPLE SURVEYS	
MATH 5358	REGRESSION ANALYSIS	
MATH 5359	SURVIVAL ANALYSIS	
MATH 6353	GENERALIZED LINEAR MODELS	
MATH 6356	TIME SERIES ANALYSIS	
MATH 6357	NONPARAMETRIC STATISTICS	

---

Total Hours 30

Students in every degree plan must pass the preliminary and comprehensive examinations.

## Ph.D. Degree Requirements for the B.S.-Ph.D. track

The student must complete either the mathematics or statistics core requirements.

1. General MATHEMATICS core requirements:

MATH 5307	MATHEMATICAL ANALYSIS I	3
MATH 5308	MATHEMATICAL ANALYSIS II	3
MATH 5317	REAL ANALYSIS FOR THE MATHEMATICAL SCIENCES	3
MATH 5320	APPLIED DIFFERENTIAL EQUATIONS	3
MATH 5322	COMPLEX VARIABLES I	3
MATH 5327	FUNCTIONAL ANALYSIS I	3



MATH 5331	ABSTRACT ALGEBRA I	3
MATH 5333	LINEAR ALGEBRA AND MATRICES	3
Select one of the following:		3
MATH 5319	PROBABILITY THEORY	
MATH 5321	APPLIED PARTIAL DIFFERENTIAL EQUATIONS	
MATH 5334	DIFFERENTIAL GEOMETRY	
MATH 5338	NUMERICAL ANALYSIS I	
In addition to the mathematics core requirements, the student is required to take three area-related courses.		
Total Hours		27

## 2. General STATISTICS core requirements:

MATH 5307	MATHEMATICAL ANALYSIS I	3
MATH 5308	MATHEMATICAL ANALYSIS II	3
MATH 5312	MATHEMATICAL STATISTICS I	3
MATH 5313	MATHEMATICAL STATISTICS II	3
MATH 5314	EXPERIMENTAL DESIGN	3
MATH 5317	REAL ANALYSIS FOR THE MATHEMATICAL SCIENCES	3
MATH 5319	PROBABILITY THEORY	3
MATH 5322	COMPLEX VARIABLES I	3
MATH 5333	LINEAR ALGEBRA AND MATRICES	3
MATH 5356	APPLIED MULTIVARIATE STATISTICAL ANALYSIS	3
In addition to the statistics core requirements, the student is also required to take two statistics courses from the following:		6
MATH 5311	APPLIED PROBABILITY AND STOCHASTIC PROCESSES	
MATH 5318	FUNDAMENTALS OF STOCHASTIC ANALYSIS	
MATH 5353	APPLIED LINEAR MODELS	
MATH 5354	CATEGORICAL DATA ANALYSIS	
MATH 5357	SAMPLE SURVEYS	
MATH 5358	REGRESSION ANALYSIS	
MATH 5359	SURVIVAL ANALYSIS	
MATH 6353	GENERALIZED LINEAR MODELS	
MATH 6356	TIME SERIES ANALYSIS	
MATH 6357	NONPARAMETRIC STATISTICS	
Total Hours		36

The requirements for the preliminary and comprehensive examinations are the same as the other tracks in the Ph.D. program.

For additional information on the mathematics program, see the program entry in the Interdepartmental and Intercampus Programs section of this catalog.

## Certificate of Applied Statistics Program

The admission standard is the same as that of Master of Science Program (p. 288).

## Certificate of Applied Statistics Requirements

The Certificate in Applied Statistics offers individuals with an undergraduate degree an opportunity to receive graduate instruction in applied statistics as a means of maintaining and enhancing their professional development. The certificate program will provide coursework in statistics to an individual whose undergraduate major was outside the area of statistics. Since the requirements for the certificate are substantially less than those for the Master's Degree in Mathematics with a concentration in Statistics, the certificate can be earned in a much shorter time span.

The Certificate in Applied Statistics requires that the students take and successfully complete the following courses.

### Required Courses

STATS 5312	MATHEMATICAL STATISTICS I	3
STATS 5313	MATHEMATICAL STATISTICS II	3

### Electives

Select three of the following:

9

STATS 5305	STATISTICAL METHODS
STATS 5314	EXPERIMENTAL DESIGN
STATS 5353	APPLIED LINEAR MODELS
STATS 5356	APPLIED MULTIVARIATE STATISTICAL ANALYSIS
STATS 5357	SAMPLE SURVEYS
STATS 5358	REGRESSION ANALYSIS
MATH 5392	SELECTED TOPICS IN MATHEMATICS (Statistical Quality Control)
MATH 5392	SELECTED TOPICS IN MATHEMATICS (Statistical Methods in Clinical Research)

Total Hours

15

Upon completion of the 15 hours of graduate courses from lists 1 and 2 with a minimum GPA of 3.0, the student is awarded the Certificate in Applied Statistics. The expected time to completion is 1 to 2 years. The time limit for completion of the certificate program is 6 years.

## Mathematics - Undergraduate Programs

Academic Advising: 107 Life Science Building • 817-272-9688

### Bachelor's Degrees in Mathematics

The Department of Mathematics offers programs leading to the Bachelor of Science Degree in Mathematics and the Bachelor of Arts Degree in Mathematics. The Bachelor of Science degree may also be acquired with the explicit addition of one of these options: actuarial science, industrial and applied mathematics, mathematical biology, pure mathematics, statistics, or management science/operations research.

The Bachelor of Science (no option) is primarily intended for students wishing to pursue graduate work in mathematics. The industrial and applied mathematics option is aimed at students seeking careers as mathematicians in the emerging high-tech industries. The mathematical biology option is aimed at those seeking careers in that emerging field. The statistics, management science/operations research, and actuarial science options are intended for students with an interest in a career involving various applications of mathematics to the world of business. The Bachelor of Arts is intended for those students desiring to teach mathematics at the elementary and secondary school level and for those seeking a traditional liberal arts education with an emphasis on mathematics.

All students seeking a bachelor's degree in mathematics must take at least two mathematics sequences. A sequence is defined as a 3300-level course followed by a 4300-level course in the same general area of mathematics. The approved sequences are as follows:

MATH 3321 & MATH 4321	ABSTRACT ALGEBRA I and ABSTRACT ALGEBRA II	6
MATH 3335 & MATH 4335 or MATH 3335 & MATH 4334	ANALYSIS I and ANALYSIS II ANALYSIS I and ADVANCED MULTIVARIABLE CALCULUS	6
MATH 3345 & MATH 4345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS and NUMERICAL ANALYSIS & COMPUTER APPLICATIONS II	6
MATH 3335 & MATH 4303	ANALYSIS I and INTRODUCTION TO TOPOLOGY	6
MATH 3313 & MATH 4313 or STATS 3313 & STATS 4313	INTRODUCTION TO PROBABILITY and APPLICATIONS OF MATHEMATICAL STATISTICS INTRODUCTION TO PROBABILITY and APPLICATIONS OF MATHEMATICAL STATISTICS	6
MATH 3313 & MATH 4311 or STATS 3313 & STATS 4311	INTRODUCTION TO PROBABILITY and STOCHASTIC MODELS AND SIMULATION INTRODUCTION TO PROBABILITY and STOCHASTIC MODELS AND SIMULATION	6
MATH 3314 & MATH 4314	DISCRETE MATHEMATICS and ADVANCED DISCRETE MATHEMATICS	6
MATH 3318 & MATH 4324	DIFFERENTIAL EQUATIONS and INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS	6
MATH 3318 & MATH 4318	DIFFERENTIAL EQUATIONS and MATHEMATICAL METHODS FOR SCIENCES	6

For the statistics option, the second sequence must be one of the following:

MATH 3313 & MATH 4311 or STATS 3313 & STATS 4311	INTRODUCTION TO PROBABILITY and STOCHASTIC MODELS AND SIMULATION INTRODUCTION TO PROBABILITY and STOCHASTIC MODELS AND SIMULATION	6
MATH 3313 & MATH 4313 or STATS 3313 & STATS 4313	INTRODUCTION TO PROBABILITY and APPLICATIONS OF MATHEMATICAL STATISTICS INTRODUCTION TO PROBABILITY and APPLICATIONS OF MATHEMATICAL STATISTICS	6

For the actuarial science option, the second sequence must be one of the following:

MATH 3335 & MATH 4335	ANALYSIS I and ANALYSIS II	6
MATH 3335 & MATH 4334	ANALYSIS I and ADVANCED MULTIVARIABLE CALCULUS	6
MATH 3345 & MATH 4345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS and NUMERICAL ANALYSIS & COMPUTER APPLICATIONS II	6

It is strongly recommended that mathematics majors take MATH 3330 INTRODUCTION TO MATRICES AND LINEAR ALGEBRA and MATH 3300 INTRODUCTION TO PROOFS as early as possible, since these courses are prerequisites for many other 3000/4000-level courses. It is suggested to take MATH 3330 INTRODUCTION TO MATRICES AND LINEAR ALGEBRA simultaneously with Calculus III. Mathematics majors must take MATH 3300 INTRODUCTION TO PROOFS before attempting the required courses MATH 3321 ABSTRACT ALGEBRA I and MATH 3335 ANALYSIS I. It is strongly recommended that mathematics majors with little or no computer programming experience satisfy the computer programming requirement as early as possible with MATH 1319 FORTRAN PROGRAMMING AND COMPUTER LITERACY, CSE 1311 INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS, or CSE 1320 INTERMEDIATE PROGRAMMING.

## Teacher Certification

Students interested in earning a Bachelor of Arts degree with a major in mathematics with secondary teacher certification should refer to the "Bachelor of Arts in Mathematics with Secondary Teaching Certification" degree plan for teacher certification requirements. Students should also see an advisor in the UTeach Arlington department.

## Second Major

A student who satisfies the requirements for any other baccalaureate degree qualifies for having mathematics named as a second major upon completion of nine mathematics courses at 3000/4000 level (except for capstone mathematics courses specifically for prospective middle or secondary grades mathematics teachers). The following courses are required:

MATH 3300	INTRODUCTION TO PROOFS	3
MATH 3314	DISCRETE MATHEMATICS	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3321	ABSTRACT ALGEBRA I	3
MATH 3335	ANALYSIS I	3
Select one of the following:		3
MATH 4321	ABSTRACT ALGEBRA II	
MATH 4335	ANALYSIS II	
MATH 4334	ADVANCED MULTIVARIABLE CALCULUS	

Total Hours

18

Besides the sequence MATH 3321 ABSTRACT ALGEBRA I-MATH 4321 ABSTRACT ALGEBRA II or the sequence MATH 3335 ANALYSIS I and (MATH 4335 ANALYSIS II or MATH 4334 ADVANCED MULTIVARIABLE CALCULUS), a second sequence must be part of the second major. The GPA requirements on the mathematics courses for a second major are identical to those listed below under the heading Graduation Requirements.

## First-time Admission Requirements

Students who wish to apply for major status in mathematics must first complete the University and College of Science requirements and the specific requirements of the Department of Mathematics listed below.

- Overall GPA of 2.25;
- Minimum GPA of 2.25 in at least nine hours of mathematics courses in residence at the level of MATH 1426 CALCULUS I or above, excluding capstone mathematics courses specifically for prospective middle or secondary grades mathematics teachers;
- At least six hours from the science or computer science courses listed in the mathematics degree plans; and
- Twelve hours of courses of the University core curriculum in disciplines other than science and mathematics.

Students currently enrolled at the University may qualify to change their major to mathematics by meeting the requirements listed above.

## Satisfactory Academic Standard Requirement

Majors whose overall GPA or GPA in major courses falls below 2.25 will be required to change their major.

To re-enter as a mathematics major, the student must meet the requirements listed in the First-time Admissions Requirements section.

## Non-Credit Courses

The following courses will not be counted for credit (as mathematics or electives) toward a bachelor's degree in mathematics:

MATH 1301	CONTEMPORARY MATHEMATICS	3
MATH 1302	COLLEGE ALGEBRA	3
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	3
MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	3
MATH 1330	ARITHMETICAL PROBLEM SOLVING	3
MATH 1331	GEOMETRICAL INFERENCE AND REASONING	3
MATH 1332	FUNCTIONS, DATA, AND APPLICATIONS	3
MATH 4351	CALCULUS FOR MID-LEVEL MATHEMATICS TEACHERS	3
MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	3
BSTAT 3321	BUSINESS STATISTICS I	3

Capstone mathematics courses specifically for prospective secondary grades mathematics teachers can be counted for credit only by those pursuing a B.A. with Secondary Teaching Certification.

## Requirements for a Bachelor of Science Degree in Mathematics

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
PHYS 1443	GENERAL TECHNICAL PHYSICS I	
PHYS 1444	GENERAL TECHNICAL PHYSICS II	

### English Composition

English or modern and classical languages literature or other approved substitute at the 2000 level or above

Designated courses in social or cultural anthropology, archaeology, social/political/cultural geography, psychology, economics, sociology, classical studies, or linguistics

### Program Requirements

ENGL 3373 TECHNICAL COMMUNICATION 3

Select two of the following: 6

HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
HIST 3364	TEXAS SINCE 1845	

Architecture, art, DNCE 1300, music, or theatre arts 3

Modern and Classical Languages (Levels I and II or higher) in one language 8

Select one of the following in natural science: 3

PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	
PHYS 3445	OPTICS	

Select one of the following in other science: <sup>1</sup> 8

BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	

Select one of the following in computer programming: 3

MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	
CSE 1320	INTERMEDIATE PROGRAMMING	
CSE 1325	OBJECT-ORIENTED PROGRAMMING	

Select one of the following in computer literacy: 0-3

MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Or equivalent course approved by Undergraduate Advisor		
Or competency test		

**Professional Courses**

Major

MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3318	DIFFERENTIAL EQUATIONS	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3321	ABSTRACT ALGEBRA I	3
MATH 3335	ANALYSIS I	3
MATH 3313	INTRODUCTION TO PROBABILITY	3
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	3

Select one of the following: 3

MATH 4321	ABSTRACT ALGEBRA II	
MATH 4335	ANALYSIS II	
MATH 4334	ADVANCED MULTIVARIABLE CALCULUS	

Additional advanced hours <sup>2</sup> 9

Minor

The minor must be in the College of Science or College of Engineering <sup>3</sup>

Electives

Sufficient number of hours to complete the total hours required for a degree

- <sup>1</sup> Each course may be replaced by another course in the same field that requires the original course as a prerequisite.
- <sup>2</sup> Nine additional advanced hours (MATH 3301 FOUNDATIONS OF GEOMETRY or above, except for capstone mathematics courses specifically for prospective middle grades or secondary grades mathematics teachers), including a second sequence (see paragraph three in the opening section).
- <sup>3</sup> The student should consult the appropriate section in this catalog for the exact requirements for a minor in a given department or contact that department's undergraduate advisor.

Capstone mathematics courses specifically for prospective middle grade mathematics teachers do not count toward a degree in mathematics. Capstone mathematics courses for secondary mathematics teachers will count only for those working on the BA in Mathematics with Teaching Certification.

**SUGGESTED COURSE SEQUENCE****First Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
MATH 1426	4	MATH 2425	4
INSY 2303	3	MATH 3314	3
ENGL 1301	3	PHYS 1443	4
HIST 1311	3	ENGL 1302	3
Liberal Arts Elective	3	HIST 1312	3
	<b>16</b>		<b>17</b>

**Second Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
MATH 2326	3	MATH 3318	3
MATH 3330	3	MATH 3300	3
PHYS 1444	4	Physics	3
English Literature	3	Natural Science	4
Social and Cultural Studies	3	Fine Arts	3
	<b>16</b>		<b>16</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
MATH 3321 or 3335	3	MATH 4321 or 4335	3
Minor	3	Mathematics	6
Natural Science	4	Minor	3
POLS 2311	3	POLS 2312	3
	<b>13</b>		<b>15</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
MATH 3335 or 3321	3	Mathematics	6
Mathematics	3	Minor	6
Minor	6	Modern Language II	4
Modern Language I	4		
	<b>16</b>		<b>16</b>

Total Hours: 125

**Requirements for a Bachelor of Arts Degree in Mathematics****Pre-Professional Courses**

General Core Requirements (p. 93) 39

## Recommended Core Requirements

POLS 2311	GOVERNMENT OF THE UNITED STATES
POLS 2312	STATE AND LOCAL GOVERNMENT
English Composition	
English or modern and classical languages literature or other approved substitute at the 2000 level or above	

Literature, or social and cultural studies designated as taught in the College of Liberal Arts, or fine arts or philosophy, or technical writing above the freshman level

Social and Cultural Studies requirement will be satisfied by three hours of designated courses that have been approved by the Undergraduate Assembly.<sup>1</sup>

#### Program Requirements

Select two of the following: 6

HIST 1311	HISTORY OF THE UNITED STATES TO 1865
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT
HIST 3364	TEXAS SINCE 1845

Architecture, art, DNCE 1300, music, or theatre arts 3

Modern and Classical Languages (Level I, II, III, and IV) in one language, or Level I and II 14

Approved cultural studies (See information in College of Science section) 6

Select one of the following (including laboratory) in natural science:<sup>2</sup> 8

BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II

Additional hours of science from the above science courses or from science courses that have above science courses as prerequisites 6

Select one of the following in computer literacy: 0-3

MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY
CSE 1301	COMPUTER LITERACY
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING

Or equivalent course approved by Undergraduate Advisor

Or competency test

Select one of the following in computer programming: 3

MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS
CSE 1320	INTERMEDIATE PROGRAMMING
CSE 1325	OBJECT-ORIENTED PROGRAMMING

#### Professional Courses

##### Major

MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3314	DISCRETE MATHEMATICS	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3321	ABSTRACT ALGEBRA I	3
MATH 3335	ANALYSIS I	3

Select one of the following: 3

MATH 4321	ABSTRACT ALGEBRA II
MATH 4335	ANALYSIS II
MATH 4334	ADVANCED MULTIVARIABLE CALCULUS

Additional advanced hours<sup>3</sup> 9

##### Minor<sup>4</sup>

##### Electives

Sufficient number of hours to complete the total hours required for a degree

- 1 For a list of approved courses, contact the University Advising Center or consult the General Core (p. 93).
- 2 Each course may be replaced by another course in the same field that requires the original course as a prerequisite.
- 3 Nine additional advanced hours (MATH 3301 FOUNDATIONS OF GEOMETRY or above, except for capstone mathematics courses specifically for prospective middle or secondary grades mathematics teachers), including a second sequence (see paragraph three in the opening section).
- 4 The student should consult the appropriate section in this catalog for the exact requirements for a minor in a given department or contact that department's undergraduate advisor.

Capstone mathematics courses specifically for prospective middle grade mathematics teachers do not count toward a degree in mathematics. Capstone mathematics courses for secondary mathematics teachers will count only for those working on the BA in Mathematics with Teaching Certification.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
HIST 1311	3	Natural Science	4
INSY 2303	3	Modern Language II	4
Modern Language I	4		
	<b>17</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
MATH 2326	3	MATH 3300	3
MATH 3314	3	MATH 3330	3
English Literature	3	Liberal Arts Elective	3
Natural Science	4	Natural Science	4
Modern Language III	3	Modern Language IV	3
	<b>16</b>		<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
MATH 3321	3	MATH 4321	3
Mathematics	3	Mathematics	3
Minor	3	Minor	3
Natural Science	4	Fine Arts	3
Social and Cultural Studies	3	Elective	3
	<b>16</b>		<b>15</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
MATH 3335	3	Mathematics	3
Mathematics	3	Minor	6
Minor	6	MATH 4180	1
POLS 2311	3	HIST 1312	3



Elective	3 POLS 2312	3
	<b>18</b>	<b>16</b>

Total Hours: 129

## Requirements for a Bachelor of Science Degree in Mathematics (Actuarial Science Option)

### Pre-Professional Courses

General Core Requirements (p. 93) 39

#### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
ECON 2305	PRINCIPLES OF MACROECONOMICS <sup>1</sup>	
English or modern and classical languages literature or other approved substitute at the 2000 level or above		

#### Program Requirements

ENGL 3373 TECHNICAL COMMUNICATION 3

Select two of the following: 6

HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
HIST 3364	TEXAS SINCE 1845	

Architecture, art, DNCE 1300, music, or theatre arts 3

Modern and Classical Languages (Levels I and II or higher) in one language 8

Select one of the following (including laboratory) in natural science: <sup>2</sup> 8

BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II	

Additional hours of science from the above science courses or from science courses that have above science courses as prerequisites 6

Select one of the following in computer literacy: 0-3

MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	

Or equivalent course approved by Undergraduate Advisor

Or competency test <sup>3</sup>

Select one of the following in computer programming: 3

MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	
CSE 1320	INTERMEDIATE PROGRAMMING	
CSE 1325	OBJECT-ORIENTED PROGRAMMING	

### Professional Courses

Major		
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3302	MULTIVARIATE STATISTICAL METHODS <sup>4</sup>	3

MATH 3313	INTRODUCTION TO PROBABILITY <sup>5</sup>	3
MATH 3314	DISCRETE MATHEMATICS	3
MATH 3316	STATISTICAL INFERENCE	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	3
MATH 3321	ABSTRACT ALGEBRA I	3
MATH 3335	ANALYSIS I	3
MATH 4312	PROBABILITY <sup>5</sup>	3
MATH 4313	APPLICATIONS OF MATHEMATICAL STATISTICS <sup>4</sup>	3
Select one of the following:		3
MATH 4334	ADVANCED MULTIVARIABLE CALCULUS	
MATH 4335	ANALYSIS II	
MATH 4345	NUMERICAL ANALYSIS & COMPUTER APPLICATIONS II	
Option		
ECON 2306	PRINCIPLES OF MICROECONOMICS <sup>1,6</sup>	3
ACCT 2302	PRINCIPLES OF ACCOUNTING II <sup>6</sup>	3
FINA 3313	BUSINESS FINANCE <sup>6,7</sup>	3
FINA 3315	INVESTMENTS <sup>7</sup>	3
FINA 4318	PORTFOLIO MANAGEMENT AND SECURITY ANALYSIS <sup>7</sup>	3
FINA 4319	FINANCIAL DERIVATIVES <sup>7</sup>	3

- 1 ECON 2305 PRINCIPLES OF MACROECONOMICS and ECON 2306 PRINCIPLES OF MICROECONOMICS, passed with a B or better, together satisfy the Society of Actuaries requirement for VEE certification in Economics.
- 2 Each course may be replaced by another course in the same field that requires the original course as a prerequisite.
- 3 For competency test see <http://www.uta.edu/uac/testing/computer-skills>.
- 4 MATH 3302 MULTIVARIATE STATISTICAL METHODS and MATH 4313 APPLICATIONS OF MATHEMATICAL STATISTICS, passed with a B or better, together satisfy the Society of Actuaries requirement for VEE certification in Applied Statistical Methods. (Pending approval from the Society of Actuaries.)
- 5 MATH 3313 INTRODUCTION TO PROBABILITY and MATH 4312 PROBABILITY should prepare a student to pass Exam P of the Society of Actuaries Associateship Course Catalog.
- 6 FINA 3313 BUSINESS FINANCE, passed with a B or better, satisfies the Society of Actuaries requirement for VEE certification in Corporate Finance. This course has prerequisites: ACCT 2302 PRINCIPLES OF ACCOUNTING II and ECON 2306 PRINCIPLES OF MICROECONOMICS.
- 7 FINA 3313 BUSINESS FINANCE, FINA 3315 INVESTMENTS, FINA 4318 PORTFOLIO MANAGEMENT AND SECURITY ANALYSIS, and FINA 4319 FINANCIAL DERIVATIVES should prepare a student to pass Exam FM of the Society of Actuaries Associateship Course Catalog.

Capstone mathematics courses specifically for prospective middle grade mathematics teachers do not count toward a degree in mathematics. Capstone mathematics courses for secondary mathematics teachers will count only for those working on the BA in Mathematics with Teaching Certification.

See [www.soa.org](http://www.soa.org) (<http://www.soa.org>) for more details about VEE Certification and the Associateship Course Catalog.

## Requirements for a Bachelor of Science Degree in Mathematics (Statistics Option)

### Pre-Professional Courses

General Core Requirements (p. 93) 39

Recommended Core Requirements

POLS 2311 GOVERNMENT OF THE UNITED STATES

POLS 2312 STATE AND LOCAL GOVERNMENT

### English Composition

English or modern and classical languages literature or other approved substitute at the 2000 level or above

Social and Cultural Studies requirement will be satisfied by three hours of designated courses that have been approved by the Undergraduate Assembly. <sup>1</sup>

### Program Requirements

ENGL 3373 TECHNICAL COMMUNICATION 3

Select two of the following:		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
HIST 3364	TEXAS SINCE 1845	
Architecture, art, DNCE 1300, music, or theatre arts		3
Modern and Classical Languages (Levels I and II or higher) in one language		8
Select one of the following (including laboratory) in natural science: <sup>2</sup>		8
BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II	
Additional hours of science from the above science courses or from science courses that have above science courses as prerequisites		6
Select one of the following in computer literacy:		0-3
MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Or equivalent course approved by Undergraduate Advisor		
Or competency test		
Select one of the following in computer programming:		3
MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	
CSE 1320	INTERMEDIATE PROGRAMMING	
CSE 1325	OBJECT-ORIENTED PROGRAMMING	
<b>Professional Courses</b>		
Major		
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3302	MULTIVARIATE STATISTICAL METHODS	3
MATH 3303	MATHEMATICAL GAME THEORY	3
MATH 3313	INTRODUCTION TO PROBABILITY	3
MATH 3314	DISCRETE MATHEMATICS	3
MATH 3316	STATISTICAL INFERENCE	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	3
MATH 3321	ABSTRACT ALGEBRA I	3
MATH 3335	ANALYSIS I	3
MATH 4311	STOCHASTIC MODELS AND SIMULATION	3
Select one of the following:		3
MATH 4321	ABSTRACT ALGEBRA II	
MATH 4335	ANALYSIS II	
MATH 4334	ADVANCED MULTIVARIABLE CALCULUS	
Additional advanced hours <sup>3</sup>		3
Option		
BSTAT 3322	BUSINESS STATISTICS II	3
IE 4308	QUALITY SYSTEMS	3
IE 3315	OPERATIONS RESEARCH I	3

or MATH 3304 **LINEAR OPTIMIZATION APPLICATIONS**

Electives

Sufficient to give the total number of hours required for a degree

- <sup>1</sup> For a list of approved courses, contact the University Advising Center or consult the General Core (p. 93).
- <sup>2</sup> Each course may be replaced by another course in the same field that requires the original course as a prerequisite.
- <sup>3</sup> Three additional advanced hours (3301 or above, except for capstone mathematics courses specifically for prospective middle or secondary grades mathematics teachers) in mathematics.

Capstone mathematics courses specifically for prospective middle grade mathematics teachers do not count toward a degree in mathematics. Capstone mathematics courses for secondary mathematics teachers will count only for those working on the BA in Mathematics with Teaching Certification.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	MATH 2425	4
MATH 1319	3	MATH 3314	3
ENGL 1301	3	Natural Science	4
HIST 1311	3	ENGL 1302	3
Liberal Arts Elective	3	HIST 1312	3
	<b>16</b>		<b>17</b>

### Second Year

First Semester	Hours	Second Semester	Hours
MATH 2326	3	MATH 3313	3
MATH 3330	3	MATH 3316	3
English Literature	3	Natural Science	4
Social and Cultural Studies	3	MATH 3300	3
Natural Science	4	Fine Arts	3
	<b>16</b>		<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
MATH 3335	3	MATH 4335	3
MATH 3302	3	MATH 4313	3
Natural Science	4	MATH 3303	3
POLS 2311	3	Elective	3
		POLS 2312	3
	<b>13</b>		<b>15</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
MATH 3345	3	MATH 3321	3
Mathematics	3	MATH 3304 or IE 3315	3
BSTAT 3322	3	IE 4308	3
Modern Language I	4	Modern Language II	4

Elective	3	
	16	13

Total Hours: 122

## Requirements for a Bachelor of Science Degree in Mathematics (Management Science/Operations Research Option)

### Pre-Professional Courses

General Core Requirements (p. 93) 39

Recommended Core Requirements

POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
ECON 2305	PRINCIPLES OF MACROECONOMICS	
English Composition		
English or modern and classical languages literature or other approved substitute at the 2000 level or above		

Program Requirements

ENGL 3373 TECHNICAL COMMUNICATION 3

Select two of the following: 6

HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
HIST 3364	TEXAS SINCE 1845	

Architecture, art, DNCE 1300, music, or theatre arts 3

Modern and Classical Languages (Levels I and II or higher) in one language 8

Select one of the following (including laboratory) in natural science: <sup>1</sup> 8

BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II	

Additional hours of science from the above science courses or from science courses that have above science courses as prerequisites 6

Select one of the following in computer programming: 3

MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	
CSE 1320	INTERMEDIATE PROGRAMMING	
CSE 1325	OBJECT-ORIENTED PROGRAMMING	

Select one of the following in computer literacy: 0-3

MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	

Or equivalent course approved by Undergraduate Advisor

Or competency test

### Professional Courses

Major		
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3303	MATHEMATICAL GAME THEORY	3
MATH 3304	LINEAR OPTIMIZATION APPLICATIONS	3

MATH 3313	INTRODUCTION TO PROBABILITY	3
MATH 3314	DISCRETE MATHEMATICS	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3321	ABSTRACT ALGEBRA I	3
MATH 3335	ANALYSIS I	3
Select one of the following:		3
MATH 4321	ABSTRACT ALGEBRA II	
MATH 4335	ANALYSIS II	
MATH 4334	ADVANCED MULTIVARIABLE CALCULUS	
Additional advanced hours <sup>2</sup>		9
Option		
OPMA 3306	OPERATIONS MANAGEMENT	3
OPMA 3308	OPERATIONS PLANNING AND CONTROL	3
Select one of the following in Operations Management:		3
ECON 2305	PRINCIPLES OF MACROECONOMICS	
ECON 2306	PRINCIPLES OF MICROECONOMICS	
ACCT 2301	PRINCIPLES OF ACCOUNTING I	
ACCT 2302	PRINCIPLES OF ACCOUNTING II	
Electives		
Sufficient hours to complete the total hours required for a degree.		

- <sup>1</sup> Each course may be replaced by another course in the same field that requires the original course as a prerequisite.
- <sup>2</sup> Nine additional advanced hours (MATH 3301 FOUNDATIONS OF GEOMETRY or above, except for capstone mathematics courses specifically for prospective middle or secondary grades mathematics teachers), including a second sequence (see paragraph three in the opening section).

Capstone mathematics courses specifically for prospective middle grade mathematics teachers do not count toward a degree in mathematics. Capstone mathematics courses for secondary mathematics teachers will count only for those working on the BA in Mathematics with Teaching Certification.

## SUGGESTED COURSE SEQUENCE

<b>First Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
MATH 1426	4	MATH 2425	4
MATH 1319	3	MATH 3314	3
ENGL 1301	3	Natural Science	4
HIST 1311	3	ENGL 1302	3
Liberal Arts Elective	3	HIST 1312	3
	<b>16</b>		<b>17</b>
<b>Second Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
MATH 2326	3	MATH 3313	3
MATH 3330	3	MATH 3304	3
English Literature	3	Natural Science	4
ECON 2305	3	MATH 3300	3
Natural Science	4	ECON 2306	3
	<b>16</b>		<b>16</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
MATH 3335	3	MATH 4335	3
MATH 3303	3	OPMA 3306	3
ACCT 2301	3	ACCT 2302	3
Natural Science	3	Fine Arts	3
POLS 2311	3	POLS 2312	3
		MATH 4180	1
	<b>15</b>		<b>16</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
MATH 3321	3	Mathematics	6
Mathematics	3	OPMA	3
OPMA 3308	3	Advanced Bus.	3
Advanced Bus.	3	Modern Language II	4
Modern Language I	4		
	<b>16</b>		<b>16</b>

Total Hours: 128

## Requirements for a Bachelor of Science Degree in Mathematics (Industrial and Applied Mathematics Option)

This degree option is for students seeking immediate employment after graduation. Additional course work may be required for admission to graduate school.

**Pre-Professional Courses**

General Core Requirements (p. 93) 39

General Core Requirements

Recommended Core Requirements

POLS 2311 GOVERNMENT OF THE UNITED STATES

POLS 2312 STATE AND LOCAL GOVERNMENT

PHYS 1443 GENERAL TECHNICAL PHYSICS I

PHYS 1444 GENERAL TECHNICAL PHYSICS II

English Composition

English or modern and classical languages literature or other approved substitute at the 2000 level or above

Social and Cultural Studies requirement will be satisfied by three hours of designated courses that have been approved by the

Undergraduate Assembly <sup>1</sup>

Program Requirements

ENGL 3373 TECHNICAL COMMUNICATION 3

CSE 1311 INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS 3

or MATH 1319 FORTRAN PROGRAMMING AND COMPUTER LITERACY

Select two of the following: 6

HIST 1311 HISTORY OF THE UNITED STATES TO 1865

HIST 1312 HISTORY OF THE UNITED STATES, 1865 TO PRESENT

HIST 3364 TEXAS SINCE 1845

Architecture, art, DNCE 1300, music, or theatre arts 3

Modern and Classical Languages (Levels I and II or higher) in one language 8

Select one of the following in natural science: 3-4

PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	
PHYS 3445	OPTICS	
PHYS 2321	COMPUTATIONAL PHYSICS	

Select one of the following in natural science:<sup>2</sup> 8

CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	

Select one of the following in computer literacy: 3

MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Or equivalent course approved by Undergraduate Advisor		
Or competency test		

### Professional Courses

Major		
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3318	DIFFERENTIAL EQUATIONS	3
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	3
MATH 4345	NUMERICAL ANALYSIS & COMPUTER APPLICATIONS II	3
MATH 3314	DISCRETE MATHEMATICS	3
MATH 4314	ADVANCED DISCRETE MATHEMATICS	3
MATH 3335	ANALYSIS I	3
Option		
MATH 3313 & MATH 4311	INTRODUCTION TO PROBABILITY and STOCHASTIC MODELS AND SIMULATION	6
MATH 3316 & MATH 3302	STATISTICAL INFERENCE and MULTIVARIATE STATISTICAL METHODS	6
MATH 3315	MATHEMATICAL MODELS	3
MATH 3304	LINEAR OPTIMIZATION APPLICATIONS	3
or IE 3315 & IE 4315	OPERATIONS RESEARCH I and OPERATIONS RESEARCH II	

### Electives

Sufficient to bring total hours to 120 of which at least 39 at 3000/4000 level.

- 1 For a list of approved courses, contact the University Advising Center or consult the General Core (p. 93).
- 2 Each course may be replaced by another course in the same field that requires the original course as a prerequisite.

Capstone mathematics courses specifically for prospective middle grade mathematics teachers do not count toward a degree in mathematics. Capstone mathematics courses for secondary mathematics teachers will count only for those working on the BA in Mathematics with Teaching Certification.

## Requirements for a Bachelor of Science Degree in Mathematics (Mathematical Biology Option)

### Pre-Professional Courses

General Core Requirements (p. 93)  
Recommended Core Requirements



POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
English Composition		
English or modern and classical languages literature or other approved substitute at the 2000 level or above		
Social and Cultural Studies requirement will be satisfied by three hours of designated courses that have been approved by the Undergraduate Assembly <sup>1</sup>		
Program Requirements		
ENGL 3373	TECHNICAL COMMUNICATION	3
Select two of the following:		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
HIST 3364	TEXAS SINCE 1845	
Architecture, art, DNCE 1300, music, or theatre arts		3
Modern and Classical Languages (Levels I and II or higher) in one language		8
Select one of the following (including laboratory) in natural science: <sup>2</sup>		8
BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II	
Select one of the following in computer programming:		3
MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	
CSE 1320	INTERMEDIATE PROGRAMMING	
CSE 1325	OBJECT-ORIENTED PROGRAMMING	
Select one of the following in computer literacy:		0-3
MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Or equivalent course approved by Undergraduate Advisor		
Or competency test <sup>3</sup>		
<b>Professional Courses</b>		
Major		
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3314	DISCRETE MATHEMATICS	3
MATH 3318	DIFFERENTIAL EQUATIONS	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3335	ANALYSIS I	3
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	3
MATH 4324	INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS	3
MATH 4335	ANALYSIS II	3
MATH 4345	NUMERICAL ANALYSIS & COMPUTER APPLICATIONS II	3
Option		
MATH/BIOL 2350	MATHEMATICAL MODELING IN ECOLOGY	3
MATH/BIOL 3350	DYNAMICAL SYSTEMS IN BIOLOGY	3
MATH/BIOL 3351	PROBABILITY AND RANDOM PROCESSES IN BIOLOGY	3

MATH/BIOL 4150	SEMINAR IN MATHEMATICAL BIOLOGY	1
MATH 4311	STOCHASTIC MODELS AND SIMULATION	3
BIOL 2343	EVOLUTION & ECOLOGY	3
Additional hours from 3000/4000 level Biology courses		3
Electives		
Sufficient hours to complete the total hours required for a degree		

- 1 For a list of approved courses, contact the University Advising Center or consult the General Core (p. 93).
- 2 Each course may be replaced by another course in the same field that requires the original course as a prerequisite.
- 3 For competency test see <http://www.uta.edu/uac/testing/computer-skills>.

Capstone mathematics courses specifically for prospective middle grade mathematics teachers do not count toward a degree in mathematics. Capstone mathematics courses for secondary mathematics teachers will count only for those working on the BA in Mathematics with Teaching Certification.

## Requirements for a Bachelor of Science Degree in Mathematics (Pure Mathematics Option)

### Pre-Professional Courses

General Core Requirements (p. 93) 39

### Recommended Core Requirements

POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
PHYS 1443	GENERAL TECHNICAL PHYSICS I	
PHYS 1444	GENERAL TECHNICAL PHYSICS II	
English Composition		
English or modern and classical languages literature or other approved substitute at the 2000 level or above		
Social and Cultural Studies requirement will be satisfied by three hours of designated courses that have been approved by the Undergraduate Assembly <sup>1</sup>		

### Program Requirements

PHIL 2311	LOGIC	3
Select two of the following:		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
HIST 3364	TEXAS SINCE 1845	
Architecture, art, DNCE 1300, music, or theatre arts		3
Modern and Classical Languages (Levels I and II or higher) in one language		8
Select one of the following in natural science:		3-4
PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	
PHYS 3445	OPTICS	
Select one of the following in natural science: <sup>2</sup>		8
BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	
Select one of the following in computer programming:		3
MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	
CSE 1320	INTERMEDIATE PROGRAMMING	
CSE 1325	OBJECT-ORIENTED PROGRAMMING	
Select one of the following in computer literacy:		0-3
MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	

CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Or equivalent course approved by Undergraduate Advisor		
Or competency test		
<b>Professional Courses</b>		
Major		
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3313	INTRODUCTION TO PROBABILITY	3
MATH 3318	DIFFERENTIAL EQUATIONS	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3321	ABSTRACT ALGEBRA I	3
MATH 3335	ANALYSIS I	3
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	3
MATH 4321	ABSTRACT ALGEBRA II	3
MATH 4335	ANALYSIS II	3
Additional advanced hours <sup>3</sup>		21
Electives		
Sufficient number of hours to complete the total hours required for a degree		

<sup>1</sup> For a list of approved courses, contact the University Advising Center or consult the General Core (p. 93).

<sup>2</sup> Each course may be replaced by another course in the same field that requires the original course as a prerequisite.

<sup>3</sup> Twenty one additional advanced hours (MATH 3301 FOUNDATIONS OF GEOMETRY or above, except for capstone mathematics courses specifically for prospective middle grades or secondary grades mathematics teachers).

Capstone mathematics courses specifically for prospective middle grade mathematics teachers do not count toward a degree in mathematics. Capstone mathematics courses for secondary mathematics teachers will count only for those working on the BA in Mathematics with Teaching Certification.

## Bachelor of Arts in Mathematics with Secondary Teaching Certification

<b>Pre-Professional Courses</b>		
General Core Requirements (p. 93)		39
Recommended Core Requirements		
ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
English or modern and classical languages literature or other approved substitute at the 2000 level or above		
Social and Cultural Studies requirement will be satisfied by three hours of designated courses that have been approved by the Undergraduate Assembly <sup>1</sup>		
Program Requirements		
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
Select two of the following:		6
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
HIST 3364	TEXAS SINCE 1845	
Architecture, art, DNCE 1300, music, or theatre arts		3
Modern and Classical Languages (Levels II, III and IV) in one language, or Level II		10
Approved cultural studies <sup>2</sup>		6
Select one of the following in natural science:		3
BIOL 3310	SELECTED TOPICS IN BIOLOGY	
CHEM 4392	ADVANCED TOPICS IN CHEMISTRY	

GEOL 4305	SELECTED TOPICS IN GEOLOGY	
PHYS 4391	SPECIAL TOPICS	
Select one of the following in natural science: <sup>3</sup>		8
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	
Additional science hours taken from the above science courses		4
Select one of the following in computer programming:		3
MATH 1319	FORTRAN PROGRAMMING AND COMPUTER LITERACY	
CSE 1311	INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS	
CSE 1320	INTERMEDIATE PROGRAMMING	
CSE 1325	OBJECT-ORIENTED PROGRAMMING	
<b>Professional Courses</b>		
Major		
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 2330	FUNCTIONS AND MODELING	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3301	FOUNDATIONS OF GEOMETRY	3
MATH 3307	ELEMENTARY NUMBER THEORY	3
MATH 3314	DISCRETE MATHEMATICS	3
MATH 3330	INTRODUCTION TO MATRICES AND LINEAR ALGEBRA	3
MATH 3321	ABSTRACT ALGEBRA I	3
MATH 3335	ANALYSIS I	3
Select one of the following:		3
MATH 4321	ABSTRACT ALGEBRA II	
MATH 4335	ANALYSIS II	
MATH 4334	ADVANCED MULTIVARIABLE CALCULUS	
Additional advanced hours <sup>4</sup>		6
Education Requirements <sup>5</sup>		
SCIE 1101	STEP 1: INQUIRY APPROACHES TO TEACHING	1
SCIE 1102	STEP 2: INQUIRY-BASED LESSON DESIGN	1
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE	3
EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3
SCIE 4607	STUDENT TEACHING FOR SECONDARY GRADES	6
SCIE 4107	STUDENT TEACHING SEMINAR	1

<sup>1</sup> For a list of approved courses, contact the University Advising Center or consult the General Core (p. 93).

<sup>2</sup> See General Core (p. 93) for a complete list of approved cultural studies.

<sup>3</sup> Each course may be replaced by another course in the same field that requires the original course as a prerequisite.

<sup>4</sup> Six additional advanced hours (MATH 3302 MULTIVARIATE STATISTICAL METHODS or above, except MATH 4350 PRECALCULUS FOR MID-LEVEL MATHEMATICS TEACHERS and MATH 4351 CALCULUS FOR MID-LEVEL MATHEMATICS TEACHERS), including either a second sequence or a capstone course specifically for prospective secondary mathematics teachers.

<sup>5</sup> Certification requirements are subject to change; consult with an advisor in UTeach Arlington to verify current requirements.

## Minor

Students in non-engineering majors may minor in mathematics by taking 18 hours of mathematics courses with an average GPA in mathematics courses of 2.0, and with at least six hours of 3000/4000 level courses. The courses that may be counted toward a math minor are MATH 1426 CALCULUS I and above, except for capstone mathematics courses specifically for prospective middle or secondary grades mathematics teachers. Nine hours of the minor must be taken in residence. Engineering majors seeking a math minor should refer to the College of Engineering section of this catalog for the requirements for the engineering math minor.

College of Engineering students may minor in mathematics by taking 18 hours of mathematics courses with an average GPA in mathematics courses of 2.0, and with at least six hours of 3000/4000 level courses. Nine hours of the minor must be taken in residence. The courses that may be counted toward a math minor are MATH 1426 and above, with exceptions listed below for certain majors:

- MATH 3314 is prohibited for BSSE, BSCS and BSCPE majors
- MATH 3313 is prohibited for BSCPE and BSIE majors
- MATH 3318 and MATH 3319 is prohibited for BSME and BSAE majors
- Only one of MATH 3319 or 3330 may be counted toward the minor
- Only one of MATH 3318 or 3319 may be counted toward the minor

## Physics

### Undergraduate Degrees

- Bachelor of Science in Physics (p. 592)
- Bachelor of Science in Physics with Engineering Emphasis (p. 592)
- Bachelor of Science in Physics with Medical School Preparation (p. 592)
- Bachelor of Arts in Physics (p. 592)
- Bachelor of Science in Physics with Physical Science Teacher Certification (UTeach) (p. 592)
- Bachelor of Science in Physics with Physics/Mathematics Teacher Certification (UTeach) (p. 592)
- Bachelor of Science in Physics with Master's in Materials Science and Engineering (Fast Track Program) (p. 592)

### Minors

- Minor in Physics (p. 607)
- Minor in Astronomy for Non-Physics Majors (p. 607)
- Minor in Astrophysics for Non-Physics Majors (p. 607)

### Graduate Degrees

- Physics, M.S. (p. 589)
- Physics and Applied Physics, Ph.D. (p. 590)

## Physics - Graduate Programs

### Objective

The objective of graduate work in physics is to prepare the student for continued professional and scholarly development as a physicist. The Physics MS Degree Programs are designed to give the student advanced training in all fundamental areas of physics through formal courses and the options of some degree of specialization or participation in original research in one of a variety of projects directed by the faculty.

The Doctor of Philosophy in Physics and Applied Physics Program combines the traditional elements of a science doctoral program with courses in specifically applied topics and internship in a technological environment. It is designed to produce highly trained professionals with a broad perspective of the subject which may prepare them equally well for careers in academia or government or industry. Current research in the department is predominantly in the areas of condensed matter physics, materials science, astro physics, space physics and high-energy physics.

### Admission Criteria

For unconditional admission to the Master of Science program in physics, the candidate must satisfy the general admission requirements of the University, including a minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by Graduate Admissions and favorable letters of recommendation from individuals able to assess the applicant's potential for success in a Masters program. In addition, the candidate should have satisfactorily completed at least 24 undergraduate hours of advanced physics and supporting courses and should have minimal GRE scores of 143 in Verbal and 151 in Quantitative.

Applicants not meeting the minimum requirements of the department or the University for either program may still be considered for unconditional acceptance if other information in their application indicates a reasonable probability of success in graduate studies in physics.

## **PROBATIONARY ADMISSION**

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UT Arlington.

## **DEFERRED AND PROVISIONAL ADMISSION**

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

## **DENIAL OF ADMISSION**

A candidate may be denied admission if he or she have less than satisfactory performance on the admission criteria described above.

## **SCHOLARSHIPS AND FELLOWSHIPS**

Students who are admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by Graduate Admissions, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## **Degree Requirements: Master of Science**

For the Thesis Option, a minimum of 30 hours is required for the Master of Science degree, of which 24 hours, including a six hour thesis (minimum registration), will be in physics, and six hours may be selected from physics, mathematics, chemistry, earth & environmental sciences, biology, or engineering as approved by the Graduate Advisor.

For the Non-thesis Option, a minimum of 36 hours is required for the Master of Science degree. They will be in physics. But up to nine hours may be selected from mathematics, chemistry, earth & environmental sciences, biology, or engineering as approved by the Graduate Advisor. The student is required to pass an oral comprehensive exam in the last semester.

## **Admission Criteria**

For unconditional admission to the Doctor of Philosophy program, an applicant must have a master's degree or 30 semester hours of graduate credit in physics or a related field and satisfy the general admission requirements of the University, including a minimum graduate coursework GPA of 3.0 on a 4.0 scale, as calculated by Graduate Admissions and favorable letters of recommendation from individuals able to assess the applicant's potential for success in a Ph.D. program. In addition, the applicant should have minimal GRE scores of 143 in Verbal and 151 in Quantitative.

Applicants not meeting the minimum requirements of the department or the University for either program may still be considered for unconditional acceptance if other information in their application indicates a reasonable probability of success in graduate studies in physics.

## **PROBATIONARY ADMISSION**

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UT Arlington.

## **DEFERRED AND PROVISIONAL ADMISSION**

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

## **DENIAL OF ADMISSION**

A candidate may be denied admission if he or she have less than satisfactory performance on the admission criteria described above.

## **SCHOLARSHIPS AND FELLOWSHIPS**

Students who are admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## Degree Requirements: Doctor of Philosophy

Each candidate must complete the following program requirements:

1. Demonstration of competence in a minimum of 39 credit hours of core courses chosen under the guidance of the supervising committee from the following (or from courses approved in advance by the Graduate Studies Committee):

### Traditional Core Courses

PHYS 5306	CLASSICAL MECHANICS	3
PHYS 5307	QUANTUM MECHANICS I	3
PHYS 5308	QUANTUM MECHANICS II	3
PHYS 5309	ELECTROMAGNETIC THEORY I	3
PHYS 5313	ELECTROMAGNETIC THEORY II	3
PHYS 5310	STATISTICAL MECHANICS	3
PHYS 5311	MATHEMATICAL METHODS IN PHYSICS I	3
PHYS 5312	MATHEMATICAL METHODS IN PHYSICS II	3
PHYS 5315	SOLID STATE I	3
PHYS 5316	SOLID STATE II	3

### Applied Physics Core Courses

PHYS 5314	ADVANCED OPTICS	3
PHYS 5319	MATHEMATICAL METHODS IN PHYSICS III	3
PHYS 6301	METHODS OF APPLIED PHYSICS I--ELECTRONICS	3
PHYS 6302	METHODS OF APPLIED PHYSICS II--COMPUTERS IN PHYSICS	3
PHYS 6303	METHODS OF APPLIED PHYSICS III--SPECTROSCOPY	3

Computer Science as required by the supervising committee

Total Hours

45

2. Dissertation and additional research and elective courses chosen under the guidance of the supervising committee.

## Physics - Undergraduate Programs

Academic Advising: 107 Life Science Building • 817.272.9685

### Degree Programs

The Department of Physics offers five Bachelor of Science degree programs, a Bachelor of Arts degree program, and a Bachelor of Science in Physics/Master's in Materials Science and Engineering Fast Track Program.

The Bachelor of Science degree programs include one which prepares students for careers in science and technology, another for medical school preparation, and a third for students wanting to minor in an Engineering discipline. When combined with the required UTeach education courses, the Bachelor of Science program is also appropriate for students who are interested in becoming schoolteachers.\* The Bachelor of Arts degree in Physics is intended for students who seek a broader education while retaining a firm foundation in Physics. The Bachelor of Science degree in Physics/Master's degree in Materials Science and Engineering Fast Track Program enables outstanding senior undergraduate students in Physics to satisfy degree requirements leading to a Bachelor's degree in Physics while simultaneously pursuing a Master's degree in Materials Science and Engineering.

Students considering a Physics major should schedule an appointment with the undergraduate advisor in Physics to discuss their degree and career options. Physics majors are encouraged to participate in research projects under faculty guidance for course credit or financial reward. In this way, undergraduate students have the choice of gaining hands-on experience from a variety of research disciplines, including astrophysics, biophysics, computational physics, high energy physics, medical physics, optics, space physics, and theoretical and experimental condensed matter physics.

The faculty of the Physics Department encourages qualified students to participate in the university's Honors College. Scholarships may be offered every year to new students majoring in Physics.

\* Students desiring certification for teaching at the secondary level must fulfill specific requirements for the appropriate Physics B.S. Teacher Certification degree.

### Second Major in Physics

Students who satisfy the requirements for any other baccalaureate degree qualify to have Physics named as a second major upon completion of the following courses:

PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3321	INTERMEDIATE ELECTRICITY AND MAGNETISM	3
PHYS 4326	INTRODUCTION TO QUANTUM MECHANICS	3
PHYS electives approved by Physics undergraduate advisor and/or Chair of the Department of Physics		17
Total Hours		37

## Teacher Certification

Students who are interested in earning a Bachelor of Science degree in Physics with Secondary Teacher Certification should refer to the Bachelor of Science in Physics with Physical Science Teacher Certification and the Bachelor of Science in Physics with Physics/Mathematics Teacher Certification degree plans for requirements. Teacher certification is offered through the UTeach program.

## Requirements for a Bachelor of Science in Physics

This program provides students with a rigorous training in Physics, which is designed to prepare for a career in science, technology, and/or engineering research.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

### PROGRAM REQUIREMENTS

Communication Competence - satisfied by PHYS 4117

Computer Use Competence - satisfied by Computer Science requirement for major

### PROFESSIONAL COURSES

Select one of the following for Computer Science requirement:		3
CSE 1310	INTRODUCTION TO COMPUTERS & PROGRAMMING	
or higher-numbered CSE course		
PHYS 2321	COMPUTATIONAL PHYSICS	
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	
or other suitable course approved by Physics undergraduate advisor and/or Chair of the Department of Physics		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
courses for majors offered in the departments of Biology and/or Earth and Environmental Sciences		6
MATH 2326	CALCULUS III	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
or MATH 3318	DIFFERENTIAL EQUATIONS	
MATH 4000-level elective		3



Students may obtain a Mathematics minor by consulting with the undergraduate advisor for the Department of Mathematics to discuss additional requirements.

**MAJOR**

PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3183	MODERN PHYSICS LABORATORY	1
PHYS 3321	INTERMEDIATE ELECTRICITY AND MAGNETISM	3
PHYS 4117	INDIVIDUAL LEARNING BY SEMINAR	1
PHYS 4315	THERMODYNAMICS AND STATISTICAL MECHANICS	3
PHYS 4319	ADVANCED MECHANICS	3
PHYS 4324	ADVANCED ELECTRICITY AND MAGNETISM	3
PHYS 4326	INTRODUCTION TO QUANTUM MECHANICS	3
PHYS electives approved by Physics undergraduate advisor and/or Chair of the Department of Physics		14
<b>General Electives</b>		<b>11</b>

36 hours of coursework must be advanced (3000/4000-level) to earn degree.

Total Hours	159
-------------	-----

\* See General Core Requirements (p. 93) for approved courses.

**TYPICAL COURSE SEQUENCE**

Details of a personal course sequence should be made with the guidance of the Physics undergraduate advisor, particularly since many courses in Physics are not offered every semester. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426 CALCULUS I, in the first semester.

**First Year**

First Semester	Hours	Second Semester	Hours
MATH 1426	4	PHYS 1443	4
CHEM 1441	4	MATH 2425	4
ENGL 1301	3	CHEM 1442	4
HIST 1311	3	ENGL 1302	3
	<b>14</b>		<b>15</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
PHYS 1444	4	PHYS 2311	3
MATH 2326	3	PHYS 3313	3
MATH 3319 or 3318	3	PHYS 3183	1
HIST 1312	3	BIOL or GEOL course for majors	3
Creative Arts*	3	Social/Behavioral Science*	3
	<b>16</b>		<b>13</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
PHYS 3321	3	PHYS 4324	3
approved PHYS elective	4	approved PHYS elective	4
Computer Science course (CSE 1310 or higher-numbered CSE course, PHYS 2321, or MATH 3345)	3	MATH 4000-level elective	3
POLS 2311	3	POLS 2312	3

General Elective	3	Language, Philosophy and Culture *	3
	<b>16</b>		<b>16</b>
<b>Fourth Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
PHYS 4315	3	PHYS 4117	1
PHYS 4326	3	PHYS 4319	3
approved PHYS course	3	approved PHYS elective	3
BIOL or GEOL course for majors	3	Foundational Component Area *	3
General Elective	3	General Electives	5
	<b>15</b>		<b>15</b>
Total Hours: 120			

\* See General Core Requirements (p. 93) for approved courses.

## Requirements for a Bachelor of Science in Physics with Engineering Emphasis

This program allows students to augment a rigorous training in Physics with the choice of a minor in a suitable engineering discipline, thus combining a theoretical understanding of the basic physical theories with a practical, more detailed understanding given in the College of Engineering. Such a combination would be a bonus for employment in the engineering-type professions often chosen by Physics majors.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

### PROGRAM REQUIREMENTS

Communication Competence - satisfied by PHYS 4117

Computer Use Competence - satisfied by Computer Science requirement for major

### PROFESSIONAL COURSES

Select one of the following for Computer Science requirement: 3

CSE 1310 INTRODUCTION TO COMPUTERS & PROGRAMMING

or higher-numbered CSE course

PHYS 2321 COMPUTATIONAL PHYSICS

MATH 3345 NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS

or other suitable course approved by Physics undergraduate advisor and/or Chair of the Department of Physics

CHEM 1441 GENERAL CHEMISTRY I 4

course for majors in the departments of Biology, Chemistry and Biochemistry, or Earth and Environmental Sciences 4

MATH 2326	CALCULUS III	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
or MATH 3318	DIFFERENTIAL EQUATIONS	
ENGINEERING MINOR: 18 or more hours as required by the appropriate Engineering department		18
MAJOR		
PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3183	MODERN PHYSICS LABORATORY	1
PHYS 3321	INTERMEDIATE ELECTRICITY AND MAGNETISM	3
PHYS 4117	INDIVIDUAL LEARNING BY SEMINAR	1
PHYS 4315	THERMODYNAMICS AND STATISTICAL MECHANICS	3
PHYS 4324	ADVANCED ELECTRICITY AND MAGNETISM	3
PHYS 4326	INTRODUCTION TO QUANTUM MECHANICS	3
PHYS electives approved by Physics undergraduate advisor and/or Chair of the Department of Physics		12
<b>General Electives</b>		<b>7</b>
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
Total Hours		159

\* See General Core Requirements (p. 93) for approved courses.

### TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Physics undergraduate advisor as well as the undergraduate advisor in the appropriate Engineering department. Many courses in Physics are not offered every semester, and Engineering coursework and sequences are determined by individual departments in the College of Engineering. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426 CALCULUS I, in the first semester.

#### First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	PHYS 1443	4
CHEM 1441	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
HIST 1311	3	HIST 1312	3
	<b>14</b>		<b>14</b>

#### Second Year

First Semester	Hours	Second Semester	Hours
PHYS 1444	4	PHYS 2311	3
MATH 2326	3	PHYS 3313	3
MATH 3319 or 3318	3	PHYS 3183	1
Engineering minor course**	3	Engineering minor course**	3
Creative Arts*	3	BIOL, CHEM, or GEOL course for majors	4
	<b>16</b>		<b>14</b>

#### Third Year

First Semester	Hours	Second Semester	Hours
PHYS 3321	3	PHYS 4324	3
approved PHYS elective	4	approved PHYS elective	4
Engineering minor course**	3	Engineering minor course**	3

Computer Science course (CSE 1310 or higher-numbered CSE course, PHYS 2321, or MATH 3345)	3	POLS 2312	3
POLS 2311	3	Social/Behavioral Science*	3
	<b>16</b>		<b>16</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
PHYS 4315	3	PHYS 4117	1
PHYS 4326	3	approved PHYS elective	4
Engineering minor course**	3	Engineering minor course**	3
Language, Philosophy and Culture*	3	Foundational Component Area*	3
General Elective	3	General Elective(s)	4
	<b>15</b>		<b>15</b>

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate Engineering department.

**Requirements for a Bachelor of Science in Physics with Medical School Preparation**

This program offers the broad background in fundamental science and strong problem-solving ability of a Physics degree as well as specific Biology and Chemistry medical school requirements. The combination of skills developed in this program is designed to provide the intellectual foundation necessary for excellence in research and the practice of medicine.

**PRE-PROFESSIONAL COURSES**

General Core Requirements (p. 93) 39

**RECOMMENDED CORE REQUIREMENTS**

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts*		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture*		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science*		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area*		3

**PROGRAM REQUIREMENTS**

Communication Competence - satisfied by PHYS 4117

Computer Use Competence - satisfied by Computer Science requirement for major

**PROFESSIONAL COURSES**

Select one of the following for Computer Science requirement: 3

CSE 1310	INTRODUCTION TO COMPUTERS & PROGRAMMING
or higher-numbered CSE course	
PHYS 2321	COMPUTATIONAL PHYSICS
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS

or other suitable course approved by Physics undergraduate advisor and/or Chair of the Department of Physics

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
MATH 2326	CALCULUS III	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
or MATH 3318	DIFFERENTIAL EQUATIONS	
<b>BIOLOGY MINOR</b>		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
BIOL electives to give the total of 18 hours, 6 hours of which must be advanced (3000/4000-level)		10
<b>MAJOR</b>		
PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3183	MODERN PHYSICS LABORATORY	1
PHYS 3321	INTERMEDIATE ELECTRICITY AND MAGNETISM	3
PHYS 4117	INDIVIDUAL LEARNING BY SEMINAR	1
PHYS 4315	THERMODYNAMICS AND STATISTICAL MECHANICS	3
or PHYS 4319	ADVANCED MECHANICS	
PHYS 4326	INTRODUCTION TO QUANTUM MECHANICS	3
PHYS electives approved by Physics undergraduate advisor and/or Chair of the Department of Physics		11
<b>General Electives</b>		3
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
Total Hours		159

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Physics undergraduate advisor, particularly since many courses in Physics are not offered every semester. Consultation with the Health Professions advisor is also encouraged. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426 CALCULUS I, in the first semester.

### First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	PHYS 1443	4
CHEM 1441	4	MATH 2425	4
ENGL 1301	3	CHEM 1442	4
HIST 1311	3	ENGL 1302	3
	<b>14</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
PHYS 1444	4	PHYS 2311	3
MATH 2326	3	BIOL 1441	4
MATH 3319 or 3318	3	CHEM 2322	3
CHEM 2321	3	CHEM 2182	1

CHEM 2181	1	HIST 1312	3
	<b>14</b>		<b>14</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
PHYS 3313	3	approved PHYS elective	4
PHYS 3183	1	approved PHYS elective	3
PHYS 3321	3	BIOL minor course**	3
BIOL 1442	4	Computer Science course (CSE 1310 or higher-numbered CSE course, PHYS 2321, or MATH 3345)	3
BIOL minor course**	3	Social/Behavioral Science*	3
	<b>14</b>		<b>16</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
PHYS 4315	3	PHYS 4117	1
PHYS 4326	3	approved PHYS elective	4
BIOL minor course**	4	POLS 2312	3
POLS 2311	3	Creative Arts*	3
Language, Philosophy and Culture*	3	Foundational Component Area*	3
		General Elective	3
	<b>16</b>		<b>17</b>

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

\*\* Coursework for Biology minor should be chosen in consultation with a Biology undergraduate advisor.

## Requirements for a Bachelor of Arts in Physics

This program is intended for students who seek a broader education while retaining a firm foundation in Physics.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts*		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture*		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science*		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area*		3

**PROGRAM REQUIREMENTS**

Communication Competence - satisfied by PHYS 4117

Computer Use Competence - satisfied by Computer Science requirement for major

**PROFESSIONAL COURSES**

Select one of the following for Computer Science requirement: 3

CSE 1310 INTRODUCTION TO COMPUTERS & PROGRAMMING

or higher-numbered CSE course

PHYS 2321 COMPUTATIONAL PHYSICS

MATH 3345 NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS

or other suitable course approved by Physics undergraduate advisor and/or Chair of the Department of Physics

courses for majors in the departments of Biology, Chemistry and Biochemistry, and/or Earth and Environmental Sciences 8

MATH 2326 CALCULUS III 3

MATH 3319 DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA 3

or MATH 3318 DIFFERENTIAL EQUATIONS

Modern and Classical Languages 4

MINOR: 18 or more hours as required by the appropriate department 18

**MAJOR**

PHYS 2311 MATHEMATICAL METHODS OF PHYSICS 3

PHYS 3313 INTRODUCTION TO MODERN PHYSICS 3

PHYS 3183 MODERN PHYSICS LABORATORY 1

PHYS 3321 INTERMEDIATE ELECTRICITY AND MAGNETISM 3

PHYS 4117 INDIVIDUAL LEARNING BY SEMINAR 1

PHYS 4315 THERMODYNAMICS AND STATISTICAL MECHANICS 3

PHYS 4326 INTRODUCTION TO QUANTUM MECHANICS 3

PHYS electives approved by Physics undergraduate advisor and/or Chair of the Department of Physics 11

**General Electives** 7

36 hours of coursework must be advanced (3000/4000-level) to earn degree.

Total Hours 159

\* See General Core Requirements (p. 93) for approved courses.

**TYPICAL COURSE SEQUENCE**

Details of a personal course sequence should be made with the guidance of the Physics undergraduate advisor, particularly since many courses in Physics are not offered every semester, as well as the undergraduate advisor in the appropriate department for the minor. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426 CALCULUS I, in the first semester.

**First Year**

First Semester	Hours	Second Semester	Hours
MATH 1426	4	PHYS 1443	4
BIOL, CHEM, or GEOL course for majors	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
HIST 1311	3	HIST 1312	3
	<b>14</b>		<b>14</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
PHYS 1444	4	PHYS 2311	3
MATH 2326	3	PHYS 3313	3
MATH 3319 or 3318	3	PHYS 3183	1
minor course **	3	BIOL, CHEM, or GEOL course for majors	4

Creative Arts *	3	minor course **	3
	<b>16</b>		<b>14</b>
<b>Third Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
PHYS 3321	3	approved PHYS elective	4
approved PHYS elective	4	minor course **	3
minor course **	3	Computer Science course (CSE 1310 or higher-numbered CSE course, PHYS 2321, or MATH 3345)	3
Modern/Classical Language	4	POLS 2312	3
POLS 2311	3	Social/Behavioral Science *	3
	<b>17</b>		<b>16</b>
<b>Fourth Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
PHYS 4315	3	PHYS 4117	1
PHYS 4326	3	approved PHYS elective	3
minor course **	3	minor course **	3
Language, Philosophy and Culture *	3	Foundation Component Area *	3
General Elective	3	General Elective(s)	4
	<b>15</b>		<b>14</b>

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Science in Physics with Physical Science Teacher Certification (UTeach)

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3
<b>PROGRAM REQUIREMENTS</b>		



Communication Competence - satisfied by PHYS 4117

Computer Use Competence - satisfied by Computer Science requirement for major

### PROFESSIONAL COURSES

Select one of the following for Computer Science requirement:

CSE 1310	INTRODUCTION TO COMPUTERS & PROGRAMMING	3
or higher-numbered CSE course		
PHYS 2321	COMPUTATIONAL PHYSICS	
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	
or other suitable course approved by UTeach advisor and/or Chair of the Department of Physics		
MATH 2326	CALCULUS III	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
CHEMISTRY MINOR		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2285	QUANTITATIVE CHEMISTRY LABORATORY	2
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	3
CHEM 3321	PHYSICAL CHEMISTRY I	3
CHEM 3181	PHYSICAL CHEMISTRY I LABORATORY	1
TEACHER CERTIFICATION REQUIREMENTS (UTEACH)		
SCIE 1101	STEP 1: INQUIRY APPROACHES TO TEACHING	1
SCIE 1102	STEP 2: INQUIRY-BASED LESSON DESIGN	1
SCIE 4107	STUDENT TEACHING SEMINAR	1
SCIE 4607	STUDENT TEACHING FOR SECONDARY GRADES	6
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE	3
EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
MAJOR		
PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3183	MODERN PHYSICS LABORATORY	1
PHYS 3321	INTERMEDIATE ELECTRICITY AND MAGNETISM	3
PHYS 4117	INDIVIDUAL LEARNING BY SEMINAR	1
PHYS 4315	THERMODYNAMICS AND STATISTICAL MECHANICS	3
PHYS 4319	ADVANCED MECHANICS	3
PHYS 4326	INTRODUCTION TO QUANTUM MECHANICS	3
PHYS 4391	SPECIAL TOPICS (Research Methods)	3
PHYS electives approved by UTeach advisor and/or Chair of the Department of Physics		6
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
Total Hours		164

\* See General Core Requirements (p. 93) for approved courses.

### TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the UTeach advisor, particularly since many courses in Physics are not offered every semester. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426 CALCULUS I, in the first semester.

#### First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	PHYS 1443	4

CHEM 1441	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
HIST 1311	3	HIST 1312	3
SCIE 1101	1	SCIE 1102	1
	<b>15</b>		<b>15</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
PHYS 1444	4	PHYS 2311	3
MATH 2326	3	PHYS 3313	3
MATH 3319	3	PHYS 3183	1
CHEM 1442	4	CHEM 2335	3
EDUC 4331	3	CHEM 2285	2
		EDUC 4332	3
	<b>17</b>		<b>15</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
PHYS 3321	3	PHYS 4391 (Research Methods)	3
CHEM 3315	3	approved PHYS elective	3
Computer Science course (CSE 1310 or higher-numbered CSE course, PHYS 2321, or MATH 3345)	3	POLS 2312	3
POLS 2311	3	Creative Arts *	3
PHIL 2314	3	Social/Behavioral Science *	3
	<b>15</b>		<b>15</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
PHYS 4315	3	PHYS 4117	1
PHYS 4326	3	PHYS 4319	3
approved PHYS elective	3	Language, Philosophy and Culture *	3
CHEM 3321	3	Foundational Component Area *	3
CHEM 3181	1	SCIE 4107	1
EDUC 4333	3	SCIE 4607	6
	<b>16</b>		<b>17</b>

Total Hours: 125

\* See General Core Requirements (p. 93) for approved courses.

## Requirements for a Bachelor of Science in Physics with Physics/Mathematics Teacher Certification (UTeach)

**PRE-PROFESSIONAL COURSES**

General Core Requirements (p. 93) 39

**RECOMMENDED CORE REQUIREMENTS**

ENGL 1301 RHETORIC AND COMPOSITION I 3

ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3
<b>PROGRAM REQUIREMENTS</b>		
Communication Competence - satisfied by PHYS 4117		
Computer Use Competence - satisfied by Computer Science requirement for major		
<b>PROFESSIONAL COURSES</b>		
Select one of the following for Computer Science requirement:		3
CSE 1310	INTRODUCTION TO COMPUTERS & PROGRAMMING	
or higher-numbered CSE course		
PHYS 2321	COMPUTATIONAL PHYSICS	
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	
or other suitable course approved by UTeach advisor and/or Chair of the Department of Physics		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
MATHEMATICS MINOR		
MATH 2326	CALCULUS III	3
MATH 2330	FUNCTIONS AND MODELING	3
MATH 3300	INTRODUCTION TO PROOFS	3
MATH 3301	FOUNDATIONS OF GEOMETRY	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
MATH 3321	ABSTRACT ALGEBRA I	3
TEACHER CERTIFICATION REQUIREMENTS (UTEACH)		
SCIE 1101	STEP 1: INQUIRY APPROACHES TO TEACHING	1
SCIE 1102	STEP 2: INQUIRY-BASED LESSON DESIGN	1
SCIE 4107	STUDENT TEACHING SEMINAR	1
SCIE 4607	STUDENT TEACHING FOR SECONDARY GRADES	6
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE	3
EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
MAJOR		
PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3183	MODERN PHYSICS LABORATORY	1
PHYS 3321	INTERMEDIATE ELECTRICITY AND MAGNETISM	3
PHYS 4117	INDIVIDUAL LEARNING BY SEMINAR	1
PHYS 4315	THERMODYNAMICS AND STATISTICAL MECHANICS	3
PHYS 4319	ADVANCED MECHANICS	3
PHYS 4326	INTRODUCTION TO QUANTUM MECHANICS	3
PHYS 4391	SPECIAL TOPICS (Research Methods)	3

PHYS electives approved by UTeach advisor and/or Chair of the Department of Physics 36 hours of coursework must be advanced (3000/4000-level) to earn degree.	6
<b>Total Hours</b>	<b>164</b>

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the UTeach advisor, particularly since many courses in Physics are not offered every semester. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426 CALCULUS I, in the first semester.

### First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	PHYS 1443	4
CHEM 1441	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
HIST 1311	3	HIST 1312	3
SCIE 1101	1	SCIE 1102	1
	<b>15</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
PHYS 1444	4	PHYS 2311	3
MATH 2326	3	PHYS 3313	3
MATH 3319	3	PHYS 3183	1
CHEM 1442	4	MATH 3300	3
EDUC 4331	3	MATH 3301	3
		EDUC 4332	3
	<b>17</b>		<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
PHYS 3321	3	PHYS 4391 (Research Methods)	3
approved PHYS elective	3	approved PHYS elective	3
MATH 2330	3	POLS 2311	3
Computer Science course (CSE 1310 or higher-numbered CSE course, PHYS 2321, or MATH 3345)	3	Creative Arts*	3
PHIL 2314	3	Social/Behavioral Science*	3
	<b>15</b>		<b>15</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
PHYS 4315	3	PHYS 4117	1
PHYS 4326	3	PHYS 4319	3
MATH 3321	3	Language, Philosophy and Culture*	3
POLS 2312	3	Foundational Component Area*	3

EDUC 4333	3	SCIE 4107	1
		SCIE 4607	6
	<b>15</b>		<b>17</b>

Total Hours: 125

\* See General Core Requirements (p. 93) for approved courses.

## Requirements for a Bachelor of Science in Physics with a Master's in Materials Science and Engineering (Fast Track Program)

The Fast Track Program enables outstanding senior undergraduate students in Physics to satisfy degree requirements leading to a Bachelor's degree in Physics while simultaneously pursuing a Master's degree (M. Engr.) in Materials Science and Engineering. The essential elements of the Fast Track Program involve the use of up to 9 hours of graduate coursework to apply towards an undergraduate degree in Physics.

Students who complete PHYS 1443 and PHYS 1444 with a GPA of 3.0 and express an interest in the Fast Track Program will be designated as "Fast Track Bound" and encouraged to maintain a GPA of 3.0 or better to retain their eligibility. Students who have been identified as "Fast Track Bound" as well as other outstanding undergraduates in Physics can apply for the Fast Track Program when they are within 30 hours of completing their Bachelor's degree. They must have completed at least 30 hours at UTA, have a GPA of at least 3.0 in those courses, and have an overall GPA of 3.0 or better in all college courses. Additionally, they must have completed 9 hours of specified undergraduate Foundation Courses that are listed below with a GPA of 3.3 in these courses.

### FOUNDATION COURSES – Required for Admission into the Fast Track Program

MSE 3300	MATERIALS SCIENCE	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3321	INTERMEDIATE ELECTRICITY AND MAGNETISM	3

Once admitted, students will be allowed to take a combination of advanced undergraduate and graduate courses. Students can use 9 hours of MSE graduate-level (or 3000/4000-level) coursework towards their Physics degree.

For more details about the program, please contact the Physics undergraduate advisor and/or the graduate advisor in Materials Science and Engineering.

### PRE-PROFESSIONAL COURSES

General Core Requirements (p. 93) 39

#### RECOMMENDED CORE REQUIREMENTS

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

### PROGRAM REQUIREMENTS

Communication Competence - satisfied by PHYS 4117

Computer Use Competence - satisfied by Computer Science requirement for major

### PROFESSIONAL COURSES

Select one of the following for Computer Science requirement:	3
CSE 1310	INTRODUCTION TO COMPUTERS & PROGRAMMING

or higher-numbered CSE course		
PHYS 2321	COMPUTATIONAL PHYSICS	
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	
or other suitable course approved by Physics undergraduate advisor and/or Chair of the Department of Physics		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
course for majors offered in the departments of Biology, Chemistry and Biochemistry, or Earth and Environmental Sciences		4
MATH 2326	CALCULUS III	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
or MATH 3318	DIFFERENTIAL EQUATIONS	
MSE 3300	MATERIALS SCIENCE	3
MSE graduate or advanced (3000/4000-level) courses approved by MSE graduate advisor		9
<b>MAJOR</b>		
PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3183	MODERN PHYSICS LABORATORY	1
PHYS 3321	INTERMEDIATE ELECTRICITY AND MAGNETISM	3
PHYS 3445	OPTICS	4
PHYS 4117	INDIVIDUAL LEARNING BY SEMINAR	1
PHYS 4315	THERMODYNAMICS AND STATISTICAL MECHANICS	3
PHYS 4326	INTRODUCTION TO QUANTUM MECHANICS	3
PHYS electives approved by Physics undergraduate advisor and/or Chair of the Department of Physics		12
<b>General Electives</b>		<b>8</b>
36 hours of coursework must be advanced (3000/4000-level) to earn degree; up to 9 hours can be graduate-level (only for approved MSE coursework).		
Total Hours		159

Students should refer to the M.Engr. degree in Materials Science and Engineering (p. 288) section of the catalog for detailed requirements for that degree.

\* See General Core Requirements (p. 93) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Physics undergraduate advisor and, upon admission to the Fast Track Program, the graduate advisor in Materials Science and Engineering. Many courses in Physics are not offered every semester, and MSE coursework and sequences are determined by the Materials Science and Engineering Department. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426 CALCULUS I, in the first semester.

### First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	PHYS 1443	4
CHEM 1441	4	MATH 2425	4
ENGL 1301	3	CHEM 1442	4
HIST 1311	3	ENGL 1302	3
	<b>14</b>		<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
PHYS 1444	4	PHYS 2311	3
MATH 2326	3	PHYS 3313	3
MATH 3319 or 3318	3	PHYS 3183	1

MSE 3300	3	BIOL, CHEM, or GEOL course for majors	4
Creative Arts *	3	Language, Philosophy and Culture *	3
	<b>16</b>		<b>14</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
PHYS 3321	3	approved PHYS elective	4
PHYS 3445	4	approved PHYS elective	4
Computer Science course (CSE 1310 or higher-numbered CSE course, PHYS 2321, or MATH 3345)	3	HIST 1312	3
POLS 2311	3	POLS 2312	3
Social/Behavioral Science *	3		
	<b>16</b>		<b>14</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
PHYS 4315	3	PHYS 4117	1
PHYS 4326	3	approved PHYS elective	4
approved MSE course **	3	approved MSE course **	3
approved MSE course **	3	Foundational Component Area *	3
General Elective(s)	4	General Elective(s)	4
	<b>16</b>		<b>15</b>

Total Hours: 120

\* See General Core Requirements (p. 93) for approved courses.

\*\* Actual courses and course sequence determined by Materials Science and Engineering Department.

## Minor in Physics

A minimum total of 18 credit hours (including a minimum of 6 hours at the 3000/4000 level) are required. Transfer students must complete a minimum of 9 hours at UTA, 6 of which must be 3000/4000-level. A 2.0 GPA is required for coursework in the minor.

**REQUIRED COURSES**

PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS electives approved by Physics undergraduate advisor and/or Chair of the Department of Physics		7
Total Hours		<b>18</b>

## Minor in Astronomy for Non-Physics Majors

A minimum total of 18 credit hours (including a minimum of 6 hours at the 3000/4000 level) are required. Transfer students must complete a minimum of 9 hours at UTA, 6 of which must be 3000/4000-level. A 2.0 GPA is required for coursework in the minor.

**REQUIRED COURSES**

PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
PHYS 2315	INTRODUCTORY ASTROPHYSICS	3
PHYS 3315	ASTROPHYSICS AND COSMOLOGY	3
PHYS 3316	ASTROBIOLOGY	3

Elective Courses - choose from the following (approval from the Physics undergraduate advisor is required):	1
Special Problems (PHYS 4181, PHYS 4281 - with Astronomy research faculty)	
Special Topics (PHYS 4191, PHYS 4291, PHYS 4391 - when a suitable topic is offered)	
Total Hours	18

## Minor in Astrophysics for Non-Physics Majors

A minimum total of 18 credit hours (including a minimum of 6 hours at the 3000/4000 level) are required. Transfer students must complete a minimum of 9 hours at UTA, 6 of which must be 3000/4000-level. A 2.0 GPA is required for coursework in the minor.

### REQUIRED COURSES

PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
PHYS 2315	INTRODUCTORY ASTROPHYSICS	3
PHYS 3315	ASTROPHYSICS AND COSMOLOGY	3
Elective Courses - choose from the following:		4
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	
PHYS 3316	ASTROBIOLOGY	
PHYS 3445	OPTICS	
PHYS 3446	NUCLEAR AND PARTICLE PHYSICS	
Special Problems (PHYS 4181, PHYS 4281 - with Astronomy research faculty)		
Special Topics (PHYS 4191, PHYS 4291, PHYS 4391 - when a suitable topic is offered)		
Approval from the Physics undergraduate advisor is required for Special Problems and Special Topics courses.		
Total Hours		18

# Psychology

## Undergraduate Degrees

- Bachelor of Arts in Psychology (p. 617)
- Bachelor of Science in Psychology (p. 617)

## Graduate Degrees

- Psychology, Experimental, M.S. (p. 609) (no recruitment of MS-intended students)
- Psychology, Health/Neuroscience, M.S. (p. 609) (no recruitment of MS-intended students)
- Psychology, Industrial and Organizational, M.S. (p. 609)
- Psychology, Experimental, Ph.D. (p. 611)
- Psychology, Health/Neuroscience, Ph.D. (p. 611)

## Psychology - Graduate Programs

### Objective

The objective of graduate work in psychology is to educate the student in the methods and basic content of the discipline and to provide an apprenticeship in the execution of creative research.

Graduate work in the master's program and doctoral program will be offered in psychology. Students' individual programs of work may be arranged to give emphasis to a particular aspect of the general program.

Within this framework, options include, but are not limited to, Animal Behavior and Animal Learning, Cognition and Perception, Developmental, Health Psychology and Neuroscience, Industrial/Organizational, Behavioral Neuroscience, and Social-Personality Psychology. Students specializing in Cognition and Perception may include, in addition to their area C courses (described below), advanced topical seminars in their area of specialty. In addition to core courses (see area A) for those interested in Behavioral Neuroscience, seminars offered in the recent past include Aggression and Nociception. For those seeking expertise in the Social-Personality area, in addition to the area B courses, seminars have included topics such as Social Influence and Empathetic Accuracy and Intersubjectivity.

**Research Involvement-**Since the Department of Psychology believes that graduate training should involve the student continuously in the research process, students are encouraged to make personal contacts by letter or e-mail with faculty members of their choice. A description of the faculty and



their areas of research may be obtained by consulting the department Web page at [www.uta.edu/psychology](http://www.uta.edu/psychology) or by writing to or calling the department at 817.272.2281. Every effort will be made to assign the incoming student to a faculty member of choice, but priority is given to those who have discussed their placement in advance.

**Deadline for Financial Aid Applications**-Students who wish to be considered for assistantships should have their applications and departmental forms sent to The University of Texas at Arlington by February 1 for the fall Semester.

## Master's Degree Requirements

### MASTER OF SCIENCE DEGREE IN PSYCHOLOGY

As soon as is feasible, a student should decide on an area for specialization and research. After discussion with, and consent of the involved faculty members, the student selects a supervising professor and a thesis committee. No student may enroll in PSYC 5698 THESIS (Thesis - 6 hours) until the thesis committee has approved a proposal for the thesis project.

The MS program in Psychology requires completion of a Master's thesis (with the exception of the I/O program) and may be considered either as a terminal degree program or as preparation for doctoral work. Advancement to candidacy for the PhD degree requires completion of a Master's degree in a specialization in psychology or a "Master's equivalency paper". The MS thesis proposal must be approved by a thesis committee consisting of at least three members of the Psychology graduate faculty (additional members are optional) before the candidate for the MS degree may enroll in PSYC 5698 (Thesis - 6 hours). The completed thesis must receive final approval by the committee in an oral defense, which is open to any interested member of the Department, including students.

Students are to make announcements informing the local academic community about their upcoming defense at the time they submit the request for the thesis examination. A *Request for Final Master's Examination* form must be completed, signed, and filed no later than **two weeks** before the proposed examination date( see Graduate Calendar). A *Final Master's Examination Report* must be completed, signed and filed no later than **two weeks** before the date on which the candidate expects the degree to be conferred. For students who elect the thesis substitute, the final examinations(s) will be determined and administered by all of the members of the student's supervising committee. As above, a *Request for Final Master's Examination* form and a *Final Examination Report* must be filed by the dates listed in the Graduate Calendar.

### Specialization in Experimental Psychology

30 hours, including six hours of thesis are required for this option. The program is designed to form the basis for the doctoral program. It is, however, open to those seeking a terminal master's degree. Required courses include:

PSYC 5405	ADVANCED STATISTICS I	4
PSYC 5407	EXPERIMENTAL DESIGN	4

Select four of the following courses, at least one from each area A, B, and C: <sup>1</sup>

Area A		
PSYC 5333	BEHAVIORAL NEUROSCIENCE	
PSYC 6336	COMPARATIVE PSYCHOLOGY	
Area B		
PSYC 5321	PERSONALITY PSYCHOLOGY	
PSYC 5322	SOCIAL PSYCHOLOGY	
Area C		
PSYC 5313	HIGHER MENTAL PROCESSES	
PSYC 5345	HUMAN LEARNING AND MEMORY	

<sup>1</sup> Experimental psychology students also have the option of taking PSYC 5309 HEALTH PSYCHOLOGY for the fourth core course.

### Specialization in Health Psychology and Neuroscience

30 hours in psychology, including six hours of thesis are required for this option. The program is designed to form the foundational work for the doctoral program. Students are required to complete:

Statistics Sequence		
PSYC 5405 & PSYC 5407	ADVANCED STATISTICS I and EXPERIMENTAL DESIGN	8
Core Courses		
PSYC 5307	RESEARCH METHODS	3
PSYC 5309	HEALTH PSYCHOLOGY	3
Select one of the following:		
PSYC 5313	HIGHER MENTAL PROCESSES	3

PSYC 5314	COGNITIVE DEVELOPMENT	
PSYC 5345	HUMAN LEARNING AND MEMORY	
PSYC 6312	ANIMAL LEARNING	
Biological Foundations Course		
PSYC 5333	BEHAVIORAL NEUROSCIENCE	3
In addition, students should enroll in the following course each long semester of graduate study:		
PSYC 6101	PROSEMINAR IN HEALTH PSYCHOLOGY	

Please see the department's Graduate Handbook for suggested course sequences and degree plans. As for the experimental psychology specialization, thesis research and document are also required.

### Specialization in Industrial/Organizational (I/O) Psychology

44 hours (47 with thesis option) in psychology are required for this degree. The program offers both a thesis and a non-thesis option; however, all students are admitted under the non-thesis route. All students in the program will be required to conduct research related to I/O psychology. Required psychology courses include:

PSYC 5405	ADVANCED STATISTICS I	4
PSYC 5407	EXPERIMENTAL DESIGN	4
PSYC 5322	SOCIAL PSYCHOLOGY	3
PSYC 5323	GROUP PROCESSES	3
PSYC 5324	APPLIED RESEARCH DESIGN	3
PSYC 5325	ORGANIZATIONAL BEHAVIOR	3
PSYC 5326	EMPLOYEE SELECTION	3
PSYC 5328	EMPLOYEE ATTITUDES AND BEHAVIORS	3
PSYC 5329	PERFORMANCE MANAGEMENT SYSTEMS	3
PSYC 6349	PSYCHOMETRIC THEORY	3
Approved Management Elective		3
PSYC 5327	INDUSTRIAL AND ORGANIZATIONAL INTERNSHIP	3
(Take PSYC 5327 in both Spring Semesters)		
PSYC 5391	RESEARCH IN PSYCHOLOGY	3-6
or PSYC 5698	THESIS	

Students typically complete their thesis or non-thesis option (Individual Research) at the end of their second year.

A typical program of study looks like this:

#### First Year

First Semester	Hours	Second Semester	Hours
PSYC 5405	4	PSYC 5407	4
Select one of the following:	3	Select one of the following:	3
PSYC 5325 <sup>A</sup>		PSYC 5326 <sup>B</sup>	
or		or	
PSYC 5328 <sup>B</sup>		PSYC 5329 <sup>A</sup>	
PSYC 5322	3	PSYC 5327	3
		Select one of the following:	3
		PSYC 5323 <sup>B</sup>	
		or	
		Management Elective <sup>A</sup>	
	<b>10</b>		<b>13</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
PSYC 5324	3	Select one of the following:	3
Select one of the following:	3	PSYC 5326 <sup>A</sup>	
PSYC 5325 <sup>B</sup>		or	
or		PSYC 5329 <sup>B</sup>	
PSYC 5328 <sup>A</sup>		Select one of the following:	3
PSYC 6349	3	PSYC 5323 <sup>A</sup>	
		or	
		Management Elective <sup>B</sup>	
		PSYC 5327	3
		Select one of the following:	3-6
		Thesis (6 hours)	
		Individual Research (3 hours)	
	<b>9</b>		<b>12-15</b>

Total Hours: 44-47

Students who begin the I/O psychology program in odd numbered years (for example 2013, 2015) will take the courses marked with a Superscript "A" in the sequence presented.

Students who begin the I/O psychology program in even numbered years (for example 2012, 2014) will take the courses marked with a Superscript "B" in the sequence presented.

## Doctoral Degree Requirements

### DOCTOR OF PHILOSOPHY

The degree of Doctor of Philosophy in psychology requires distinguished attainments in both scholarship and original research, and the deep understanding of the strategic role of thoughtful research in the development of an empirical science. Although the student must meet the minimum requirements of a planned course of study, the ultimate basis for conferring the degree must be the demonstrated ability to do independent and creative work, and the exhibition of a profound grasp of the subject matter of the field.

**Computer Knowledge Requirement:** Because of the fundamental and varied ways in which computers are applied in psychology, students are expected to understand their use and application in psychological research. Specifically, students are expected to demonstrate competence in the use of operating systems such as Windows or the Macintosh System, e-mail and other aspects of the Internet, standard office packages, data bases, programming languages (with specific reference to the programming of psychological experiments) and statistical packages such as SAS and SPSS. This computer knowledge requirement has been established in lieu of the foreign language requirement.

### Specialization in Experimental Psychology

The specialization in experimental psychology allows students to work in a general experimental context while specializing in one of several areas (e.g., cognitive psychology, social psychology, industrial/organizational, and so on).

**Course requirements:** Graduate students entering the experimental specialization will be required to take the following courses during their first four semesters of enrollment. Exceptions may be made only with written permission of the Committee on Graduate Studies.

PSYC 5110 & PSYC 5112	PROFESSIONAL DEVELOPMENT I and PROFESSIONAL DEVELOPMENT II	2
PSYC 5405	ADVANCED STATISTICS I	4
PSYC 5407	EXPERIMENTAL DESIGN	4
Select four of the following courses, at least one from each area A, B, and C: <sup>1</sup>		12
Area A		
PSYC 5333	BEHAVIORAL NEUROSCIENCE	

PSYC 6336	COMPARATIVE PSYCHOLOGY
Area B	
PSYC 5321	PERSONALITY PSYCHOLOGY
PSYC 5322	SOCIAL PSYCHOLOGY
Area C	
PSYC 5313	HIGHER MENTAL PROCESSES
PSYC 5345	HUMAN LEARNING AND MEMORY

<sup>1</sup> Experimental psychology students also have the option of taking PSYC 5309 HEALTH PSYCHOLOGY for the fourth core course.

Students with prior graduate work may be waived from any of the above requirements by a written request to the Graduate Studies Committee. The request should include a syllabus or other documentation showing that a prior course and one of our required courses are equivalent. Students should discuss course equivalency with the professor(s) who teach the course(s) in question before submitting a request. Having fulfilled the above, the following are required:

1. Eight courses (24 hours) from among lectures and seminars (PSYC 6300).
2. Two six-hour research courses. These may be taken from PSYC 5698 THESIS or PSYC 5600 ADVANCED RESEARCH. Students who plan to obtain the MS should elect PSYC 5698 THESIS as one of the research courses and students who do not plan to obtain the MS should select two sections of PSYC 5600 ADVANCED RESEARCH. If the student does not elect to obtain the MS, one of the research courses must result in a formal thesis-equivalent paper, which will be evaluated by a committee and defended in an oral examination. The two research courses are a minimum requirement. Students are strongly encouraged to take PSYC 5391 RESEARCH IN PSYCHOLOGY or PSYC 6391 RESEARCH IN PSYCHOLOGY before taking PSYC 5600 ADVANCED RESEARCH and PSYC 5698 THESIS.
3. Additional hours of coursework to be determined by the Graduate Advisor and dissertation committee. The student should plan to take approximately 86 hours including PSYC 6999 DISSERTATION. At least 46 of these hours must be in organized courses, lectures or seminars. No student may enroll in a dissertation course until the dissertation committee has approved a proposal for the dissertation project.

A student has completed the course requirements when he or she has:

1. Maintained at least a B average in in all courses.

A typical program of study might look like this:

<b>First Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Statistics I		Statistics II	
An A, B or C core course		An A, B or C core course	
Professional Development I		Professional Development II	
Readings and/or Research elective		Readings and/or Research elective	
	<b>0</b>		<b>0</b>
<b>Second Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
An A, B, or C core course		An A, B, or C core course	
Seminar		Seminar	
Lecture Electives and/or Thesis		Lecture Electives and/or Thesis	
	<b>0</b>		<b>0</b>
<b>Third Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Lecture Electives and/or Thesis		Lecture Electives and/or Seminar	
Seminar		Readings and/or Research elective	
Readings and/or Research elective			
	<b>0</b>		<b>0</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Lecture Electives and/or Thesis		Lecture Electives and/or Thesis	
Seminar		Seminar	
Readings and/or Research elective Dissertation Research		Readings and/or Research elective Dissertation Research	
	<b>0</b>		<b>0</b>

**Fifth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Dissertation Research		Dissertation Research	
	<b>0</b>		<b>0</b>

---

Total Hours: 0

Note: This is based on a 5-year program of study. Students may adjust the speed at which milestones are achieved by adding 4th year courses earlier.

**Prerequisite Conditions for the Qualifying Examination**

In order to begin working on the qualifying exam, students must complete the Departmental MS Core Curriculum requirements as set forth elsewhere in the catalog. Generally, these course requirements will be met within the first two years of graduate enrollment. Students must also satisfactorily participate in the Research Progress Symposium (RPS). Finally, a Master's Thesis (or equivalent) must be completed. Students entering the program with a master's degree must complete the Departmental MS Core Curriculum requirements and satisfactorily participate in the RPS before being invited to begin work on the Qualifying Examination. Upon completion of these prerequisite conditions, students have one year to complete their Qualifying Examination. This process consists of a Major Area Paper (MAP) and an oral defense, both of which must be completed within one year.

**MAP and MAP Oral Defense**

The MAP consists of a comprehensive review paper, which is a summary, integration, and critical review of the literature relevant to a general theme or topic. It is expected that the student will offer a novel and forward-thinking perspective on the topic area. The MAP does not directly propose research hypotheses and designs, nor does it involve the collection of primary-level data. It may be either a quantitative review (i.e., a meta-analysis) or a more qualitative review. It should contain a concluding section in which novel ideas are proposed and elaborated upon, and which will form a basis for the MAP Oral Defense. The topic area and scope of the MAP will be developed with the student's primary faculty mentor and one or two other Department of Psychology Faculty members. The preferred size of the Qualifying Examination Reading Committee is three members, but a two-member Committee is acceptable if an appropriate third member is not available. Students may consult their Committee members for general comments and direction concerning the MAP, but Committee member involvement in the writing of the MAP (including that of the student's Faculty mentor) is expected to be minimal.

Upon submission of the MAP document to the Qualifying Examination Reading Committee, the Committee will evaluate the MAP in terms of its potential contribution to the student's chosen field, and in terms of the degree to which it represents Ph.D.-level thinking, communication, independence, and scholarship. Ordinarily, the Qualifying Examination Reading Committee will take no longer than two weeks to evaluate the MAP and communicate their decision to the student. If the Committee determines that the MAP is unacceptable, the student will be given three months to revise it for a second evaluation by the Committee. If the revised version of the MAP is also judged to be unacceptable, the student will not be invited to pursue the Ph.D. degree in the UT Arlington Graduate Program in Psychology. Such a student's Master's degree will thus be his/her terminal degree.

If and when the MAP is deemed acceptable by the Committee, the Committee will invite the student to a MAP Oral Defense, which will take place no sooner than two weeks following communication from the Committee to the student that the student's MAP is acceptable. The MAP Oral Defense consists only of the student and Committee members, and is not open to other students, faculty, staff, or the general public. In this meeting, which will normally last between 90 and 120 minutes, Committee members will assess the student's knowledge of the topic area, the theoretical background, the methodologies likely to be employed in related research, limitations to the ideas, and conceptual and practical connections to related issues. The Committee will determine whether or not the student has clearly passed the examination, clearly failed, or passed with conditions which must be met before Ph.D. Candidacy is recommended. Upon passing both the MAP and the MAP Oral Defense, a Diagnostic Evaluation Report form must be completed, signed, and filed.

**DISSERTATION**

Upon satisfactory completion of both the MAP and the MAP Oral Defense, students should assemble a Dissertation Committee, which consists of their Faculty mentor and four other faculty members, for a total of five committee members. Students will meet with this Committee to present the proposed research and to solicit input concerning the best ways to accomplish the goals of the Dissertation Proposal. The Dissertation research may be related to, or based upon, the MAP, but this is not required. Upon approval of the Dissertation conceptualization, design, and methods, students will proceed

in carrying out the approved plan of research. Please consult the Graduate Catalog and Department Handbook for general expectations regarding the Dissertation.

In addition, consult the Graduate Catalog and Department Handbook for general expectations regarding timelines. Typically, students will complete their Master's Thesis (or equivalent) in the 2nd or 3rd year of graduate studies. Ordinarily, the Qualifying Examination will be completed within one year of successfully completing the prerequisite conditions as outlined above. Because both the MAP and the MAP Oral Defense have a two-week review and planning period, respectively, students must take these weeks into account when planning completion of the Qualifying Examination within one year. Students are also advised to be cognizant of these time frames in the event that they are required to revise their MAP. If the MAP and MAP Oral Defense have not been completed within one year of completion of all prerequisite conditions, students must submit a written explanation to their Qualifying Examination Reading Committee, detailing their progress and their anticipated completion date. Failure to complete the MAP and MAP Oral Defense within one year will also be a consideration in GTA funding decisions.

Comprehensive Examination: Presentation of a dissertation proposal to the student's dissertation supervisory committee constitutes the doctoral "comprehensive examination" for the Department of Psychology. A Request for Comprehensive Examination (PhD) form must be submitted prior to the presentation. A Results of Comprehensive Examination (PhD) form must be submitted after the presentation. These forms are available online. Approval of the dissertation proposal by the dissertation supervisory committee is needed before the student is considered to have passed the comprehensive examination.

## Specialization in Health Psychology and Neuroscience

The concentration in Health Psychology and Neuroscience is designed to train researchers in health/neuroscience and behavior, working at the cutting-edge or interdisciplinary, biomedical and biobehavioral investigation in areas such as pain, addiction, stress, psychoimmunology, memory, cancer and aging. Most research activity is based on the neurophysiological, biobehavioral, or biopsychosocial model of health and illness.

### Course Requirements:

PSYC 5110 & PSYC 5112	PROFESSIONAL DEVELOPMENT I and PROFESSIONAL DEVELOPMENT II	2
PSYC 5405 & PSYC 5407	ADVANCED STATISTICS I and EXPERIMENTAL DESIGN	8
PSYC 5307	RESEARCH METHODS	3
PSYC 5309	HEALTH PSYCHOLOGY <sup>1</sup>	3

Select one of the following: <sup>1</sup>

PSYC 5313	HIGHER MENTAL PROCESSES
PSYC 5314	COGNITIVE DEVELOPMENT
PSYC 5345	HUMAN LEARNING AND MEMORY
PSYC 6312	ANIMAL LEARNING

<sup>1</sup> Core Courses.

In addition, students are required to complete coursework in biological foundations, including systems physiology, neuroscience, and at least one relevant biological or biomedical specialty. A minimum of three foundations courses must be completed and these must include physiology (one of several approved courses offered in other UT departments), and PSYC 5333 BEHAVIORAL NEUROSCIENCE. The third required foundations course must be an approved graduate level course in genetics, immunology, endocrinology, or other specialized biomedical topic available at UT Southwestern or another UT Arlington department.

Students must complete two professional development courses plus six electives (20 hours) in Psychology or in other UT departments that have been approved by the program over the entire course of study. At least 4 must be courses offered by the Department of Psychology. Most department offerings will satisfy this requirement. It is expected that these electives will be advanced seminars and research courses. Students will also be required to enroll and participate in the Health/Neuroscience Psychology Proseminar (PSYC 6101) which will meet weekly for 1 hour as a forum for a variety of seminar activities, presentations, MS or PhD defense, and so on. Students will enroll in this seminar every long semester for the first four years of graduate study.

### Summary:

- 8 hours of Proseminar
- 8 hours of Statistics (2 courses)
- 9 hours of psychological foundations courses (methods, learning, health psychology)
- 9-12 hours biological foundations (3 courses, 3-4 credits each)
- 20 hours electives (At least five must be courses offered by the Department of Psychology)
- Thesis (6 hours) and Dissertation (9 hours) as required

A typical program of study might look like this:

<b>First Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Statistics		Statistics	
Research Methods		Health Psychology	
Proseminar		Proseminar	
	<b>0</b>		<b>0</b>
<b>Second Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Physiology		Neuroscience	
Elective		Learning	
Proseminar		Proseminar	
	<b>0</b>		<b>0</b>
<b>Third Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Biological Elective		Elective	
Elective		Elective	
Proseminar		Proseminar	
	<b>0</b>		<b>0</b>
<b>Fourth Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Elective		Elective	
Elective		Proseminar	
Research Proseminar			
	<b>0</b>		<b>0</b>
<b>Fifth Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Research		Research	
	<b>0</b>		<b>0</b>
<hr/>			
Total Hours: 0			

Note: This is based on a 5-year program of study. Students may adjust the speed at which milestones are achieved by adding 4th year courses earlier.

### Research Requirements

Research requirements include general expectations of student involvement in research throughout their graduate career and specific milestones that must be accomplished in order, including the Research Progress Symposium, the Master's Thesis or equivalent paper, the Major Area Paper (MAP; Diagnosis/Qualifying Exam), the Dissertation Proposal (Comprehensive Exam), and the Dissertation Defense. University requirements mandate completion of six hours of Master's research and another six hours of Dissertation research in the semester that degree requirements will be completed.

Masters' research: Students must complete a significant research project with primary responsibility for its derivation, conduct, and/or analysis. Ordinarily this is done during the first two years of graduate study. This must be completed before students can seek candidacy for the PhD. Students must complete, analyze, and report on a major research project, part or all of which is primarily the student's responsibility. Typically this is an experiment or study. For formal acceptance of an approved thesis so that the student can obtain a MS, university guidelines apply. The thesis committee should consist of 3 program faculty. Alternatively, the committee shall determine accepted format if a MS is not sought.

## Specialization in Industrial/Organizational Psychology

The doctorate of psychology with an emphasis in I/O is designed for students who intend to conduct experimental research in I/O psychology and begin their professional career as either an academician or a research-oriented practitioner in the field. Students working toward the doctoral degree are expected to develop, implement, and complete an experimental study as part of the degree requirements. UT Arlington currently does not have a PhD program specific to I/O; therefore, applicants interested in receiving a PhD with an emphasis in I/O psychology should clearly state either the Psychological Sciences specialization or Health/Neuroscience specialization, as that will determine the appropriate course of study required for degree completion. Either specialization will emphasize an I/O focus; for example, an I/O emphasis that specializes in Health/Neuroscience might include research associated with stress and occupational health whereas a specialization in Psychological Sciences might include research associated with groups or teams in the workplace.

Due to the applied nature of I/O MS programs, if an MS degree has been conferred or is conferred en route to the Ph.D., then it is not necessary to conduct a thesis or a formal thesis-equivalent paper. Students may take 6 hours of Advanced Research (PSYC 5600), under the supervision of their major professor, to work toward obtaining additional publications and strengthening research-oriented skills.

### Current I/O MS students

Students currently enrolled in the I/O MS program who wish to be considered for admission into a PhD program must formally apply to either the Psychological Sciences or Health/Neuroscience program and must follow the formal admission procedures as stated previously in this document. Students must meet the criteria for admission to the PhD program which will be determined, in part, by the scholarly achievements accomplished prior to applying for PhD candidacy as well as the fit between the student and faculty mentor.

## Psychology - Undergraduate Programs

**Academic Advising: 320 Life Science Bldg. • 817-272-0858**

### Overview

The Department of Psychology offers two programs of study leading to the bachelor's degree. It also offers courses of interest to the general public.

The Bachelor of Arts degree in psychology is for those who wish to obtain a broad liberal arts education with a concentration in psychology. It is also a preparation for graduate studies in psychology and many other fields.

The Bachelor of Science degree in psychology is intended for those students preparing for work and study in fields requiring more mathematics and sciences. It is also suitable for pre-medical and pre-dental students. Students preparing for study in the health professions including medicine, dentistry, pharmacology, optometry, occupational therapy, and veterinary medicine should also be advised by the Health Professions Advisor in the office of the Dean of Science, Room 206, Life Science Building in order to meet the requirements of the corresponding professional schools.

Courses of general interest to the academic community include the following, which have no prerequisites:

PSYC 1315	INTRODUCTION TO PSYCHOLOGY	3
PSYC 2317	BASIC CONCEPTS IN HUMAN SEXUALITY	3
PSYC 3301	PSYCHOLOGY OF HUMAN RELATIONS	3
PSYC 3302	BUSINESS PSYCHOLOGY	3
PSYC 3303	DRUGS AND BEHAVIOR	3

**Restrictions:** Psychology courses, except those cross-listed with biology, cannot be used to fulfill any of the science requirements, and must be taken under a BIOL course number for that purpose.

## Acceptance Requirements for a Major in Psychology

Students who wish to apply for major status in psychology must first meet the University and College of Science requirements for admission to major status and the specific requirements of the Department of Psychology listed below.

Overall and Psychology GPA of at least 2.25. Completed PSYC 2443 RESEARCH DESIGN & STATISTICS I and PSYC 2444 RESEARCH DESIGN & STATISTICS II with a C or better in each course. Students currently enrolled at the University may qualify to change their major to psychology by meeting the requirements listed above depending on their current status.

**Academic Probation (College of Science):** Majors whose overall GPA or GPA in major courses falls below 2.25 will be placed on probation and must consult with the Department Advisor prior to enrolling in additional courses.

### Admission to Upper-Level Laboratory Courses:

To enroll in the Advanced Topic courses<sup>1</sup> the student must make a C or better in both PSYC 2443 RESEARCH DESIGN & STATISTICS I and PSYC 2444 RESEARCH DESIGN & STATISTICS II or equivalent courses and must have completed the associated upper-division lecture course.



- <sup>1</sup> Advanced Topic courses: PSYC 4410 ADVANCED TOPICS IN DEVELOPMENTAL PSYCHOLOGY, PSYC 4411 ADVANCED TOPICS IN PERSONALITY, PSYC 4412 ADVANCED TOPICS IN SOCIAL PSYCHOLOGY, PSYC 4420 EXPERIMENTAL ANALYSIS OF BEHAVIOR, PSYC 4421 ADVANCED TOPICS IN NEUROSCIENCE, PSYC 4430 ADVANCED TOPICS IN CLINICAL COUNSELING, PSYC 4431 ADVANCED TOPICS IN COGNITIVE SCIENCE, PSYC 4432 ADVANCED TOPICS IN HEALTH.

## Multiple Majors

To qualify psychology as part of a multiple major, it is necessary to complete the requirements for a B.S. major or a B.A. major in psychology, plus the requirements for another major. Both majors must be either B.A. or B.S. The diploma and transcript will reflect both majors.

## Distinguished Scholars in Psychology

The Department of Psychology offers a Distinguished Scholars program in psychology. This program is intended to provide students with the opportunity for intellectual and professional development that will take them beyond the requirements of the basic B.A. or B.S. degrees. Thus, the program serves to promote and acknowledge the special achievements of participating students.

To qualify, the student must have completed 30 hours with a grade point average of 3.0 or better in residence at UT Arlington, including 10 hours in psychology, with a minimum grade point average of 3.5 or better. The student does background reading and designs a study with a faculty sponsor in PSYC 4361 READINGS IN PSYCHOLOGY, then performs the research project and writes an honors thesis in PSYC 4398 HONORS THESIS. In most cases, the six hours of Distinguished Scholar credit will not increase the total hours necessary to complete the B.A. or B.S. degree.

Qualified students or students who believe they may qualify should contact the undergraduate advisor as soon as possible after completing PSYC 2444 RESEARCH DESIGN & STATISTICS II.

## Requirements for a Bachelor of Science Degree in Psychology

The requirements to receive a Bachelor of Science Degree in Psychology can be achieved through degree plans under any one of the four options (i.e., Option 1-BS in Psychology with a minor, Option 2- BS in Psychology with an Emphasis in Cognitive Psychology / Neuroscience, Option 3- BS in Psychology with an Emphasis in Social / Organizational Psychology, and Option 4 - BS in Psychology with an Emphasis in General Psychology). Before choosing a degree program under one of these options, please consult with the psychology undergraduate advisor. Click here for a sample degree plan: Copy\_of\_BS\_Worksheet\_2014\_new\_Template\_6-2013.xlsx ([http://catalog.uta.edu/science/psychology/undergraduate/Copy\\_of\\_BS\\_Worksheet\\_2014\\_new\\_Template\\_6-2013.xlsx](http://catalog.uta.edu/science/psychology/undergraduate/Copy_of_BS_Worksheet_2014_new_Template_6-2013.xlsx))

### Pre-Professional Courses

General Core Requirements (p. 93)		39
RECOMMENDED CORE REQUIREMENTS		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES (or any three hours meeting the legislative requirement)	3
POLS 2312	STATE AND LOCAL GOVERNMENT (or any three hours meeting the legislative requirement)	3
Language, Philosophy and Culture <sup>1,3</sup>		
MATH 1323	PRECALCULUS II <sup>2</sup>	3
MATH 1426	CALCULUS I <sup>2</sup>	4
Life and Physical Science		
BIOL 1441	CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	STRUCTURE AND FUNCTION OF ORGANISMS	4
Social/Behavioral Science (psyc majors cannot use PSYC 1315 to fulfill this requirement) <sup>1</sup>		
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area <sup>1</sup>		3
Program Requirements		
Select one of the following in computer literacy:		0-3
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Or any equivalent course		
Or passing the university computer proficiency test <sup>4</sup>		

Select one of the following in oral communication competency:	3	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
Or an equivalent three hour course approved by the Undergraduate Advisor		
Courses from the Cultural Studies List <sup>2,3</sup>	6	
Need a total of 15-16 hours in Life & Physical Sciences including the 8 hours from the biology sequence. Select one of the following sequences, or seven additional hours in biology for science majors courses.	7-8	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	
PHYS 1441 & PHYS 1442	GENERAL COLLEGE PHYSICS I and GENERAL COLLEGE PHYSICS II	
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II	
<b>Professional Programs</b>		
Major		
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	3
PSYC 2443	RESEARCH DESIGN & STATISTICS I	4
PSYC 2444	RESEARCH DESIGN & STATISTICS II	4
Required Core Lectures		
PSYC 3315	SOCIAL PSYCHOLOGY	3
PSYC 3322	BRAIN AND BEHAVIOR	3
PSYC 3334	COGNITIVE PROCESSES	3
Lecture Groups		
Select one three-hour lecture course from each of the Groups I, II, and III; plus one three-hour course from either Group I, II, or III:	12	
Group I		
PSYC 3310	DEVELOPMENTAL PSYCHOLOGY	
PSYC 3311	ADULTHOOD AND AGING	
PSYC 3312	SOCIAL & PERSONALITY DEVELOPMENT	
PSYC 3313	CULTURAL PSYCHOLOGY	
PSYC 3314	PSYCHOLOGY OF PERSONALITY	
PSYC 3319	PSYCHOLOGY OF ADOLESCENCE	
Group II		
PSYC 3320	BEHAVIOR AND MOTIVATION	
PSYC 3326	ANIMAL BEHAVIOR	
PSYC 3356	EVOLUTIONARY PSYCHOLOGY	
PSYC 4301	INTRO TO NEUROSCIENCE	
PSYC 4309	NEUROPHARMACOLOGY	
PSYC 4325	DEVELOPMENTAL PSYCHOBIOLOGY	
PSYC 4327	BEHAVIORAL GENETICS	
PSYC 4329	ANIMAL LEARNING AND COGNITION	
Group III		
PSYC 3316	ENVIRONMENTAL PSYCHOLOGY	
PSYC 3317	INTRODUCTION TO CLINICAL AND COUNSELING PSYCHOLOGY	
PSYC 3318	ABNORMAL PSYCHOLOGY	
PSYC 4303	PAIN RESEARCH AND MANAGEMENT	
PSYC 4310	BEHAVIOR THERAPY	
PSYC 4332	THEORIES OF HUMAN LEARNING AND MEMORY	
PSYC 4337	PSYCHOLOGY OF TESTING	
PSYC 4339	PSYCHOLOGY OF JUDGMENT AND CHOICE	
PSYC 4357	HEALTH PSYCHOLOGY	

## Advanced Topics Course

Select one four-hour advanced topics course from either Group I, II, or III: 4

## Group I

PSYC 4410 ADVANCED TOPICS IN DEVELOPMENTAL PSYCHOLOGY

PSYC 4411 ADVANCED TOPICS IN PERSONALITY

PSYC 4412 ADVANCED TOPICS IN SOCIAL PSYCHOLOGY

## Group II

PSYC 4420 EXPERIMENTAL ANALYSIS OF BEHAVIOR

PSYC 4421 ADVANCED TOPICS IN NEUROSCIENCE

## Group III

PSYC 4430 ADVANCED TOPICS IN CLINICAL COUNSELING

PSYC 4431 ADVANCED TOPICS IN COGNITIVE SCIENCE

PSYC 4432 ADVANCED TOPICS IN HEALTH

## Minor or Emphasis

Either a minor of 18 hours in a discipline other than psychology or an Emphasis in Psychology, which consists of 18 hours of upper level Psychology course work, is required. (See below) 18

**Electives**

Sufficient hours to complete the total required for the degree.

**Total**

120 hours, of which at least 36 hours must be 3000/4000-level.

- 1 See/degree requirements/general core requirements/ (p. 93) for approved courses.
- 2 Prerequisites may add hours to the total required for the degree.
- 3 Cultural Studies List as listed here (<http://www.uta.edu/psychology/Undergraduate%20Students/substitutes%20for%202313%20and%202314%20of%20foreign%20language.pdf>) or levels III and IV of a modern or classical language. Three of the six hours also serves to satisfy the core curriculum requirement of a three-hour language, philosophy & culture class above the freshmen level.
- 4 Computer Skills Placement info (<http://www.uta.edu/universitycollege/prospective/testing-services/proficiency-and-other-exams/csp.php>)

**EMPHASIS**

At least 18 hours of coursework must be taken at the 3000 or 4000 level.

**Emphasis in Cognitive Psychology / Neuroscience**

PSYC 3303	DRUGS AND BEHAVIOR	3
PSYC 3310	DEVELOPMENTAL PSYCHOLOGY	3
PSYC 3318	ABNORMAL PSYCHOLOGY	3
PSYC 3320	BEHAVIOR AND MOTIVATION	3
PSYC 3326	ANIMAL BEHAVIOR	3
PSYC 3356	EVOLUTIONARY PSYCHOLOGY	3
PSYC 4301	INTRO TO NEUROSCIENCE	3
PSYC 4309	NEUROPHARMACOLOGY	3
PSYC 4325	DEVELOPMENTAL PSYCHOBIOLOGY	3
PSYC 4327	BEHAVIORAL GENETICS	3
PSYC 4332	THEORIES OF HUMAN LEARNING AND MEMORY	3
PSYC 4335	COGNITIVE DEVELOPMENT	3
PSYC 4338	COGNITIVE NEUROSCIENCE	3
PSYC 4357	HEALTH PSYCHOLOGY	3
PSYC 4359	SELECTED TOPICS IN PSYCHOLOGY	3
PSYC 4398	HONORS THESIS <sup>1</sup>	3
PSYC 4411	ADVANCED TOPICS IN PERSONALITY	4
PSYC 4421	ADVANCED TOPICS IN NEUROSCIENCE	4
PSYC 4431	ADVANCED TOPICS IN COGNITIVE SCIENCE	4
PSYC 4432	ADVANCED TOPICS IN HEALTH	4
PSYC 4181	RESEARCH IN PSYCHOLOGY <sup>1</sup>	1

PSYC 4281	RESEARCH IN PSYCHOLOGY <sup>1</sup>	2
PSYC 4381	RESEARCH IN PSYCHOLOGY <sup>1</sup>	3
PSYC 4161	READINGS IN PSYCHOLOGY <sup>1</sup>	1
PSYC 4261	READINGS IN PSYCHOLOGY <sup>1</sup>	2
PSYC 4361	READINGS IN PSYCHOLOGY <sup>1</sup>	3

<sup>1</sup> A total of 6 hours of research, readings credit and honor's thesis may be applied to a given emphasis.

### Emphasis in Social / Industrial Organizational Psychology

PSYC 3301	PSYCHOLOGY OF HUMAN RELATIONS	3
PSYC 3302	BUSINESS PSYCHOLOGY	3
PSYC 3303	DRUGS AND BEHAVIOR	3
PSYC 3310	DEVELOPMENTAL PSYCHOLOGY	3
PSYC 3311	ADULTHOOD AND AGING	3
PSYC 3312	SOCIAL & PERSONALITY DEVELOPMENT	3
PSYC 3313	CULTURAL PSYCHOLOGY	3
PSYC 3314	PSYCHOLOGY OF PERSONALITY	3
PSYC 3317	INTRODUCTION TO CLINICAL AND COUNSELING PSYCHOLOGY	3
PSYC 3318	ABNORMAL PSYCHOLOGY	3
PSYC 3319	PSYCHOLOGY OF ADOLESCENCE	3
PSYC 4332	THEORIES OF HUMAN LEARNING AND MEMORY	3
PSYC 4337	PSYCHOLOGY OF TESTING	3
PSYC 4339	PSYCHOLOGY OF JUDGMENT AND CHOICE	3
PSYC 4357	HEALTH PSYCHOLOGY	3
PSYC 4359	SELECTED TOPICS IN PSYCHOLOGY	3
PSYC 4398	HONORS THESIS <sup>1</sup>	3
PSYC 4411	ADVANCED TOPICS IN PERSONALITY	4
PSYC 4412	ADVANCED TOPICS IN SOCIAL PSYCHOLOGY	4
PSYC 4181	RESEARCH IN PSYCHOLOGY <sup>1</sup>	1
PSYC 4281	RESEARCH IN PSYCHOLOGY <sup>1</sup>	2
PSYC 4381	RESEARCH IN PSYCHOLOGY <sup>1</sup>	3
PSYC 4161	READINGS IN PSYCHOLOGY <sup>1</sup>	1
PSYC 4261	READINGS IN PSYCHOLOGY <sup>1</sup>	2
PSYC 4361	READINGS IN PSYCHOLOGY <sup>1</sup>	3

<sup>1</sup> A total of 6 hours of research, readings credit and honor's thesis may be applied to a given emphasis.

### Emphasis in General Psychology

Any psychology 3000 or 4000 level coursework <sup>1</sup>	18
Total Hours	18

<sup>1</sup> A total of 6 hours of research, readings credit and honor's thesis may be applied to a given emphasis.

### SUGGESTED COURSE DISTRIBUTION FOR BACHELOR OF SCIENCE DEGREE WITH MINOR <sup>1</sup>

#### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1323	3	MATH 1426	4
HIST 1311	3	HIST 1312	3

PSYC 1315	3	BIOL 1442	4
BIOL 1441	4	Computer Competency	3
	<b>16</b>		<b>17</b>

**Second Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
PSYC 2443	4	PSYC 2444	4
Life & Physical Science <sup>2</sup>	4	Life & Physical Science <sup>2</sup>	3-4
POLS 2311	3	POLS 2312	3
Creative Arts	3	Social & Behavioral Sciences	3
	<b>14</b>		<b>13-14</b>

**Third Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
PSYC 3315	3	PSYC 3334	3
PSYC 3322	3	Psychology Lecture Group I	3
Advanced Topics Course	4	Advanced Psychology Emphasis Lecture or Course for Minor	3
Modern Language III or substitution	3	Modern Language IV or substitution	3
Advanced Electives	1-2	Foundational Component Area	3
	<b>14-15</b>		<b>15</b>

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
Lecture Group II	3	Psychology Lecture Group III	3
Advanced Psychology, Emphasis Lecture or Courses for Minor (3 courses)	9	Advanced Psychology Emphasis Lecture or Courses for Minor (2 courses)	6
Advanced Psychology from Lecture Group I,II or III	3	COMS 2302	3
		Advanced General Elective	3
	<b>15</b>		<b>15</b>

Total Hours: 119-121

<sup>1</sup> These are suggestions only. See your academic advisor for an actual degree worksheet.

<sup>2</sup> See catalog for acceptable courses.

## Requirements for a Bachelor of Arts Degree in Psychology

The requirements to receive a Bachelor of Arts Degree in Psychology can be achieved through degree plans under any one of the four options (i.e., Option 1-BA in Psychology with a minor, Option 2- BA in Psychology with an Emphasis in Cognitive / Neuroscience, Option 3 - BA in Psychology with an Emphasis in Social / Organizational Psychology, or Option 4 - BA in Psychology with an Emphasis in General Psychology). Before choosing a degree program under one of these options, please consult with the psychology undergraduate advisor. Click here for a sample degree plan: Copy\_of\_BA\_Worksheet\_2014\_new\_Template\_6-2013.xlsx ([http://catalog.uta.edu/science/psychology/undergraduate/Copy\\_of\\_BA\\_Worksheet\\_2014\\_new\\_Template\\_6-2013.xlsx](http://catalog.uta.edu/science/psychology/undergraduate/Copy_of_BA_Worksheet_2014_new_Template_6-2013.xlsx))

**Pre-Professional Courses**

General Core Requirements (p. 93) 39

**RECOMMENDED CORE REQUIREMENTS**

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3

Creative Arts <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES (or any three hours meeting the legislative requirement)	3
POLS 2312	STATE AND LOCAL GOVERNMENT (or any three hours meeting the legislative requirement)	3
Language, Philosophy and Culture <sup>1,3</sup>		
MATH 1302	COLLEGE ALGEBRA <sup>2</sup>	3
or MATH 1315	COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS	
MATH 1303	TRIGONOMETRY <sup>2</sup>	3
or MATH 1316	MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS	
Life & Physical Science		
BIOL 1333 & BIOL 1334	INTRODUCTION TO BIOLOGY I and INTRODUCTION TO BIOLOGY II	6
or		
BIOL 1441 & BIOL 1442	CELL AND MOLECULAR BIOLOGY and STRUCTURE AND FUNCTION OF ORGANISMS	8
Social/Behavioral Science (Psychology majors cannot use PSYC 1315 to fulfill this requirement) <sup>1</sup>		3
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area <sup>1</sup>		3
Program Requirements		
14 hours in a single modern or classical language or eight hours in a language plus six hours of designated courses <sup>1,3</sup>		14
Select one of the following in computer literacy:		0-3
CSE 1301	COMPUTER LITERACY	
INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
Or any equivalent course		
Or by the University computer proficiency test <sup>4</sup>		
Select one of the following in oral communication:		3
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
COMS 2305	BUSINESS AND PROFESSIONAL COMMUNICATION	
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
Or an equivalent three hour course approved by the Undergraduate Advisor		
Need a total of 11 hours in Life & Physical Sciences. including the 6-8 hours from the biology sequence, approved by the Undergraduate Advisor.		3-5
<b>Professional Courses</b>		
Major		
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	3
PSYC 2443	RESEARCH DESIGN & STATISTICS I	4
PSYC 2444	RESEARCH DESIGN & STATISTICS II	4
Required Core Lectures		
PSYC 3315	SOCIAL PSYCHOLOGY	3
PSYC 3322	BRAIN AND BEHAVIOR	3
PSYC 3334	COGNITIVE PROCESSES	3
Lecture Groups		
Select one three-hour lecture course from each of the Groups I, II, and III:		9
Group I		
PSYC 3310	DEVELOPMENTAL PSYCHOLOGY	
PSYC 3311	ADULTHOOD AND AGING	
PSYC 3312	SOCIAL & PERSONALITY DEVELOPMENT	
PSYC 3313	CULTURAL PSYCHOLOGY	
PSYC 3314	PSYCHOLOGY OF PERSONALITY	
PSYC 3319	PSYCHOLOGY OF ADOLESCENCE	
Group II		

PSYC 3320	BEHAVIOR AND MOTIVATION
PSYC 3326	ANIMAL BEHAVIOR
PSYC 3356	EVOLUTIONARY PSYCHOLOGY
PSYC 4301	INTRO TO NEUROSCIENCE
PSYC 4309	NEUROPHARMACOLOGY
PSYC 4325	DEVELOPMENTAL PSYCHOBIOLOGY
PSYC 4327	BEHAVIORAL GENETICS
PSYC 4329	ANIMAL LEARNING AND COGNITION
Group III	
PSYC 3316	ENVIRONMENTAL PSYCHOLOGY
PSYC 3317	INTRODUCTION TO CLINICAL AND COUNSELING PSYCHOLOGY
PSYC 3318	ABNORMAL PSYCHOLOGY
PSYC 4310	BEHAVIOR THERAPY
PSYC 4332	THEORIES OF HUMAN LEARNING AND MEMORY
PSYC 4335	COGNITIVE DEVELOPMENT
PSYC 4337	PSYCHOLOGY OF TESTING
PSYC 4338	COGNITIVE NEUROSCIENCE
PSYC 4339	PSYCHOLOGY OF JUDGMENT AND CHOICE
PSYC 4357	HEALTH PSYCHOLOGY

## Advanced Topics course

Select one four-hour advanced topics course from either Group I, II, or III: 4

## Group I

PSYC 4410	ADVANCED TOPICS IN DEVELOPMENTAL PSYCHOLOGY
PSYC 4411	ADVANCED TOPICS IN PERSONALITY
PSYC 4412	ADVANCED TOPICS IN SOCIAL PSYCHOLOGY

## Group II

PSYC 4420	EXPERIMENTAL ANALYSIS OF BEHAVIOR
PSYC 4421	ADVANCED TOPICS IN NEUROSCIENCE

## Group III

PSYC 4430	ADVANCED TOPICS IN CLINICAL COUNSELING
PSYC 4431	ADVANCED TOPICS IN COGNITIVE SCIENCE
PSYC 4432	ADVANCED TOPICS IN HEALTH

## Minor or Emphasis

Either a minor of 18 hours in a discipline other than psychology or 18 hours in one of the emphasis options must be chosen. (See below) 18

**Electives** 5

Sufficient hours to complete the total required for the degree.

**Total**

120 hours, of which at least 36 hours must be 3000/4000-level.

- 1 See /degreerequirements/generalcorerequirements/ (p. 93)
- 2 Prerequisites may add hours to the total required for the degree.
- 3 Six hours of designated courses from the courses listed here (<http://www.uta.edu/psychology/Undergraduate%20Students/substitutes%20for%202313%20and%202314%20of%20foreign%20language.pdf>) or levels III and IV of a modern or classical language. Three of the six hours also serves to satisfy the core curriculum requirement of a three-hour language, philosophy & culture class above the freshmen level.
- 4 Computer Skills Placement info (<http://www.uta.edu/universitycollege/prospective/testing-services/proficiency-and-other-exams/csp.php>)

**EMPHASIS**

An emphasis is a specialization in a particular area of Psychology. Course offerings in the different emphasis options are listed below. At least 18 hours of coursework must be taken in the chosen emphasis.

**Emphasis in Cognitive Psychology / Neuroscience**

PSYC 3303	DRUGS AND BEHAVIOR	3
PSYC 3310	DEVELOPMENTAL PSYCHOLOGY	3

PSYC 3318	ABNORMAL PSYCHOLOGY	3
PSYC 3320	BEHAVIOR AND MOTIVATION	3
PSYC 3326	ANIMAL BEHAVIOR	3
PSYC 3356	EVOLUTIONARY PSYCHOLOGY	3
PSYC 4301	INTRO TO NEUROSCIENCE	3
PSYC 4309	NEUROPHARMACOLOGY	3
PSYC 4325	DEVELOPMENTAL PSYCHOBIOLOGY	3
PSYC 4327	BEHAVIORAL GENETICS	3
PSYC 4332	THEORIES OF HUMAN LEARNING AND MEMORY	3
PSYC 4335	COGNITIVE DEVELOPMENT	3
PSYC 4338	COGNITIVE NEUROSCIENCE	3
PSYC 4357	HEALTH PSYCHOLOGY	3
PSYC 4359	SELECTED TOPICS IN PSYCHOLOGY	3
PSYC 4398	HONORS THESIS <sup>1</sup>	3
PSYC 4421	ADVANCED TOPICS IN NEUROSCIENCE	4
PSYC 4431	ADVANCED TOPICS IN COGNITIVE SCIENCE	4
PSYC 4432	ADVANCED TOPICS IN HEALTH	4
PSYC 4181	RESEARCH IN PSYCHOLOGY <sup>1</sup>	1
PSYC 4281	RESEARCH IN PSYCHOLOGY <sup>1</sup>	2
PSYC 4381	RESEARCH IN PSYCHOLOGY <sup>1</sup>	3
PSYC 4161	READINGS IN PSYCHOLOGY <sup>1</sup>	1
PSYC 4261	READINGS IN PSYCHOLOGY <sup>1</sup>	2
PSYC 4361	READINGS IN PSYCHOLOGY <sup>1</sup>	3

<sup>1</sup> A total of 6 hours of research, readings credit and honor's thesis may be applied to a given emphasis.

### **Emphasis in Social / Organizational Psychology**

PSYC 3301	PSYCHOLOGY OF HUMAN RELATIONS	3
PSYC 3302	BUSINESS PSYCHOLOGY	3
PSYC 3303	DRUGS AND BEHAVIOR	3
PSYC 3310	DEVELOPMENTAL PSYCHOLOGY	3
PSYC 3311	ADULTHOOD AND AGING	3
PSYC 3312	SOCIAL & PERSONALITY DEVELOPMENT	3
PSYC 3313	CULTURAL PSYCHOLOGY	3
PSYC 3314	PSYCHOLOGY OF PERSONALITY	3
PSYC 3317	INTRODUCTION TO CLINICAL AND COUNSELING PSYCHOLOGY	3
PSYC 3318	ABNORMAL PSYCHOLOGY	3
PSYC 3319	PSYCHOLOGY OF ADOLESCENCE	3
PSYC 4306	MAJOR PERSONALITY DISORDERS	3
PSYC 4332	THEORIES OF HUMAN LEARNING AND MEMORY	3
PSYC 4337	PSYCHOLOGY OF TESTING	3
PSYC 4357	HEALTH PSYCHOLOGY	3
PSYC 4359	SELECTED TOPICS IN PSYCHOLOGY	3
PSYC 4398	HONORS THESIS <sup>1</sup>	3
PSYC 4411	ADVANCED TOPICS IN PERSONALITY	4
PSYC 4412	ADVANCED TOPICS IN SOCIAL PSYCHOLOGY	4
PSYC 4181	RESEARCH IN PSYCHOLOGY <sup>1</sup>	1
PSYC 4281	RESEARCH IN PSYCHOLOGY <sup>1</sup>	2
PSYC 4381	RESEARCH IN PSYCHOLOGY <sup>1</sup>	3
PSYC 4161	READINGS IN PSYCHOLOGY <sup>1</sup>	1



PSYC 4261	READINGS IN PSYCHOLOGY <sup>1</sup>	2
PSYC 4361	READINGS IN PSYCHOLOGY <sup>1</sup>	3

<sup>1</sup> A total of 6 hours of research, readings credit and honor's thesis may be applied to a given emphasis.

### Emphasis in General Psychology

Any psychology 3000 or 4000 level coursework <sup>1</sup>	18
Total Hours	18

<sup>1</sup> A total of 6 hours of research, readings credit and honor's thesis may be applied to a given emphasis.

### SUGGESTED COURSE DISTRIBUTION FOR BACHELOR OF ARTS DEGREE <sup>1</sup>

#### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	ENGL 1302	3
MATH 1302	3	MATH 1303	3
PSYC 1315	3	HIST 1312	3
HIST 1311	3	Computer Competency	3
Creative Arts	3	Social/Behavioral Sciences	3
	<b>15</b>		<b>15</b>

#### Second Year

First Semester	Hours	Second Semester	Hours
PSYC 2443	4	PSYC 2444	4
BIOL 1333 or 1441	3-4	BIOL 1334 or 1442	3-4
Modern Language I	4	Modern Language II	4
PSYC 3315	3	PSYC 3334	3
	<b>14-15</b>		<b>14-15</b>

#### Third Year

First Semester	Hours	Second Semester	Hours
POLS 2311	3	POLS 2312	3
PSYC 3322	3	Psychology Lecture Group III	3
Psychology Lecture Group I	3	Advanced Psychology Emphasis Lecture or Course for Minor <sup>2</sup>	3
Life & Physical Sciences	3	undefined	3
Psychology Lecture Group II	3	Modern Language III or substitution	
		Foundational Component	3
	<b>15</b>		<b>15</b>

#### Fourth Year

First Semester	Hours	Second Semester	Hours
Advanced Topics course	4	Advanced Electives	3
Advanced Psychology Emphasis Lecture or Courses for Minor (3 courses) <sup>2</sup>	9	Advanced Psychology Emphasis Lecture or Courses for Minor (2 courses)	6
Life & Physical Sciences	3	COMS 2302	3

Modern Language IV or substitution	3	Advanced General Elective	2
	<b>19</b>		<b>14</b>

---

Total Hours: 121-123

<sup>1</sup> These are suggestions only. See your academic advisor for an actual degree worksheet.

<sup>2</sup> See catalog or handbook for course options.

## Psychology Minor

A minor consists of 18 credit hours or more in Psychology (PSYC) courses. 9 of the 18 hours must be completed at UT Arlington. Six of the 9 hours must be 3000-4000 level. A 2.0 grade point average must be maintained in the minor. To request a minor be added to your degree plan, please complete the minor request form (<http://www.uta.edu/psychology/Undergraduate%20Students/psyc%20minor%20approval%20form.pdf>) and seek approval from your academic advisor.

# School of Social Work

---

## Overview

The School of Social Work (SSW) has a long, well established history at UT Arlington. Initially, beginning in 1967, only the MSSW degree was offered. In 1979, The Bachelors of Social Work (BSW) degree was founded but under the auspices of the Department of Sociology, Anthropology, and Social Work. The Doctor of Philosophy (Ph.D.) in Social Work degree program was initiated in 1983. On September 1, 1991, the graduate and undergraduate programs were brought together into a unified administrative and academic unit, the School of Social Work.

The School now has a diverse student body of over 1,500 students enrolled in three degree programs: the Bachelor of Social Work (BSW) (<https://www.uta.edu/ssw/academics/bsw>), Master of Science in Social Work (MSSW) (<https://www.uta.edu/ssw/academics/msw>), and the Ph.D. in social work (<https://www.uta.edu/ssw/academics/phd>). The BSW and MSW programs are fully accredited by the Council on Social Work Education.

With a commitment to social justice, the School is also home to the diversity certificate program, where undergraduate students across the UT Arlington campus can enroll in a cluster of courses to earn a certificate in diversity, and is home to the Center for African American Studies where students can minor in African American studies.

The MSW program is offered in a variety of settings including the main UT Arlington campus, the UT Arlington Fort Worth campus, fully online, and through joint programs at Lubbock Christian University and Angelo State University.

In the BSW program we prepare students for a wide range of entry level, generalist practice, social service positions. In the MSW program students prepare for advanced level positions with specializations in either direct clinical practice with families and children, mental health and substance abuse, aging, or health, or in community and administrative practice. In the Ph.D. program students are prepared for positions in academia where they can teach and continue research in areas of importance to the social work profession. All three programs offer challenging courses, internships, and practicums designed to teach practice knowledge and skills while instilling the value orientations of the profession.

## Mission and Philosophy

The School of Social Work (SSW) strives to educate leaders to create community partnerships for promoting a just society. The School promotes the highest standards of integrity and excellence in research, teaching and service, and creates collaborative scholarly and educational opportunities for students and the community, with the goal of achieving a just society.

The SSW has identified several broad program objectives: engaging in evidence-informed research, teaching and practice, preparing students to assume leadership roles and activities in the local community and beyond, and to conduct community-based research to address complex and pressing social issues at the local, national and global levels.

## Office of Advising and Student Success

To help students in the SSW reach their graduation goals we established the office of advising and student success. Through this office students receive timely and accurate professional and academic advising, connection to the larger campus, and referrals to additional services to facilitate academic achievement. Students can also receive writing resource support in the form of individual appointments, group presentations, and online resources. For more information Contact the Office of Student Success at (817) 272-3647.

## Scholastic Activity and Research Interests of the Faculty

In the SSW there are four research centers: the Birmingham Center for Child Welfare, the Center for Addictions & Recovery Studies (CARS), the Center for Clinical Social Work, (CCSW) and the Center for Advocacy, Nonprofits & Donor Organizations (CAN-DO). In addition, the Innovative Community-Academic Partnership (iCAP) program provides pilot funding and support for highly competitive, nationally reviewed collaborative research with community agency partners. The centers and iCAP offer training, research, and service opportunities to faculty and students.

Our faculty are outstanding scholars and teachers in the domains of child welfare, family violence, health, mental health, aging and disability and are active in developing new knowledge in their respective fields, producing significant numbers of peer-reviewed journal articles, books, and book chapters each year.

Research produced by faculty has generated not only new knowledge, but also intervention outcomes that have garnered national attention and recognition, with a number of faculty members serving either as editors-in-chief of peer-reviewed journals, or as members of editorial review boards.

The School also offers continuing education for social work practitioners and other human service professionals through the Professional Development Program. Topics include ethics, mental health, child welfare, administration, supervision, licensing, and more, all taught by experts in their respective fields.

# Social Work - Undergraduate Programs

## Overview

Undergraduate social work education at The University of Texas at Arlington is based on a set of premises. Responsible citizenship and professional social work practice recognize and respond to the realities of a complex and diverse society that is in continual need of constructive social change predicated on social justice. To this end, social work students are expected to demonstrate the capacity to critically evaluate their cultural environment and, in so doing, demonstrate analytical skills and understanding both orally and in writing. Students are required to adhere to the Codes of Ethics as currently published by the National Association of Social Workers and the Texas State Board of Social Worker Examiners in their professional practice and in their course work. The faculty of the School of Social Work enhances this process through its commitment to teaching excellence, scholarly activities, research, and community and professional service.

The Bachelor of Social Work degree program of the School of Social Work is fully accredited by the Council on Social Work Education. Its primary educational objective is to prepare students for beginning professional social work practice. The sequence of courses, designed to include academic social work and field experience requirements in a liberal arts context, enables the student, upon graduation, to work in a variety of social service agencies and settings. A secondary purpose of the program is preparation for graduate study in social work or another profession or discipline for which baccalaureate social work education would be appropriate.

## Admission to the BSW Program

Admission to the BSW program requires:

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
MATH 1301	CONTEMPORARY MATHEMATICS (or higher)	3
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	3
SOCI 1311	INTRODUCTION TO SOCIOLOGY	3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3

Total Hours		18
-------------	--	----

- Overall GPA of 2.5 or better
- Completion of 12 hours in residence at UT Arlington
- Completion of SOCW 2311 INTRODUCTION TO SOCIAL WORK and SOCW 2313 SOCIAL WORK PRACTICE I with a grade of C or better
- Completion of 40 hours of courses, including:
- Completion of the BSW Admission Application Form
- Submission of a personal statement

The application and personal statement are submitted to the BSW Program office. Both will be reviewed by an advisor and the program director. Students will be notified of eligibility within two weeks of submitting their application.

## Transfer of Credit

BSW student transcripts are evaluated by the UT Arlington Office of Admissions. Courses that meet the liberal arts requirements of the BSW degree are applied to the degree plan. Other courses are designated as electives. The student receives credit for social work courses from CSWE accredited social work programs. The exceptions are the practicum courses (which must be completed at UT Arlington):

SOCW 4251	SOCIAL WORK FIELD SEMINAR I	2
SOCW 4252	SOCIAL WORK FIELD SEMINAR II	2
SOCW 4451	SOCIAL WORK FIELD INSTRUCTION I	4
SOCW 4452	SOCIAL WORK FIELD INSTRUCTION II	4

No credit is given for life or work experience.

## Continuation Through the BSW Program

Continuation through the BSW Program and eligibility for entry into Field requires:

- 2.5 average in all social work courses and no grade lower than a C
- Acceptable evaluations in all Social Work courses
- 2.5 overall grade point average

- Satisfactory evaluation from the SOCW 2311 INTRODUCTION TO SOCIAL WORK instructor and from the supervisor of the volunteer experience required for SOCW 2311 INTRODUCTION TO SOCIAL WORK.
- Ability to qualify for state licensure in the state of Texas upon completion of the academic program (i.e., no disqualifying factors) under the Texas Professional Social Worker Act.

## Requirements for a Bachelor of Social Work Degree

### Pre-Professional Courses

General Core Requirements (p. 93) 39

#### Recommended Core Requirements

ENGL 1301	RHETORIC AND COMPOSITION I	
ENGL 1302	RHETORIC AND COMPOSITION II	
HIST 1311	HISTORY OF THE UNITED STATES TO 1865	
HIST 1312	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
POLS 2311	GOVERNMENT OF THE UNITED STATES	
POLS 2312	STATE AND LOCAL GOVERNMENT	
MATH 1301	CONTEMPORARY MATHEMATICS (or higher)	
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
ANTH 1306 or ANTH 2322	INTRODUCTION TO ANTHROPOLOGY GLOBAL CULTURES	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING (or approved substitute)	
SOCI 1311	INTRODUCTION TO SOCIOLOGY	
English literature course, 2000 level or above		
Liberal Arts Elective - English literature course, 2000 level or above		
ART, DNCE, MUSI, THEA or other fine arts as approved		
Economics course - ECON 2337 (suggested)		

#### Program Requirements

SPAN 1441	BEGINNING SPANISH I	4
BIOL 1333	INTRODUCTION TO BIOLOGY I	3
BIOL 1334	INTRODUCTION TO BIOLOGY II	3
SPAN 1442	BEGINNING SPANISH II	4
SPAN 2313	INTERMEDIATE SPANISH I	3
PSYC 1315	INTRODUCTION TO PSYCHOLOGY	3

Upper division PSYC course such as PSYC 3318 (or some other), but not PSYC 3310

Select one of the following computer course:

INSY 2303	INTRODUCTION TO M.I.S. AND DATA PROCESSING	
CSE 1301	COMPUTER LITERACY	

### Professional Courses

SOCW 2311	INTRODUCTION TO SOCIAL WORK	3
SOCW 2313	SOCIAL WORK PRACTICE I	3
SOCW 3301	HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT I	3
SOCW 3302	HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT II	3
SOCW 3303	SOCIAL WELFARE POLICY AND SERVICES	3
SOCW 3304	SOCIAL WORK PRACTICE II	3
SOCW 3305	SOCIAL WORK RESEARCH METHODS	3
SOCW 3306	SOCIAL WORK PRACTICE III	3
SOCW 3317	HUMAN BEHAVIOR AND DIVERSE POPULATIONS	3
SOCW 4251	SOCIAL WORK FIELD SEMINAR I	2
SOCW 4451	SOCIAL WORK FIELD INSTRUCTION I	4
SOCW 4252	SOCIAL WORK FIELD SEMINAR II	2
SOCW 4452	SOCIAL WORK FIELD INSTRUCTION II	4

Electives

Sufficient to give the 120 hours required for the degree <sup>1</sup>


---

 Total Hours 98
<sup>1</sup> No more than four hours of activity (EXSA/DNCA) can be used toward a degree for either hours or GPA.**SUGGESTED COURSE SEQUENCE**

Please refer to the BSW Degree Plan for more specific information.

**First Year**

First Semester	Hours	Second Semester	Hours
ENGL 1301	3	BIOL 1334	3
HIST 1311	3	ENGL 1302	3
MATH 1301 or 1302	3	HIST 1312	3
BIOL 1333	3	PSYC 1315	3
SOCI 1311	3	MATH 1308	3
	<b>15</b>		<b>15</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
English Literature	3	English Literature	3
POLS 2311	3	POLS 2312	3
SPAN 1441	4	SPAN 1442	4
Fine Arts	3	SOCW 2313	3
SOCW 2311	3	COMS 1301	3
	<b>16</b>		<b>16</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
SOCW 3301	3	Anthropology	3
ECON 2337 or 2305	3	SOCW 3302	3
SOCW 3317	3	SOCW 3304	3
SOCW 3303	3	PSYC 3000+	3
SPAN 2313	3	SOCW 3305	3
	<b>15</b>		<b>15</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
SOCW 4251 & SOCW 4451	6	SOCW 4252 & SOCW 4452	6
SOCW 3306	3	Electives	8
CSE 1301	3		
	<b>12</b>		<b>14</b>

---

 Total Hours: 118

## Field Work Requirements

The BSW Program requires two consecutive semesters of field experience in a single human-service agency. Students enroll in the field instruction course (SOCW 4451 SOCIAL WORK FIELD INSTRUCTION I, first semester; SOCW 4452 SOCIAL WORK FIELD INSTRUCTION II, second semester) and complete 240 clock hours per semester in their assigned agency. Concurrent enrollment in a weekly two-hour, on-campus seminar (SOCW 4251 SOCIAL WORK FIELD SEMINAR I, first semester; SOCW 4252 SOCIAL WORK FIELD SEMINAR II, second semester) is also required. Field placements are arranged early in the preceding semester, after students are formally advised by BSW program advisors as to field eligibility. Eligible students may begin field any semester (see the specific requirements for CPS Field).

All social work students enrolling in Field Instruction courses will be assessed a fee in order to include them in the school's group professional liability insurance policy. Coverage is for a \$1,000,000 limit each claim and \$3,000,000 limit aggregate.

## Computer and Oral Competencies

Social Work students will demonstrate competence in computer usage. The requirement may be met by successful completion of a course approved by the academic advisor. Oral communication skills will be demonstrated by successful completion of COMS 1301 FUNDAMENTALS OF PUBLIC SPEAKING, or a suitable substitute.

## Social Work - Graduate Programs

### MSSW Program Goals

Goal 1: The MSSW Program prepares students to practice effectively and ethically with the full range of social systems, emphasizing evidence-informed practice, a strengths approach, diversity, social justice, empowerment, and a critical thinking perspective.

Goal 2: The MSSW program prepares students who understand the global and organizational contexts of social work practice and who are prepared to assume the responsibility for leadership positions, as well as engaging in life long-learning.

Goal 3: The MSSW Program prepares students, by valuing social work history and the integration of social work knowledge, to understand professional social work and to be prepared for advanced level concentration in either:

Concentration 1: Direct Practice with a specialization in

1. Aging Services; or
2. Children and Families Services; or
3. Health Services; or
4. Mental Health and Substance Abuse, Services

Concentration 2: Community and Administrative Practice.

### MSSW Foundation Objectives

1. Apply critical thinking skills within the context of professional social work practice.
2. Understand the value base of the profession and its ethical standards and principles, and practice accordingly.
3. Practice without discrimination and with respect, knowledge, and skills related to clients' age, class, color, culture, disability, ethnicity, family structure, gender, marital status, national origin, race, religion, sex, and sexual orientation.
4. Understand the forms and mechanisms of oppression and discrimination and apply strategies of advocacy and social change that advance social and economic justice.
5. Understand and interpret the history of the social work profession and its contemporary structures and issues.
6. Apply the knowledge and skills of generalist social work practice with systems of all sizes.
7. Use theoretical frameworks supported by empirical evidence to understand individual development and behavior across the life span and the interactions among individuals and between individuals and families, groups, organizations, and communities.
8. Analyze, formulate, and influence social policies.
9. Evaluate research studies, apply research findings to practice, and evaluate their own practice interventions.
10. Use communication skills differentially across client populations, colleagues, and communities.
11. Use supervision and consultation appropriate to social work practice.
12. Function within the structure of organizations and service delivery systems and seek necessary organizational change.

## **MSSW Advanced Year Objectives**

### **DIRECT PRACTICE CONCENTRATION EDUCATIONAL OBJECTIVES**

By graduation, students specializing in Direct Practice will achieve the foundation objectives and the following advanced concentration objectives:

1. Demonstrate knowledge and skills in direct practice with an area of specialization: aging services, or, children and families services, or health services, or, mental health and substance abuse services.
2. Complete multidimensional, bio-psycho-social assessments with client systems and groups in their area of specialization, taking into account client strengths, diversity and social justice.
3. Develop and apply appropriate, evidence-informed, empowerment-based intervention plans within their area of specialization.
4. Critically analyze theoretical models of micro practice to challenge societal oppression and discrimination, as well as for decision-making in practice.
5. Demonstrate an understanding of race, gender, sexual orientation, ability, culture, and other client characteristics, in conducting culturally sensitive, competent, and ethical social work practice.
6. Demonstrate the ability to evaluate practice activities by use of outcome and process techniques, using the results to modify practice.
7. Demonstrate ability to integrate micro and macro practice, policy and research into their area of service delivery in order to enhance client well-being.
8. Engage in life-long learning and activities to update and improve professional knowledge and skills.

### **COMMUNITY AND ADMINISTRATIVE PRACTICE CONCENTRATION EDUCATIONAL OBJECTIVES**

By graduation, students specializing in Community and Administrative Practice will achieve the foundation objectives and the following advanced concentration objectives:

1. Build on generalist skills in community assessment to design an intervention strategy including mission, goals, objective, budget, logic model, and evaluation.
2. Identify, critically evaluate, and apply appropriate, evidence-informed interventions at the agency or community level.
3. Critically analyze and apply a variety of community and administrative theories to practice.
4. Demonstrate skills in ethically and empowerment-based social work practice, taking into account the impact of race, gender, sexual orientation, ability, culture, religion, national origin and other client characteristics in organizations, and communities.
5. Design practice evaluation activities to improve human service interventions in organizations and communities.
6. Demonstrate ability to integrate micro and macro practice, policy, and research into their area of service delivery in order to enhance client well-being.
7. Prepare to engage in life-long learning and activities to update and improve professional knowledge and skills.

## **Doctor of Philosophy in Social Work Program Goals**

The Doctor of Philosophy in Social Work is designed to prepare scholars to advance knowledge development and dissemination for the profession of social work. The program builds on the premise that social welfare and social work must be scientifically and theoretically based and continually responsive to changing local and global societal needs. Upon completion of the Ph.D. Program students will display competency in theory and theory development; knowledge and skills in research methods and data analysis; theory, research, and policy as applied to a specialty practice area; understanding and commitment to the underlying values, ethics, and social and economic justice perspectives in the scientific inquiry in social work; and theory and research as applied to social work practice, policy, and social work education. Graduates of the program are expected to make a significant contribution to the profession of social work through their own continued research, teaching, scholarship and service.

A specialty in comparative social policy is offered in conjunction with the Universidad Autonoma De Nuevo Leon (UANL) Monterrey, Mexico. Students will complete their first year of doctoral courses at their home institution. Student will complete second year courses at the alternate institution. Classes at UANL are conducted in Spanish and taught by UANL faculty. Classes at UT Arlington are conducted in English and are taught by UT Arlington faculty.

## **Ph.D. Program Objectives**

Upon completion of the Ph.D. Program students will display competency in:

1. Theory and theory development.
2. Knowledge and skills in research methods and data analysis.
3. Theory, research, and policy as applied to a specialty practice area.
4. Understanding and commitment to the underlying values, ethics, and social and economic justice perspectives in the scientific inquiry in social work.
5. Theory and research as applied to social work practice, policy and social work education.



## Admission Requirements

Students are admitted to the MSSW program for Fall or Spring semester with the exception of students that qualify for advanced standing with their undergraduate social work degree. Advanced Standing students can be admitted for a fall, spring or summer semester. Please contact the MSSW Admissions Office (sswadmissions@uta.edu) to obtain the complete application checklist and information concerning specific application deadlines. Applicants may also visit the MSSW Admissions webpage for more information (<https://www.uta.edu/ssw/admissions/msw>).

The admissions process is the same for all MSSW programs, including the Distance Education Cohorts.

\*Please note that the School of Social Work's deadline for application is different from the published deadlines of the Graduate School.

## GENERAL ADMISSION CRITERIA

1. A bachelor's degree with a liberal arts perspective from an accredited college or university.
2. Undergraduate GPA must be equal to or greater than 3.0 in the last 60 hours as calculated by Graduate Admissions or GRE score that evidences an ability to do satisfactory graduate work.
3. Three letters of reference indicating professional or academic promise.
4. Personal statement providing evidence of professional or academic goals consistent with the Social Work Program.
5. Personal qualifications considered essential to the successful practice of social work including leadership ability, personal maturity, motivation for a human service profession and experience in social work. A personal interview may be required.
6. Applicants to the school whose native language is not English must take, in addition to the Test of English as a Foreign Language, the Test of Spoken English.

## FINANCIAL AID

Scholarships are awarded annually and administered by the School of Social Work. Link to scholarship info: <https://www.uta.edu/ssw/admissions/scholarships.php>.

A limited number of traineeships are available through Child Protective Services.

## GRADUATE FELLOWSHIPS

Candidates for fellowship awards must have a GPA of 3.0 in their last 60 undergraduate credit hours and in any graduate credit hours, and must be enrolled in a minimum of 6 hours in both long semesters to retain their fellowships.

## Degree Requirements

The curriculum is organized around five curriculum areas: Direct Practice, Community and Administration Practice, Research, Policy, and Human Behavior and the Social Environment. Required and elective courses are offered in each curriculum area. Students must complete foundation (first year) required courses before taking advanced (second year) courses. In the advanced year, a specialty is selected in child/family, mental health, and a combination of administration and community practice. First year courses have 5000 numbers; second year courses have 6000 numbers. Master's level students are also allowed to take doctoral level courses with permission of the instructor and MSSW Program Director.

## DEGREE REQUIREMENTS

The program leading to the degree of Master of Science in Social Work covers a minimum of four semesters for full-time students and requires the completion of 61 semester hours of graduate work including class and field instruction, as well as thesis or integrative seminar (non-thesis option).

In addition to the general graduate admission requirements of the University, each graduate student in the social work program must:

1. maintain at least a B (3.0) overall GPA in all coursework;
2. demonstrate suitability for professional social work practice; and,
3. demonstrate knowledge of and adherence to the Code of Ethics of the National Association of Social Workers and if licensed in Texas the Code of Ethics as currently published by the Texas Council for Social Work Examiners.

At such time as questions are raised by Social Work faculty or field instructors regarding a student's violation of #2 or #3 of the above requirements, the student will be notified and will be provided the opportunity to respond to the Academic and Professional Standards Committee. The committee will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a recommendation may be made to the Dean of the School of Social Work.

Special Note: No credit is given for life and/or work experience.

## ADVANCED STANDING

An applicant meeting all regular admissions requirements who have graduated from an accredited undergraduate program in social work, within six years, will automatically be considered for advanced standing status in the graduate program. Advanced standing is not granted to students admitted on probation.

Prior, advanced standing students may have received credit hour waivers for some undergraduate social work courses which are considered equivalent to the first and second semester courses, provided the student's grades in those courses are B or better. Students may receive course waivers for more than 23 hours, but only 23 hours may be applied to the 61-hour MSSW degree.

Students requesting advanced standing status who completed their BSW degrees more than six years prior to the semester in which they propose to begin their graduate studies must provide a documented summary of their work as a social worker, and may or may not, be granted course credit toward advanced standing. Students who have completed their BSW degrees within six years of their planned start of studies are not required to submit these materials. Advanced standing will be granted on a case-by-case basis contingent upon evaluation of transcripts and any other required supporting information.

## ADVANCED SPECIALTY PROGRAM

An applicant meeting all regular admissions requirements who has completed the foundation year at an accredited master's program in social work may request admission into the Advanced Specialty MSSW program.

Students in the Advanced Specialty MSSW Program may receive credit hour waivers for some graduate level social work courses which are considered equivalent to the foundation year courses taken at an accredited social work program, provided that the grades in those courses are B or better. Students applying to the Advanced Specialty MSSW Program may be required to provide course syllabi for each course taken in the foundation year at their MSSW program prior to entering UT Arlington's program. Students may receive course waivers for more than 23 credit hours, but only 23 hours may be applied to the 61-hour MSSW degree. Additionally, three credit hours may be transferred from foundation year courses taken at another accredited social work program.

Students requesting admission into the Advanced Specialty MSSW program must have completed the foundation year course work no more than six years prior to the semester in which they seek admissions. Admission to the Advanced Specialty MSSW program will be granted on a case-by-case basis contingent upon evaluation of transcripts and any other required supporting information.

## Dual Degree Programs - On Campus

Students in social work may participate in one of five dual degree programs whereby they can earn a Master of Science in Social Work and:

1. a Master of City and Regional Planning,
2. a Master of Public Administration,
3. a Master of Arts in Urban Affairs,
4. a Master of Arts in Criminology and Criminal Justice, or
5. a Master of Arts in Sociology.

By participating in a dual degree program, students can apply some semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from 6 to 18 hours, subject to the approval of Academic Advisors or Graduate Advisors from both programs.

To participate in the dual degree program, students must make separate application to each program and must submit a separate Program of Work for each degree. Those interested in a dual degree program should consult the appropriate Graduate Advisor(s) for further information on course requirements. See also information on Dual Degree Programs in the Advanced Degree Requirements section of this catalog.

## MSSW Programs - Distance Education Programs

### UT ARLINGTON FORT WORTH CENTER MSSW COHORT PROGRAM

The UT Arlington School of Social Work offers an MSSW Degree with a Concentration in Direct Practice that includes a specialization in Children and Families with a Certificate in Administration through our Fort Worth Center location. This program will prepare students to work directly with families and children while also acquiring knowledge in administration that will enhance their ability to assume leadership and administrative positions in social service agencies.

This program is designed to meet the needs of working professionals. Students will take one class at a time in 5-week blocks. Classes will be offered twice each week in the evening (scheduling may be subject to change during the summer semester as well as the intersessions). This will enable students to remain employed full time. The program of work for the degree is scheduled to be completed in 2 years. A new cohort of students will be admitted to the MSSW program at the UTA Fort Worth Center every fall.

Students applying to this program must meet all regular admissions requirements. The application process is the same as for students applying to our traditional MSSW program.

## UT ARLINGTON / LUBBOCK CHRISTIAN UNIVERSITY COOPERATIVE MSSW PROGRAM

The UT Arlington School of Social Work in conjunction with LCU offers an Advanced Standing MSSW Degree with a Concentration in Direct Practice that includes a specialization in Children and Families.

This program is designed the needs of students in the Lubbock area. Students applying to this program can expect to complete the required courses both on the LCU campus and online through UT Arlington.

Students applying to this program must meet all regular admissions requirements. An applicant meeting all regular admissions requirements who has graduated from an accredited undergraduate program in social work and meets the Advanced Standing criteria will be eligible for this program. Advanced Standing status is not granted to students admitted on probation.

The application process is the same as for students applying to our traditional MSSW program.

## MSSW ONLINE PROGRAM

The MSSW Online Program is designed as a cohort that begins every fall and continues through a predetermined 61 hour degree plan at a part-time pace for three years. If you qualify for advanced standing then you will follow a 38-hour degree plan at a part-time pace for two years. Students in this cohort focus on Direct Practice (Children and Families) as their concentration area and are required to complete two field practicums for a total of about 900 hours. The practicum is the only face to face requirement; all of the courses are fully online. Expectations of the courses (assignment requirements, deadlines, discussions, etc...) will vary by instructor.

This program is open for anyone who qualifies for admission into the MSSW Program. **At this time you must be a Texas resident currently living in Texas to apply to the MSSW Online Program** (Please ask about changes to this requirement when seeking admission).

## Joint Master's in Social Work and Masters in Public Health (MSSW/MPH)

The Master of Social Work/Master of Public Health (MSSW/MPH) joint degree is a collaborative program between The University of Texas at Arlington School of Social Work and The University of Texas School of Public Health (UTSPH). The MSSW/MPH joint degree program was developed to respond to the need for a greater integration of the knowledge and skills shared by social work and public health professionals. The MSSW/MPH program will prepare students to integrate social work and public health knowledge and skills in their professional lives as practitioners and researchers.

The curriculum is a general plan for the MSSW/MPH. By taking a specified number of approved courses in both programs, it is possible for students to complete both degrees in three years (two years for Advanced Standing students), while customizing the program to meet their interests and educational goals. Flexibility in the program allows most students to combine the MPH and MSSW requirements of a practicum with other learning experiences from the MSSW program. Students are guided by a Student Advisory Committee comprised of faculty from both participating school programs.

Students seeking admission to the MSSW/MPH program must meet the application requirements of each University, apply and be admitted to both degree programs before being considered for acceptance into the dual degree program by the MSSW/MPH Coordinating Committee. Please note: admission to one program does not ensure admission to the other.

Students are responsible for tuition and fee payments for courses taken in both schools, and upon successful completion of the degree requirements will receive a diploma from each university. Current MSSW or MPH students may decide to add the joint degree option to their educational plan and receive credit for courses. MPH students must declare their intent to enter the program by the completion of their second semester. MSSW students must declare their intent to enter the program by the completion of the foundation year (2 year students) or completion of 9 credit hours (advanced standing students)

## Part-Time Students

Admission and degree requirements for part-time students are the same as those for full-time students. Likewise, part-time students must maintain the performance level required of full-time students.

## Admission Requirements

To be admitted to the Doctor of Philosophy in Social Work program, an applicant must satisfy the general admission requirements of the Graduate School and his or her academic record must show preparation for advanced study in social work. The students accepted for admission are those whose academic achievements, previous experience, and aptitude for research and scholarship indicate the potential for achieving the objectives of the program. In addition, admission to the program requires:

1. Master's degree in Social Work or related field. For applicants with a master's in a related field, a background in social and behavioral science and research methods is desirable.
2. Undergraduate GPA of 3.0 minimum, in the last 60 hours as calculated by Graduate Admissions.
3. Master's GPA of 3.4 minimum as calculated by the Graduate School.

4. A Graduate Record Examination (GRE) or EXADEP score that evidences an ability to do satisfactory graduate work if master's GPA is less than 3.4.
5. Transcripts of all undergraduate and graduate work.
6. Curriculum vita.
7. Academic goals consistent with the Social Work Program.
8. Professional writing sample.
9. Evidence of statistics course in the last 5 years.
10. Three letters of recommendation, preferably from those holding a Ph.D., indicating professional and academic potential and addressing the areas of writing skills and analytical ability.
11. International applicants must submit a score of at least 550 on the paper-based TOEFL, a score of at least 213 on the computer-based TOEFL, minimum score of 7.0 on the IELTS, or a minimum TOEFL iBT total score of 90 with additional scores that meet or exceed 23 for the written section, 23 for the speaking section, 22 for the reading section, and 22 for the listening section to meet this requirement.

**Unconditional Ph.D. Admission:** An applicant is admitted unconditionally when all documentation relating to admissions criteria is received and performance on the criteria is acceptable.

**Probationary Ph.D. Admission:** An applicant who's Master's GPA is below 3.4 or that scores GRE or the EXADEP do not indicate ability to do satisfactory graduate work may be admitted on probation when performance on the majority of the remaining criteria is acceptable.

**Provisional Admission:** An applicant unable to supply all required documentation prior to the admission decision deadline but that otherwise appears to meet admission requirements may be granted provisional admission.

**Denial of Ph.D. Admission:** Candidates may be denied admission if they have less than satisfactory performance on a majority of the admissions criteria.

**Deferred Admission:** A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

An application for admission, transcripts of previous academic work and Graduate Record Examination or EXADEP scores must be submitted to Graduate Admissions. An additional separate application and supporting materials must be sent to the Graduate Advisor, Ph.D. in Social Work Program.

## Doctoral Degree Requirements

The program leading to the degree Doctor of Philosophy in Social Work covers nine semesters (three years) of full-time study and requires the completion of 48 semester hours of graduate work including coursework, a qualifying examination, a comprehensive specialty examination and a dissertation. Students and their faculty supervisory committee together develop a plan of study geared to the students' interests. Included in this plan are a set of required and elective courses in which students pursue their specialized interests.

1. 18 hours of Core coursework.
2. The core coursework qualifying examination must be satisfactorily completed before progressing in the program.
3. Six hours of nine hours Research Practicum.
4. Six hours electives selected from relevant graduate courses offered outside the School of Social Work.
5. Upon completion of 36 hours of required or elective coursework, the specialty comprehensive examination is taken prior to application for candidacy and registration for dissertation.
6. Three hours of dissertation tutorial taken upon successful completion of comprehensive specialty examination.
7. Nine total hours of dissertation must be taken for a student to graduate.

Successful completion of both the core qualifying examination and the comprehensive specialty examination in the area of study to advance the student to candidacy at which time he or she devotes time to the completion of the dissertation. The last step before the degree is awarded is the successful final defense of the dissertation.

Doctoral students must demonstrate knowledge of and adherence to the Code of Ethics of the National Association of Social Workers and the Code of Ethics as currently published by the Texas State Board of Social Worker Examiners.

## Center for African American Studies

### Why Minor in African American Studies?

The African American Studies program is an interdepartmental and interdisciplinary study of the history, culture, and socio-economic well-being of African-Americans. Knowledge and research methods drawn from several disciplines enable students to enhance their understanding of African-Americans' unique social circumstances and heritage, and acquire a deeper comprehension of the history and culture of the nation as a whole. African American Studies is classical liberal arts minor. That is, the minor enhances a student's ability to engage in critical reasoning and analytical thought, with a premium placed on written and oral communication skills.

Just as African history is world history, African American Studies is American Studies. Successful minors examine America and the world community through the prism of the contemporary and historical experiences, culture expressions, and socioeconomic outcomes of African Americans and the collective African Diaspora.

CAAS internships for graduate students are available. Contact [caas@uta.edu](mailto:caas@uta.edu) for more information.

## Minor Requirements

The African American Studies Minor is a comprehensive, interdisciplinary program that prepares students for critical thinking and discourse on race and contextual factors, social consciousness and awareness, and civic engagement. For more information, refer to our complete **course list**. (<http://www.uta.edu/caas/docs/AAST%20Minor%20Degree%20Plan.docx>)

### **Required:**

**Courses include: 18 credit hours with 9 in AAST**

AAST 2300 - Intro to African American Studies

HIST 3365 - African American History or SOCI 3338 - Contemporary Black Experience

AAST Service Learning Capstone

## HOW TO ADD THE AFRICAN AMERICAN STUDIES MINOR

If you are interested in obtaining a minor in African American Studies:

1. Complete the **Minor Approval Form** (<http://www.uta.edu/caas/docs/Minor%20Approval%20Form%20file.docx>) and have it signed by your major department advisor.
2. Once the Minor Approval Form is completed, schedule an appointment with your CAAS advisor and bring the following:
  - completed degree plan (signed by your major department advisor)
  - minor approval form (signed by your major department advisor) and
  - Maverick Academic Progress (MAP)

To make an advising appointment, please call 817-272-9642 or email [caas@uta.edu](mailto:caas@uta.edu).

## CAAS MINOR INFORMATION SESSIONS

Group Sessions

TBD

Individual Sessions: ***Click here to schedule your own***

## Frequently Asked Questions

**Q: What types of jobs are available to graduates with a minor in African American Studies?**

A: Everything. There are no limitations. African American Studies is excellent preparation for law, politics, public policy, teaching, or business, and many more opportunities.

**Q: Will an AAST course count for my major and my minor simultaneously?**

A: Yes and no. If you take an AAST course that is offered by your major department, it may satisfy a requirement for your major, at the same time that it counts towards your AAST minor. However, you must still take 18 hours of courses – in addition to the hours required by your major – to receive a minor. So, you may get dual credit but the hours only count once.

**Q: Do I have to be enrolled in the AAST section of a cross-listed class in order to get credit towards the minor?**

A: No. You can get credit towards the minor regardless of whether you are enrolled in the AAST or main section of a cross-listed course.

**Q: Can a class I took at another institution count towards the AAST minor?**

A: It depends on whether the class is comparable to those offered at UTA. You may submit a request to the Center for African American Studies Director, including a copy of the syllabus or some other record of the course content, to be considered. Only 3000 and above courses are eligible.

## CROSS-LISTED COURSES

**Spring 2013 Course Guide** (<http://www.uta.edu/caas/docs/Spring%202013%20Course%20Guide.docx>)

**Fall 2013 Course Guide** (<http://www.uta.edu/caas/docs/1Fall%202013.pdf>)

**Spring 2014 Course Guide** (<http://www.uta.edu/caas/docs/Spring2014%20CourseGuide.pdf>)

*\*courses subject to change*

*\*\*special topics courses must be approved by CAAS each semester*

*\*\*\*Other courses might qualify. Consult with a CAAS advisor*

## **Student Development**

### **EMERGING SCHOLARS PROGRAM**

The mission of the Emerging Scholars Program is to develop and provide educational, cultural, and social models of support that strengthen the foundation of exploration and learning for UT Arlington first year students interested in African American studies and/or volunteering in the African American community.

### **EMERGING LEADERS INITIATIVE**

Students who have successfully completed their first year and have shown exemplary campus and community leadership with a commitment to address social problems in the Black community are invited to apply to become CAAS Emerging Leaders.

CAAS Emerging Leaders would continue to build on their own leadership skills through unique opportunities with CAAS, while also interacting with CAAS Emerging Scholars and other students. Participation as an Emerging Leader is by invitation only. Student leaders interested in this initiative are recommended to inquire about the opportunity via email submission to [caas@uta.edu](mailto:caas@uta.edu).

## **Graduate Students**

CAAS internships and conference courses for graduate students are available. Contact [caas@uta.edu](mailto:caas@uta.edu) for more information.

## **People**

### **Director**

Schnavia Smith Hatcher, PhD, MSW (<https://www.uta.edu/mentis/public/#profile/profile/view/id/10709/category/1>)

### **COORDINATOR OF SPECIAL PROGRAMS**

Chaunte White, M.Ed. ([cwhite@uta.edu](mailto:cwhite@uta.edu))

### **PROGRAM ASSISTANT**

Hadia A. Miller, BA ([millerha@uta.edu](mailto:millerha@uta.edu))

### **STUDENT ASSISTANTS**

Nadajalah Bennett (Communications)

Kandra Jones;(Psychology)

Esther Kentish (Political Science)

Daniel Leichman (Advertising)

Yvonne Williams (Criminology and Criminal Justice)

Christopher Woolen (Exercise Science)

### **Graduate Intern**

Dorothea Ivey (Social Work and Public Administration))

### **Graduate Intern**

Micheal Russ (Educational Leadership)

### **Graduate Intern**

Rita Hill-Wales (Social Work)

### CAAS Adjunct Faculty

Dr. Pamela Hill ([pamelahill@uta.edu](mailto:pamelahill@uta.edu))

### CAAS Adjunct Faculty

Ray Jordan II ([%20rcjordan@uta.edu](mailto:%20rcjordan@uta.edu))

## Affiliate Faculty

### FACULTY FELLOWS 2013

Dr. Ifeoma Amah (<https://www.uta.edu/mentis/public/#profile/profile/view/id/6229/category/1>), Dept. of Educational Leadership & Policy Studies

Dr. Krystal Beamon (<https://www.uta.edu/mentis/public/#profile/profile/view/id/2486/category/1>), Dept. of Sociology & Anthropology

### FACULTY FELLOWS 2012

Dr. Robert Bing (<https://www.uta.edu/mentis/public/#profile/profile/view/id/1334/category/1>), Dept. of Criminology & Criminal Justice

Dr. Eusebius Small (<https://www.uta.edu/mentis/public/#profile/profile/view/id/9111/category/1>), School of Social Work

Dr. Sonja Watson (<http://www.uta.edu/ra/real/editprofile.php?pid=2009&onlyview=1>), Dept. of Modern Language

### FACULTY ASSOCIATES 2013-2014

Dr. Ben Agger (<https://www.uta.edu/mentis/public/#profile/profile/view/id/1410/category/1>), Dept. of Sociology & Anthropology and Director of Center for Theory

Dr. Myrtle P. Bell (<https://www.uta.edu/mentis/public/#profile/profile/view/id/1052/category/1>), Dept. of Management

Dr. Elten Briggs (<https://www.uta.edu/mentis/public/#profile/profile/view/id/3212/category/1>), Dept. of Marketing

Dr. Michan A. Connor (<https://www.uta.edu/mentis/public/#profile/profile/view/id/2511/category/1>), (<https://www.uta.edu/mentis/public/#profile/profile/view/id/2511/category/1>) Dept. of Interdisciplinary Studies/ Urban Affairs

Dr. Marvin Dulaney (<http://www.uta.edu/ra/real/editprofile.php?pid=2513&onlyview=1>), Dept. of History, Chair

Dr. Cedrick May (<https://www.uta.edu/mentis/public/#profile/profile/view/id/3863/category/1>), Dept. of English

Dr. Anne Bain- Nordberg (<https://www.uta.edu/mentis/public/>), School of Social Work

Dr. Jason Shelton (<http://www.uta.edu/ra/real/editprofile.php?pid=2556&onlyview=1>), Dept. of Sociology & Anthropology

Dr. David M. Sparks (<https://www.uta.edu/mentis/public/#profile/profile/view/id/12388/category/1>), Dept. of Curriculum and Instruction and Uteach

## Engagement

An essential component of the Center for African American Studies is to establish an active and interactive public mission and community outreach program designed to keep it engaged with African American communities- locally, nationally, and abroad.

### Newsletter

#### Synergy Fall 2012

Synergy Spring 2013 ([http://issuu.com/utacaas/docs/caas\\_synergy\\_janjune](http://issuu.com/utacaas/docs/caas_synergy_janjune))

Synergy Fall 2013 ([http://issuu.com/utacaas/docs/synergyaugdec2013\\_final\\_draft](http://issuu.com/utacaas/docs/synergyaugdec2013_final_draft))

## The Diversity Certificate Program

Download DCP Application Form (pdf) (<https://www.uta.edu/ssw/documents/DCP%20Application.pdf>)

The Diversity Certificate Program (DCP) is an interdisciplinary certificate that provides undergraduate students the opportunity to gain specialized knowledge, values, and skills in racial and ethnic relations, gender and sexuality, and social and economic inequality, to advance themselves as successful employees and leaders in our global world. The certificate enhances a student's general education, academic major and/or career preparation. To receive the certificate students must complete a cluster of courses across academic disciplines including 3 hours in a designated racial and ethnic relations course, 3 hours in a designated social and economic inequality course, 3 hours in a gender and sexuality designated course, and

3 hours in a designated capstone course. In addition, students complete a co-curricular component by attending campus events that highlight diverse identities and cultures.

**Contact the Diversity Certificate Program (DCP) advisor at [dcp@uta.edu](mailto:dcp@uta.edu) for more information!**



# School of Urban & Public Affairs

---

## Undergraduate Degrees

- BA, Interdisciplinary Studies (p. 650)
- BS, Interdisciplinary Studies (p. 650)

## Undergraduate Minors

- Minor, Urban and Public Affairs (p. 663)  
(with emphasis areas in Public Administration, Urban Affairs and Public Policy, and Urban Planning and the Environment)
- Minor, Environmental and Sustainability Studies

## Graduate Degrees

- Master's of Arts in Urban Affairs (p. 661)
- Master's of City and Regional Planning (p. 642)
- Master's of Public Administration (p. 652)
- Ph.D. in Public and Urban Administration (p. 657)
- Ph.D. in Urban Planning and Public Policy (p. 645)

## Mission and Philosophy

The mission of the School of Urban and Public Affairs is to conduct basic and applied research into urban problems and public policy, to provide services in support of public and nonprofit agencies, and to educate and train students for public service careers.

## History and Overview

The Institute of Urban Studies was established in 1967 by an act of the Texas Legislature. The institute's mandate was to offer Texas city and county governments and other public agencies high-caliber, university-based research, training and other technical services. In 1992, after significant expansion of its staff and programs, the School of Urban and Public Affairs was created. The Institute of Urban Studies continues to operate as a vital research and outreach arm of the School of Urban and Public Affairs.

The Institute is the state's only university-based center for applied research and service in urban affairs. It is called upon routinely to study and recommend solutions for problems confronting government agencies, nonprofit organizations and private industry.

During its more than 40 years of existence, the Institute of Urban Studies and the School of Urban and Public Affairs has conducted hundreds of studies on such topics as transportation, housing, local economic development, public safety, corrections, education, human services, child care and regional governance. These reports are included in the collections of virtually every major library in Texas and have been adopted as texts at many colleges and universities.

Students are offered a wide array of opportunities for projects, internships and employment. SUPA faculty, staff and students work on "real-life" urban and public affairs projects in cooperation with city governments, public agencies and nonprofit organizations.

## Accreditation

The School of Urban and Public Affairs is one of only approximately 20 in the country having both its Master's of Public Administration and its Master's of City and Regional Planning programs fully accredited by their respective accrediting agencies.

The Master's of City and Regional Planning is officially recognized and accredited by the Planning Accreditation Board that accredits North American planning programs on the basis of a strict and extensive set of criteria rooted in planning knowledge, skills, and values. Students enrolled in accredited programs are eligible for certain national scholarships, and graduates of accredited programs may qualify for certification by the American Institute of Certified Planners after fewer years of experience than graduates of nonaccredited programs.

The Master's of Public Administration degree is accredited by the National Association of Schools of Public Affairs and Administration that requires public administration programs to meet strict standards for faculty qualifications, curriculum content, admissions and program requirements, student composition and services, budget and facilities. Accreditation enhances the program's national reputation and opens doors and provides opportunities for students applying for Texas-based scholarships and nationwide positions. Public Administration was ranked 74<sup>th</sup> by U.S. News & World Report in 2014.

## Scholastic Activity and Research Interests of the Faculty

SUPA faculty are actively engaged in research and community service projects that benefit local jurisdictions, public and nonprofit agencies with expertise that is beyond the normal scope of their particular services and resources. Typical projects include revitalization studies for inner-city neighborhoods, development plans for central business districts, economic development strategies for municipalities, inter-local contracting studies, and assessments of service delivery alternatives in communities and school districts.

The broad range of faculty research interests primarily focuses on local issues and provides support for local officials and urban professionals, but it also includes basic research into urban problems and public policy that is published in national journals and used in university texts. Research topics include such planning issues as urban design, land use analysis, environmental planning, economic development, community service and development, focus group research and group facilitation; such public administration issues as public management, intergovernmental relations, entrepreneurship in government, education and economic development; and such urban affairs issues as urban theory, development, management, politics, social welfare policy, social service administration and minority relations.

## City and Regional Planning - Graduate Programs

### Master's Degrees

- City & Regional Planning, MCRP

### Doctoral Degree

- Urban Planning and Public Policy, Ph.D.

### Certificates

- Developmental Review Certificate
- Geographical Information Systems Certificate

### GENERAL

Located in the heart of the Dallas-Fort Worth Metroplex, the fourth largest metropolitan region in the U.S., the City and Regional Planning Master's Degree Program (<http://www.uta.edu/supa/graduate/cirp.php>) (MCRP) is situated in an optimal laboratory to study, analyze, and provide planning solutions to contemporary urban problems, such as sprawl, pollution, equity, carbon footprints, economic development, aging infrastructure, and, more generally, contributing to the development of sustainable cities and regions.

The program resides in the School of Urban and Public Affairs' (SUPA) whose Institute of Urban Studies (<http://www.uta.edu/supa/ius>) provides student research and practical experience through the professional planning services it offers to cities across the state of Texas.

### MISSION

The MCRP program prepares students for careers as professional planners with public, private and nonprofit organizations. It does this by training students to apply planning theory, knowledge, techniques, and skills to "real world" planning problems through coursework, studios, and internship opportunities.

UTA's City and Regional Planning Master's Degree Program is accredited by the Planning Accreditation Board (<http://www.planningaccreditationboard.org>) (PAB). The program's mission, goals and objectives, and accreditation efforts are shaped in consultation with the MCRP Advisory Board composed of alumni and area practitioners.

## Admissions Requirements

The MCRP program takes a holistic approach to the application review process. Each applicant file is reviewed individually with equal consideration given to the quantitative and qualitative aspects of the student's record. A complete application includes:

- Undergraduate Grade Point Average (GPA): The undergraduate GPA based on the last 60 hours of course work as calculated by the Graduate Admissions from the official transcript.
- Graduate Record Exam (GRE) scores: Verbal, Quantitative, and Writing (Exceptions: Outstanding UT Arlington graduates may qualify for GRE waiver providing they meet certain requirements)
- Letters of Recommendation attesting to the applicant's potential to do Master's-level work and complete the program. Letters for Master's programs should be from professors or supervisors at work (download Letter of Recommendation form) ([http://grad.pci.uta.edu/resources/pdf/Request\\_Recommendation.pdf](http://grad.pci.uta.edu/resources/pdf/Request_Recommendation.pdf))
- Essay by applicant approximately one double-spaced page in length (approximately 250 words). The Essay is considered both for its content and quality of writing. The Essay should address the following questions: 1. Why do you want to earn a Master's degree in the program for which you are applying? 2. What relevant background and experience do you bring to the program? The essay can also include other concerns you'd like to bring to the attention of the Graduate Advisor or Master's Admissions Committee.

- Non-native English speakers only: TOEFL or IELTS scores (Exceptions: An applicant holding either a Bachelor's or a Master's degree from a regionally accredited U.S. college or university is not required to submit a TOEFL, TOEFL iBT, or IELTS score for admission purposes.)

## WAIVERS

1. Submission of GRE scores may be waived for applicants to SUPA master's programs. The student must have graduated from a bachelor's degree program at UT Arlington no more than three academic years prior to admission to the graduate program (as measured from the start of the semester for which admission is sought). Undergraduate students in their final year of study are also eligible; in such cases, admission with the GRE waiver is contingent upon successful completion of the bachelor's degree. The student's UT Arlington grade-point average must equal or exceed 3.0 in each of two calculations:
  - a. in the last 60 hours of study as calculated for admission by the Graduate School;
  - b. in all undergraduate coursework completed at UT Arlington.
2. Submissions of TOEFL or IELTS scores may be waived for applicants to SUPA master's programs who hold a Bachelor's or Master's degree from a regionally accredited U.S. college or university.

## TYPES OF ADMISSION

### Unconditional Admission

Applicants who meet all the following requirements will be considered for unconditional admission:

1. Minimum Undergraduate GPA of 3.0
2. A preferred minimum Verbal GRE score of 150 (450 if the test was taken before August 1, 2011), a preferred minimum Quantitative GRE score of 141 (450 if the test was taken before August 1, 2011), and a preferred minimum Writing GRE score of 4.
3. Outstanding letters of recommendation
4. Strong, well-written personal essay
5. Non-native English speakers only: TOEFL scores of at least 550 (paper-based), 213 (computer-based), or 79 (iBT) with sectional scores that meet or exceed 22 Writing, 21 Speaking, 20 Reading, and 16 Listening; or, IELTS score of at least 6.5.

### Probationary Admission

Applicants who do not meet all requirements for Unconditional admission will be considered for Probationary admission on the basis of the strength of all the listed admission factors. Test scores will not constitute the sole or primary basis for ending consideration of an applicant. Under Probationary admission, special course requirements or other conditions may be imposed by the SUPA Master's Admissions Committee. Applicants who meet all the standards for Unconditional admission except for deficiency in Writing GRE score will be considered for Probationary Admission conditional on completing an approved Writing course in their first semester.

1. **Other types of admission decisions pertaining to Master's applicants:**
  - a. **Deferred:** Applicants who are unable to supply required application materials, or who must complete additional preparatory work before their admissibility can be determined, may be deferred until records are complete.
  - b. **Provisional:** Applicants who are unable to supply all required documentation prior to the admission deadline but who otherwise appear to meet admission requirements may be granted Provisional admission pending submission of complete and satisfactory credentials before the end of the semester in which they have registered in a Provisional status.
  - c. **Denied:** Applicants who fail to meet more than one of the admission requirements and for whom the SUPA Master's Admission Committee finds there is insufficient basis to justify any other kind of admission will be Denied admission. As the admission process is competitive, applicants meeting basic admission requirements who are less well qualified than other applicants may also be denied admission.

## Scholarship and Fellowship Criteria

- Graduate students with a GPA of 3.0 or better who are enrolled in six hours or more are eligible to apply for competitive scholarships and fellowships.
- Scholarships and fellowships for Master's and Doctoral students will be competitively awarded based on consideration of the all admission criteria assessed by their admitting programs.

## SUPA Inadequate Academic Progress Point System

A student may be subject to dismissal from the program if they accumulate 4 deficiency points during their Master's degree or their Ph.D. Students who complete a Master's degree at SUPA will not carry deficiency points into their Ph.D. work. Deficiency points may not be removed from a student's record by repeating a course or additional coursework.

D = 2 deficiency points

F = 3 deficiency points

I = 1 deficiency point

W = 0.5 deficiency point

## Master's Degree Curriculum

The program's curriculum imparts knowledge, skills and values necessary for entering the planning profession. The degree requires completion of 48 hours of study. The generalist core (33 hrs Professional Report or 36 hrs Thesis) is organized into three knowledge tiers: Theory (9 hrs), Analysis and Techniques (9 hrs), and Implementation and Plan Making (12 hrs), plus a Professional Report (3 hrs) or Thesis (6 hrs).

### Core Courses

CIRP 5303	PLANNING HISTORY, THEORY AND ETHICS	3
CIRP 5310	PLANNING, URBAN DEVELOPMENT AND STRUCTURE	3
CIRP 5308	METROPOLITAN SUSTAINABILITY AND PLAN MAKING	3
CIRP 5363	LEADERSHIP AND COMMUNICATION SKILLS IN THE PLANNING PROCESS	3
CIRP 5318	TECHNIQUES OF PLANNING ANALYSIS I	3
CIRP 5330	TECHNIQUES OF PLANNING ANALYSIS II	3
CIRP 5304	PLAN IMPLEMENTATION, ZONING, AND REGULATIONS	3
CIRP 5316	LAND USE PLANNING AND THE LAW	3
CIRP 5332	PROJECT STUDIO	3
CIRP 5380	RESEARCH QUESTIONS IN PLANNING (taken in the next to last semester)	3
CIRP 5397	PROFESSIONAL REPORT	3-6
or CIRP 5698	PLANNING THESIS	

### Elective Courses

Select 4-5 of the following: <sup>1</sup>		12-15
CIRP 5305	LAND USE, MANAGEMENT AND DEVELOPMENT	
CIRP 5306	URBAN REVITALIZATION	
CIRP 5309	TRANSPORTATION/LAND USE MODELING AND POLICY ANALYSIS	
CIRP 5311	ELEMENTS OF URBAN DESIGN	
CIRP 5313	URBAN GROWTH POLICIES	
CIRP 5322	ECONOMIC DEVELOPMENT PLANNING AND POLICY	
CIRP 5324	COMMUNITY DEVELOPMENT	
CIRP 5325	PHYSICAL PLANNING AND URBAN DESIGN	
CIRP 5327	INTRODUCTION TO GREEN CITIES AND TRANSPORTATION	
CIRP 5331	GIS WORKSHOP (CIRP 5357 prerequisite)	
CIRP 5340	GIS AND SUITABILITY ANALYSIS	
CIRP 5341	ENVIRONMENTAL REGULATIONS: LAWS AND PLANNING	
CIRP 5350	ENVIRONMENTAL PLANNING	
CIRP 5351	TECHNIQUES OF ENVIRONMENTAL ASSESSMENT	
CIRP 5356	INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS	
CIRP 5357	INTERMEDIATE GEOGRAPHIC INFORMATION SYSTEMS	
CIRP 5361	PLANNING INTERNSHIP	

Total Hours

45-51

<sup>1</sup> Other electives as approved by the Graduate Advisor

See the program's Graduate Advisor for a list of approved electives in each study area, or download a copy from the MCRP webpage (<http://www.uta.edu/supa/graduate/cirp.php>). Other courses may be substituted upon approval of the program's Graduate Advisor and/or Program Director.

## THESIS OR PROFESSIONAL REPORT (6 HOURS THESIS STUDENTS; 3 HOURS THESIS-SUBSTITUTE STUDENTS)

All MCRP students must enroll in CIRP 5380 RESEARCH QUESTIONS IN PLANNING in their next to last semester to prepare for the Thesis or Professional Report.

Thesis (minimum of 6 credit hours): This option is recommended for students who enjoy research and/or are interested in pursuing a career in research or private consulting, or who intend to obtain another advanced degree. However, this option is also available to students who intend to go into professional planning practice.

Thesis format and submission calendar must adhere to the Office of Graduate Studies' thesis criteria. Thesis students identify a committee chair no later than their next to last semester and, in consultation with the chair, form a thesis committee consisting of at least three members of the SUPA Graduate Faculty. The thesis committee guides the student's development of research question and choice of research method and analysis. Thesis students must defend their thesis in a public oral examination- open to all members of the faculty- and before all members of the student's thesis committee. The thesis committee must have copies of the thesis at least two weeks prior to the thesis defense. All members of the student's committee must be present at the defense. Thesis students must be enrolled in the appropriate section of CIRP 5698 PLANNING THESIS (under their committee chair) during the semester they receive advise from their chair and committee for preparing the thesis, as well as during the semester they defend their thesis. Once the student is enrolled in the thesis course, continuous enrollment is required.

Professional Report (3 credit hours): This option is recommended for students who are going into professional practice and/or who desire additional experience beyond the Project Studio course by working on a professional report. This option does not preclude professional report students the opportunity of further pursuing an advanced graduate degree. Students identify a professional report committee chair no later than their next to last semester and, in consultation with the chair, form a professional report committee consisting of at least three members of the SUPA Graduate Faculty. The professional report committee guides the student's choice of planning project and method of analysis. Professional report students must defend their report in a public oral examination- open to all SUPA graduate faculty and students- and before all members of the student's professional report committee. Professional Report students must be enrolled in the appropriate section (under their committee chair) of CIRP 5397 PROFESSIONAL REPORT the semester in which the professional report is defended.

## Dual Degrees

To participate in the dual degree program, students must make separate application to each program and must meet the admission requirements of each program. Students must be admitted to the second program before completing more than 24 credit hours in the first program and must complete the second degree within three academic years following completion of the first. By participating in a dual degree program, students may apply 6-18 total credit hours jointly to meet the requirements of both degrees, thus reducing the total number of hours required to earn each degree separately (shared courses are subject to approval by Program Advisors of each program). Degree plans, thesis or professional report proposals, and the final thesis or report must be submitted separately for each degree and approved by Program Advisors and relevant committees of each program. The successful candidate is awarded two degrees (not one joint degree).

Those interested in the dual degree program should consult the appropriate Program Advisors for further information and review the statement on Dual Degree Programs in the general information section of the catalog.

Dual degrees can be arranged with any suitable program. Arrangements for the following dual degrees have already been made between M.C.R.P. and the relevant Program Advisors.

- M.C.R.P. and M.P.A. (Master of Public Administration)
- M.C.R.P. and M.A. (Master of Arts in Urban Affairs)
- M.C.R.P. and M.S.W. (Master of Social Work)
- M.C.R.P. and M.Arch. (Master of Architecture)\*
- M.C.R.P. and M.S.L.A. (Master of Science in Landscape Architecture)
- M.C.R.P. and M.S.C.E. (Master of Science in Civil Engineering)/M.Engr. (Master of Engineering)
- M.C.R.P. and M.S.Ev.S.E. (Master of Science in Environmental Science and Engineering)

\*MCRP students without a Bachelor's degree in Architecture take Path A in the architecture program; those with an undergraduate degree take Path B. All 15 credit hours of electives in the M.Arch. program must be taken in the MCRP program. Only in special instances may students select the thesis substitute plan of the MCRP program. Student will write one thesis and the thesis supervisor should be selected from CIRP or the School of Architecture, and committee members should be selected from both faculties.

## Ph.D. in Urban Planning and Public Policy (UPPP)

The UPPP Ph.D. program requires a minimum of 48 credit hours beyond the master's degree, including 39 credit hours of coursework and a minimum of 9 dissertation credit hours. The 39 credit hours of coursework include: 6 hours of leveling courses, 9 hours in the required core of urban planning and public policy, 6 hours of methods courses and 18 hours of elected field area courses. Courses and credit hours may be waived for students with relevant previous coursework upon approval of the dissertation supervisor and program director.

Coursework in the required core, which covers core knowledge and competencies in planning and policy, as well as the courses in the selected field areas prepares students for the field exam. At the end of or after their first semester, students select their diagnostic committee based on their interests and take a diagnostic exam. The student's committee will then guide their course work, including any extra courses needed based on their diagnostic exam as well as dissertation proposal stages.

## APPLICATION REQUIREMENTS AND DEADLINES

Along with the Graduate School application requirements, a complete application includes:

1. Official transcripts from colleges and universities attended. Information about submitting transcripts is available in the Graduate Catalog
2. Official test score reports for the Graduate Record Exam (GRE) and, for international applicants, the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). Information about submitting official test scores is available from the Graduate Catalog. The ETS code for UTA is 6013
3. Three Letters of Recommendation. Letters should attest to the applicant's ability to do Doctoral-level work and complete the dissertation. Letters must be from references who hold a Ph.D. degree; and
4. Essay by applicant approximately one double-spaced page in length (approximately 250 words). The essay is considered both for its content and writing quality. The essay should discuss research agenda, identify the faculty you wish to work with, and state the reasons for wanting to earn the Doctoral degree.

Official transcripts and test scores must be sent directly to the Graduate School by the institution and ETS respectively. Letters of recommendation and personal essay should be sent directly to: UPPP Admissions Committee, SUPA Box 19588, Arlington TX 76019 or email to the program's Graduate Advisor. It is the applicant's responsibility to ensure all application materials are received by the application deadline. Incomplete applications or applications received after the deadline could be deferred.

UPPP program admits doctoral students for Fall and Spring semester admissions. The application deadline for the UPPP program is February 1st for Fall semester and July 1st for spring semester.

## ADMISSION CRITERIA

Applicants are typically admitted unconditionally with a graduate GPA of 3.6, a Verbal GRE score of at least 153 (500 if test was taken before August 1, 2011) and a Quantitative GRE score of at least 144 (500 if test was taken before August 1, 2011). GRE requirements are applied flexibly as different areas of study vary in the relative importance of quantitative and verbal analysis. Applicants should contact the Graduate Advisor if uncertain whether their area of primary interest requires more strength in either quantitative or verbal analysis.

Applicants with an interest in areas with quantitative emphasis typically meet the minimum Quantitative GRE score requirement, but may be admitted with a lower than typical GRE Verbal score. Applicants pursuing study in less quantitative but more verbally analytic areas typically meet the GRE Verbal score minimum, but may be admitted with lower than typical GRE Quantitative scores. However, in no case will standardized test performance be the sole or primary determinant of admissibility. Strength of letters of recommendation, and quality of personal statement and Master's degree field of study are also considered carefully.

U.S. students with a Master's degree from an accredited U.S. institution and several years of increasing responsibilities on the job are not required to submit GRE scores. International applicants are also required to have a score of 213 or higher on the TOEFL (550 or higher on the written TOEFL; 79 or higher on TOEFL iBT).

Applicants not admitted unconditionally may be considered for admission on probation based on factors mentioned above as well as multilingual proficiency, first generation graduate student from family and community service experience. The Doctoral admissions committee will set the probationary conditions.

The admissions committee may defer the admission decision when a component of the application is incomplete. It may also admit a student provisionally when an applicant is unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements.

### Curriculum and Degree Requirements:

#### Leveling Courses (6 hours)

CIRP 5303	PLANNING HISTORY, THEORY AND ETHICS	3
CIRP 5310	PLANNING, URBAN DEVELOPMENT AND STRUCTURE	3

#### Required Core Courses (9 credit hours)

UPPP 6300	ADVANCED URBAN THEORY	3
UPPP 6311	SPATIAL THEORY AND POLICY: URBAN FORM AND STRUCTURE	3
URPA 5306	THE URBAN ECONOMY	3

#### Methods Courses (6 hours)

CIRP 5317	INTERMEDIATE DATA ANALYSIS	3
CIRP 5346	QUALITATIVE METHODS	3
URPA 6346	ADVANCED DATA ANALYSIS IN URBAN AND PUBLIC AFFAIRS (based on the Dissertation Committee decision)	3

or UPPP 6346

#### Urban Planning and Public Policy Field Area Courses (18 hours)

Students take 18 hours of courses in their elected field area of planning and/or policy, preparing the student for the dissertation and beyond. Courses are determined in consultation and approval with the student's diagnostic supervisor and diagnostic committee.

Students are encouraged to use faculty resources and the opportunities offered in SUPA and UTA to specialize in following field areas or their combinations:

Urban Policy and Planning

Physical Planning, Development and Urban Design

Land Use/Transportation Analysis, Planning and policy

Environmental Planning Policy/Sustainability

#### Dissertation (minimum 9 hours)

## ORGANIZATION

### UPPP Diagnostic

When students are admitted into the UPPP program, a Graduate advisor will advise them regarding first semester courses and registration and will assign them an advisor based on the student's interest area and/or Statement Letter. Students take a diagnostic exam toward the end of their first semester or early in their second semester so that their three-member Diagnostic Supervisory Committee can be selected and can guide them in their selection of courses thereafter. As a part of this process, the university requires that "a student and his/her advisor should complete the Milestone form during the student's first term of study and it must be completed before the end of the second semester of enrollment." The school will keep a copy of the completed form on file and the student will be provided a copy for his/her records.

### Deficiency & Field Courses

The Supervisory Committee decides and provides guidance on needed field areas and additional coursework based on the deficiencies noted during the diagnostic process as well as during the proposal preparation and proposal defense stages.

Deficiency courses may include courses from the selected field area and other needed courses. The final decision on deficiencies will be determined in the proposal defense session.

### Waivers or Substitutions

Based on UT Arlington regulations, no course that has been applied to any degree, at any graduate or undergraduate institution, may be applied to any other degree, either directly or by substitution. Graduate-level coursework completed in the student's major area of doctoral study at institutions of recognized standing that grant doctoral degrees in those subject areas may serve to establish the student's competency in equivalent UTA courses. Competency demonstrated by successful completion of equivalent courses may provide a basis for waiving some UPPP course requirements and the credit hours associated with those courses. Waivers must be recommended by the student's graduate advisor and current supervising professor and their recommendation must be approved by both the Committee on Graduate Studies of the student's major area and the Office of Graduate Studies. Only courses in which the student has earned a B (3.0) or better will be considered for purposes of a waiver. Waived courses must be shown on the student's academic plan.

### UPPP Field Area Exam

The Diagnostic Committee disbands toward the completion of the required coursework and the student selects a three-member Dissertation Committee to start working on his/her dissertation proposal. After completion of the coursework and when the student's dissertation proposal has been sufficiently developed and also is fully established in the chosen field area, the student will be given a take-home field exam by the Dissertation Committee. The exam may include questions in both broader and more specific aspects of the selected field area as well as questions designed to guide the student toward completion of the dissertation proposal. It is crucial to select the dissertation proposal topic very carefully as the dissertation is the stepping stone for the student's future professional goals, forming the first important building block of research work in the student's field area of expertise.

Once the field exam is successfully completed, the student must continue work on the dissertation proposal which must be defended within 6 months of his/her field exam.

### POSSIBLE COURSES TO ENHANCE FIELD AREAS

UPPP 6301		0-3
or URPA 6301	THEORETICAL FOUNDATIONS AND PH.D. WORKSHOP	

#### Urban Policy and Planning

URPA 5304	URBAN POLITICS	3
URPA 5305	THEORIES OF URBAN SOCIETY	3
URPA 5311	SOCIAL POLICY FORMATION	3
URPA 5309	INTERGOVERNMENTAL RELATIONS	3

All SUPA policy courses

#### Physical Planning, Development and Urban Design

##### Physical Planning

CIRP 5305	LAND USE, MANAGEMENT AND DEVELOPMENT
-----------	--------------------------------------

CIRP 5306	URBAN REVITALIZATION
CIRP 5313	URBAN GROWTH POLICIES
CIRP 5340	GIS AND SUITABILITY ANALYSIS
CIRP 5358	INTELLIGENT TRANSPORTATION SYSTEMS (ITS) AND PLANNING
<b>Urban Design</b>	
ARCH 5306	URBAN DESIGN
CIRP 5311	ELEMENTS OF URBAN DESIGN
LARC 5301	SITE PLANNING AND DEVELOPMENT PROCESSES
LARC 5302	LAND DEVELOPMENT PLANNING
LARC 5382	URBAN DESIGN SEMINAR
<b>Real Estate Development</b>	
CIRP 5313	URBAN GROWTH POLICIES
CIRP 5345	PLANNING AND REAL ESTATE DEVELOPMENT
REAE 5350	QUANTITATIVE METHODS FOR REAL ESTATE
REAE 6390	SEMINAR IN SPECIAL TOPICS IN REAL ESTATE
<b>Land Use/Transportation Analysis, Planning &amp; Policy</b>	
<b>Urban Economics</b>	
CIRP 5322	ECONOMIC DEVELOPMENT PLANNING AND POLICY
URPA 5306	THE URBAN ECONOMY
URPA 5312	ECONOMIC POLICY
<b>Land Use/Transportation</b>	
CE 5328	FUNDAMENTALS OF AIR POLLUTION
CE 5338	SYSTEM EVALUATION
CE 6306	PUBLIC TRANSIT PLANNING & OPERATIONS
CE 6308	ANALYTICAL MODELS IN TRANSPORTATION
CIRP 5305	LAND USE, MANAGEMENT AND DEVELOPMENT
CIRP 5309	TRANSPORTATION/LAND USE MODELING AND POLICY ANALYSIS
CIRP 5315	TRANSPORTATION POLICIES, PROGRAMS AND HISTORY
CIRP 5340	GIS AND SUITABILITY ANALYSIS
CIRP 5358	INTELLIGENT TRANSPORTATION SYSTEMS (ITS) AND PLANNING
<b>Environmental Planning Policy/Sustainability</b>	
<b>Environmental Policy Planning</b>	
CIRP 5340	GIS AND SUITABILITY ANALYSIS
CIRP 5341	ENVIRONMENTAL REGULATIONS: LAWS AND PLANNING
CIRP 5342	ENVIRONMENTAL POLICY
or URPA 5317	ENVIRONMENTAL POLICY
CIRP 5350	ENVIRONMENTAL PLANNING
CIRP 5351	TECHNIQUES OF ENVIRONMENTAL ASSESSMENT
<b>Environmental Science &amp; Engineering</b>	
CE 5324	
CE 5329	ENVIRONMENTAL RISK BASED CORRECTIVE ACTION
CE 5355	
EVSE 5310	ENVIRONMENTAL SYSTEMS-CHEMICAL ASPECTS
EVSE 5311	ENVIRONMENTAL SYSTEMS-GEOLOGICAL ASPECTS

## DISSERTATION PROPOSAL

Upon completion of the coursework, students will work in preparation of their dissertation proposal. This preparation is guided by the student's Dissertation Committee. The Dissertation committee may advise the student to take URPA 6301 Theoretical Foundations and Ph.D. Workshop, which provides theoretical background and techniques to prepare the student for completing the dissertation proposal. Students must also work closely with their dissertation supervisor and committee to develop their dissertation proposal. A formal proposal defense must be held, and the proposal must be formally approved by the dissertation committee before the student may continue to complete the dissertation. The dissertation represents the culmination of the student's academic efforts and so is expected to demonstrate original and independent research activities and be a significant contribution to knowledge.



## DISSERTATION

A student receiving advice and assistance from a faculty member in the preparation of a dissertation must register for the appropriate course commensurate with the student’s level of effort that is equivalent to an organized course of the same credit value (<http://grad.pci.uta.edu/about/catalog/current/schools/general/regulations/#designation>). Once the student is enrolled in the dissertation course, continuous enrollment is required. The student must accumulate a minimum of nine dissertation hours to graduate.

The Graduate School offers Dissertation Seminars each semester and encourages all Dissertation students to attend.

All doctoral students must enroll in the appropriate Dissertation (6699, 6999) or Doctoral Degree Completion course (7399) in the semester in which they intend to defend their theses or dissertations. The Doctoral Degree Completion course, 7399, may be taken only once and cannot be repeated.

The dissertation defense is a public oral examination open to all members (faculty, students and invited guests) of the University community. Questioning of the candidate will be directed by the student’s dissertation supervising committee. All members of the student’s committee must be present at the defense. Although the defense is concerned primarily with the dissertation research and its interpretation, the examining committee may explore the student’s knowledge of areas relevant to the core of the dissertation problem.

The dissertation defense may result in a decision that the candidate has 1) passed unconditionally; 2) passed conditionally with remedial work specified by the committee; 3) failed, with permission to be re-examined after a specified period; or 4) failed and dismissed from the program. The dissertation must be approved unanimously by the student’s dissertation supervising committee and by the Dean of Graduate Studies.

## Graduate Certificates

### CERTIFICATE IN DEVELOPMENT REVIEW

Certificate Coordinator: Enid Arvidson; [enid@uta.edu](mailto:enid@uta.edu)

The Certificate in Development Review provides training in zoning, subdivision plat review, site design, communication skills, and urban development, while keeping in mind the interests of citizens and the spirit of places. These skills are essential for planners who want to understand proposed development activity, ensure that proposed development is consistent with a city’s vision, and facilitate review of development proposals. The program is geared for both entry-level planners/planning technicians, and for professionals in allied fields such as architecture, landscape architecture, law, engineering, and real estate.

The certificate requires completion of 15 hours of graduate-level coursework.

CIRP 5304	PLAN IMPLEMENTATION, ZONING, AND REGULATIONS	3
Select two of the following in land use and development:		6
CIRP 5305	LAND USE, MANAGEMENT AND DEVELOPMENT	
CIRP 5306	URBAN REVITALIZATION	
CIRP 5316	LAND USE PLANNING AND THE LAW	
CIRP 5322	ECONOMIC DEVELOPMENT PLANNING AND POLICY	
Select one of the following in communication:		3
CIRP 5308	METROPOLITAN SUSTAINABILITY AND PLAN MAKING	
CIRP 5363	LEADERSHIP AND COMMUNICATION SKILLS IN THE PLANNING PROCESS	
Select one of the following in agencies and policies:		3
CIRP 5313	URBAN GROWTH POLICIES	
CIRP 5328/URPA 5326	PUBLIC BUDGETING	
<hr/>		
Total Hours		15

### CERTIFICATE IN GEOGRAPHIC INFORMATION SYSTEMS

Certificate Coordinator: Jianling Li; [jili@uta.edu](mailto:jili@uta.edu)

The Geographic Information Systems (GIS) Certificate program is designed for students and professionals wishing to acquire skills in spatial data analysis. GIS is a powerful computer-based analytical tool used at all levels of government, in business, industry, and institutions. GIS skills are a must in many different fields including urban planning, engineering, geology, and the social sciences. In planning for instance, GIS skills provide professionals a spatial analytical edge with application in all areas of planning including land use, environmental, transportation and economic development planning.

Applying for admission to the GIS-Certificate program does not require the GRE or a degree in planning and should be done as a Non-Degree Seeking Special Applicant through the Graduate School. To obtain the 15-credit hour certificate, students must maintain a GPA of 3.0 in their coursework.

Up to 12 GIS-certificate-credit hours earned as a special non-degree seeking student may be applied to the Master’s degree in City and Regional Planning, subject to the policies on grades and graduate credit described in the Graduate School catalog

**Required**

CIRP 5356	INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS	3
CIRP 5357	INTERMEDIATE GEOGRAPHIC INFORMATION SYSTEMS	3
CIRP 5331	GIS WORKSHOP	3

**Electives**

Select two electives with approval of the GIS Certificate Program advisor:		6
CIRP 5340	GIS AND SUITABILITY ANALYSIS	
GEOL 5323	REMOTE SENSING FUNDAMENTALS	
ARCH 5329 & ARCH 5340	TOPICS IN COMPUTERS AND DESIGN and The Everyday City	
CSE 5330	DATABASE SYSTEMS	

Total Hours 15

## Interdisciplinary Studies

### Overview

The Interdisciplinary Studies Program (INTS) offers both the Bachelor of Arts (BAIS) and the Bachelor of Science (BSIS) degrees. The INTS program encompasses a theme of social justice in all core courses, and provides the student with knowledge of interdisciplinary techniques that enhance problem-solving skills and the ability to understand issues from multiple perspectives. Interdisciplinary Studies degrees prepare students for many different careers and to pursue further education in graduate programs and law schools. Faculty and advisors work closely with INTS students to create a rich academic program that is designed to meet the student's career and educational goals. All applicants must have a minimum CUM GPA of 2.25.

### Application Procedure

Students apply to the Interdisciplinary Studies program by submitting an application along with a statement of intent in which the student discusses the specific areas of study which she/he wishes to pursue, in addition to articulating her/his career and/or educational goals. After review by the Director of Interdisciplinary Studies, the student will then meet with an Academic Advisor to develop a degree plan.

The approved degree plan, transcript, and diploma will carry the designation Bachelor of Arts or Bachelor of Science in Interdisciplinary Studies. In addition, students will receive a Certificate of Completion which will reflect the individual's specific course of study.

### Honors Degree in INTS

INTS students who wish to graduate with an Honors Degree in Interdisciplinary Studies must be members of the Honors College in good standing. They must complete the INTS degree program requirements and the requirements of the Honors College. Contact the Director of Interdisciplinary Studies for further information.

## Requirements for the Bachelor of Arts and Bachelor of Science Degrees in Interdisciplinary Studies

### TOTAL HOURS REQUIRED FOR GRADUATION FOR BA AND BS DEGREES: 120 HOURS

Of these, at least 36 hours must be at the 3000/4000 level, 24 hours of which must be from UT Arlington.

### BACHELOR OF ARTS DEGREE IN INTERDISCIPLINARY STUDIES, GENERAL REQUIREMENTS

<b>Degree Requirements</b>		
General Core Requirements (p. 93)		39
<b>Program Requirements</b>		
Modern and Classical Languages <sup>1</sup>		14
<b>INTS Course Requirements</b>		
INTS 2301	FOUNDATIONS: IDENTITY, INSTITUTIONS AND IDEOLOGY	3
INTS 3320	SOCIAL JUSTICE THEORY	3
Students will select 6 to 9 hours of INTS 4388 courses and 3 to 6 hours from INTS 4391, 4392, 4393, and 4394 courses, for a total of 12 hours:		12
INTS 4388	SPECIAL TOPICS INTERDISCIPLINARY STUDIES (6-9 hours required)	
INTS 4391 or INTS 4392 or INTS 4393	INTERDISCIPLINARY SENIOR SEMINAR (3-6 hours required) INTERDISCIPLINARY SENIOR SERVICE LEARNING INTERDISCIPLINARY SENIOR THESIS	

or INTS 4394	INTERDISCIPLINARY SENIOR PROJECT	
TRACK ONE: UTA Minor, UTA Certificate Program, Pre-defined INTS Concentration Field, Custom Concentration Field		18
TRACK TWO: UTA Minor, UTA Certificate Program, Pre-defined INTS Concentration Field, Custom Concentration Field		18
ELECTIVES		10
Total Hours		117

<sup>1</sup> Students may elect to take 8 hours of a foreign language plus 6 hours of specific, designated Culture Courses

## TRACKS

Each Interdisciplinary Studies degree plan has two Tracks that, along with the core INTS courses, make up the course of study for the INTS degree. Each Track may be constituted of one of the following options: a UTA minor field, a UTA certificate program, a pre-defined INTS Concentration, or a Custom Concentration field. The option selected for each Track must clearly relate to the overall educational and career goals and focus of the student, as defined in the student's individual degree plan approved by the INTS Program. Each Track requires a minimum of 18 hours and must include 9 hours of 3000/4000 level course work. A *minimum* of 6 hours in each Track must be taken at UT Arlington. All INTS core courses must be taken at UT Arlington, except for 3 credit hours of theme courses. Course work from any single discipline may not exceed 18 hours.

Examples of Custom Concentration fields constructed for a BA degree plan in previous years include Healthcare Administration, Cultural Studies, Native American Studies, Childcare Facility Management, Classical Studies, Construction Management, Entrepreneurship, Environmental Studies, Human Resource Administration, International Studies, Legal Studies, Information Technology, Landscape Design, Medical/Pharmaceutical Sales, Sports Management, Urban Studies, Youth Studies and Web Design. For a more extensive list of concentrations, see an INTS Advisor.

## BACHELOR OF SCIENCE DEGREE IN INTERDISCIPLINARY STUDIES, GENERAL REQUIREMENTS

<b>Degree Requirements</b>		
General Core Requirements (p. 93)		39
<b>Program Requirements</b>		
Modern and Classical Languages <sup>1</sup>		14
<b>INTS Course Requirements</b>		
INTS 2301	FOUNDATIONS: IDENTITY, INSTITUTIONS AND IDEOLOGY	3
INTS 3320	SOCIAL JUSTICE THEORY	3
Students will select 6 to 9 hours of INTS 4388 courses and 3 to 6 hours from INTS 4391, 4392, 4393, and 4394 courses, for a total of 12 hours:		
INTS 4388	SPECIAL TOPICS INTERDISCIPLINARY STUDIES	6-9
INTS 4391	INTERDISCIPLINARY SENIOR SEMINAR ( )	3-6
or INTS 4392	INTERDISCIPLINARY SENIOR SERVICE LEARNING	
or INTS 4393	INTERDISCIPLINARY SENIOR THESIS	
or INTS 4394	INTERDISCIPLINARY SENIOR PROJECT	
TRACK ONE: UTA Minor, UTA Certificate Program, Pre-defined INTS Concentration Field, Custom Concentration Field		18
TRACK TWO: UTA Minor, UTA Certificate Program, Pre-defined INTS Concentration Field, Custom Concentration Field		18
Electives		10
Total Hours		117

<sup>1</sup> Students may elect to take 8 hours of a foreign language plus 6 hours of specific, designated Culture Courses

## BACHELOR OF SCIENCE DEGREE

For the Bachelor of Science degree, at least 18 hours in the two Tracks must be "science-for-science majors" course work; at least 12 of these must be at the 3000/4000 level.

Examples of Areas of Concentration constructed for a BS degree plan in previous years include Landscape Design, Medical/Pharmaceutical Sales, Physician Assistant, and Pre-Med, Pre-Dental, and Pre-Veterinary. For a more extensive list of science-oriented concentrations, see an INTS Advisor.

## Public Administration - Graduate Programs

### Master's Degrees

- Academic Partnership Online Master of Public Administration
- Public Administration, M.P.A.

## Certificates

- Public Budgeting and Financial Management Certificate
- Urban Non-Profit Management Certificate

## General

Public Administration is concerned with the formulation, analysis, negotiation, and implementation of democratically responsible collective action. With an interdisciplinary focus, this program gives special emphasis to the urban community and the special challenges of public managers who serve in urban areas. The curriculum is designed to develop leadership capacity, understanding of the political, social, and economic characteristics of today's urban environment and the ability to apply current theories of management and analysis to difficult management issues. The program is meant as preparation for those entering management careers in government for the first time or as career development for those already employed who are seeking upward mobility in public management.

The MPA degree at the School of Urban and Public Affairs is accredited by the National Association of Schools of Public Affairs and Administration (NASPAA), and the curriculum conforms to NASPAA standards.

Those seeking admission to the MPA program can choose between two program options:

1. courses taught on campus primarily during the evening hours; and
2. courses taught online.

Applicants who choose the on-campus option may plan their courses to include the requirements of certificate programs such as Urban Nonprofit Management or Public Budgeting and Financial Management. A description of the various certificate offerings can be found in the Urban and Public Affairs section of the catalogue.

A hallmark of the MPA program is its distinguished faculty that combines extensive academic and field experience in public administration with a wide range of related backgrounds. Augmenting the permanent faculty are several adjunct professors with impressive credentials in the public management field such as Bob Hart, City Manager of Kennedale, Texas; Richard Greene, Regional Director of EPA and former Mayor of Arlington, Texas.

## MISSION

The mission of the Master's of Public Administration program is to strengthen public decision making and the delivery of public services in a globalized and diverse society by educating students to lead and manage organizations at all levels of government and nonprofit institutions ethically, democratically, and effectively.

For specific goals and objectives, see the UTA MPA website ([www.uta.edu/mpa](http://www.uta.edu/mpa)),

## Admission Requirements

Factors in admission decisions are the same for the on campus and online programs.

The MPA program takes a holistic approach to the application review process. Each applicant's file is reviewed individually with equal consideration given to the quantitative and qualitative aspects of the student's records. A complete application includes:

- Graduate Record Exam (GRE) score: Writing (Exceptions: Outstanding UT Arlington graduates may qualify for GRE waiver providing they meet certain requirements. See "Waiving the GRE" below)
- Undergraduate Grade Point Average (GPA): The undergraduate GPA based on the last 60 hours of course work as calculated by the Graduate Admissions from the official transcript.
- Graduate Record Exam (GRE) scores: Verbal and Quantitative (Exceptions: Outstanding UT Arlington graduates may qualify for GRE waiver providing they meet certain requirements)
- Letters of Recommendation attesting to the applicant's potential to do Master's-level work and complete the program. Letters for Master's programs should be from professors or supervisors at work.
- Essay by applicant approximately one double-spaced page in length (approximately 250 words). The Essay is considered both for its content and quality of writing. The Essay should address the following questions: 1. Why do you want to earn a Master's degree in the program for which you are applying? 2. What relevant background and experience do you bring to the program? The essay can also include other concerns you'd like to bring to the attention of the Graduate Advisor or Master's Admissions Committee.
- Non-native English speakers only: TOEFL or IELTS scores (Exceptions: An applicant holding either a Bachelor's or a Master's degree from a regionally accredited U.S. college or university is not required to submit a TOEFL, TOEFL iBT, or IELTS score for admission purposes.)

## TYPES OF ADMISSION

### 1. Unconditional Admission:

Applicants who meet all the following requirements will be considered for unconditional admission:

- a. Minimum Writing GRE score of 4.0 (may be waived under certain conditions - see "Waiving the GRE" below)
- b. Minimum Undergraduate GPA of 3.0
- c. A preferred minimum Verbal GRE score of 450 (Revised GRE Test: 150), and minimum Quantitative GRE of 450 (Revised GRE Test: 141), and a minimum combined Verbal and Quantitative score of 1,000 (Revised GRE Test Combined: 291) (may be waived under certain conditions - see "Waiving the GRE" below)
- d. Outstanding letters of recommendation
- e. Strong, well-written personal essay
- f. Non-native English speakers only: TOEFL scores of at least 550 (paper-based), 213 (computer-based), or 79 (iBT) with sectional scores that meet or exceed 22 Writing, 21 Speaking, 20 Reading, and 16 Listening; or, IELTS score of at least 6.5.

## 2. Probationary Admission:

Applicants who do not meet all requirements for Unconditional admission will be considered for Probationary admission on the basis of the strength of all the listed admission factors. Test scores will not constitute the sole or primary basis for ending consideration of an applicant. Under Probationary admission, special course requirements or other conditions may be imposed by the SUPA Master's Admissions Committee. Applicants who meet all the standards for Unconditional admission except for deficiency in Writing GRE score will be considered for Probationary Admission conditional on completing an approved Writing course in their first semester.

## 3. Other types of admission decisions pertaining to Master's applicants:

- a. **Deferred:** Applicants who are unable to supply required application materials, or who must complete additional preparatory work before their admissibility can be determined, may be deferred until records are complete.
- b. **Provisional:** Applicants who are unable to supply all required documentation prior to the admission deadline but who otherwise appear to meet admission requirements may be granted Provisional admission pending submission of complete and satisfactory credentials before the end of the semester in which they have registered in a Provisional status.
- c. **Denied:** Applicants who fail to meet more than one of the admission requirements and for whom the SUPA Master's Admission Committee finds there is insufficient basis to justify any other kind of admission will be Denied admission. As the admission process is competitive, applicants meeting basic admission requirements who are less well qualified than other applicants may also be denied admission

## WAIVING THE GRE (EFFECTIVE FOR APPLICATIONS RECEIVED ON OR AFTER 8/21/14)

The MPA program waives the requirement that an applicant take the GRE under any of the following conditions:

- A 3.25 or higher undergraduate GPA based on the last 60 hours of course work AND at least three years professional non-profit or public service work experience (as judged by the MPA admission committee. Applicants should submit a supporting resume or other relevant documentation to the MPA Graduate Advisor)
- A completed graduate degree from an accredited program in a related field such as, but not exclusively, political science, economics, urban planning, social work, criminal justice, and sociology OR a 3.0 or better higher after 12 hours of coursework in the accredited graduate degree program.
- A completed UTA B.A. or B.S. with 3.0 or higher GPA
- An equivalent GMAT or LSAT score from an exam taken within the last two years preceding the time of application.

## SCHOLARSHIPS AND FELLOWSHIPS

- Graduate students with a GPA of 3.0 or better who are enrolled in six hours or more are eligible to apply for competitive scholarships and fellowships.
- Scholarships and fellowships for Master's and Doctoral students will be competitively awarded based on consideration of the all admission criteria assessed by their admitting programs.

## SUPA INADEQUATE ACADEMIC PROGRESS POINT SYSTEM

A student may be subject to dismissal from the program if they accumulate 4 deficiency points during their Master's degree or their Ph.D. Students who complete a Master's degree at SUPA will not carry deficiency points into their Ph.D. work. Deficiency points may not be removed from a student's record by repeating a course or additional coursework.

D = 2 deficiency points

F = 3 deficiency points

I = 1 deficiency point

W = 0.5 deficiency point

## Degree Requirements

### ON CAMPUS DEGREE REQUIREMENTS AND COURSES

The on campus program consists of 39 or 42 total hours, which includes 10 required core courses and 9 hours in a selected emphasis area (2 required emphasis area courses and 1 elective). URPA 5360 PUBLIC AND NON-PROFIT MANAGEMENT INTERNSHIP is a 3 credit hour internship course;

however this can be waived with at least 1 year of professional experience working in the public sector. Details on internship waiver requests are available on the MPA program website ([www.uta.edu/mpa](http://www.uta.edu/mpa)).

Upon successfully being admitted into the MPA program, students will choose an emphasis area and degree plan. Most all classes are offered as one session per week on Monday through Thursday during evening times (6:00-8:50pm or 7-9:50pm).

### Core Courses

URPA 5302	FOUNDATIONS OF URBAN RESEARCH AND ANALYSIS	3
URPA 5309	INTERGOVERNMENTAL RELATIONS	3
URPA 5320	PUBLIC AND NON-PROFIT ORGANIZATION THEORY	3
URPA 5326	PUBLIC BUDGETING	3
URPA 5329	FINANCIAL MANAGEMENT IN THE PUBLIC AND NON-PROFIT SERVICES	3
URPA 5345	EVALUATION RESEARCH	3
URPA 5350	INTRODUCTION TO PUBLIC ADMINISTRATION	3
URPA 5351	HUMAN RESOURCE MANAGEMENT IN GOVERNMENT AND NON-PROFITS	3
URPA 5358	ETHICS IN THE PUBLIC SERVICE	3
URPA 5399	PUBLIC ADMINISTRATION CAPSTONE	3

### Emphasis Areas

Select on Emphasis Area (see descriptions below): <sup>1</sup> 9

Public Budgeting and Financial Management

Local Government Management

Urban Nonprofit Agency Management

Strategic Human Resources Management

Economic Development Management

### Internship

URPA 5360	PUBLIC AND NON-PROFIT MANAGEMENT INTERNSHIP (for students with less than one year of appropriate work experience)	3
-----------	---	---

Total Hours 42

<sup>1</sup> Students select an emphasis area and take a total of three courses: two required courses plus one elective from the respective list or any other course with the approval of the MPA advisor.

## Emphasis Area 1: Public Budgeting and Financial Management

Objectives-upon completion of this emphasis track, students should be able to:

1. Review, recommend, and interpret operating and capital budget requests taking political, economic, and decision-making processes into account; and
2. Assist the budget officer and other higher-level public officials in performing comprehensive financial analyses and developing financial and budgetary recommendations.

### Required Courses

URPA 5332	CAPITAL BUDGETING IN PUBLIC MANAGEMENT	3
URPA 5348	COST BENEFIT ANALYSIS	3

### Elective Courses

Select one of the following:

URPA 5312	ECONOMIC POLICY	
URPA 5321	URBAN MANAGEMENT	
URPA 5324	URBAN PUBLIC FINANCE	
URPA 5341	PROFESSIONAL REPORT WRITING	
URPA 5342/CIRP 5317	INTERMEDIATE DATA ANALYSIS	
URPA 5357/CIRP 5312	STRATEGIC MGT AND PLANNING IN PUBLIC AND NON-PROFIT SERVICES	
URPA 5367	STRATEGIC PUBLIC AND NONPROFIT HUMAN RESOURCES MANAGEMENT	
URPA 5333	GOVERNMENTAL AND NONPROFIT ACCOUNTING	
URPA 6349	DECISION MAKING AND PUBLIC POLICY ANALYSIS (New)	

## Emphasis Area 2: Local Government Management

Objectives-upon completion of this emphasis track, students should be able to:

1. Demonstrate proficiency in the use of applied analytic tools such as program evaluation, policy analysis, cost-benefit analysis, and other management decision-making tools to aid the public manager make more informed decisions;
2. Assist public managers and other higher-level public officials to understand, analyze, and recommend appropriate solutions to complex public policy issues.

### Required Courses (5321 and either 5357 or 5367)

URPA 5321	URBAN MANAGEMENT	3
URPA 5357/CIRP 5312	STRATEGIC MGT AND PLANNING IN PUBLIC AND NON-PROFIT SERVICES (OR)	3
URPA 5367	STRATEGIC PUBLIC AND NONPROFIT HUMAN RESOURCES MANAGEMENT	3

### Elective courses

Select one of the following:

URPA 5304	URBAN POLITICS	
URPA 5312	ECONOMIC POLICY	
URPA 5323	MANAGING CHANGE IN PUBLIC AND NON-PROFIT SERVICES	
URPA 5324	URBAN PUBLIC FINANCE	
URPA 5341	PROFESSIONAL REPORT WRITING	
URPA 5342/CIRP 5317	INTERMEDIATE DATA ANALYSIS	
URPA 5348	COST BENEFIT ANALYSIS	
URPA 5352	CONFLICT RESOLUTION IN THE PUBLIC AND NONPROFIT MANAGEMENT	
URPA 5367	STRATEGIC PUBLIC AND NONPROFIT HUMAN RESOURCES MANAGEMENT	
URPA 5368	PRACTICAL EMPLOYMENT FOR PUBLIC AND NONPROFIT MANAGERS	
URPA 6349	DECISION MAKING AND PUBLIC POLICY ANALYSIS	

## Emphasis Area 3: Urban Nonprofit Agency Management

Objectives-upon completion of this emphasis track, students should be able to:

1. Understand the different management areas and techniques within the nonprofit organization, including institutional management, leadership, fund-raising, financial administration, human resources coordination, and planning and performance measurements.
2. Understand the role of nonprofits as community institutions with an outward focus, including the political, economic, and inter-organizational environment, as well as marketing, legal, and government policy issues.

### Required Courses

URPA 5354	MANAGEMENT OF NON-PROFIT ORGANIZATIONS	3
URPA 5355	NONPROFIT ORGANIZATIONS IN PUBLIC POLICY	3

### Elective Courses

Select one of the following:

URPA 5313	COMMUNITY DEVELOPMENT	
URPA 5318	SOCIAL WELFARE POLICY	
URPA 5321	URBAN MANAGEMENT	
URPA 5330	COMMUNITY AND NEIGHBORHOOD ORGANIZATION	
URPA 5341	PROFESSIONAL REPORT WRITING	
URPA 5342/CIRP 5317	INTERMEDIATE DATA ANALYSIS	
URPA (CIRP 5312)		
URPA 5348	COST BENEFIT ANALYSIS	
URPA 5352	CONFLICT RESOLUTION IN THE PUBLIC AND NONPROFIT MANAGEMENT	
URPA 5357	STRATEGIC MGT AND PLANNING IN PUBLIC AND NON-PROFIT SERVICES	
URPA 5367	STRATEGIC PUBLIC AND NONPROFIT HUMAN RESOURCES MANAGEMENT	
URPA 5368	PRACTICAL EMPLOYMENT FOR PUBLIC AND NONPROFIT MANAGERS	
URPA 6349	DECISION MAKING AND PUBLIC POLICY ANALYSIS	

## Emphasis Area 4: Strategic Human Resources Management

Objectives-upon completion of this emphasis track, students should be able to:

1. Demonstrate an understanding of public human resource policies, programs, procedures, and legal issues relevant to the field; and
2. Demonstrate knowledge of techniques employed in designing performance appraisals, recruiting and selecting employees, and developing rewards systems.

**Required Courses**

URPA 5352	CONFLICT RESOLUTION IN THE PUBLIC AND NONPROFIT MANAGEMENT	3
URPA 5367	STRATEGIC PUBLIC AND NONPROFIT HUMAN RESOURCES MANAGEMENT	3

**Elective Courses**

Select one of the following:

URPA 5321	URBAN MANAGEMENT	
URPA 5323	MANAGING CHANGE IN PUBLIC AND NON-PROFIT SERVICES	
URPA 5341	PROFESSIONAL REPORT WRITING	
URPA 5342/CIRP 5317	INTERMEDIATE DATA ANALYSIS	
URPA 5357/CIRP 5312	STRATEGIC MGT AND PLANNING IN PUBLIC AND NON-PROFIT SERVICES	
URPA 5368	PRACTICAL EMPLOYMENT FOR PUBLIC AND NONPROFIT MANAGERS	
URPA 6349	DECISION MAKING AND PUBLIC POLICY ANALYSIS	

**Emphasis Area 5: Economic Development Management**

Objectives-upon completion of this emphasis track, students should be able to:

1. Demonstrate a general comprehension of the politics, organization, policy issues and legal and financial dimensions of local economic development; and
2. Demonstrate knowledge of techniques employed in location and impact analysis, strategic planning, revenue generation, marketing, cluster development, site planning, and business recruitment, development and retention.

**Required Courses (5334 and either 5357 or 5367)**

URPA 5334	MANAGEMENT OF ECONOMIC DEVELOPMENT	3
URPA 5357/CIRP 5312	STRATEGIC MGT AND PLANNING IN PUBLIC AND NON-PROFIT SERVICES (OR)	3
URPA 5367	STRATEGIC PUBLIC AND NONPROFIT HUMAN RESOURCES MANAGEMENT	3

**Elective Courses**

Select one of the following:

URPA 5306	THE URBAN ECONOMY	
URPA 5312	ECONOMIC POLICY	
URPA 5321	URBAN MANAGEMENT	
CIRP 5322	ECONOMIC DEVELOPMENT PLANNING AND POLICY	
URPA 5341	PROFESSIONAL REPORT WRITING	
URPA 5342/CIRP 5317	INTERMEDIATE DATA ANALYSIS	
URPA 5348	COST BENEFIT ANALYSIS	
URPA 6349	DECISION MAKING AND PUBLIC POLICY ANALYSIS	

**ONLINE DEGREE REQUIREMENTS AND COURSES**

The online program consists of 39 required core hours plus a 3 hour internship. Internships may be waived under the same conditions as the on campus program. Students may choose between URPA 5332 CAPITAL BUDGETING IN PUBLIC MANAGEMENT and URPA 5352 CONFLICT RESOLUTION IN THE PUBLIC AND NONPROFIT MANAGEMENT but all other courses are required.

The program is designed for students to take two courses a term (Fall, Spring, Summer) in succession (one course in first half of term, another in second half of term) except in Summer where the two courses have staggered starting dates and URPA 5399 which is a full semester course. It is possible to take more than two courses per term but not advised. The curriculum is offered in a lockstep cohort format. Unlike the on campus program, there are no emphasis areas.

**Core Course**

URPA 5302	FOUNDATIONS OF URBAN RESEARCH AND ANALYSIS	3
URPA 5309	INTERGOVERNMENTAL RELATIONS	3
URPA 5320	PUBLIC AND NON-PROFIT ORGANIZATION THEORY	3
URPA 5326	PUBLIC BUDGETING	3
URPA 5329	FINANCIAL MANAGEMENT IN THE PUBLIC AND NON-PROFIT SERVICES	3



URPA 5332	CAPITAL BUDGETING IN PUBLIC MANAGEMENT	3
URPA 5345	EVALUATION RESEARCH	3
URPA 5350	INTRODUCTION TO PUBLIC ADMINISTRATION	3
URPA 5351	HUMAN RESOURCE MANAGEMENT IN GOVERNMENT AND NON-PROFITS	3
URPA 5352	CONFLICT RESOLUTION IN THE PUBLIC AND NONPROFIT MANAGEMENT	3
URPA 5355	NONPROFIT ORGANIZATIONS IN PUBLIC POLICY	3
URPA 5358	ETHICS IN THE PUBLIC SERVICE	3
URPA 5368	PRACTICAL EMPLOYMENT FOR PUBLIC AND NONPROFIT MANAGERS	3
URPA 5399	PUBLIC ADMINISTRATION CAPSTONE	3
<b>Internship</b>		
URPA 5360	PUBLIC AND NON-PROFIT MANAGEMENT INTERNSHIP (for students with less than one year of appropriate work experience)	3

## DUAL DEGREE PROGRAMS

Students in public administration may participate in one of five dual degree programs whereby they can earn a Master of Public Administration and one of the following:

1. Master of Arts in Urban Affair
2. Master of City and Regional Planning,
3. Master of Science in Social Work,
4. Master of Science in Nursing,
5. Master of Arts in Criminal Justice, or
6. Master's of Sociology.

By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from nine to 18 hours, subject to the approval of Graduate Advisors from both programs. To participate in the dual degree program, students must make separate application to each program and must submit a separate Program of Work for each degree. Those interested in the dual degree program should consult the appropriate Graduate Advisor(s) for further information on course requirements. See also the statement of Dual Degree Programs in the general information section of this catalog.

## Public and Urban Administration Ph.D. Program (PUAD)

The PUAD Ph.D. has eight required core courses, three required research courses, and a minimum of 9 dissertation credit hours. The eight core courses address the social sciences and public administration literatures critical to the integrative approach of the program. The methods courses include an intermediate quantitative methods course, and a qualitative methods course. Students also enroll in URPA 6301 THEORETICAL FOUNDATIONS AND PH.D. WORKSHOP to guide them in preparing their dissertation proposal. Students select their supervising committee during their first year to help guide them through their comprehensive exams and begin working on their dissertation proposal.

A student can expect to complete the required courses in no more than two academic years. Upon completing the core courses, students sit for their written comprehensive examination. The comprehensive examination is an integrative exam that blends public policy issues with public administration.

Students who completed a Masters in Public Administration degree may be eligible to waive some coursework and are encouraged to meet with the PUAD advisor to review their degree plan.

## APPLICATION REQUIREMENTS AND DEADLINES

Along with the Graduate School application requirements, a complete application includes:

1. Official transcripts from colleges and universities attended. Students that obtained their masters degree at UT Arlington are not required to submit separate copies of transcripts as their information will be available to the SUPA advisors online. Information about submitting transcripts is available in the Graduate Catalog; and
2. Official test score reports for the Graduate Record Exam (GRE) and, for international applicants, the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). Information about submitting official test scores is available from the Graduate Catalog. The ETS code for UTA is 6013; and
3. Three Letters of Recommendation. Letters should attest to the applicant's ability to do doctoral-level work and successfully complete the dissertation. Letters must be from references who hold a Ph.D. degree; and
4. An essay from the applicant that discusses the student's research agenda, identifies the faculty with whom the student will work, and states the reasons for pursuing a doctoral degree. The essay should be approximately 250 words. The essay is considered both for its content and writing quality.

Official transcripts and test scores must be sent directly to the Graduate School by the institution and ETS respectively. Letters of recommendation and personal essay should be sent directly to: PUAD Admissions Committee, SUPA Box 19588 , Arlington TX 76019 . It is the applicant's responsibility to ensure all application materials are received by February 1. Incomplete applications or applications received after the deadline will be deferred.

SUPA admits doctoral students for the Ph.D. in Urban and Public Administration for fall semester only. There are no spring and summer admissions for this degree.

Applicants that wish to be considered for graduate teaching assistant positions or other financial assistance, must submit their applications by their first week in January. Only complete applications (including GRE scores and letters) will be considered for financial assistance. Students must also complete a separate financial aid applications available on the SUPA website.

## Admission Criteria

Applicants may be admitted unconditionally with a graduate GPA of 3.6, a Verbal GRE score of at least 153 (500 if taken before August 1, 2011 and a Quantitative GRE score of at least 144 (500 if taken before August 1, 2011). International applicants are required to have a score of 213 or higher on the TOEFL (550 or higher on the written TOEFL; 79 or higher on TOEFL iBT). Strength of letters of recommendation and quality of personal statement and Master's degree field of study are also considered.

or

Applicants may be unconditionally admitted with a GPA above 3.7 if they earn scores of at least a 153 on the Verbal subtest (500 if taken before August 1, 2011) and 140 on the Quantitative subtest (400 if taken before August 1, 2011) or earn at least 144 (500 prior to August 1, 2011) on the Quantitative and 146 (400 prior to August 1, 2011) on the Verbal subtests.

Applicants not admitted unconditionally may be considered for admission on probation based on factors mentioned above as well as multilingual proficiency, first generation graduate student and applicant's community service experience. The doctoral admissions committee will set the probationary conditions.

The admissions committee may defer the admission decision when a component of the application is incomplete. It may also admit a student provisionally when an applicant is unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements.

## SUPA Inadequate Academic Progress Point System

A student may be subject to dismissal from the program if they accumulate 4 deficiency points during their Master's degree or their Ph.D. Students who complete a Master's degree at SUPA will not carry deficiency points into their Ph.D. work. Deficiency points may not be removed from a student's record by repeating a course or additional coursework.

D = 2 deficiency points

F = 3 deficiency points

I = 1 deficiency point

W = 0.5 deficiency point

If a Ph.D. student does not complete dissertation proposal within 2 years of passing comprehensive exam, they will accrue 2 deficiency points.

If a Ph.D. student does not complete all requirements for the Doctoral degree within five years after the student unconditionally passes the comprehensive examination, they will accrue 1 deficiency point per year beyond the five year mark.

## Doctoral Degree Requirements

### CURRICULUM AND DEGREE REQUIREMENTS

#### Required Core Courses

URPA 5304	URBAN POLITICS	3
or URPA 5309	INTERGOVERNMENTAL RELATIONS	
URPA 5305	THEORIES OF URBAN SOCIETY	3
URPA 5306	THE URBAN ECONOMY	3
URPA 5311	SOCIAL POLICY FORMATION	3
URPA 6320	ADVANCED ORGANIZATION THEORY	3
URPA 6315	PUBLIC ADMINISTRATION THEORY	3
URPA 6326	PUBLIC BUDGETING & FINANCE	3
URPA 6349	DECISION MAKING AND PUBLIC POLICY ANALYSIS	3

#### Required Research Courses

URPA 5342	INTERMEDIATE DATA ANALYSIS	3
-----------	----------------------------	---

CIRP 5346	QUALITATIVE METHODS	3
URPA 6301	THEORETICAL FOUNDATIONS AND PH.D. WORKSHOP	3
Total Hours		33

## Comprehensive Exam and Dissertation

Upon successful completion of the written comprehensive exam students form a three-member faculty committee and prepare their dissertation proposal. Given the research topic and preparedness of the student, the faculty committee may recommend that the student take additional courses that contribute to the student's dissertation. The student will defend a dissertation proposal before her/his committee.

Successful completion of the dissertation proposal advances the student to the status of candidacy (ABD). The student continues to work closely with her/his dissertation committee to the completion of the dissertation. SUPA holds graduation ceremonies in Fall and Spring and doctoral students can receive their hood at either event.

## Dissertation Proposal

Upon successful completion of the written comprehensive examination, students will work in preparation of their dissertation proposal. This preparation may include independent study or structured courses and is guided by the student's Dissertation Committee. In the semester beginning the dissertation proposal, students are required to take URPA 6301 Theoretical Foundations and Ph.D. Workshop, which provides theoretical background and techniques to prepare the student for completing the dissertation proposal. Students must also work closely with their dissertation supervisor and committee to develop their dissertation proposal. A formal oral proposal defense must be held, and the proposal must be formally approved by the dissertation committee before the student may continue to complete the dissertation. Guidelines for the dissertation proposal are available in the Ph.D. Student Handbook.

## Dissertation

The dissertation represents the culmination of the student's academic efforts and so is expected to demonstrate original and independent research activity and be a significant contribution to knowledge.

Upon the successful defense of their dissertation proposal, the student is required to submit an application to the UT Arlington's Institutional Review Board if their research involves human subjects. Detailed information on the application process is available at: UTA's Human Subjects Research (<http://www.uta.edu/research/administration/departments/rs/human-subjects-irb>)

Doctoral students must enroll in a minimum of 3 dissertation hours (PUAD 6399 DISSERTATION) every long semester (Fall & Spring). The student must accumulate a minimum of nine dissertation hours to graduate. Once the student's committee has reviewed the completed dissertation and agree that the student is ready to defend, the student enrolls in PUAD 7399 DOCTORAL DEGREE COMPLETION in the term designated as their completion term. Students may designate only one term as the completion term. Doctoral students who do not graduate at the end of their completion term will receive a grade of R, W or F and must enroll in a minimum of 6 hours of dissertation research (PUAD 6699 DISSERTATION or PUAD 6999 DISSERTATION) every term until graduation.

The Graduate School offers Dissertation Seminars each semester and encourages all Dissertation students to attend.

The dissertation defense is a public oral examination open to all members (faculty, students and invited guests) of the University community. Questioning of the candidate will be directed by the student's dissertation committee. All members of the student's committee must be present at the defense. Although the defense is concerned primarily with the dissertation research and its interpretation, the examining committee may explore the student's knowledge of areas relevant to the core of the dissertation problem.

The dissertation defense may result in a decision that the candidate has:

1. passed unconditionally;
2. passed conditionally with remedial work specified by the committee;
3. failed, with permission to be re-examined after a specified period; or
4. failed and dismissed from the program.

The dissertation must be approved unanimously by the student's dissertation supervising committee and by the Dean of Graduate Studies.

## Certificate in Urban Nonprofit Management

The Urban Nonprofit Management Certificate provides in-depth management training to nonprofit managers, staff, board members and volunteers to strengthen their management skills, administrative systems, and service delivery programs.

Students from any department or discipline may elect to complete the certificate program. Upon completion, students will be prepared to assume key roles in any nonprofit institution.

The certificate requires completion of URPA 5354 MANAGEMENT OF NON-PROFIT ORGANIZATIONS and URPA 5355 NONPROFIT ORGANIZATIONS IN PUBLIC POLICY as well as three additional courses to be selected by the student with approval of the Urban Nonprofit Management certificate program advisor. Examples of courses that would be approved include:

URPA 5303	THE METROPLEX: SURVEY OF URBAN AFFAIRS, PLANNING, ADMINISTRATION:	3
URPA 5329	FINANCIAL MANAGEMENT IN THE PUBLIC AND NON-PROFIT SERVICES	3
URPA 5351	HUMAN RESOURCE MANAGEMENT IN GOVERNMENT AND NON-PROFITS	3
URPA 5392	TOPICS IN URBAN MANAGEMENT	3
CIRP 5319	AGENCIES OF PLANNING AND ADMINISTRATION	3
CIRP 5312	STRATEGIC MGT AND PLANNING IN PUBLIC AND NON-PROFIT SERVICES	3
CIRP 5324	COMMUNITY DEVELOPMENT	3
CIRP 5306	URBAN REVITALIZATION	3
SOCW 5303	FOUNDATIONS OF SOCIAL POLICY AND SERVICES	3
MARK 5311	MARKETING	3

Students who are already enrolled in a graduate degree program at U.T. Arlington need only declare their intent to enroll by submitting the appropriate application form to Dr. Edith Barrett, the Urban Nonprofit Management Certificate Advisor. No prerequisite requirements are essential for these students.

Students who desire only to enroll in the Urban Nonprofit Management Certificate program but NOT in a graduate degree program may apply for admission to UT Arlington as a special student or "non-degree seeking" student. An undergraduate degree and grade point average of 3.0 shall be required. A GRE (graduate record examination) score and letters of recommendation are not necessary for admission to the Urban Nonprofit Management Certificate program. Any student that later seeks a graduate degree in a UT Arlington college or school may apply nine hours of coursework toward that degree within six years of completion and award of the Urban Nonprofit Management Certificate and by petition to the Graduate School through her or his prospective academic department. The acceptance or waiver of the remaining six hours taken as part of the requirements for the award of the Urban Nonprofit Management Certificate is at the discretion of each department.

Graduate students in any degree program at UT Arlington may register for Urban Nonprofit Management courses using standard registration procedures. It should be noted that class slots in the two core courses would be reserved for all of those Urban Nonprofit Management Certificate program participants who are accepted. Urban Nonprofit Management program students who are enrolled in other academic schools or colleges must obtain written course approval from their respective graduate advisors.

Professionals who desire to enroll in any or both of the core courses for continuing education hours may do so as special students. If at a later date these students decide to apply for the Urban Nonprofit Management Certificate program, the hours already taken as continuing education will be applied (within six years of completion of the courses) to the certificate program requirements.

## Graduate Certificate in Public Budgeting and Financial Management

Sound fiscal management at all levels of government is essential for meeting the demands of an increasingly expensive and complex service-delivery need. The purpose of this graduate certificate is provide students interested in public sector affairs and local government officials (budgeters, planners, finance analysts, and elected officials) with the skills to enable them to effectively support local government financial decision-making. Participants should expect to attain a comprehensive understanding of public budgeting and financial management practices and theories including knowledge of the various government revenue sources, major expenditures, and borrowing mechanisms used to finance long-life capital assets.

Students wishing to enroll only in the Graduate Certificate in Public Budgeting and Financial Management (certificate) but NOT to a graduate degree program may apply for admission to UT Arlington as a non-degree seeking student. A Bachelor's degree with a GPA of 2.8 in the last 60 hours of undergraduate coursework is required for admission through the Graduate School. Students with GPAs lower than 2.8 may be recommended for admission by Alejandro Rodriguez, Ph.D., the Certificate Advisor, based on the following admission enhancing factors:

1. the applicant's work experience and level of responsibility;
2. undergraduate degree in economics, financial management, accounting, or other closely related field; and
3. two letters of recommendation.

Students already enrolled in a Master's degree program at UT Arlington may enroll by submitting the appropriate application form to the program manager and his or her academic graduate advisor. Students who have completed a Master's degree may apply for admission to UT Arlington as a non-degree seeking student. In either case, a minimum GPA of 3.0 in Master's degree work is required.

Participants must satisfactorily complete three required core courses and two elective courses from an approved list of elective courses, or by permission of the program advisor. Students shall be awarded the Graduate Certificate for Public Budgeting and Financial Management by the School of Urban and Public Affairs and the Graduate School upon satisfactory completion of the certificate requirements and a grade point average of 3.0.

### Core Courses (Required)

URPA 5326	PUBLIC BUDGETING <sup>1</sup>	3
-----------	-------------------------------	---

URPA 5332	CAPITAL BUDGETING IN PUBLIC MANAGEMENT <sup>1</sup>	3
URPA 5329	FINANCIAL MANAGEMENT IN THE PUBLIC AND NON-PROFIT SERVICES	3
<b>Elective Courses</b>		
Select two of the following:		6
URPA 5302	FOUNDATIONS OF URBAN RESEARCH AND ANALYSIS	
URPA 5345	EVALUATION RESEARCH	
URPA 5310	URBAN POLICY AND THE LAW	
URPA 5312	ECONOMIC POLICY	
URPA 5324	URBAN PUBLIC FINANCE	
URPA 5306	THE URBAN ECONOMY	
URPA 5333	GOVERNMENTAL AND NONPROFIT ACCOUNTING	

Students who later seek graduate degrees at UT Arlington may apply 12 hours of certificate coursework within six years of completion and award of the certificate, with approval of the appropriate Graduate Studies Committee and the Dean of the Graduate School. Non-degree seeking students in the certificate program desiring to seek a degree must meet all admission requirements of the degree program.

## Urban Affairs and Policy - Graduate Programs

### Degrees Offered

- Urban Affairs and Policy, M.A.

### Master of Urban Affairs & Policy

The Master of Urban Affairs and Policy (MUAP) prepares students for careers in the development, implementation and evaluation of policies that focus on the environmental, healthcare or economic/community development challenges of the urban milieu. The program is organized around select public policy issues with emphases on their relation to life in urban communities. Students develop skills in critical demand by public, public/private, non-profit and community organizations immersed in resolving the ongoing problems of an ever-increasing urban world.

Because urban issues are complex and require the understanding and skills of many disciplines, the program is interdisciplinary in character, curriculum content, and professors. The curriculum is designed particularly to attract candidates that have technical expertise but desire to advance their knowledge of the dynamics of public policy in the urban context.

### Admission Requirements

The Masters in Urban Affairs and Policy program takes a holistic approach to the application review process. Each applicant file is reviewed individually with equal consideration given to the quantitative and qualitative aspects of the student's record. A complete application includes:

- Graduate Record Exam (GRE) score: Writing (Exceptions: Outstanding UT Arlington graduates may qualify for GRE waiver providing they meet certain requirements)
- Undergraduate Grade Point Average (GPA): The undergraduate GPA based on the last 60 hours of course work as calculated by the Graduate School from the official transcript.
- Graduate Record Exam (GRE) scores: Verbal and Quantitative (Exceptions: Outstanding UT Arlington graduates may qualify for GRE waiver providing they meet certain requirements)
- Letters of Recommendation attesting to the applicant's potential to do Master's-level work and complete the program. Letters for Master's programs should be from professors or supervisors at work (download Letter of Recommendation form)
- Essay by applicant approximately one double-spaced page in length (approximately 250 words). The Essay is considered both for its content and quality of writing. The Essay should address the following questions: 1. Why do you want to earn a Master's degree in the program for which you are applying? 2. What relevant background and experience do you bring to the program? The essay can also include other concerns you'd like to bring to the attention of the Graduate Advisor or Master's Admissions Committee.
- Non-native English speakers only: TOEFL or IELTS scores (Exceptions: An applicant holding either a Bachelor's or a Master's degree from a regionally accredited U.S. college or university is not required to submit a TOEFL, TOEFL iBT, or IELTS score for admission purposes.)

### WAIVER

1. Submission of GRE scores may be waived for applicants to SUPA master's programs who hold a bachelor's degree from UTA with a 3.0 or higher GPA in their last 60 hours as calculated by the Graduate School.
2. Submissions of TOEFL or IELTS scores may be waived for applicants to SUPA master's programs who hold a Bachelor's or Master's degree from a regionally accredited U.S. college or university.

## TYPES OF ADMISSION

### Unconditional Admission

1. Applicants who meet all the following requirements will be considered for unconditional admission: a preferred minimum Writing GRE score of 4.0
2. Minimum Undergraduate GPA of 3.0
3. A preferred minimum Verbal GRE score of 450 (Revised GRE Test: 150), and preferred minimum Quantitative GRE of 450 (Revised GRE Test: 141), and a preferred minimum combined Verbal and Quantitative score of 1,000 (Revised Test Combined 291)
4. Outstanding letters of recommendation
5. Strong, well-written personal essay
6. Non-native English speakers only: TOEFL scores of at least 550 (paper-based), 213 (computer-based), or 79 (iBT) with sectional scores that meet or exceed 22 Writing, 21 Speaking, 20 Reading, and 16 Listening; or, IELTS score of at least 6.5.

### Probationary Admission

Applicants who do not meet all requirements for Unconditional admission will be considered for Probationary admission on the basis of the strength of all the listed admission factors. Test scores will not constitute the sole or primary basis for ending consideration of an applicant. Under Probationary admission, special course requirements or other conditions may be imposed by the SUPA Master's Admissions Committee. Applicants who meet all the standards for Unconditional admission except for deficiency in Writing GRE score will be considered for Probationary Admission conditional on completing an approved Writing course in their first semester.

#### Other types of admission decisions pertaining to Master's applicants:

1. **Deferred:** Applicants who are unable to supply required application materials, or who must complete additional preparatory work before their admissibility can be determined, may be deferred until records are complete.
2. **Provisional:** Applicants who are unable to supply all required documentation prior to the admission deadline but who otherwise appear to meet admission requirements may be granted Provisional admission pending submission of complete and satisfactory credentials before the start of classes in which they have registered in a Provisional status.
3. **Denied:** Applicants who fail to meet more than one of the admission requirements and for whom the SUPA Master's Admission Committee finds there is insufficient basis to justify any other kind of admission will be Denied admission. As the admission process is competitive, applicants meeting basic admission requirements who are less well qualified than other applicants may also be denied admission.

## SCHOLARSHIP/FELLOWSHIP CRITERIA

- Graduate students with a GPA of 3.0 or better who are enrolled in six hours or more are eligible to apply for competitive scholarships and fellowships.
- Scholarships and fellowships for Master's and Doctoral students will be competitively awarded based on consideration of the all admission criteria assessed by their admitting programs.

## SUPA INADEQUATE ACADEMIC PROGRESS POINT SYSTEM

A student may be subject to dismissal from the program if they accumulate 4 deficiency points while pursuing their Master's degree or their Ph.D. degree. Deficiency points may not be removed from a student's record by repeating a course or completing additional coursework. For students who complete a Master's degree in SUPA and proceed to work on a SUPA Ph.D., any accumulated deficiency points are not carried forward to the more advanced degree.

D = 2 deficiency points

F = 3 deficiency points

I = 1 deficiency point

W = 0.5 deficiency point

## DEGREE REQUIREMENTS AND COURSES

### Core Courses

15

URPA 5309	INTERGOVERNMENTAL RELATIONS
URPA 5305	THEORIES OF URBAN SOCIETY
URPA 5306 or URPA 5364	THE URBAN ECONOMY INSTITUTIONAL AND OTHER RADICAL ECONOMIC THEORIES
URPA 5311	SOCIAL POLICY FORMATION
URPA 5312	ECONOMIC POLICY

### Required Research and Analysis Courses

12

URPA 5302	FOUNDATIONS OF URBAN RESEARCH AND ANALYSIS
URPA 5342	INTERMEDIATE DATA ANALYSIS

URPA 5346	DATA ANALYSIS	
or URPA 5344	QUALITATIVE METHODS	
URPA 5348	COST BENEFIT ANALYSIS	
<b>Policy Emphasis Areas</b>		<b>9</b>
Healthcare Policy		
URPA 5314	HEALTH POLICY	3
Student chooses 6 additional hours from SUPA or any UTA graduate Program. MUAP director approval is required		
Economic/Community Development Policy		
URPA 5315	URBAN EDUCATION POLICY	
Student chooses 6 additional hours from SUPA or any UTA graduate Program. MUAP director approval is required		
Environmental Policy		
URPA 5365	FOUNDATIONS OF ENVIRONMENTAL POLICY	
Student chooses 6 additional hours from SUPA or any UTA graduate Program. MUAP director approval is required		
<b>Professional Report or Thesis Option</b>		<b>3-6</b>
URPA 5396	PROJECT REPORT	
or URPA 5698	THESIS	
Total Hours		42-45

## Dual Degree Program

Students in Urban Affairs and Policy may participate in a dual degree program whereby they can earn a Master of Urban Affairs and Policy and a Master of Science in Social Work, or Master's in City and Regional Planning, or a Master's in Public Administration. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from nine to 18 hours, subject to the approval of Graduate Advisors from both programs. To participate in the dual degree program, students must make separate application to each program and must submit a separate Program of Work for each degree. Those interested in the dual degree program should consult the appropriate Graduate Advisor(s) for further information on course requirements. See also the statement on "Dual Degree Programs" in the general admission section of this catalog.

## Minor in Urban and Public Affairs

The minor in Urban and Public Affairs focuses on particular aspects of the urban experience and offers an opportunity for students to prepare for career opportunities in public administration, urban affairs and public policy, and urban planning and the environment. Students who choose to pursue the minor in Urban and Public Affairs complete eighteen hours of course work including two required core courses (URPA 1301 INTRO URB LIFE and URPA 3301 THE METROPLEX) plus four additional courses (12 hours) selected from in one of the three emphasis areas. Students interested in the minor in Urban and Public Affairs should consult first with the advisor in their department or program, then with one of the Undergraduate Advisors in the School of Urban and Public Affairs. Students completing any of this minor may petition to have six hours of credit waived from an appropriate masters degree in the School of Urban and Public Affairs.

# Honors College

---

## Honors Vision Statement

The Honors College is committed to extending opportunities for achievement in undergraduate education to the best students across the University. The College works toward this goal by promoting a supportive and academically and culturally diverse environment in which students can pursue excellence in research, creative work, community service, and personal and professional development. By creating a center for academic excellence, the Honors College not only fosters the development of the next generation of academic and community leaders, but also advances the University's broader mission of improving the level of education for all students.

## Honors Affiliations

The UT Arlington Honors College is a member of the National Collegiate Honors Council and the regional Great Plains Honors Council.

## Standards for Admission

The Honors College is dedicated to creating a student body with broad interests, varied talents, and diverse cultural backgrounds. Admission is competitive. **Entering first-year Honors applicants** (those with fewer than 30 college hours) must have either a score of 1200 on the SAT (combined Critical Reading and Math) or a score of 27 on the ACT, or have graduated in the top ten percent of their high school class. **Continuing UT Arlington and transfer Honors applicants** (those with more than 30 college hours) must have an overall undergraduate GPA of 3.35. All applicants are required also to submit a résumé and an essay, both of which are reviewed in conjunction with quantitative metrics for admissions decisions. For additional information and applications materials, see the Honors College website: <https://www.uta.edu/honors/apply/entry.php>.

## Requirements for Completing an Honors Degree

Honors degrees are granted in the disciplines of the University's eight undergraduate schools and colleges--Architecture, Business, Education, Engineering, Liberal Arts, Nursing, Science, and Social Work--as well as Interdisciplinary Studies. To graduate with an Honors degree, a student must be a member of the Honors College in good standing, have an overall GPA of 3.2 or higher, and complete the degree requirements in an academic major.

The Honors degree requires 24 hours, and the curriculum has two complementary components: coursework and the Senior Project. Depending on their program, all students typically take 21 hours of Honors-designated or contract courses, which are intended to augment the undergraduate classroom experience while fulfilling requirements in general education or an academic major. Then, working in conjunction with a departmental mentor drawn from the full-time faculty and an Honors College advisor, each student proposes and completes a three-hour Senior Project course. The Senior Project is intended to encourage learning beyond the traditional undergraduate classroom--intellectually, professionally, and/or geographically--and the range of projects is designed to make the Honors curriculum flexible enough to be adapted to each student's academic, career, and personal goals. Although a culminating requirement for the Honors degree, the Senior Project is intended to be less a final experience than a point of departure in a student's lifelong journey toward intellectual accomplishment, citizenship, and personal fulfillment.

## HONORS COURSEWORK

[www.uta.edu/honors/announcements/](http://www.uta.edu/honors/announcements/)

Honors courses satisfy Honors, departmental, college, and University requirements. The Honors College provides departmental advisors with equivalency/substitution information. Students fulfill the University's oral competency requirement by presenting their Senior Project at a faculty-reviewed symposium.

Honors students may earn Honors credit for non-Honors courses taught by full-time faculty, subject to the terms of the Honors Course Contract. To receive Honors credit, the student must complete regular course requirements with a grade of A or B, as well as an independent Honors assignment as agreed upon by the instructor and the student.

## SENIOR PROJECT OPTIONS

Each major has up to four options for an Honors Senior Project:

- Thesis or creative project
- Semester or more of study abroad
- Community service learning project
- Internship

The Honors College works closely with undergraduate programs across campus to determine which senior projects are best for their majors, and not all options will be permitted by all academic units. Students interested in Honors are therefore encouraged to contact an Honors advisor about rules for the Senior Project in their particular field of study.



All four options require an approved proposal, a substantial written product, and an oral presentation at the Honors Undergraduate Research and Creative Activity (HURCA) Symposium held at the end of every fall and spring semester.

The flexibility of the Honors requirements makes it essential that students maintain close contact with both their departmental mentor and advisor and the Honors advising staff. Students must meet with an Honors advisor during their first semester in the College and again after 60 hours to complete a degree plan, but they are strongly encouraged to meet with the advising staff on a regular basis, preferably once per semester.

## PROBATION POLICY

<http://www.uta.edu/honors/advising/>

Honors students whose cumulative GPA falls below 3.2 will be placed on probation. They must meet as soon as possible with an Honors advisor and are required to raise their GPA back to 3.2 or higher in the following semester.

## Privileges for Honors Students

The Honors College provides a wealth of tangible and intangible benefits to its students:

- Honors Degree designation on diploma and transcript
- Special recognition at graduation
- Priority course registration
- Small class size
- Courses taught by award-winning faculty
- Honors scholarship opportunities
- Honors study abroad programs and scholarships
- Paid undergraduate research fellowship opportunities
- Community service learning opportunities
- Special privileges with the University libraries
- Honors listserv and the electronic Honors newsletter, *Veneratio*
- Special Honors academic and social events
- Fast-track admission to UT Arlington graduate programs
- Honors Bridge to Graduate School Fellowship opportunities
- Membership in the Honors College Council
- Use of the Carolyn A. Barros Reading Room (library and computer laboratory) and free printing
- Graduate and professional school advising

## Honors College Programs and Services

### HONORS STUDY ABROAD PROGRAM

<http://www.uta.edu/honors/abroad/>

The Honors College Study Abroad Program offers short-term opportunities for students to acquire new knowledge and understanding of the people, events, movements, ideas, and products of cultures other than their own; to link historical events and developments with those of the twenty-first century; and to understand the contributions of other peoples and regions to American institutions and culture. Rigorous instruction and intensive on-site learning in countries as diverse as Ireland, Scotland, Italy, France, the Czech Republic, Greece, England, and Costa Rica are hallmarks of the Honors study abroad experience. Scholarships are available from both the Honors College and the Office of International Studies (<http://studyabroad.uta.edu/>). (Note: the Honors College Study Abroad Program typically involves short-term travel and as such cannot be used for the study abroad option for the Senior Project, although credits from the program may be used to meet the coursework requirement for the Honors degree.)

### THE AP SUMMER INSTITUTE (APSI)

<http://www.uta.edu/apsi/>

The Honors College at UT Arlington, in conjunction with the College Board, annually presents the AP Summer Institute.<sup>1</sup> Each year more than 600 new and experienced middle and high school teachers receive invaluable training from College Board-certified AP and Pre-AP instructors to prepare them to teach AP courses. Courses are offered in Art, English, Science, Language, Mathematics, and Social Studies.

<sup>1</sup> College Board, AP, and the Advanced Placement Program are registered trademarks of the College Entrance Examination Board, and are used here with permission.

## HONORS ACADEMY

<http://www.uta.edu/dualcredit/>

The UT Arlington Honors College provides a program of study for motivated high school students in the North Texas region who enroll in University courses to earn college or dual credit. Honors Academy students can earn up to eight hours of course credit per semester towards a college degree while also meeting high school graduation requirements. UT Arlington offers qualified high school students an outstanding learning experience that will provide the foundation for a successful transition from high school to university-level work.

### Requirements

Each participant must be a high school junior or senior and meet the following requirements:

Class Rank	PSAT/SAT Score
Top Quarter	No Minimum
Second Quarter or Below	105 PSAT or 1050 SAT <sup>1</sup>

<sup>1</sup> PSAT or SAT scores are calculated by combining the Critical Reading and Math scores.

All students must satisfy Texas Success Initiative (TSI) requirements by:

- Passing THEA or an equivalent exam, or
- Meeting TSI minimum scores for the SAT, ACT, or TAKS

### Admission

Students must submit the following forms for admission:

- Application for admission and a \$35 application fee
- Official high school transcript indicating junior or senior standing
- Official SAT-I, PSAT, or ACT scores
- Completed Early Admissions Program agreement signed by the high school principal, the student, and the student's parent or legal guardian

### Honors Academy Scholarships

To earn an Honors Academy Scholarship, a student must be admitted to UT Arlington as a dual credit/early admissions student and have scored at least 120<sup>1</sup> on the PSAT or 1200<sup>1</sup> on the SAT, or be in the top ten percent of his or her high school class.

<sup>1</sup> PSAT or SAT scores are calculated by combining the Critical Reading and Math scores.

Academy students who complete at least six hours at UT Arlington with a GPA of 3.0 or above are awarded a \$1500 scholarship to be used when they enroll as full-time UT Arlington students. The Honors Academy Scholarship is renewable for up to four years, as long as the student maintains a GPA of 3.0 or higher.

### Honors Scholarships and Fellowships

<http://www.uta.edu/honors/funding/>

The Honors College, in conjunction with the UT Arlington Scholarship Office, annually awards numerous Honors scholarships, many of them renewable for up to three additional years for students who remain in good standing in the College. Applications are available in the Honors College Office and on the Honors College website. Information on departmental and organizational scholarships and financial aid is available in the Scholarship and Financial Aid Office, 252 Davis Hall.

### HONORS DISTINCTION SCHOLARSHIPS

<http://www.uta.edu/honors/funding/>

The Honors Distinction Scholarship is the most generous award offered to undergraduate students at UT Arlington, providing \$20,000 per year for up to four consecutive years for education-related expenses. It is merit-based and highly competitive. To be eligible, applicants must have a minimum score of 1300 on the SAT (combined Critical Reading and Math) or ACT composite score of 30, and acceptance to UT Arlington and the UT Arlington Honors College. Students who receive the award, which may not be stacked with any other UT Arlington scholarship, must satisfy the following requirements in order to maintain support: achieve an overall GPA of 3.35 (on a 4.0 scale) by the end of their first year and an overall 3.5 GPA thereafter through graduation; complete at least 30 credit hours per year; reside in UT Arlington housing for at least their first and second years; and make satisfactory progress each year toward the 24 credit hours of coursework stipulated for the Honors degree.

## **HONORS BRIDGE TO GRADUATE SCHOOL FELLOWSHIPS**

<http://www.uta.edu/honors/funding/bridge/>

The Honors College offers competitive scholarships for Honors College graduates or degree candidates seeking enrollment in UT Arlington's graduate programs. In addition, Honors students may be eligible for advanced admission and, depending on the graduate program, exemption from the GRE. Honors seniors are encouraged to consult the graduate advisors of their prospective departments and the Honors College for further information. (Note: this fellowship is not available to students enrolled in five-year or six-year combined programs.)

## **HONORS UNDERGRADUATE RESEARCH FELLOWSHIPS**

<http://www.uta.edu/honors/funding/urf/>

The Honors Undergraduate Fellowship Program, in concert with UT Arlington's other schools and colleges, places students in paid research fellowships in their disciplines. Honors Research Fellowships are awarded on a competitive basis, and successful applicants must enroll in three credit hours of research or independent study while holding the fellowship. Information and applications are available in the Honors College Office.

# University College

---

At UT Arlington, we are committed to helping students succeed academically so that they can earn their bachelor's degrees. If you are committed to your education, we are here to help with a vast array of support resources and programs designed to aid students of all classifications.

From your freshman year, University College will be an active partner in your academic success with advising, tutoring, supplemental instruction, and more. As you progress through your degree program, you will be able to return to University College for help with difficult subjects, for advice on tackling new obstacles, and for guidance on finding the career that's right for you.

While many freshman students come in with a major identified, all first-time freshmen will begin their academic journey at UT Arlington in University College. There, they will receive supportive and proactive advising as well as access to the academic support resources they will need as they transition into the college experience. These resources and services will remain available to all students even after they move into their academic major department for advising.

We also understand that, given life's complexities, twists, and turns, not all students will fit into the molds that the traditional disciplinary majors offer. Our Bachelor of Science in University Studies degree provides an option with a flexible approach that will open doors and help you achieve your career goals.

Think of University College as your one-stop center dedicated to student success. Together, we will help you set your sights high and lay the foundation for your future.

## Mission Statement

University College promotes student learning and development by providing coordinated and centralized academic resources and support services that help students define their educational goals and pursue a path toward graduation. In addition, University College serves as a focal point for campus programming that helps first-year students successfully transition to college life and meet the academic challenges set by faculty.

## University College Programs and Services

While University College focuses on assisting freshman students as they transition to college, our programs and services serve all students who seek academic support during their career at UT Arlington.

### GENERAL SERVICES

- McNair Scholars program (<http://www.uta.edu/universitycollege/current/academic-support/mcnair>) provides research and mentoring opportunities to eligible undergraduate students to prepare them for graduate study.
- University Tutorial (<http://www.uta.edu/universitycollege/current/academic-support/learning-center/tutoring>) offers no-cost and low-cost tutoring options to help students achieve higher grades and a better understanding of course material.
- University Advising Center (<http://www.uta.edu/universitycollege/current/academic-planning/uac>) advises all incoming freshman students (up to 30 credit hours) as well as undeclared and conditionally admitted transfer students. Academic advisors also guide students in the majors exploration (<http://www.uta.edu/universitycollege/current/academic-planning/majors-exploration>) process.

### FRESHMAN-FOCUSED PROGRAMS

- Maverick Scholars Freshman Interest Groups (<http://www.uta.edu/universitycollege/prospective/maverick-scholars/figs>) match students with others who share their academic interests and majors in a freshman seminar and common coursework under the mentorship of faculty and peer academic leaders (PALs).
- Success U (<https://www.uta.edu/universitycollege/current/first-year-students>) provides all freshman students a preview of what college is really like and an opportunity to get prepared for the challenges that lay ahead.

## University Studies - Undergraduate Program

If you're eager to graduate and get a job, check out UT Arlington's Bachelor of Science degree in University Studies (<http://www.uta.edu/universitycollege/current/university-studies/prospective>). This program puts you on the fast track to earning a degree by maximizing your existing credit hours through an individualized curriculum.

Designed for students seeking options beyond the traditional university majors, the program features a breadth of study in a range of academic disciplines that prepares you for a variety of career paths. When you earn a University Studies degree, you'll graduate with a broad-based education in at least three subject areas. And you'll be one step closer to launching your career.

### What can University Studies do for you?

- Synchronize coursework to help you graduate faster.
- Provide a foundation to begin your career.

- Re-focus your academic goals.
- Provide options for applying your existing hours toward a degree.
- Hone your skills in important areas such as communication, critical thinking, project management and problem solving.
- Make you a more appealing candidate to potential employers.

## Who should apply?

- Students who find that a traditional major doesn't meet their needs.
- Former students who want to return to UT Arlington and complete their degrees.
- Transfer students who are unsure about what major to pursue.
- Transfer students who want to accelerate their graduation but have numerous hours that don't easily apply to a major.
- UT Arlington students unable meet the academic requirements to enter or graduate from another major.
- **Please Note:** The Bachelor of Science in University Studies is not open to students who have already earned an undergraduate bachelor's degree. Students seeking a second bachelor's degree should select another major area for the continuation of their studies.

## What are the program requirements?

- You must have 60 or more credit hours to be admitted to the program.
- You must have a 2.0 GPA to be admitted to and graduate from the program.
- You must complete UT Arlington's core curriculum courses.
- You must complete an online application (<http://www.uta.edu/universitycollege/current/university-studies/prospective/Apply.php>).
- Once admitted, you must complete 15 hours from three content areas for a total of 45 hours. Hours earned before entering the program may be used to satisfy degree requirements after consulting with a program advisor.
- In each content area, at least six of the 15 hours must be 3000/4000 level courses.
- Of the total 45 hours, no more than 15 may have the same course prefix.
- Courses completed as part of the core curriculum may not be used to satisfy the degree requirements.

## You may choose your three content areas from the following:

- Arts
- Business
- Community Studies
- Engineering
- Health and Wellness
- Humanities
- Media
- Physical Science
- Social Science

## BACHELOR OF SCIENCE IN UNIVERSITY STUDIES

To earn a Bachelor of Science in University Studies, you must complete 120 credit hours and have a 2.0 cumulative grade-point average upon completing the course requirements. Of the 120 total hours, you must complete at least 36 advanced credit hours (3000- and 4000-level courses). You must also meet the residency requirements ([http://www.uta.edu/catalog/content/general/degree\\_program\\_requirements.aspx](http://www.uta.edu/catalog/content/general/degree_program_requirements.aspx)) for completing a degree at UT Arlington.

The three curriculum areas for each University Studies Degree are major content, core curriculum and electives.

There are three areas of curriculum to complete for each degree plan: **Major Content, Core Curriculum, and Electives.**

### Major Content

- Comprised of 15 hours from three major content areas selected by the student with a University Studies advisor for a total of 45 hours
  - At least 6 of the 15 hours required for each content area must be advanced (3000-4000 level) courses.
- For each major content area selected, students may only take courses from the approved department prefixes listed.
- Major Content Areas
  - **Arts:** ARCH, ART, DNCE, INTD, MUSI, THEA
  - **Business:** ACCT, BCOM, BLAW, BSTAT ECON, FINA, INSU INSY, MANA, MARK, OPMA, REAE
  - **Community Studies:** BEEP, CRCJ, ECED, EDUC, EDML, LIST, SOCW, URPA
  - **Engineering:** BE, CE, CSE, EE, ENGR, IE, MAE, MSE, NE
  - **Health and Wellness:** HEED, KINE, NURS

- **Humanities:** CLAS, CHIN, ENGL, FREN, GERM, GREK, HIST, HUMA, LATN, LING, MODL, PHIL, PORT, RUSS, SPAN
- **Media:** ADVT, BCMN, COMM, COMS, CTEC, JOUR, PREL
- **Physical Sciences:** BIOL, CHEM, GEOL, MATH, PHYS, SCIE
- **Social Sciences:** ANTH, CRCJ, GEOG, POLS, PSYC, SOCI, SOCW, URPA

**Please note: No more than 15 hours can come from the same department prefix within the 45 hours of the Major Content.**

Download the Major Content Area Worksheet ([http://www.uta.edu/universitycollege/\\_downloads/xls/Major\\_Content\\_Area](http://www.uta.edu/universitycollege/_downloads/xls/Major_Content_Area)) to help you select courses

### Core Objectives

- **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Communication Skills** - to include effective development, interpretation and expression of ideas through written, oral and visual communication
- **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- **Teamwork** - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
- **Personal Responsibility** - to include the ability to connect choices, actions and consequences to ethical decision-making
- **Social Responsibility:** to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities

The UT Arlington Core Curriculum is comprised of the following component areas:

- Communication
- Mathematics
- Life and Physical Sciences
- Language, Philosophy and Culture
- Creative Arts
- American History
- Government/Political Science
- Social and Behavioral Sciences
- Foundation Area Option

Click here (p. 93) for the requirements and approved courses

### Electives

Students must complete a sufficient number of electives to fulfill the 120 hours required for the degree as well as 36 hours of advanced (3000-4000 level) coursework required. No more than 4 hours of EXSA or DNCA courses can be counted toward the electives. In addition, coursework transferred in as WECM or Vocational cannot be used toward the University Studies degree.

# Special Programs & Centers

---

## Center for Distance Education

Distance education students at The University of Texas at Arlington include those who cannot attend a class because of work or family schedules. An estimated 3.5 million Texans did not finish college as a young adult and many find it impossible to make time in their busy lives to complete their educations in traditional classroom settings. Online courses and programs are great for the at-home mom or dad, executives and professionals wanting to advance their careers, soldiers overseas, nurses, teachers, a high school seniors seeking dual credit. During the spring 2011 semester, nearly 6,000 UT Arlington students maintained an Internet-only schedule. Many other students are pursuing their degrees by completing a combination of classroom and online courses. The convenience and availability of on-line courses makes taking at least one-online course per semester an attractive option for more 22,000 of our enrolled students.

Over 700 different Web-based courses, from core courses to degree and certificate programs, are available and are taught by more than 300 of UT Arlington's finest teaching faculty. For complete information about the Center for Distance Education, visit: [www.uta.edu/distance](http://www.uta.edu/distance).

## Oak Ridge Associated Universities and the Oak Ridge Institute for Science and Education

Oak Ridge Associated Universities (ORAU) is a consortium of colleges and universities, a contractor for the U.S. Department of Energy (DOE), and a strategic partner with Oak Ridge National Laboratories. Located in Oak Ridge, Tennessee, ORAU works with member institutions to help students and faculty gain access to federal research facilities throughout the country; to keep its members informed about fellowship, scholarship, and research opportunities; and to organize research alliances among member institutions.

Undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research through the Oak Ridge Institute for Science and Education (ORISE) – a program managed by ORAU for the DOE. Students may participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of under-represented minority students pursuing degrees in science- and engineering-related disciplines. For more information about ORAU and its programs, visit: [www.orau.org](http://www.orau.org) (<http://www.orau.org>).

## The University of Texas at Arlington Fort Worth Center

Located in the historic Santa Fe Freight Building, The University of Texas at Arlington Fort Worth Center provides Fort Worth and Tarrant County residents with affordable, state-of-the-art higher education opportunities in a convenient, modern educational facility located in the heart of Fort Worth. The Fort Worth Center is committed to:

- Meeting the life-long continuing needs of working professionals.
- Offering graduate degree programs.
- Providing both for credit and continuing education opportunities.
- The flexibility and vision to capitalize on global opportunities that address economic development needs.

The UTA Fort Worth Center offers programs specifically designed for demanding schedules by offering intersession and accelerated courses and innovative content delivery formats. Many Fort Worth Center students maintain a full-time jobs or manage homes and families while pursuing their education.

Graduate degree programs offered at the UTA Fort Worth Center include:

- Executive MBA
- Cohort MBA
- Master of Arts in Criminology & Criminal Justice
- Master of Science in Healthcare Administration
- Master of Science in Social Work
- Master of Science in Systems Engineering

As part of The University of Texas at Arlington and the University of Texas System, students of the UTA Fort Worth Center enjoy all the benefits of a state school including affordable tuition rates. For more information, visit: [www.uta.edu/fortworth](http://www.uta.edu/fortworth).

## The University of Texas at Arlington Research Institute

The UT Arlington Research Institute (UTARI) is a research and development unit of The University of Texas at Arlington specializing in applying cutting-edge technologies to real-world engineering problems. The mission of UTARI is to bridge the gap between academic research and product development in the areas of advanced manufacturing, biomedical technologies, and robotics. UTARI's Advanced Manufacturing Division research efforts are

focused on the areas of automated 3D micro-assembly and packaging technologies; the Robotics Division focuses on a number of robotic applications, including assistive, social and personal, educational, military, and agricultural robotic applications; and the Biomedical Technologies Division focuses on developing clinically relevant devices and systems that can be utilized by health care providers as well as patients to enhance diagnostics, treatment, rehabilitation, and assisted living.

Between internships, competition teams and volunteer opportunities, students have a multitude of ways to get involved at UTARI. Students are able to work with experienced research scientists, using state-of-the-art technology to develop the products of tomorrow. UTARI also assists in building teams to participate in several national and international competitions in the areas of water, ground and aerial vehicles.

UTARI is committed to providing high school and college students with a wide range of opportunities for in-depth exposure to the latest academic research and product development in the areas of Advanced Manufacturing, Biomedical Technologies, and Robotics.

Interns and volunteers work in cooperation with researchers and faculty on projects from inception to completion. Students in the UTARI Internship/Volunteer Program are challenged not only to learn about cutting-edge technologies, but are encouraged to be part of the technology development process itself.

UTARI takes up the challenge to uncover technologies that can change the world, through collaborative efforts conducted between UTA faculty and students, and by building new partners from government, industry and other universities. To learn more about UTARI's commitment to lead the next wave of discovery, visit: [www.uta.edu/utari](http://www.uta.edu/utari).

## **Universities Center of Dallas**

The Universities Center at Dallas (UCD) in Downtown offers degrees for residents and working professionals in one convenient location from several of the best universities in DFW, including UT Arlington. Students may complete a bachelor, master's, or doctorate degree during evening and weekend hours. The UCD was the first Multi-Institution Teaching Center (MITC) for higher education in Texas and was established by the Texas Higher Education Coordinating Board to provide access to public higher education at the upper division and graduate levels to citizens who live, work and find it convenient to take their education in downtown Dallas. Currently, UT Arlington offers the master's of Health Care Administration program at the UCD. For more information, visit: [www.ucddowntown.org](http://www.ucddowntown.org) (<http://www.ucddowntown.org>).



# Other Offices

---

These pages list various centers, offices, and services of direct relevance to study at The University of Texas at Arlington. The listings are not all-inclusive. A comprehensive list of UT Arlington offices is available on the University's A to Z Index (<http://www.uta.edu/uta/alpha->) page.

Athletics (p. 673)

Division of Student Affairs (p. 673)

University Libraries (p. 679)

Veterans Upward Bound (p. 679)

## Athletics

### Intercollegiate Athletics

**C.R. Gilstrap Athletic Center · Box 19079 · 817-272-2261 · [www.uta.edu/athletics](http://www.uta.edu/athletics)**

All men's and women's intercollegiate teams representing UT Arlington are members of the Southland Conference. Other conference members are University of Central Arkansas, Lamar University, McNeese State University, Nicholls State University, University of Louisiana-Monroe, Northwestern State University, Sam Houston State University, Southeastern Louisiana University, Stephen F. Austin State University, Texas A&M University-Corpus Christi, The University of Texas at San Antonio and Texas State University. All UT Arlington athletic teams compete in the highest division (Division I) of the National Collegiate Athletic Association.

- **Men's Athletics:** Men's intercollegiate teams are fielded in baseball, basketball, cross country, golf, tennis, and indoor and outdoor track and field. Individuals interested in participating in the UT Arlington athletic programs should contact the Athletic Office in the Gilstrap Center, 1309 W. Mitchell St., 817-272-2261.
- **Women's Athletics:** Women's intercollegiate teams are fielded in basketball, cross country, softball, tennis, indoor and outdoor track and field, and volleyball. Individuals wanting to participate should contact the Athletic Office in the Gilstrap Center, 1309 W. Mitchell St., 817-272-2261.

UT Arlington students with valid ID cards are admitted without charge to all regular season home athletic contests. All home men's and women's track and field meets are held at Maverick Stadium. Men's and women's home basketball games and women's home volleyball games are played in Texas Hall. Baseball games are played at Clay Gould Ballpark and softball games are played at Allan Saxe Field. Men's and women's tennis matches are played at the Tennis Center.

## Division of Student Affairs

### Apartment and Residence Life

**Arlington Hall Breezeway · Box 19370 · 817-272-2926 · [www.uta.edu/housing](http://www.uta.edu/housing)**

Living on campus is a great way for you to get connected, meet friends, and be involved. To that end, University Housing offers a wide array of housing options designed to meet your needs and provides an environment that supports academic growth and community respect by offering opportunities for leadership, involvement, and connections for residents that live it up on campus.

The University is entitled to conduct criminal background checks on students applying for on-campus housing. Students will be notified if they are denied housing due to information gathered from a criminal background check per Texas Government Code, Section 411.094.

### Campus Recreation

**500 W. Nedderman Drive · 817-272-3277 · [www.uta.edu/campusrec](http://www.uta.edu/campusrec)**

The Department of Campus Recreation at provides a diverse span of recreational and leisure opportunities for students, faculty and staff through several component including Informal Recreation, Intramural Sports, Fitness & Wellness, Sport Clubs, Aquatics and Spirit Groups. The Campus Recreation facilities include the MAC, Fields Complex, and The Green at College Park.

The MAC–Maverick Activities Center is a state-of-the-art, \$34.5 million recreation facility where students, faculty, staff, and alumni can meet, relax, workout, and continue to be engaged in UT Arlington's campus life. Some of the amenities include a 20,000 square foot weight and fitness room (90+ pieces of cardio equipment, 4 circuit training units & a free weight area), 5 indoor basketball courts, 8 volleyball courts, a climbing wall, game room, computer lab, Market at the MAC, indoor soccer field and more.

## ADAPTIVE RECREATION

**500 W. Nedderman Drive • 817-272-3277 • [www.uta.edu/campusrec](http://www.uta.edu/campusrec)**

The Adaptive Recreation program is a rewarding program that brings more recreational programs to students with disabilities. Programming in this area includes invitations to students with disabilities from other college and university programs in the area, high school students with disabilities, able-bodied students who are studying disability sport and recreation programming, and people with disabilities in the community. Adaptive Recreation offers an intramural program that includes a soccer clinic for visually impaired students, and wheelchair divisions in billiards, table tennis, badminton, 4-on-4 football, 3-on-3 basketball, boccia, tennis doubles, and more.

## SPIRIT GROUPS

**500 W. Nedderman Drive • 817-272-3277 • [www.uta.edu/spirit](http://www.uta.edu/spirit)**

UT Arlington Spirit Groups consist of the cheerleading squad, dance team, mascot, and the Maverick Wranglers. Together, the groups provide support for UT Arlington athletic teams and lead the University community in spirit. These athletes represent UT Arlington at the collegiate national championships and host camps and clinics throughout the summer.

## The Career Development Center

**216 Davis Hall, 701 S. Nedderman Drive • Box 19695 • 817-272-2932 • [www.uta.edu/careers](http://www.uta.edu/careers)**

The mission of the UT Arlington Career Development Center is to assist our diverse student and alumni population in achieving their professional and career goals. Career consultants provide meaningful services, programs, and resources to help with the exploration and career development process and facilitate the connection to employment opportunities. The Career Development Center maintains a database of jobs for those seeking full-time, part-time, and internship opportunities, and over 150 employers attend the Job Fair hosted by the Career Development Center each September and February. The Career Development Center serves all students and all majors, including undergraduate and graduate students.

## The Center for Community Service Learning

**B13 Davis Hall, 701 S. Nedderman Drive • Box 19124 • 817-272-2124 • [www.uta.edu/ccsl](http://www.uta.edu/ccsl)**

Service learning combines conventional academic instruction with participation in direct, meaningful community service. More than a volunteering opportunity, service learning elevates in-class study and furthers educational goals while promoting a sense of civic responsibility and community commitment. From focused instruction and concept discussions with classmates to practical, real-world application and after-the-fact reflection and assessment, the learning process becomes a much richer and more well-rounded experience.

## The Center for Students in Recovery

**B170 Lower Level, University Center • Box 19355 • 817-272-2354 • [www.uta.edu/csr](http://www.uta.edu/csr)**

The Center for Students in Recovery (CSR) provides a safe, healthy, and welcoming environment for students to cultivate life skills and celebrate recovery successes. Members enjoy access to scholarships, educational and volunteer opportunities, and a strong network of supportive peers. The recovery coaching and peer-based recovery mentorship helps students manage challenging situations with agility and grace. To join CSR, a student must be admitted to The University of Texas at Arlington and committed to living clean and sober.

## Counseling and Psychological Services

**Counseling and Psychological Services: 350 Ransom Hall • Box 19156 • 817-272-3671 • [www.uta.edu/caps](http://www.uta.edu/caps)**

**Counseling and Psychiatric Services: 600 W. 1st Street • Box 19329 • 817-272-3829 • [www.uta.edu/caps](http://www.uta.edu/caps)**

UT Arlington Counseling and Psychological Services (CAPS) is committed to helping students meet their full personal, academic, and career potential. Services are available to help students increase their understanding of personal issues address mental and behavioral health problems and make positive changes in their lives. CAPS staff consists of licensed clinical and counseling psychologists, social workers, counselors, psychiatrists, psychiatric mental health nurse practitioners and psychological associates. Services are available to currently enrolled students.

## Fraternity and Sorority Life

**B160 Lower Level, University Center • Box 19348 • 817-272-9234 • [www.uta.edu/fsl](http://www.uta.edu/fsl)**

Fraternity and Sorority Life at UT Arlington prepares young men and women to be contributing members of society. Fraternity and sorority members have a variety of opportunities on and off campus geared toward the enhancement of their educational experience and contributions toward their personal growth. Most importantly, Fraternity and Sorority Life organizations focus on the development of four pillars; Brotherhood/Sisterhood, Philanthropy/Community Service, Scholarship and Leadership. The fraternity and sorority community is comprised of four governing bodies representing over 30 fraternities and sororities, and two affiliated honorary organizations, Order of Omega and Gamma Sigma Alpha.

## Health Services

605 South West Street • Box 19329 • 817-272-2771 • [www.uta.edu/healthservices](http://www.uta.edu/healthservices)

Health Services is an ambulatory health care facility accredited by the Accreditation Association for Ambulatory Health Care, Inc. Health Services strives to maintain the optimum physical and emotional health of UT Arlington students by providing quality, accessible, comprehensive, and cost-effective primary health care. The health center is staffed to care for most urgent and routine health needs. A portion of student tuition covers unlimited visits to general medicine and women's health clinic providers, blood pressure checks, and certain nursing procedures. Other services are available at a low cost and can be charged to students' MyMav account. In addition to general medicine clinic, Health Services houses a pharmacy, laboratory, radiology department, immunization clinic, and a health promotion and substance abuse department. The Counseling and Psychological Services unit also falls under the Health Services umbrella. An appointment is necessary to see a provider in any of the clinics.

### OVERVIEW OF SERVICES AVAILABLE:

**Medical Clinic:** Two Board certified family practice physicians, three nurse practitioners, and four registered nurses operate out of eight exam rooms. They provide a wide range of health care services as well as limited follow-up care for eligible students.

**Allergy-Antigen Injections:** If students wish to receive allergy-antigen injections, they must make an appointment with the senior physician in medical clinic prior to beginning allergy injections. Patients are responsible for bringing their own antigen with specific instructions from their allergist; the first dose of the antigen must be administered by their allergist. Patients are responsible for providing a medical history and allergy skin testing results from the ordering healthcare provider.

**Women's Clinic:** Diagnosis and treatment of gynecological problems, contraceptive advice, routine Pap smears and breast examinations are performed by nurse practitioners with specialized training in women's health.

**Counseling and Psychological Services::** A variety of mental health services are available to eligible students. Individuals may receive help with problems of daily living or mental health concerns such as depression, stress, grief reactions, interpersonal problems, anxiety, phobias, eating disorders and psychoses. Appointments can be made with the office staff and no referral is necessary. When indicated, psychological testing is available to help gain increased understanding about a patient's functioning. Psychiatric consultation is also available when questions concerning medication or hospitalization are an issue. Referrals to appropriate community mental health agencies or other professionals can also be made. Comprehensive assessment and testing for ADHD and learning disabilities can also be done in house.. Treatment recommendations and appropriate referrals are made when indicated.

**Laboratory:** Accredited by the Commission on Office Laboratory Accreditation (COLA), the laboratory provides a wide range of routine lab tests as well as testing for sexually transmitted infections. Outside physician orders for laboratory examinations are accepted. HIV/AIDS testing requires pre and post-test counseling.

**Pharmacy:** Most medications are purchased at a state-contracted rate and generic medications are used whenever possible. Patients have the option of bringing outside prescriptions to our pharmacy. A separate prescription counseling room is available for patients to receive discreet, confidential counseling regarding prescriptions or over-the-counter medication. The pharmacy also stocks a variety of non-prescription and over-the-counter products such as pain relievers, cough and cold remedies, vitamins, antacids, laxatives, topical skin care medications, feminine hygiene products, condoms, bandages and wound-care supplies.

**X-Ray:** Health Services performs routine x-rays. Digital images are sent for reading to a local radiologist who returns the results to us in about 48 hours.

**Medical Records:** As of July 2009, Health Services made a complete transition from paper medical charts to an electronic medical records system in accordance with the American Recovery and Reinvestment Act. All medical records are protected under patient/physician confidentiality provisions, only the patient has access to his or her records. Records will not be released to anyone without written authorization from the patient or as provided by law.

**HIV/AIDS:** Education and information on HIV/AIDS is available at no charge and may be given in a one-on-one setting or to campus groups through outreach programs. Testing for HIV/AIDS is available and requires pre- and post-test counseling appointments. Clients are referred to appropriate off-campus facilities, if needed. The UT Arlington brochure, "Policy and Guidelines on Human Immunodeficiency Virus Infection (HIV) and Acquired Immune Deficiency Syndrome (AIDS) and Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV)" is available at Health Services.

**Bacterial Meningitis:** Meningitis, a rare but potentially fatal bacterial infection that affects the brain and spinal cord, strikes about 3,000 Americans each year. Information about meningitis and its symptoms is available on the Health Services website (<http://www.uta.edu/campus-ops/health-services/immunization-clinic>) and specific information on Texas State legal requirements for meningitis immunization are available on [www.uta.edu/meningitis](http://www.uta.edu/meningitis). All incoming Texas college students under 22 years of age must be immunized against bacterial meningitis before they enroll in an institution of higher education. Consult the above website for particulars on the program.

**Health Promotion and Substance Abuse Prevention:** Health Services offers health education, programs and materials to assist students in making appropriate decisions concerning alcohol, drugs, sexual health, nutrition, wellness and other health-related topics. Several awareness events are held throughout the year promoting health and wellness, including an annual Health Fair each spring term.

In support of the University's tobacco-free policy (<http://www.uta.edu/tobaccofree>), Health Services offers tobacco cessation resources and support. Fresh Start from Tobacco (<http://www.uta.edu/tobaccofree/cessation.php>) classes are free and open to all students who are ready to quit. Registration

is required. A brochure on the University Policy regarding drugs and alcohol, Illicit Drugs and Alcohol Abuse (<http://www.uta.edu/campus-ops/health-services/documents/illicit-drugs-alcohol-brochure.pdf>), is available at Health Services.

**Student Health Advisory Committee:** This committee sponsored by Health Services is composed of students who act as a liaison between Health Services and the University student body concerning health care issues. The committee provides feedback from a student perspective and conducts special events throughout the academic year to promote health awareness. Membership is open to all majors.

**SMART Peer Educators:** The SMART Peer Educator Program is a University and community-based network focusing on comprehensive health and safety initiatives. Peer educators actively promote student and young adult-based, campus and community-wide leadership on healthy and safe lifestyle decisions concerning alcohol abuse, tobacco use, illegal drug use, unhealthy sexual practices and other high-risk behaviors. Peer educators receive extensive and rigorous training before working with students and offering peer counseling.

#### **Patient Rights:**

- To receive high quality, accessible, culturally sensitive medical care.
- To be treated with respect consideration, privacy, and dignity.
- To know one's provider's name, specialty, and credentials.
- To decline evaluation and/or treatment by a health care professional in training.
- To specify gender preference, and to change provider if requested, depending on availability.
- To receive complete, current information regarding diagnosis, treatment, and prognosis in understandable terms.
- To be given the opportunity to participate in decisions involving your health care.
- To be informed of the benefits, possible risks or side effects of treatment, alternate methods, and the medical consequences of treatment.
- To express any dissatisfaction to one's provider, to the managers of Health Services, or to the Director of Health Services.
- To be informed of the right to refuse to participate in any research conducted at Health Services.
- To have records and disclosures treated confidentially and, except when required by law, be given the opportunity to approve or refuse their release.

**Transportation:** Health Services is an out-patient facility, and, as such, provides only ambulatory medical services. Patients are responsible for their own transportation to Health Services. For true emergencies on campus, or when the seriousness of the patient's condition is uncertain, call the University Police at 817-272-3003. The police will dispatch officers to the site, and call an ambulance, if needed. These officers are trained in CPR and first aid and can stabilize the patient until an ambulance arrives. This procedure should be followed even when Health Services is open. If the patient is off-campus, call 911.

**Indebtedness:** It is the student's responsibility to satisfy indebtedness to Health Services with reasonable promptness. Upon payment, receipts will be issued to be used by the student for submitting claims to personal insurance companies. Health Services will file claims for patients with the Student Health Insurance Plan.

**Health Insurance:** Health insurance is not required in order to receive healthcare at Health Services; however, all students are strongly urged to have adequate medical insurance coverage. Health Services is not equipped to perform extensive diagnostic procedures and services such as those offered by a general hospital, which do require medical insurance coverage. Students on non-immigrant visas are required to carry health insurance and must show proof of coverage at the time of registration. A system-wide Student Health Insurance Plan is available through an insurance carrier by contract with the UT System. It is the only insurance accepted at Health Services. Students with private health insurance will receive a receipt to submit a claim with their insurance company; Health Services can only file claims for patients with the Student Health Insurance Plan. For more information about the Student Health Insurance Plan, contact Health Services at 817-272-2771. Insurance brochures and applications are available online (<https://www.uhcsr.com/SelfServiceSupport/Students/CollegeHome.aspx>).

## **The Leadership Center**

**B160 Lower Level, University Center · Box 19340 · 817-272-9220 · [www.uta.edu/leadership](http://www.uta.edu/leadership)**

The Leadership Center strives to develop innovative and collaborative leaders who are relational in their approach, educate themselves for the purpose of being engaged, global citizens, and actively apply their leadership knowledge and skills to improve their local and world community. The Leadership Center is also home to the Alternative Breaks program, the UTA Volunteers, FLOC (Freshmen Leaders on Campus) and the UTA-HOSTS! Peer Mentoring program. Some other programs and events include the Leadership Academy Honors Program, The Mavs ACT Leadership Program, leadership retreats, Certified Leader Institutes, courses and our newly acquired Leadership Studies minor.

Alternative Breaks offers students the opportunity to engage in community service and experiential learning as they are challenged to explore social justice issues and their own social responsibility. During their week of volunteer service, students learn about the problems faced by members of communities with whom they otherwise may have had little or no direct contact. ASB is a yearlong commitment incorporating chances for group teambuilding, learning about the community they will be serving, social issues surrounding the community, and reflection of the experience.

UTA Volunteers is a student group that plans, promotes, and participates in volunteer and community service programs at UT Arlington and within the community. Their purpose is to promote active citizenship and strengthen the community by creating a role for students to become involved in community service and provide tools and resources to the UT Arlington community.

Freshmen Leaders On Campus (FLOC) is a select organization created to promote freshmen involvement at UT Arlington. Students who were high school leaders have the opportunity to further develop their skills. Students, who are becoming interested in leadership, can become involved at UT Arlington as a member of FLOC. FLOC provides an outstanding opportunity to meet many people, network with campus leaders, and collaborate with other UT Arlington organizations. Members learn to plan and coordinate campus and community events for their organization and for UT Arlington freshmen. FLOC provides a great way for freshmen to get involved, learn more about UT Arlington and have fun.

UTA-HOSTS! (Helping Other Students To Succeed) is a peer mentor program designed to help new students achieve success their first year on campus. The program matches first-year students with upper level students with a similar major. The upper level students, or mentors, will help students new to UT Arlington gain insight into campus opportunities and resources including important dates and deadlines, academic services and co-curricular activities. Participation in the program is voluntary and open to the student body.

## LGBTQA Program

**B150 Lower Level, University Center · Box 19353 · 817-272-9122 · [www.uta.edu/lgbtqa](http://www.uta.edu/lgbtqa)**

The LGBTQA Program is a Division of Student Affairs initiative housed in the Multicultural Affairs office. The program aims to provide quality events and support services dedicated to cultivating a positive campus environment for LGBTQ students, others with gender identity issues, and allies.

## Mediation Services

**B170 Lower Level, University Center · Box 19355 · 817-272-2354 · [www.uta.edu/mediation](http://www.uta.edu/mediation)**

Mediation services are provided to aid students in reconciling interpersonal disputes with other UT Arlington students including roommate conflicts and arguments with friends, significant others, or other students in a campus organization. Mediation often allows students to avoid facing a student conduct violation for handling the dispute inappropriately. Mediation Services also can provide court-ordered and family mediations free of charge through the campus attorney. The program has a group of faculty and staff who are credentialed mediators and can assist students in negotiating an arrangement that is agreeable to everyone involved in the dispute.

## The Movin' Mavs Wheelchair Basketball Team

**801 W. Greek Row · 817-272-3410 · [www.uta.edu/movinmavs](http://www.uta.edu/movinmavs)**

UT Arlington's Movin' Mavs wheelchair basketball team is a seven-time national champion. It has a rich history of leading the nation in intercollegiate wheelchair basketball, exemplified by offering full athletic scholarships to team players, by players consistently being named to the First-Team All-America squads, and by participation in the Paralympics. Visit the website to keep up with the Movin' Mavs as they prepare to compete for a national championship.

## Multicultural Affairs

**B150 Lower Level, University Center · Box 19353 · 817-272-2099 · [www.uta.edu/multicultural](http://www.uta.edu/multicultural)**

Multicultural Affairs offers a variety of programs that celebrate the rich diversity found at UT Arlington. Programs also help to educate the campus about current social justice issues. The staff provides activities that recognize diversity on multiple levels, including — but not limited to — race and ethnicity, gender, sexual orientation, disability, and religion/spirituality. Students can get involved with the Multicultural Mavericks (Hispanic Heritage, Asian Heritage, and Black History Months), the Women in Leadership Program and Women's History Month, the Leaders Educating About Diversity, Diversity Week, the Diversity Lecture Series, Native American student programs, and/or the LGBTQA program.

## New Maverick Orientation (Freshman and Transfer Orientation)

**B160 Lower Level, University Center · Box 19348 · 817-272-9234 · [www.uta.edu/orientation](http://www.uta.edu/orientation)**

The University of Texas at Arlington is dedicated to the retention and overall success of our students, by promoting academic excellence and fostering lifelong learning. New Maverick Orientation offers a variety of programs, both on campus and online, for new freshmen, transfer students, and veterans students. These programs are designed to meet your individual needs and to assist you in making a smooth transition into life as a UT Arlington Maverick. Our goal is to assist you with the transition process, acclimate you to our way of doing things, connect you to our community and its resources that support your success, and assist you in registering for your first semester of classes.

Attending New Maverick Orientation helps students begin to take ownership of their educational goals and create a framework for their future. Embracing UT Arlington traditions and jumping into the experience will help you learn, right from the beginning, what it means to "Be a Maverick!"

Our office is staffed by professionals who specialize in providing outstanding support and service to incoming students, undergraduate student leaders who service as guides and resources in the on campus programs, and graduate students who are gaining experience for future careers in higher education. Together, we look forward to providing you with a memorable and helpful experience. Welcome to Maverick Country!

## Off-Campus Mavericks

**500 W. Nedderman Drive, Suite 100AA • Box 19360 • 817-272-3213 • [www.uta.edu/offcampus](http://www.uta.edu/offcampus)**

The Off-Campus Mavericks will give commuter students what they want and need from UT Arlington. Off-Campus Mavericks is dedicated to connecting students with the community and campus life by offering events geared towards commuters such as the Commuter Appreciation Breakfast, the commuter lunch series, supporting various commuter-related events, and traditional university happenings.

## The Office for Students with Disabilities

**102 University Hall • Box 19510 • 817-272-3364 • [www.uta.edu/disability](http://www.uta.edu/disability)**

The Office for Students with Disabilities (OSD) assists students with disabilities to participate in the full spectrum of college life. OSD serves students using exemplary practices in assistive technology, disability counseling, and academic accommodations such as testing accommodations, sign language interpreters, volunteer note-takers, e-text, and auxiliary aids.

## The Parent & Family Center

**B150 Lower Level, University Center • Box 19363 • 817-272-2128 • [www.uta.edu/parents](http://www.uta.edu/parents)**

Parents play a very valuable role in keeping the lines of communication open between students and various key offices on campus. The center helps families and students understand institutional processes so they can concentrate on academic, social, and overall success. The Parent & Family Center is available Monday through Friday during business hours to answer any questions parents or family members may have.

## Relationship Violence and Sexual Assault Prevention Program

**B170 Lower Level, University Center • Box 19355 • 817-272-2354 • [www.uta.edu/rvsp](http://www.uta.edu/rvsp)**

The Relationship Violence and Sexual Assault Prevention (RVSP) program promotes education and awareness of sexual assault, relationship violence, and stalking on college campuses. An advocate is available to provide confidential support, referral services, and advocacy for students impacted by sexual and/or relationship violence. Anonymous forms to report an incident are available online. Remember: You are not alone, and never to blame! In addition the RVSP program hosts a number of training opportunities for faculty, staff, and students on response and advocacy. Educational outreach programs highlighting the impact of violence include the Clothesline Project and the Red Flag Campaign. These programs are available to any student group or organization, as are various programs on healthy relationships, how to intervene and support your peers, and information on community resources. Volunteer positions and internships are available for students wanting to take a stand to end violence. A victim of sexual assault that has occurred on campus should notify the UTA Police Department immediately at 817-272-3381. The RVSP Coordinator may assist in reporting the sexual assault to the Police Department and can be contacted Monday Friday, 8 a.m.-5 p.m., at 817-272-9250.

## Student Activities and Organizations

**Lower Level, University Center • Box 19348 • 817-272-2963 • [www.uta.edu/studentactivities](http://www.uta.edu/studentactivities)**

The Department of Student Activities and Organizations serves as a focal point of out-of-classroom involvement and engagement at UT Arlington. Participation in co-curricular activities helps students gain valuable skills and experiences that complements academic work, enhances leadership, and enriches the collegiate experience. The department's major program areas include campus activities and student organizations.

The university's student programming board—EXCEL Campus Activities—plans and implements social, recreational, cultural and educational events. From big to small, throughout the year there are a variety of events and traditions that make the university an enriching place to make the most of your time. These diverse programs become an essential part of the culture on campus because they are student led and university supported. These events and activities are open to all students; you can even get involved by becoming a member of EXCEL.

There are well over 350 registered student organizations operating on campus with more becoming active all the time. These groups are formed and governed by their members around a variety of common causes including academic/professional, sport/recreational, honorary, cultural, spiritual, and a variety of special interests. Don't see exactly what you're looking for? Make your way down to our offices and learn how you can form your own. Visit [mavorgs.uta.edu](http://mavorgs.uta.edu) for more information on campus organizations.

Student Activities and Organizations is also where student organizations obtain approval to reserve space on campus, post flyers and publicity on campus and register their events. Organizations can receive consultation and advice on campus policy and operational matters. The department also oversees the reservation of common outdoor event spaces at the University.

## Student Conduct

**B170 Lower Level, University Center • Box 19355 • 817-272-2354 • [www.uta.edu/conduct](http://www.uta.edu/conduct)**

Please see the University Requirements & Policies (p. 79) tab within the University Catalog for information on Student Conduct and Academic Integrity.

## Student Governance

**B120, Lower Level, E. H. Hereford University Center · Box 19350 · 817-272-2293 · [www.uta.edu/studentgovernance](http://www.uta.edu/studentgovernance) and [mavorgs.uta.edu](http://mavorgs.uta.edu)**

Student Governance is dedicated to providing a medium for students to voice their concerns and opinions. By serving as the voice of the student body, Student Congress and the Graduate Student Senate provide student representation on various university committees and have the opportunity to represent the student perspective on a variety of campus issues.

## Student Publications

**Lower Level, E.H. Hereford University Center · Box 19038 · 817-272-3661 · [www.uta.edu/studentpubs](http://www.uta.edu/studentpubs) and [www.theshorthorn.com](http://www.theshorthorn.com) (<http://www.theshorthorn.com>)**

The Student Publications department employs more than 100 student journalists, advertising sales representatives, web developers, office assistants in jobs that help them prepare for their careers. The department publishes *The Shorthorn*, the Maverick Connection phone directory and the Maverick Housing Guide. Its mission is to provide hands-on training to students while providing valuable services to the UT Arlington community.

*The Shorthorn* is UT Arlington's oldest and most-honored source of news and information. Students created the award-winning student newspaper in 1919. In 2012, it became one of the first college newspapers in the nation to offer a hybrid print/online "digit first" schedule. Today, you can receive *Shorthorn* content in print or by email, mobile apps and social media. *Shorthorn* discussions also allow you to express your opinions on campus issues. Today, *The Shorthorn* delivers news as it happens through its website, Facebook page, and Twitter feed. It also provides a daily summary – *The Shorthorn Daily Digest* – emailed to you with links that will work on any mobile device or computer. The print edition is published every Wednesday. *The Shorthorn* website also contains interactive features, videos, and photo galleries of student events and activities, and lets you submit your own photos to the newspaper.

Becoming part of the paid, all-student staff in Student Publications provides a way to get involved on campus as well as earn respected experience for students planning media-related careers in print or any other format or platform. In 2013 the Columbia Scholastic Press Association again honored *The Shorthorn* as one of the nation's best college newspapers.

## University Events

**B160 Lower Level, University Center · Box 19348 · 817-272-9234 · [www.uta.edu/universityevents/](http://www.uta.edu/universityevents/)**

The University Events department plans, implements and evaluates events and activities for UT Arlington. These events are intended to focus on bringing well-known performers to campus. University Events is involved in the planning of UT Arlington's participation in Arlington and community parades, Welcome Week, Homecoming, Fall Concert Series and the MavsMeet AfterParty celebration. In addition, University Events helps to organize the Maverick Speakers Series. University Events is also home to The Big Event planning committee. This committee plans and implements a day of community service and outreach involving UT Arlington students, faculty, staff in an effort to engage, educate, and mobilize volunteers throughout the community. Students can get involved with recruitment, outreach, programs, and operations committees. University Events also oversees the UTA Ambassadors. UTA Ambassadors serve as the official student hosts of UT Arlington under the direction of Mr. and Ms. UTA. The group maintains and promotes new and old campus traditions; increases awareness of UT Arlington's services, programs, and activities to students and the surrounding community; and establishes and strengthens pride and passion for UT Arlington on and off campus.

## University Libraries

### Create, Explore, and Innovate

With transformative virtual and physical spaces, collections, and services, the UT Arlington Libraries supply the latest research and information to students. The Libraries provide service through Central Library, two branch libraries, three electronic libraries, and its website. Collections include current books, journals, and electronic resources as well as unique historical manuscripts, maps, and photographs. Free and reserved group study rooms are available with Smart Boards and wireless connectivity. Central Library is open 24/5 and houses the Digital Media Studio with 3D printing and scanning, a Starbucks coffee bar, the Writing Center, and an OIT helpdesk. The sixth floor of Central Library offers many cultural and educational events, including Friends of the Library meetings and Focus on Faculty lectures. Visit us on Facebook (<http://www.facebook.com/utalibraries>)!

## Veterans Upward Bound

UT Arlington Veterans Upward Bound is a free program for qualified veterans, designed to motivate and assist veterans in the development of academic and other requisite skills necessary for acceptance and success in a program of post-secondary education. The program provides assessment and enhancement of basic skills through counseling, mentoring, tutoring and academic instruction in the core subject areas of mathematics through pre-calculus, laboratory science, foreign language, composition and literature. The primary goal of the program is to increase the rate at which participants enroll in and complete post-secondary education programs.

In our Learning Center, participants receive individualized tutoring from an instructor who has identified each participant's own strengths and needs. Participants advance at their own pace, are able to refresh any forgotten skills, and will be motivated toward academic success in higher education. Our

veterans education counselors provide answers to questions regarding college enrollment processes and serve as a liaison between participants and representatives in the academic unit they wish to attend.

Resources and services available include:

- Basic skills development to help veterans successfully complete a high school equivalency program and gain admission to college education programs.
- Short-term remedial or refresher classes for high school graduates that have put off pursuing a college education.
- Assistance with applications to the college or university of choice.
- Assistance with applying for financial aid.
- Academic advice and assistance.
- Career Counseling.
- Personalized Counseling.
- Assistance in getting veterans services from other available resources.
- Exposure to cultural events, academic programs, and other educational activities.

For additional information on these and other resources and services, please visit: Veterans Upward Bound (<http://www.uta.edu/veteransub>).



# Faculty Listing

---

A (p. 681) - B (p. 683) - C (p. 686) - D (p. 689) - E (p. 690) - F (p. 691) - G (p. 692) - H (p. 694) - I (p. 697) - J (p. 697) - K (p. 698) - L (p. 700) - M (p. 702) - N (p. 705) - O (p. 706) - P (p. 706) - Q (p. 708) - R (p. 708) - S (p. 710) - T (p. 713) - U (p. 714) - V (p. 714) - W (p. 715) - X (p. 717) - Y (p. 717) - Z (p. 717)

A

**Abolmaali, Seyedali**, Professor and Department Chair, Civil Engineering. Ph.D., University of Oklahoma, 1999. M.S., University of Oklahoma, 1984. B.S., University of Oklahoma, 1980.

**Abramowitz, Karen**, Clinical Instructor, Nursing, 2010. MSN, UT Arlington, 2010. BSN, UT Arlington, 1995.

**Adam, Thomas**, Professor, History, 2001. Ph.D., University of Leipzig, 1998. M.A., University of Leipzig, 1994.

**Adams, John**, Assistant Professor, Finance and Real Estate, 2010. Ph.D., Texas Tech, 2005.

**Adams, Phyllis**, Clinical Associate Professor, Nursing, 1995. Post Master's Certificate, Texas Woman's University, FNP, 1995. Ed.D., Texas Southern University, 1989. M.S.N., Ohio State University, 1972. B.S.N., Dillard University, 1969.

**Adegbola, Maxine**, Assistant Professor, Nursing, 2008. PhD, UT Arlington, 2008. MSN, 1985. BSN, Hunter College, 1983.

**Adnan, Ashfaq**, Assistant Professor, Mechanical Aerospace Engineering, Assistant Professor.

**Adorno, Gail**, Assistant Professor, Social Work. Ph.D., Florida State University, 2011. M.S.W., Louisiana State University, 1987. B.A., University of New Orleans, 1984.

**Agger, Ben**, Professor, Sociology and Anthropology, 1994. Ph.D., University of Toronto, 1976. M.A., York University, 1974. B.A., York University, 1973.

**Agonafer, Dereje**, Professor, Mechanical Aerospace Engineering, 1999. Ph.D., Howard University, 1984. M.S., Howard University, 1978. B.S., University of Colorado, 1972.

**Aguilar, Dolores**, Clinical Instructor, Nursing, 1998. MS, University of North Carolina-Chapel Hill, 1987. BSN, University of North Carolina-Greensboro, 1983.

**Aguirre, Regina**, Associate Professor, Social Work.

**Ahmad, Ishfaq**, Professor, Computer Science and Engineering, 2002. Ph.D., 1992. M.S., Syracuse University, 1987. B.S.E.E., University of Engineering and Technology, Lahore, ..., 1985.

**Akers, Donna L.**, Director and Associate Professor, Interdisciplinary Studies, 2013. Ph.D., University of California- Riverside, 1997. MA, University of Oklahoma, 1992. BA, University of Houston, 1977.

**Aktosun, Tuncay**, Professor, Mathematics, 2005. Ph.D., Indiana University, 1986. M.S., Indiana University, 1981. B.S., Middle East Technical University, Turkey, 1978.

**Alaimo, Stacy**, Professor, English, 1994. Ph.D., University of Illinois, 1994. M.A., University of Wisconsin, 1986. B.A., Gustavus Adolphus College, 1985.

**Alavi, Kambiz**, Professor, Electrical Engineering, 1988. Ph.D., Massachusetts Institute of Technology, 1981. M.S., Massachusetts Institute of Technology, 1977. B.S., Massachusetts Institute of Technology, 1972.

**Alexander, Amanda**, Assistant Professor, Art + Art History. Ph.D., Ohio State University, 2010. M.A., Ohio State University, 2007. B.S., Indiana University-Bloomington, 2000.

**Alexandrakis, Georgios**, Assistant Professor, Bioengineering, 2006. Ph.D., McMaster University, 2000. M.Sc., McMaster University, 1996. B.Sc., Oxford University, 1992.

**Allmond, Karen**, Clinical Assistant Professor, .

**Alteza, Antonieta**, Clinical Instructor, Nursing, 2012. PhD, University of Texas HSC San Antonio, 2011. MSN, University of Texas Pan American, 2002. BSN, University of Toronto, 1988.

**Amah, Ifeoma**, Assistant Professor, Educational Leadership and Policy Studies. Ph.D., University of California, Los Angeles, 2009. B.A., University of California, Los Angeles, 2002.

**Amaro-Jimenez, Carla**, Assistant Professor, Educational Curriculum Instruction, 2008. Ed.D., University of Cincinnati, 2008. M.Ed., University of Cincinnati, 2003. B.S., Universidad Latina de Costa Rica, 2001.

**Amaya, Miguel**, Sr. Lecturer, Mechanical and Aerospace Engineering.

**Ambartsoumian, Gaik**, Associate Professor, Mathematics, 2006. Ph.D., Texas A M University, 2006. M.S., Obninsk Institute of Nuclear Power Engineering, Ru..., 2001.

**Anderson, Andy**, Emeritus, .

**Anderson, Cheryl**, Associate Professor, Nursing, 1991. Ph.D., Texas Woman's University, 1985. M.N., University of California at Los Angeles, 1976. B.S., San Diego State University, 1974. Diploma in Nursing, Scott White Memorial Hospital School of Nursing, 1969.

**Anderson, James C.**, Adjunct Professor, .

**Anderson, Mindi**, Assistant Professor, Nursing, 2000. Ph.D., Texas Woman's University, 2007. M.S.N., University of Texas at Arlington, with PNP and Edu..., 1997. B.S.N., Texas Christian University, 1993.

**Andrade, Brandi H.**, Ph.D., Senior Lecturer, Theatre Arts, 2010. Ph.D., University of Texas at Dallas, 2004. M.A., University of Texas at Dallas, 1998. B.S., Oral Roberts University, 1992.

**Andrews, Carly**, Lecturer, Accounting. M.B.A., University of Texas at Arlington, 2001. B.B.A., Baylor University, 1997.

**Andrews, Tamara**, Clinical Instructor, Nursing, 2004. MSN, Vanderbilt University, 1997. BSN, UT Arlington, 1995.

**Anjomani, Ardeshir**, Professor, Urban and Public Affairs, 1979. Ph.D., University of Southern California, 1979. M., University of Southern California, 1976. M.Arch., University of Tehran, Iran, 1968.

**Anjomani, Ardeshir**, Professor, City and Regional Planning, 1979. Ph.D., University of Southern California, 1979. M., University of Southern California, 1976. M.Arch., University of Tehran, Iran, 1968.

**Appleton, Susan**, Assistant Professor in Practice, School of Architecture. MA. ARCH, Harvard University, 1988. M.ARCH, UT-Arlington, 1985. BA. Art History, Smith College, 1968.

**Arce, William**, Assistant Professor, English. Ph.D., University of Southern California, 2009. M.A., University of Southern California, 2001. B.A., University of California, Berkeley, 1997.

**Archibald, Daniel**, M.F.A., Assistant Professor, Theatre Arts, 2012. M.F.A., Florida State University, 2005. B.A., The University of the South, 1999.

**Ardekani, Siamak**, Professor, Civil Engineering, 1989. Ph.D., The University of Texas at Austin, 1984. M.S., The University of Texas at Austin, 1981. B.S., The University of Texas at Austin, 1980.

**Arditi, David**, Assistant Professor, Interdisciplinary Studies, 2012. Ph.D., George Mason University, 2012. MA, Virginia Tech, 2007. BA, Virginia Tech, .

**Arena-Marshall, Carrie**, Clinical Instructor, Nursing, 2010. MSN, Texas AM Corpus Christi, 2007. BSN, UT Arlington, 1994.

**Armanios, Erian**, Professor, Mechanical Aerospace Engineering, 2009. Ph.D., Georgia Institute of Technology, 1985. M.S., University of Cairo, 1979. B., University of Cairo, 1974.

**Armstrong, Daniel**, Professor, Chemistry Biochemistry. Ph.D., Texas AM University, 1977. M.S., Texas AM University, 1974. B.S., Washington and Lee University, 1972.

**Arrowood, Dana**, Clinical Assistant Professor, .

**Arvidson, Enid**, Associate Professor, Urban and Public Affairs, 1993. Ph.D., University of Massachusetts, 1996. M.R.P., University of Massachusetts, 1985. B.A., University of California at Santa Barbara, 1979.

**Arvidson, Enid**, Associate Professor, City and Regional Planning, 1993. Ph.D., University of Massachusetts, 1996. M.R.P., University of Massachusetts, 1985. B.A., University of California at Santa Barbara, 1979.

**Ashe, Mary Jane**, Simulation Facilitator, Nursing, 2004. MN, University of Iowa, 1977. BSN, D'Youville College, 1974.

**Ashwill, Jean**, Assistant Dean Undergraduate Student Services, Nursing, 1996. MSN, 1982. BSN, UT Arlington, 1980.

**Aswath, Pranesh**, Professor, Materials Science and Engineering, 1990. Ph.D., Brown University, 1990. M.S., Brown University, 1987. B.E., Indian Institute of Science, Bangalore, India, 1985. B.S., St. Joseph's College, Bangalore University, 1982.

**Atchison, Richard**, Lecturer, School of Architecture. MS.ARCH, 2002, .BS.ARCH, 2000, .

**Athitsos, Vassils**, Associate Professor, Computer Science and Engineering, 2011. Ph.D., Boston University, 2006. M.S., University of Chicago, 1997. B.S., University of Chicago, 1995.

**Atkinson, Sean**, Assistant Professor, Music. Ph.D., Florida State University, 2009. M.M., Florida State University, 2006. B.M., Furman University, 2004.

**Atta-Fynn, Raymond**, Physics, 2012.

**Audirac, Ivonne**, Associate Professor, City and Regional Planning, 2010. M.Arch., University of Florida, 1992. Ph.D., University of Florida, 1988. M.Arch., Colorado State University, 1987. Architect, Monterrey Institute of Technology Education, 1978.

**Ausbrooks, Carrie**, Associate Professor, Educational Leadership and Policy Studies, 2004. Ph.D., University of North Texas, 1996. M.Ed., University of North Texas, 1984. B.B.A., University of North Texas, 1983.

**Austin, Amy**, Assistant Professor, Modern Languages, 2007. Ph.D., Emory University, 2004. B.A., University of Kansas, 1997.

B

**Babiracki, Patryk**, Assistant Professor, History, 2009. Ph.D., Johns Hopkins University, 2008. M.A., Johns Hopkins University, 2004. B.A., Portland State University, 2002.

**Bacchus, Donna**, Clinical Instructor, Nursing, 2005. Post Masters FNP, Texas AM, 1999. MSN, UT HSC, 1993. BSN, University of Ottawa, 1980.

**Badon, Michelle**, Lecturer, Biology.

**Bagby, Daniel W.**, Adjunct Professor, .

**Baine-Nordberg, Anne**, Assistant Professor, Social Work.

**Baird, Becky**, Clinical Instructor, Nursing, 2005. MSN, Texas Woman's University, 1995. BSN, Baylor University School of Nursing, 1990. MS Zoology, East Texas State University, 1985. BS Biology, Angelo State University, 1980.

**Baker, Bill**, Professor Emeritus, .

**Baker, Harvy**, Lecturer, Mathematics, 1986. Ph.D., The University of Texas at Austin, 1965. B.A., The University of Texas at Austin, 1960.

**Baker, Joy**, Clinical Associate Professor, Nursing, 2000. Ph.D., The Fielding Institute, 2000. M.A., The Fielding Institute, 1996. M.B.A., Nova University, 1985. M.S.N., Oklahoma University, 1982.

**Baker, Lewis**, Associate Professor, Philosophy and Humanities, 1985. Ph.D., Louisiana State University, 1981. M.A., Louisiana State University, 1977. B.A., The University of Texas at Austin, 1975.

**Baker, Revenor**, Professor, Information Systems Operations Management, 1972. Ph.D., Texas AM University, 1971. B.A., The University of Texas at Austin, 1964.

**Baker, Susan**, Associate Professor, Sociology and Anthropology, 2005. Ph.D., University of Texas, Austin, 1989. M.A., University of California, Berkeley, 1986. B.A., Trinity University, 1983.

**Baldwin, Janice**, Assistant Clinical Professor, Management.

**Barasch, Linda**, Senior Lecturer, Undergraduate Advisor, Computer Science and Engineering, 1998. B.S., Duke University, 1980. M.S., New York University, 1982. Ph.D, University of California, 1988.

**Bardet, Jean-Pierre**, Professor, Civil Engineering .

**Barnes, Donelle**, Associate Professor, Nursing, 2007. Ph.D., University of California, San Francisco, 1996. M.S.N., Community Health Nursing, 1985. B.S.N., California State University, 1979.

**Basham, Randall**, Associate Professor, Social Work, 2002. Ph.D., The University of Tennessee, Knoxville, 2002. M.S.W., West Virginia University, 1981. B.A., West Liberty University, 1977.

**Bass, Ogden Bo**, Lecturer, School of Architecture, 1988. MS. Land Development, 1986. M.U.P. Urban Regional Planning, 1981. BS. Range Science, 1979.

**Bastien, Joseph**, Professor Emeritus, Sociology and Anthropology, 1977. Ph.D., Cornell, 1973. M.A., Cornell University, 1971. M.E., State University of New York, 1963. M.D., State University of New York, 1963.

**Basu, Asish**, Department Chair, Professor, Earth and Environmental Sciences, 2012. Ph.D., Univ California Davis, 1975. M.S., University of Chicago, 1969. M.S., Calcutta University, 1966. B.S., Calcutta University, 1964.

**Bateman, Oliver**, Assistant Professor, History, 2012. Ph.D., University of Pittsburgh, 2012. M.A., University of Pittsburgh, 2010. J.D., Valpraiso University School of Law, 2007. B.A., University of North Carolina at Chapel Hill, 2001.

**Bates, B. Shane**, Adjunct Professor, .

**Bates, Sylvia**, Clinical Instructor, Nursing, 2004. M.Ed., Columbia University, 1981. BSN, City University of New York, 1977.

**Baxley, Susan**, Clinical Assistant Professor, Nursing, 2009. Ph.D., The University of Texas at Arlington, 2008. M.S.N., Texas Woman's University, 1975. B.S.N., The University of Texas at Galveston, 1968.

**Bayram, Aytem**, Assistant Professor, Political Science, 2012. Ph.D., The Ohio State University, 2011. M.A., The Ohio State University, 2006. MIS, North Carolina State University, 2004. B.S., Middle East Technical University, 2002.

**Beamon, Krystal**, Assistant Professor, Sociology and Anthropology. Ph.D., Oklahoma State University, 2005. M.S., Oklahoma State University, 2001. B.A., Oklahoma State University, 1999.

**Beck, Gyorgy**, Senior Lecturer, .

**Becker, Barbara**, Professor, City and Regional Planning, 2008. Ph.D., University of Texas at Austin, 1989. M.S., University of Texas at Austin, 1983. B.S., University of Texas at Austin, 1969.

**Becker, Eric**, Senior Lecturer, Undergraduate Advisor, .

**Beebe, Kathryn**, Assistant Professor, History, 2013.

**Behan, Deborah**, Clinical Assistant Professor, Nursing, 2001. Ph.D., Texas Woman's University, 2010. M.S., University of Oklahoma, 1996. B.S.N., Southwest Missouri State University, 1993.

**Behbehani, Khosrow**, Professor, Bioengineering, 1985. Ph.D., University of Toledo, 1979. M.S., Georgia Institute of Technology, 1975. B.S., Louisiana State University, 1973.

**Bell, Bradley**, Assistant Professor, School of Architecture, 2005. M.ARCH, Columbia University, 1998. B. ED, Texas AM, 1993.

**Bell, Myrtle**, Professor, Management, 1996. Ph.D., The University of Texas at Arlington, 1996. M.B.A., Louisiana State University, 1982. B.B.A., University of Notre Dame, 1981.

**Belli, Melia**, Assistant Professor, Art + Art History, 2010. Ph.D., University of California, LA, 2009. M.A., University of London, 2005.

**Bellion, Edward**, Professor Emeritus, .

**Benson, George**, Associate Professor, Management, 2002. Ph.D., University of Southern California, 2001. M.P.P., Georgetown University, 1994. B.A., Washington and Lee University, 1992.

**Bernard, David**, Associate Professor, Biology, 1995. Ph.D., Howard University, 1992. B.S., Howard University, 1983.

**Bertram, Nancy**, Clinical Instructor, Nursing, 2004. MN, Loyola University, 1980. BSN, Marycrest College, 1977.

**Betran, Esther**, Associate Professor, Biology. Ph.D. Fellowship, University of Chicago, 1999. Ph.D. Fellowship, University of Cambridge, UK, 1997. Ph.D., Universitat Autònoma de Barcelona-Barcelona..., 1996. M.S., Universitat Autònoma de Barcelona, 1992.

**Bezboruah, Karabi**, Assistant Professor, .

**Bezboruah, Karabi**, Assistant Professor, City and Regional Planning, 2009. Ph.D., University of Texas at Dallas, 2008. L.L.B., Gauhati University, 2002. Gauhati University, 2001, B.S.. Gauhati University, 1998, .

**Bezboruah, Karabi**, Assistant Professor, Public Administration, 2009. Ph.D., University of Texas at Dallas, 2008. L.L.B., Gauhati University, 2002. M.B.A., Gauhati University, 2001. B.S., Gauhati University, 1998.

**Bing, Robert**, Associate Professor, Criminology Criminal Justice, 1991. Ph.D., Florida State University, 1987. M.S., Florida State University, 1976. B.A., College of the Holy Cross, 1975.

**Bitenc, Sandra**, Lecturer, Accounting.

**Black, Beverly**, Professor, Social Work, 2007. Ph.D., The University of Texas at Austin, 1989. M.S.S.W., University of Wisconsin at Madison, 1977. B.A., University of Wisconsin at Madison, 1975.

**Boardman, Bonnie**, Senior Lecturer, Industrial and Manufacturing Systems Engineering, 1999. Ph.D., University of Arkansas, 1997. M.S., Texas AM University, 1992. B.S., University of Arkansas, 1991.

**Bogard, Rick**, Associate Professor/Department Chair, Music. D.M.A., University of North Texas, 1994. M.M., Baylor University, 1978. B.M.Ed., University of Central Arkansas, 1977.

**Boger, Deborah**, Clinical Instructor, Nursing, 2012. M.S.N - Pediatric Nurse Practitioner, The University of Texas at Arlington, 2007. B.S.N., Winston-Salem State University, 2003.

**Bold, Lashaunn**, Assistant Professor in Practice, Social Work.

**Boles, Rebecca**, Assistant Dean for Academic and Student Affairs, School of Architecture, 1998. M. ARCH, Columbia University, 1989. M. ARCH, UT Arlington, 1984. BS. Zoology, Texas Tech, 1978.

**Boswell, Bill**, Professor Emeritus, School of Architecture. M. ARCH, University of Colorado-Boulder, 1972. BS. ARCH, UT-Austin, 1969.

**Bower, Bruce**, Assistant Professor in Practice, Social Work.

**Bowling, Alan**, Associate Professor, Mechanical Aerospace Engineering, 2011. Ph.D., Stanford University, 1998. M.S., Stanford University, 1993. B.S., The University of Texas at Arlington, 1988.

**Boyd, Jeanean**, Clinical Instructor Director of RN-BSN Programs, Nursing, 2003. MSN, UT Arlington, 1984. BSN, UT Arlington, 1974. RN, John Peter Smith School of Nursing, 1970.

**Boyea, Brent**, Associate Professor, Political Science. Ph.D., Rice University, 2006. M.A., Rice University, 2002. B.A., Case Western Reserve University, 1997.

**Brandt, Andrew**, Professor, Physics. Ph.D., University of California at Los Angeles, 1992. M.S., University of California at Los Angeles, 1988. B.S., College of William and Mary, 1985.

**Bredow, Jonathan**, Professor, Electrical Engineering, 1989. Ph.D., University of Kansas, 1989. M.S., Iowa State University, 1980. B.S., Kansas State University, 1977.

**Brewster, Billy**, Assistant Professor, Accounting.

**Brezeale, Darin**, Senior Lecturer, Computer Science and Engineering.

**Bricout, John**, Professor/Associate Dean for Research and Community Outreach, .

**Briggs, Elten**, Associate Professor, Marketing, 2006. Ph.D., University of Oklahoma, 2006. B.A., Ouachita Baptist University, 1997.

**Brown, Amber**, Assistant Professor, Educational Curriculum Instruction, 2008. Ed.D., University of North Texas, 2008. M.S., University of North Texas, 2004. B.S.E., East Texas Baptist University, 1993.

**Brown, Casey**, Associate Professor, ELPS, 2013. BS, Southeastern Oklahoma State University, 1996. MEd, University of Oklahoma, 1999. PhD, University of Oklahoma, 2004.

**Brown, Tara**, Clinical Assistant Professor, Economics, 2010. PhD, UT-Dallas, 2010. MS, UT-Dallas, 2009. MA, Emory University, 2005. BA, Austin College, 2001.

**Buckley, Michael**, Associate Professor in Practice, School of Architecture.

**Buckman, Michael**, Lecturer, .

**Bugarin, Alejandro**, Assistant Professor, Chemistry Biochemistry, 2012. Ph.D., Texas AM University, 2011.

**Burgess-Jackson, Keith**, Associate Professor, Philosophy and Humanities, 1989. Ph.D., 1989. M.A., University of Arizona, 1985. M.A., Wayne State University, 1983. J.D., Wayne State University, 1983.

**Burton, John**, Professor, Music, 2006. D.M.A., USC, 1987. B.M., Rice University, 1979. M.M., Rice University, 1979.

**Butcher, Allan**, Professor Emeritus, Political Science. Ph.D., The University of Texas at Austin, 1970. M.A., New School for Social Research, 1963. B.A., The University of Florida, 1960.

**Butler, Donald**, Professor, Electrical Engineering, 2002. Ph.D., 1986. M.S., University of Rochester, 1981. B.A.Sc., University of Toronto, 1980.

**Butler, Randall**, Senior Lecturer, Criminology Criminal Justice. M.A., The University of Texas at Arlington, 2002. M.L.I.S., Brigham Young University, 1989. Ph.D., Brigham Young University, 1980. M.A., Loma Linda University, 1973.

**Butler, Yvonne**, Assistant Professor in Practice, Social Work.

**Butts, Marcus**, Associate Professor, Management.

**Byrd, Miriam**, Associate Professor, .

## C

**Cacola, Priscila**, Assistant Professor, Kinesiology, 2012. Ph.D., Texas A M University, 2011. M.S. Motor Behavior, Federal University of Parana, Curitiba, PR, Brazil, 2006. B.S. Kinesiology, Federal University of Parana, Curitiba, PR, Brazil, 2004.

**Campbell, Darlene**, Lecturer, Mathematics, 1996. M.S., The University of Texas at Arlington, 1996. B.S., The University of Texas at Tyler, 1988.

**Campbell, Jonathan**, Professor, Biology, 1983. Ph.D., University of Kansas, 1982. M.A., The University of Texas at Arlington, 1977. B.A., University of Mississippi, 1969.

**Cannon, Alan**, Associate Professor, Ph.D. Coordinator Operations Management and Statistics, Information Systems Operations Management, 2003. Ph.D., Clemson University, 1999. M.B.A., Clemson University, 1995. B.A., Clemson University, 1984.

**Carlson, Susan**, Clinical Assistant Professor, Nursing, 1997. Ph.D., University of San Diego, 2004. M.S.N., Mississippi University for Women, 1984. B.S.N., Loretto Heights College, 1982.

**Carmen, Alejandro Del**, Professor, Criminology Criminal Justice, 1996. Ph.D., Florida State University, 1997. M.S., Florida State University, 1993. B.S., Florida International University, 1991.

**Carpenter, Karel**, Senior Lecturer, Criminology Criminal Justice. M.A., University of Texas at Arlington, 2003. B.S., University of Texas at Dallas, 1986.

**Carroll, Bill**, Professor, Computer Science and Engineering, 1981. Ph.D., The University of Texas at Austin, 1969. M.S., The University of Texas at Austin, 1966. B.S., The University of Texas at Austin, 1964.

**Carter, Larry**, Senior Lecturer, Political Science, 2012. Ph.D., University of Oklahoma, 1997. M.A., University of Oklahoma, 1993. B.A., University of Oklahoma, 1989.

**Carter, Ronald**, Professor, Electrical Engineering, 1979. Ph.D., Michigan State University, 1971. M.S., Iowa State University, 1964. B.S., Iowa State University, 1962.

**Casey, Colleen**, Associate Professor, Public Administration, 2008. Ph.D., Saint Louis University, 2007. M.S. Education, Southern Illinois University, 1997. B.S. Fine Arts and Communication, Southern Illinois University, 1995.

**Casey, Colleen**, Assistant Professor, Public Administration, 2008. Ph.D., Saint Louis University, 2007. M.S. Education, Southern Illinois University, 1997. B.S. Fine Arts and Communication, Southern Illinois University, 1995.

**Casper, Wendy**, Associate Professor, Management, 2004. Ph.D., George Mason University, 2000. M.A., George Mason University, 1996. B.S., Penn State University, 1989.

**Castoe, Todd**, Assistant Professor, Biology.

**Cauble, Denise**, Clinical Instructor, Nursing, 2012. BSN, UT Arlington, 1982.

**Cavallo, Ann**, Professor, Educational Curriculum Instruction, 2006. Ph.D., Syracuse University, 1991. M.S., Syracuse University, 1988. B.S., Niagara University, 1981.

**Cavanagh, Daniel**, Associate Professor, Music, 2005. M.M., University of Oregon, 2004. B.M., St. Olaf College, 2001.

**Cawthon, Elisabeth**, Associate Professor, History, 1988. Ph.D., University of Virginia, 1985. M.A., University of Virginia, 1981. B.A., Louisiana Tech University, 1978.

**Celik-Butler, Zeynep**, Professor, Electrical Engineering, 2002. Ph.D., University of Rochester, 1987. M.S., University of Rochester, 1984. B.S., Bogazici University, 1982.

**Chakravarthy, U. Sharma**, Professor, Computer Science and Engineering. Ph.D., University of Maryland, College Park, 1985. M.S., University of Maryland, College Park, 1981. B.E., Indian Institute of Science, India, 1973.

**Chan, Wen**, Professor, Mechanical Aerospace Engineering, 1988. Ph.D., Purdue University, 1979. M.S., Tennessee Technological University, 1972. B.S., National Cheng Kung University, 1969.

**Chang, Woo-Suk**, Assistant Professor, Biology.

**Chao, Shih-Ho**, Associate Professor, Civil Engineering. Ph.D., University of Michigan Ann Arbor, 2005. M.S., National Chung Hsing University, Taiwan, 1995. B.S., National Taiwan University, Taiwan, 1993.

- Chapa, Joe**, M.F.A., D.A.I., Associate Professor, Theatre Arts, 1993. M.F.A., University of Mississippi, 1991. B.A., The University of Texas at Arlington, 1985.
- Chatterjee, Karishma**, Assistant Professor, Communication. Ph.D., The Ohio State University, 2007. M.A., Emerson College, 2001. M.A., Delhi University, 1998.
- Chave, George**, Associate Professor, Music, 1992. Ph.D., Washington University, 1988. M.M., State University of New York at Binghamton, 1983. B.M., Syracuse University, 1981.
- Che, Hao**, Associate Professor, Computer Science and Engineering. Ph.D., The University of Texas at Austin, 1998. M.S., The University of Texas at Arlington, 1994. B.S., Nanjing University, 1984.
- Chen, Bentio**, Professor, Mathematics, 2008. Ph.D., California Institute of Technology, 1979. B.S., National University of Mexico, 1973.
- Chen, Nai Yuen**, Research Professor, Materials Science and Engineering, 2007. Sc.D., Massachusetts Institute of Technology, 1959. M.Sc., Louisiana State University, 1954. B.Sc., University of Shanghai, China, 1947.
- Chen, Victoria**, Professor and Chair, Industrial and Manufacturing Systems Engineering. Ph.D., Cornell University, 1993. M.S., Cornell University, 1991. B.S., Johns Hopkins University, 1988.
- Chen, Wei**, Professor, Physics, 2006. Ph.D., Peking University, 1992. M.S., Central South University, 1988. B.S., Jilan University, 1985.
- Cherry, Susan**, Clinical Instructor, Nursing, 2010. MSN, University of Texas HSC San Antonio, 1986. BSN, University of South Florida, 1977.
- Chiao, Jung-Chih**, Professor, Electrical Engineering. Ph.D., California Institute of Technology, 1995. M.S., California Institute of Technology, 1991. B.S., National Taiwan University, 1988.
- Chiasson, Charles**, Associate Professor, Philosophy and Humanities, 1983. Ph.D., Yale University, 1979. B.A., Yale University, 1974.
- Chiessa, Dennis**, Lecturer, School of Architecture.
- Chippindale, Paul**, Professor, Biology, 1996. Ph.D., The University of Texas at Austin, 1995. M.S., University of Toronto, 1990. B.S., University of Guelph, 1986.
- Cho, Young-Hyun**, Assistant Professor, Music. D.M.A., Eastman School of Music of the University of Rochester, 2008. Graduate Performance Diploma, Peabody Conservatory of Johns Hopkins University, 2002. M.M., Peabody Conservatory of Johns Hopkins University, 2001. B.M., Seoul National University, 1999.
- Choi, Chi Young**, Associate Professor, Economics. Ph.D., Ohio State University, 2000. M.A., Ohio State University, 1996. B.A., Kyungpook National University, Korea, 1990.
- Choi, Hyeok**, Assistant Professor, Civil Engineering. Ph.D., University of Cincinnati, 2007. M.S., Sungkyunkwan University, 2000. B.S., Sungkyunkwan University, 1998.
- Choi, Jinny**, Associate Professor, Modern Languages, 1998. Ph.D., Georgetown University, 1998. M.A., University of California at Irvine, 1992. B.A., The University of Texas at Arlington, 1989.
- Chonko, Larry**, Professor, Marketing, 2007. Ph.D., University of Houston, 1978. B.A., University of Houston, 1975. B.S., Lehigh University, 1973.
- Chowdhury, Saiful**, Assistant Professor, Chemistry Biochemistry, 2012. Ph.D., Washington State University, 2006.
- Christensen, Shawn**, Associate Professor, Biology, 2006. Ph.D., University of Utah, 1999. B.A., University of Colorado, 1989.
- Christie, Thomas**, Associate Professor, Communication. Ph.D., University of North Carolina, 1993. M.S., Florida State University, 1986. M.A., Webster University, 1981. B.A., Northeast Louisiana University, 1975.
- Chrzanowski, Thomas**, Professor, Biology, 1981. Ph.D., University of South Carolina, 1981. M.S., University of South Carolina, 1976. B.A., Bloomfield College, 1974.
- Chudoba, Bernd**, Associate Professor, Mechanical Aerospace Engineering. Ph.D., Cranfield University, England, 2001. M.S., Cranfield University, England, 1995. Dipl.Ing., University of Applied Sciences FH, Aachen, Germany, 1994.
- Chuong, Cheng-Jen**, Professor, Bioengineering, 1985. Ph.D., University of California at San Diego, 1981. M.S., University of California at San Diego, 1977. B.S., Cheng Kung University, 1972.
- Cichock, Mark**, Professor, Political Science, 1985. Ph.D., University of South Carolina, 1983. M.A., University of South Carolina, 1979. B.S., University of Wisconsin-Stevens Point, 1976.

**Cid, Donald del**, Lecturer, School of Architecture.

**Cimino, Andrea**, Assistant Professor, .

**Cipher, Daisha**, Clinical Assistant Professor, Nursing, 2006. Post-Doctoral Fellowship/Statistics, University of North Texas, 1999. Ph.D., Southern Methodist University, 1998. M.S., University of Texas Southwestern Medical Center at..., 1996. B.A., University of Texas at Austin, 1994.

**Clark, Andrew**, Associate Professor, Communication, 2003. Ph.D., University of Florida, 2003. M.A.M.C., University of Florida, 2000. B.A., Indiana University-Purdue University, 1997.

**Claytor, Richard**, Adjunct Professor, Physics. Ph.D., .

**Cleary, Donna**, Clinical Instructor, Nursing, 2005. MSN, University of Texas HSC San Antonio, 1993. BSN, Niagara University, 1983.

**Cleghorn, Naomi**, Assistant Professor, Sociology and Anthropology. Ph.D., Stony Brook University, 2006. M.A., University of Texas at Austin, 1996. B.A., University of Texas at Austin, 1993.

**Clive, Mark**, Senior Lecturer, .

**Cobb, Norman**, Associate Professor, Social Work, 1989. Ph.D., University of California at Berkeley, 1986. M.S.S.W., The University of Texas at Arlington, 1979. M.Div., St. Paul School of Theology, 1970. B.A., Texas Tech University, 1967.

**Cole, Richard**, Professor, Urban and Public Affairs, 1980. Ph.D., Purdue University, 1973. M.A., University of North Texas, 1968. B.A., University of North Texas, 1967.

**Cole, Richard**, Professor, Public Administration, 1980. Ph.D., Purdue University, 1973. M.A., University of North Texas, 1968. B.A., University of North Texas, 1967.

**Cole, Stephanie**, Associate Professor, M.A. Advisor, History, 1996. Ph.D., University of Florida, 1994. M.A., University of Florida, 1988. B.A., The University of the South, 1984.

**Collins, Denise**, Clinical Assistant Professor, .

**Collom, Chad**, Clinical Assistant Professor, Nursing, 2011. D.N.P., Rocky Mountain University of Health Professions, 2009. M.S.N., University of Texas Arlington, 2004. B.S.N., Texas Woman's University, 2000.

**Connor, Michan**, Assistant Professor, Interdisciplinary Studies, 2008. Ph.D., University of Southern California, 2008. B.A., Northwestern University, 1998.

**Conway, Christopher**, Associate Professor, Modern Languages, 1996. Ph.D., University of California, San Diego, 1996. M.A., University of California, San Diego, 1994. B.A., University of California, Santa Cruz, 1991.

**Cope, Lynn**, Student Success Coordinator, Nursing, 2008. MSN, Syracuse University, 1993. BSN, Texas Woman's University, 2006.

**Copeland, Christopher**, Senior Lecturer, Criminology Criminal Justice. M.A., University of Texas at Arlington, 2005. B.A., University of Texas at Arlington, 2000.

**Cordero-Epperson, Minerva**, Professor and Associate Dean, Mathematics, 2001. Ph.D., University of Iowa, 1989. M.A., University of California at Berkeley, 1983. B.S., University of Puerto Rico, 1981.

**Corduneanu, Constantin**, Professor Emeritus, Mathematics, 1979. Ph.D., University of Iasi, Romania , 1956.

**Corley, Herbert**, Professor, Industrial and Manufacturing Systems Engineering, 1971. Ph.D., The University of Texas at Arlington, 1997. Ph.D., University of Florida, 1971. M.S., Georgia Institute of Technology, 1969. B.S., Georgia Institute of Technology, 1967.

**Coursey, David**, Associate Professor, Public Administration, 2011. Ph.D., Syracuse University, Maxwell School, 1991. M.P.A., University of Alabama at Birmingham, 1987. B.A., University of Alabama at Birmingham, 1984.

**Courtney, Maureen**, Associate Professor, Nursing, 1980. Ph.D., Texas Woman's University, 1978. M.S.N., Texas Woman's University, 1974. B.S.N., Texas Woman's University, 1970.

**Cox, Verne**, Professor Emeritus, Psychology, 1970. Ph.D., University of Houston, 1964. B.A., The University of Texas at Austin, 1960.

**Crisp, Patricia**, Lecturer, Management.

**Cronley, Courtney**, Assistant Professor, Social Work. Ph.D., University of Tennessee, Knoxville, 2009. M.S.S.W., University of Tennessee, Knoxville, 2006. B.A., Oglethorpe University, 2002.



**Crosen, Rachel**, Professor, Dean, Economics, 2013. PhD, Harvard, 1994. AM, Harvard University, 1992. BA, University of Pennsylvania, 1990.

**Cross, Ted**, Clinical Instructor, Nursing, 2006. MBA, M.D. Anderson, 2004. BSN, Tarrant County Junior college, 1993.

**Crow, Mary Lynn**, Professor, Educational Curriculum Instruction. Ph.D., University of North Texas, 1970. M.Ed., Texas Christian University, 1967. B.A., Texas Christian University, 1956.

**Crow, Rebecca**, Clinical Assistant Professor, Kinesiology, 1988. Ed.D. in Higher Education Administrations, University of North Texas, 1998. M.S. in Kinesiology, University of North Texas, 1990. B.A in Physical Education, University of Texas at Arlington, 1988. B.S. in Recreation Therapy, University of Wisconsin-LaCrosse, 1978.

**Crowder, William**, Professor, Economics, 1992. Ph.D., Arizona State University, 1992. B.S., Arizona State University, 1987.

**Csallner, Christoph**, Assistant Professor, Computer Science and Engineering. Ph.D., Georgia Institute of Technology, 2008. M.S., Georgia Institute of Technology, 2002. Diploma Inf., Universitat Stuttgart, .

**Cuntz, Manfred**, Professor, Physics, 2001. Ph.D., University of Heidelberg, 1988. M.S., University of Heidelberg, 1985. B.S., University of Heidelberg, 1980.

**Cuppert, Gregory**, Lecturer, School of Architecture. M.LARC, UT Arlington, 2005.

D

**D'Ann, Shidler**, Clinical Instructor, Nursing, 2010. MSN, Texas Woman's University, 2010. BSN, UT Arlington, 1992. BA, University of Texas, 1977.

**Dancila, Dragos**, Associate Professor, Mechanical Aerospace Engineering, 2011. Ph.D., Georgia Institute of Technology, 1998. M.S., Georgia Institute of Technology, 1992. Aeronautical Engineer, Polytechnic Institute Bucharest, 1986.

**Dang, Bang**, Lecturer, School of Architecture.

**Daniel, Kathryn**, Assistant Professor, Nursing. Ph.D., University of Texas at Arlington, 2008. Post Master's Certificate, University of Texas at Arlington, ANP, GNP, 1997. M.S.N., Texas Woman's University, 1988. B.S.N., Baylor University, 1978.

**Das, Gautam**, Professor, Computer Science and Engineering. Ph.D., University of Wisconsin, Madison, 1990. B.Tech., IIT Kanpur, India, 1983.

**Dasgupta, Purnendu**, Professor, Chemistry Biochemistry, 2006. Ph.D., Louisiana State University, 1977. M.Sc., University Burdwan, India, 1970. B.Sc., University Burdwan, India, 1968.

**Datta, Deepak**, Professor, Management, 2004. B.Tech., Indian Institute of Technology, .M.B.A., Indian Institute of Management, .L.L.B, Calcutta University, .Ph.D., University of Pittsburgh, .

**Dave, Digant**, Associate Professor, Bioengineering. Ph.D., Texas AM University, 1994. M.S., Texas AM University, 1990.

**Davis, Bradley**, Assistant Professor, ELPS, 2013. BA, University of Texas at Tyler, 2005. MS, University of Houston at Clear Lake, 2009. PhD, University of Texas at Austin, 2012.

**Davis, Carolyn**, Professor in Practice, Graduate Advisor MSIS, Internship Coordinator, Information Systems Operations Management, 1999. Ph.D. Computer Science, Texas AM College Station, 1988. M.Ed. Business Education, University of Houston, 1980. B.A. Liberal Arts, UT Arlington, 1973.

**Davis, Jaya**, Assistant Professor, Criminology Criminal Justice. Ph.D., Prairie View AM University, 2010. M.A., University of Houston - Clear Lake, 2007. B.S., University of Houston - Clear Lake, 2005.

**Davis, Ket**, Clinical Instructor, Nursing, 2015. MSN, Gramblin State University, 2012. BSN, Gramblin State University, 2004.

**Davis, W Alan**, Associate Professor, Electrical Engineering, 1983. Ph.D., University of Michigan, 1971. M.S., University of Michigan, 1964. B.S., University of Michigan, 1963.

**Davoudi, Ali**, Assistant Professor, Electrical Engineering, 2011. Ph.D., University of Illinois, 2010. M.Sc., The University of British Columbia, 2005. B.Sc., Sharif University of Technology, 2003.

**De, Kaushik**, Professor, Physics, 1993. Ph.D., Brown University, 1988. Sc.M., Brown University, 1982. B.A., City University of New York, 1981. M.A., City University of New York, 1981.

**Deen, Rebecca**, Associate Professor, Political Science, 1997. Ph.D., Ohio State University, 1997. M.A., Ohio State University, 1995. B.A., Denison University, 1992.

**Demhardt, Imre**, Professor, History, 2008. Ph.D., University of Frankfurt am Main, 1995. M.A., University of Frankfurt am Main, 1991. M.A., University of Frankfurt am Main, 1987.

**Demuth, Jeffery**, Associate Professor, Biology.

**Deng, Yue**, Assistant Professor, Physics. Ph.D., University of Michigan at Ann Arbor, 2006. M.S., Peking University, 2001. B.S., Peking University, 1997.

**Dennis, Brian**, Associate Professor, Mechanical Aerospace Engineering. Ph.D., Pennsylvania State University, 2000. M.S., Pennsylvania State University, 1997. B.S., Pennsylvania State University, 1995.

**departments., Faculty are listed in their respective. .**

**departments., Faculty are listed in their respective. .**

**Devarajan, Venkat**, Professor, Electrical Engineering, 1990. Ph.D., The University of Texas at Arlington, 1979. M.S., Indian Institute of Technology, 1975. B.S., Indian Institute of Technology, 1973.

**Devito, Jill**, Lecturer, Biology.

**Dias, Rasika**, Professor, Chemistry Biochemistry, 1992. Ph.D., University of California, Davis, 1988. B.Sc., University of Peradeniya, Sri Lanka, 1983.

**Dihigo, Sharolyn**, Clinical Assistant Professor, Nursing. D.N.P., The University of Texas Arlington, 2011. M.S.N., The University of Texas Arlington, 1996. B.S.N., Texas Tech University, 1989.

**Dillon, William E.**, Associate Professor, Electrical Engineering, 1971. Ph.D., The University of Texas at Arlington, 1972. M.S., The University of Texas at Arlington, 1969. B.S., Texas AM University, 1965.

**Diltz, John David**, Professor, Department Chair, Finance and Real Estate, 1987. Ph.D., University of Illinois, 1980. M.S., University of Illinois, 1978. B.S., Purdue University, 1976.

**Ding, Chris**, Professor, Computer Science and Engineering.

**Dobbs, Rhonda**, Senior Lecturer, Criminology Criminal Justice. Ph.D., Florida State University, 2004. M.A., Virginia Polytechnic Institute and State University, 1996. B.A., University of Texas at Austin, 1993.

**Dogan, Atilla**, Associate Professor, Mechanical Aerospace Engineering. Ph.D., University of Michigan, 2000. M.S., University of Michigan, 1998. M.S., Istanbul Technical University, 1994. B.S., Istanbul Technical University, 1991.

**Dolezal, Ben**, Assistant Professor, .

**Donjuan, Carlos**, Senior Lecturer, .

**Dragan, Irinel**, Professor Emeritus, Mathematics, 1984. Ph.D., University of Iasi, Romania , 1961. M.S., University of Iasi, Romania , 1954.

**Dulaney, William**, Associate Professor, History, 1986. Ph.D., Ohio State University, 1984. M.A., Ohio State University, 1974. B.A., Central State University, 1972.

**Dunn, Dana**, Associate Professor, Sociology and Anthropology, 1987. Ph.D., University of North Texas, 1987. M.A., The University of Texas at Dallas, 1981. B.A., The University of Texas at Dallas, 1980.

**Duvall, Sara**, Clinical Instructor, Nursing, 2010. Post Master's ENP, University of Texas at Arlington, 2007. MSN, Vanderbilt School of Nursing, FNP, 1990. B.S.N., David Lipscomb University, 1989.

**Dyer, Danny**, Professor Emeritus , Mathematics, 1963. Ph.D., Southern Methodist University , 1970. M.S., Southern Methodist University , 1963. B.S. , The University of Texas at Arlington , 1961.

E

**Eades, Tamara**, Clinical Instructor, Nursing, 2012. MSN, West Texas AM University, 2006. BSN , Texas Tech University, 2002.

**Eakin, Mark**, Professor, Information Systems Operations Management, 1980. Ph.D., Texas AM University, 1980. M.S., Texas AM University, 1977. B.S., Tarleton State University, 1972.

**Eberhart, Robert**, Adjunct Professor, Bioengineering, 1978. Ph.D., University of California at Berkeley, 1965. A.B., Harvard University, 1958.

**Eddings, Patricia**, Senior Lecturer, Criminology Criminal Justice. M.S., University of Florida, 2010. B.S., Mississippi College, 1973.

**Edmondson, Jerold**, Professor Emeritus, Linguistics, 1981. Dr. Phil. Habil., Technical University, Berlin, 1979. Ph.D., University of California at Los Angeles, 1973. M.A., University of California at Los Angeles, 1969. B.S., Purdue University, 1963.

**Elliott, Raymond**, Associate Professor, Modern Languages, 1992. Ph.D., Indiana University, 1992. M.A., Purdue University, 1987. B.A., Heidelberg College, 1984.

**Ellis, Elizabeth**, Clinical Assistant Professor, Nursing, 2012. D.N.P., The University of Tennessee, 2005. M.S.N., The University of Tennessee, 1995. B.S.N., The University of Tennessee, 1993.

**Elmasri, Ramez**, Professor, Associate Chair, Computer Science and Engineering, 1990. M.S., Stanford University, 1980. Ph.D., Stanford University, 1980. B.S., Alexandria University, 1972.

**Eisenbaumer, Ronald**, Professor, 1991, Ph.D.. Stanford University, 1978, Purdue University. 1973, .

**Eisenbaumer, Ronald**, Professor, Materials Science and Engineering, 1991. Ph.D., Stanford University, 1978. B.S., Purdue University, 1973.

**Epperson, James**, Associate Professor and Graduate Advisor, Mathematics, 2001. Ph.D., The University of Texas at Austin, 1996. B.S., Texas AM University, 1987.

**Esimai, Grace**, Senior Lecturer, Information Systems and Operations Management, 1998. Ph.D. Statistics, Iowa State University, 1977. M.S. Statistics, Iowa State University, 1976. B.S. Statistics, University of Nigeria, 1972.

**Espinosa, Sergio**, Associate Professor, Music. D.M.A., The University of Iowa, 2001. M.M., Ithaca College, 1997. Diplome Professionnelle de Violon, Conservatoire de La Chaux-de-Fonds, 1989.

**Estrada, Griselle**, Clinical Instructor/Student Success Coordinator, Nursing, 2005. MSN, University of Miami, 2001. BSN, University of Puerto Rico, 1985.

**Evans, Clifton**, Assistant Professor, Music. D.M.A., The University of Houston, 2001. M.M., The University of Texas at Austin, 1997. B.M., The University of Texas at Austin, 1995.

**Eve, Raymond**, Professor Emeritus, Sociology and Anthropology, 1976. Ph.D., University of North Carolina at Chapel Hill, 1975. B.A., University of North Carolina at Chapel Hill, 1969.

**Ewing, Beverly**, Clinical Assistant Professor, Nursing. D.N.P., The George Washington University, 2010. F.N.P., The George Washington University, 1997. M.S.N.A.N.P., George Mason University, 1994.

F

**Fain, John**, Lecturer, School of Architecture, 2002. M.LARC, University of Massachusetts, 1979. BS. Environmental Design, University of Connecticut, 1974.

**Fairbanks, Robert**, Professor, History, 1983. Ph.D., University of Cincinnati, 1981. M.A., Indiana State University, 1974. B.A., Greenville College, 1972.

**Fan, Majie**, Assistant Professor, Earth and Environmental Sciences. Ph.D., University of Arizona, 2009. M.S., University of Arizona, 2005.

**Fang, Nick**, Assistant Professor, Civil Engineering .

**Farbin, Amir**, Associate Professor, Physics, 2007. Ph.D., University of Maryland, 2003. B.S., MIT, 1997.

**Faris, Wendy**, Professor, English, 1985. Ph.D., Harvard University, 1975. M.A., Harvard University, 1970. B.A., Stanford University, 1967.

**Farrar-Myers, Victoria**, Professor, Political Science, 1997. Ph.D., University at Albany, SUNY, 1997. M.A., University of Illinois, Urbana-Champaign, 1992. B.S., Russell Sage College; Troy, New York, 1990.

**Fegasar, Leonidas**, Associate Professor, Graduate Advisor, Computer Science and Engineering, 1996. Ph.D., University of Massachusetts, 1993. M.S., University of Massachusetts, 1987. B.E.E., National Tech University of Athens, 1985.

**Feigel, Greg**, Lecturer, Finance and Real Estate.

**Fernandez, Raul**, Professor in Practice, Mechanical and Aerospace Engineering. Ph.D., .

**Ferreira, Susan**, Associate Professor, Industrial and Manufacturing Systems Engineering. Ph.D., Arizona State University, 2002. M.S., Arizona State University, 1990. B.S., Arizona State University, 1987.

**Fields, Noelle**, Assistant Professor, Social Work.

**Fields, Rhonda**, Lecturer, School of Architecture. M. LARC, UT-Arlington, 2011. BBA. Management, UT-Arlington, 1996.

**Figueroa, Norma**, Assistant Professor, School of Architecture.

**Finch, Jan**, Assistant Professor in Practice, Social Work.

**Fitzgerald, Colleen**, Professor, Linguistics, 2008. Ph.D., University of Arizona, 1997. M.A., University of Arizona, 1994. B.A., Loyola University, 1991.

**Flanagan, Judith**, Clinical Instructor, Nursing, 2013. MSN, University of Texas HSC San Antonio, 2002. BSN, Texas Woman's University, 1976.

**Florentin, Bryan**, Senior Lecturer, Art + Art History.

**Flores, Cecilia**, Student Success Coordinator, Nursing, 2007. MSN, UT Arlington, 2007. BSN, Texas Woman's University, 1979.

**Fondon, John**, Assistant Professor, Biology.

**Foss, Frank**, Assistant Professor, Chemistry Biochemistry, 2008. Ph.D., University of Virginia, 2006. B.S., University of Richmond, 1999.

**Francis, Robert**, Professor Emeritus, Chemistry Biochemistry.

**Frank, Luanne**, Associate Professor, English, 1969. Ph.D., University of Michigan, 1970. M.A., 1963. M.A., Emory University, 1959. B.A., University of North Carolina, 1955.

**Frazier, Gregory**, Professor, Department Chair, Information Systems Operations Management, 1997. Ph.D., Texas AM University, 1989. M.B.A., Texas AM University, 1985. B.S., Texas AM University, 1984.

**Frederick, Lee Ann**, Lecturer, Biology.

**Freling, Ryah**, Lecturer, .

**Freling, Traci**, Associate Professor, Marketing, 2007. Ph.D., Texas AM University, 2001. M.S., Texas AM University, 1995. B.S., Texas AM University, 1992.

**Fry, John**, Professor Emeritus, Physics.

**Fuchs, Perry**, Associate Professor, Psychology, 1998. Ph.D., The University of Texas at Arlington, 1994. M.S., The University of Texas at Arlington, 1992. B.S., University of Calgary, 1990.

**Fujita, Matthew**, Assistant Professor, Biology.

**Furr, Deana**, Clinical Instructor, Nursing, 2009. MSN, University of Medicine Dentistry of New Jersey, 2008. BSN, Texas Tech HSC, 2005.

G

**Gagne, Jeffrey**, Assistant Professor, Psychology, 2010. Post Doctoral, University of Wisconsin-Madison, 2010. Ph.D., Boston University, 2007. M.A., Boston University, 1999. Ed.M., Boston University, 1996.

**Gainer, Cheryl**, Clinical Instructor, Nursing, 2004. MSN, Houston Baptist University, 1982. BSN, Texas Woman's University, 1975.

**Galloway, Diane**, Clinical Assistant Professor, .

**Gao, Jean**, Associate Professor, Computer Science and Engineering. Ph.D., Purdue University, 2002. M.S., Rose-Hulman Institute of Technology, 1996. B.S., Shanghai Jiao Tong University/Shanghai Medica..., 1990.

**Garner, Rebecca**, Visiting Assistant Professor, Kinesiology, 2010. M.S. Exercise Science, University of Texas at Arlington, 2010. B.S. in Education, University of Central Arkansas, 1980.

**Garner, Tyler**, Clinical Assistant Professor, Kinesiology, 2013. M.S. in Exercise Science, University of Texas at Arlington, 2011. B.S. in Exercise Science, University of Texas at Arlington, 2009.

**Garrigus, John**, Associate Professor, History, 2006. Ph.D., Johns Hopkins University, 1988. M.A., Johns Hopkins University, 1985. B.A., De Pauw University, 1983.

**Gatchel, Robert**, Professor, Psychology, 2004. Ph.D., University of Wisconsin at Madison, 1973. M.S., University of Wisconsin at Madison, 1971. B.A., State University of New York at Stony Brook, 1969.

**Gatzke, Donald**, Dean, School of Architecture, 2004. M.ARCH, University of Wisconsin-Milwaukee, 1979. BA. Political Science, University of Wisconsin-Madison, 1972.

**Gaupp, Andrew Christopher**, M.F.A., A.E.A., Professor and Associate Chair, Theatre Arts, 1991. M.F.A., Trinity University, 1980. B.A., Texas Tech University, 1976.

**Gaupp, Natalie**, Ph.D., D.G.A., Senior Lecturer, Theatre Arts, 2009. Ph.D., University of Texas at Dallas, 2011. M.A., University of Texas at Arlington, 1999. B.F.A. , University of Texas at Arlington, 1993. Associate of Arts, Lon Morris College, 1988.

**George, Beverly**, Assistant Clinical Professor, Management.

**Gerlach, Jeanne**, Professor, Educational Leadership and Policy Studies, 1997. Ph.D., University of North Texas, 1992. Ed.D., West Virginia University, 1985. M.A., West Virginia University, 1979. B.S., West Virginia State College, 1974.

**Ghandehari, Mostafa**, Senior Lecturer, Civil Engineering.

**Gibbs, R Stephen**, Senior Lecturer, Electrical Engineering.

**Gillman, Paula**, Clinical Instructor, Nursing, 2003. Post Master's AGNP, The University of Texas at Arlington, 1996. M.S.N. - Clinical Nurse Specialist, The University of Texas at Arlington, 1992. B.S.N., Baylor University, 1984.

**Gintole, George**, Associate Professor, School of Architecture, 1985. M.ARCH, Princeton University, 1978. B.ARCH, The Cooper Union, 1976.

**Godeken, Sonja**, Lecturer, Mathematics, 2014. M.E. , University of Washington, 1994. B.S., Kearney State College, 1971.

**Goldberg, Joyce**, Associate Professor, History, 1982. Ph.D., Indiana University, 1981. M.A., Indiana University, 1973. B.A., Indiana University, 1972.

**Gonzalez, John**, Clinical Assistant Professor, Nursing. D.N.P., Texas Woman's University, 2010. M.S.N. A.C.N.P., State University of New York at Stony Brook, 2004. B.S.N., Texas Woman's University, 2000.

**Goolsby, Roger**, Professor Emeritus, Mechanical Aerospace Engineering. Ph.D., University of California at Berkeley, 1971. M.S., University of California at Berkeley, 1968. B.S., The University of Texas at Arlington, 1967.

**Gornet, Ruth**, Associate Professor, Mathematics, 2002. Ph.D., Washington University at St. Louis, 1993. A.M., Washington University at St. Louis, 1989. B.S., Drake University, 1987. B.S.B.A., Drake University, 1987.

**Gough, Laura**, Professor, Biology, 2002. Ph.D., Louisiana State University, 1996. B.S., Brown University, 1990.

**Graham, Lisa**, Professor, .

**Grande, Linda**, Clinical Assistant Professor, Nursing, 2012. D.N.P., The University of Iowa, 2008. M.S.N - Pediatric Nurse Practitioner, The University of Iowa, 2003. B.S.N., Maryville University, 1995.

**Grantcharov, Dimitar**, Associate Professor, Mathematics, 2010. Ph.D., University of California, Riverside, 2003. M.S., University of Sofia, Bulgaria, 1994.

**Gray, David**, Professor, Management, 1973. Ph.D., University of Massachusetts, 1974. M.A., University of Iowa, 1969. B.B.A., University of Iowa, 1967.

**Gray, Jennifer**, Professor/Interim Dean, College of Nursing, Nursing, 1989. Ph.D., Texas Woman's University, 1997. M.S.N., The University of Texas at Arlington, 1989. B.S.N., Central State University, 1977.

**Green, George**, Professor Emeritus, History, 1966. Ph.D., 1966. M.A., Florida State University, 1962. B.A., The University of Texas at Austin, 1961.

**Greer, Julianne Aleta**, Ph.D., A.E.A, S.A.G./A.F.T.R.A., Senior Lecturer, Theatre Arts. Ph.D., University of Texas at Dallas, 2013. M.A., Texas Christian University, 2005. B.F.A., New York University-Tisch School of the Arts, 1986.

**Griffin, Essence Carter**, Clinical Instructor, Nursing, 2012. DNP - In progress, The University of Texas at Arlington, .M.S.N., The University of Texas at Arlington, ACNP, 2011. B.S.N., Baylor University, 2007.

**Griffith, Elizabeth**, Assistant Professor, Earth and Environmental Sciences, 2012. Ph.D., Stanford University, 2008. B.S., Missouri Univ Sci Tech, 2000.

**Griffith, William**, Assistant Professor, Earth and Environmental Sciences, 2012. Ph.D., Stanford University, 2008. M.S., University Massachusetts, 2003. B.S., William Mary, 1999.

**Grisaffe, Douglas**, Associate Professor, Marketing, 2005. Ph.D., Vanderbilt University, 1989. M.S., Vanderbilt University, 1987. B.S., Bowling Green State University, 1984.

**Grogan, David**, Assistant Professor, Music.

**Grover, James**, Professor, Biology, 1993. Ph.D., University of Minnesota, 1988. B.A., State University of New York, 1982.

**Gustafson, Kevin**, Associate Professor, English, 1999. Ph.D., University of Virginia, 1996. M.A., University of Virginia, 1990. B.A., Pacific Lutheran University, 1986.

**Gutierrez, Jose**, Professor, Political Science. J.D., University of Houston, 1988. Ph.D., The University of Texas at Austin, 1976. M.A., St. Mary's University, 1968. B.A., Texas AI University, 1966.

**Guy, Raymond Joe**, Professor Emeritus, School of Architecture.

H

**Habib, Sabrina**, Assistant Professor, Communication, 2013. Ph. D., University of Florida, 2013. M.F.A., University of Florida, 2003. B.F.A., University of Florida, 2000.

**Hadavand, Haleh**, Research Assistant Professor, Physics, 2012. PhD, University of California at San Diego, .

**Hadley, Pam**, Clinical Instructor, Nursing, 2011. MSN, University of Phoenix, 2004. BA, UT Arlington, 1987.

**Haji-Sheikh, Abdolhossein**, Professor, Mechanical Aerospace Engineering, 1966. Ph.D., University of Minnesota, 1965. M.A., University of Michigan, 1961. M.S., University of Michigan, 1959. B.S., University of Tehran, Iran, 1956.

**Hale, Gregory**, Lecturer, Interdisciplinary Science.

**Hall, Bethane**, Associate Professor, Accounting, 1985. Ph.D., University of North Texas, 1987. M.P.A., The University of Texas at Arlington, 1978. B.S., Texas AM University, 1975.

**Hall, Thomas**, Professor, Accounting, 1981. Ph.D., Oklahoma State University, 1981. M.P.A., The University of Texas at Arlington, 1975. B.B.A., The University of Texas at Arlington, 1974.

**Hamann, Darla**, Assistant Professor, Urban and Public Affairs, 2009. Ph.D., University of Minnesota, 2009. B.A., Saint Cloud State University, 1997.

**Hamann, Darla**, Assistant Professor, Public Administration, 2009. Ph.D., University of Minnesota, 2009. B.A., Saint Cloud State University, 1997.

**Hamilton, Robert**, Professor, School of Architecture, 1973. M.ARCH, Massachusetts Institute of Technology, 1972. B.ARCH, Carnegie-Mellon University, 1969.

**Hamilton, Shelley**, Lecturer, Mathematics. M.S.M.A, The University of Texas at Arlington, 2000.

**Han, Chien-Pai**, Professor, Mathematics, 1982. Ph.D., Harvard University, 1967. M.A., University of Minnesota, 1962. B.A., National Taiwan University, 1958.

**Han, Zhen**, Senior Lecturer, Mechanical Aerospace Engineering. Ph.D., Beijing University, 1989. M.S., Beijing University, 1985. B.S., Xian Jiaotong University, 1982.

**Handy, Nancy**, Clinical Assistant Professor, Nursing, 1992. Ph.D., Texas Woman's University, 1992. M.S.N., Texas Woman's University, 1976. B.S.N., Baylor University, 1967.

**Hao, Qing (Grace)**, Associate Professor, Finance and Real Estate, 2013.

**Hao, Yaowu**, Associate Professor, Materials Science and Engineering, 2005. Ph.D., Massachusetts Institute of Technology, 2003. M.S., University of Florida, 1998. M.S., University of Science and Technology, Beijing, 1993. B.S., University of Science and Technology, Beijing, 1990.

**Harber, Carol**, Clinical Instructor, Nursing, 2006. MSN, Texas Woman's University, 1988. BSN , Texas Woman's University, 1961.

**Hardt, Heidi**, Assistant Professor, Political Science, 2012. Ph.D., Graduate Institute of International and Developmen..., 2011. M.S., London School of Economics, 2006. B.A., University of Southern California, 2005.

**Hardy, James**, Associate Professor, Educational Leadership and Policy Studies, 2006. Ph.D., University of North Texas, 1990. M.Ed., Stephen F Austin, 1985. B.A., Stephen F Austin, 1981.

**Harp, Dustin**, Assistant Professor, Communication. Ph.D., University of Wisconsin, Madison, 2002. M.A., University of Texas at Austin, 1997. B.A., Sonoma State University, CA, 1992.

**Harris, Marcia**, Clinical Assistant Professor, Nursing, 2012. DNP, The University of Texas at Arlington, 2013. Post Master's PMHNP, The University of Texas at Arlington, 2010. MSN, Texas Woman's University, FNP, 2008. BSN, Gramblin State University, 2002.

**Harris, Robert**, Assistant Professor, Mechanical Aerospace Engineering. Ph.D., UT Austin, 2008. M.S., Stanford, 2000. B.S., UT Austin, 1994.

**Harrison, Lonny**, Assistant Professor, .

**Hart, Valeria**, Clinical Assistant Professor, Nursing, 2012. Ph.D., The University of Texas at Arlington, 2006. C.N.S., University of Arkansas for Medical Sciences, 1990. B.S.N., University of Central Arkansas, 1972.

**Harvey, Michelle D.**, M.F.A., Specialist, Theatre Arts, 2006. B.A. in Theatre Arts, The Ohio State University, 1998. M.F.A. in Theatrical Scenic Design, The University of Arizona, 2001.

**Haskew, Mary**, Clinical Instructor, Nursing, 2012. M.S.N. , The University of Texas at Arlington, PNP, 1991. B.S.N., San Diego State University, 1987.

**Hatcher, Schnavia**, Associate Professor, Social Work.

**Hawkins, Doyle**, Associate Professor, Mathematics, 1983. Ph.D., University of North Carolina, Chapel Hill, 1983. M.S., Texas AM University, 1977. B.S., Lamar University, 1976.

**Hayes, Mike**, Lecturer, Music, 2013.

**Haynes, Sam**, Professor, History, 1993. Ph.D., University of Houston, 1988. M.A., University of Houston, 1984. B.A., Columbia University, 1978.

**Healy, Anne**, Ph.D., A.E.A., Assistant Professor, Theatre Arts, 2012. Ph.D., University of Texas at Dallas, 2012. M.F.A., University of Miami, 1986. B.F.A., University of Northern Iowa, 1984.

**Heath, Larry**, Professor Emeritus, Mathematics, 1965. Ph.D. , University of Kansas , 1965. M.A. , University of Kansas , 1962. B.S., Washburn University of Topeka , 1960.

**Heddins, Brad**, Clinical Assistant Professor, Kinesiology, 2005. M.S. in Kinesiology, Texas Woman's University, 1993. B.S. Kinesiology, Texas A M University, 1988.

**Hegar, Rebecca**, Professor, Social Work, 1997. Ph.D., Tulane University, 1986. M.S.S.W., The University of Texas at Austin, 1975. B.A., The University of Texas at Austin, 1972.

**Hegstad, Lorraine**, Associate Adjunct Professor, Nursing. Ph.D., Arizona State University, 1981. Post Master's, The University of Texas at Arlington ANP/GNP, 1996. M.S., University of Colorado, 1972. B.S.N., University of Texas Medical Branch Galveston, 1969.

**Hekman, Susan**, Professor, Political Science, 1977. Ph.D., University of Washington, 1976. M.A., University of Washington, 1973. B.A., Carleton College, 1971.

**Henderson, Desiree**, Associate Professor, English, 2004. Ph.D., University of California, San Diego, 2001. M.A., University of California, San Diego, 1997. B.A., Occidental College, 1994.

**Henderson, Sandra**, Assistant Adjunct Professor, Accounting. Ph.D., Auburn University, 2002. M.Acc., Florida State University, 1993. B.S., Albany State University, 1991.

**Hennes, Janelle**, Clinical Instructor, Nursing, 1996. MSN, Wichita State University, 1990. BSN, Wichita State University, 1983.

**Henry, Tim**, Lecturer, Biology.

**Heo, Jongyun**, Associate Professor, Chemistry Biochemistry, 2006. Ph.D., University of Wisconsin-Madison, 2001. M.S., Northern Illinois University, 1997. B.S., Songang University, India, 1987.

**Hermes, Charles**, Adjunct Professor Advisor, .

**Hesse, Marti**, Clinical Instructor, Nursing, 2012. MSN, Regis University, 2010. BSN, Biola University, 1975.

**Hickerson, Jane**, Assistant Professor in Practice, Social Work, 1997. Ph.D., UTA, 1997. M.S.S.W., University of Texas at Arlington, 1994. M.A., University of Texas at Arlington, 1981.

**Hilton, Scott**, Senior Lecturer, .

**Himarios, Daniel**, Professor, Vice Provost, Economics , 1983. Ph.D., Virginia Polytechnic Institute and StateUniversity, 1984. M.A., Virginia Polytechnic Institute and StateUniversity, 1980. B.A., National Kapodistrian University of Athens,Greece, 1978.

**Himarios, Jane**, Clinical Professor, Economics, 1985. Ph.D., Virginia Polytechnic Institute State University, 1988. M.A., Virginia Polytechnic Institute State University, 1981. B.A., Winthrop College, 1979.

**Hira, Ajit**, Adjunct Professor, Physics. Ph.D., .

**Hissong, Rod**, Associate Professor, Urban and Public Affairs, 1988. Ph.D., Rice University, 1989. M.S., Iowa State University, 1978. B.S., Iowa State University, 1974.

**Hissong, Rod**, Associate Professor, Public Administration, 1988. Ph.D., Rice University, 1989. M.S., Iowa State University, 1978. B.S., Iowa State University, 1974.

**Ho, Li-Chin Jennifer**, Professor, Accounting, 1990. Ph.D., The University of Texas at Austin, 1990. M.P.A., The University of Texas at Austin, 1984. B.B.A., National Taiwan University, 1981.

**Ho, Tuan**, Assistant Professor, .

**Hoefer, Richard**, Professor, Social Work, 1992. Ph.D., University of Michigan, 1989. M.A., University of Michigan, 1984. M.S.W., University of Kansas, 1981. B.S.W., University of Kansas, 1979.

**Hoffman, Nick**, Web Developer, .

**Holliday, Kathryn**, Associate Professor, School of Architecture. Ph.D., University of Texas, .M.A. , University of Texas, .B.A , Williams College, .

**Hong, Yi**, Assistant Professor, Bioengineering.

**Hoolapa, Brenda**, Clinical Instructor, Nursing, 2010. MSN, University of Illinois Chicago, 1995. BSN, University George Mason, 1988.

**Hopkins, Bob**, Lecturer, .

**Hopman, David**, Associate Professor, School of Architecture, 2004. M.LA, University of Texas Arlington, 1998. M.M, Southern Methodist University, 1982. B.M., University of Memphis, 1980.

**Horton, Brian**, Senior Lecturer, Communication. Ph.D., The Ohio State University, 2007. M.A., The Ohio State University, 2004. B.A., Ball State University, 1999.

**Hossain, Md**, Associate Professor, Civil Engineering, 2004. Ph.D., North Carolina State University, 2002. M.E., Asian Institute of Technology, 1997. B.Tech., Indian Institute of Technology, 1994.

**House, Shaun**, Adjunct Professor, .

**Hower, Robert**, Chair Professor, .

**Hoyos, Laureano**, Associate Professor, Civil Engineering, 2000. Ph.D., University of Puerto Rico, 1993. M.S., Universidad del Cauca, Colombia, 1991. B.S., Coastal University Complex, Colombia, 1988.

**Hu, Quinhong**, Associate Professor, Earth and Environmental Sciences, 2008. Ph.D., University of Arizona, 1995. M.S., Chinese Academy of Sciences, 1989. B.S., Zhejiang Agricultural University, 1986.

**Huang, Haiying**, Professor, Mechanical Aerospace Engineering. Ph.D., Georgia Institute of Technology, 1998. M.S., Georgia Institute of Technology, 1997. B.S., Beijing University of Aeronautics and Astronautics, 1991.

**Huang, Heng**, Associate Professor, Computer Science and Engineering, 2011.

**Huang, Junzhou**, Assistant Professor, Computer Science and Engineering, 2011. Ph.D., Rutgers University, 2011. M.S., Chinese Academy of Sciences, 2003. B.Eng., Huazhong University, 1996.

**Huber, Manfred**, Associate Professor, Computer Science and Engineering. Ph.D., 2000. M.S., University of Massachusetts, 1993. B.S., University of Karlsruhe, 1991.

**Huckaby, Sedrick**, Assistant Professor, Art + Art History.

**Huda, Muhammad**, Assistant Professor, Physics, 2009. Ph.D., University of Texas at Arlington, 2004. M.Sc., University of Texas as Arlington, 2002. M.Sc., Cambridge University, UK, 1997. B.Sc., University of Dhaka, 1996.

**Hudel-Smith, Pauline**, Senior Lecturer, .

**Huff, Brian**, Associate Professor, Industrial and Manufacturing Systems Engineering, 1994. Ph.D., The University of Texas at Arlington, 1993. M.S., The University of Texas at Arlington, 1989. B.S., West Virginia University, 1985.

**Hughes, Debra**, Clinical Instructor, Nursing, 2009. MSN, Texas Woman's University, 2009. BSN, Texas Woman's University, 1981.

**Hulings, Melissa**, Clinical Assistant Professor, .

**Hullender, David**, Professor, Mechanical Aerospace Engineering, 1970. Ph.D., Massachusetts Institute of Technology, 1970. M.S., Oklahoma State University, 1967. B.S., Oklahoma State University, 1966.

**Hungerford-Kresser, Holly**, Assistant Professor, Educational Curriculum Instruction, 2008. Ph.D., University of Texas, 2008. M.A., University of Texas, 2000. B.S., Baylor University, 1997.

**Hunt, Andrew**, Associate Professor, Earth and Environmental Sciences, 2007. Ph.D., Liverpool University, 1988. B.S., Liverpool University, 1981.

**Hunt, Graham**, Associate Professor, Music, 2001. Ph.D., Duke University, 2001. M.A., Duke University, 1996. B.A., Amherst College, 1994.



**Hurdle, Julian**, Assistant Professor, Biology. Ph.D., University of Leeds, UK, 2005. B.Sc., University of West Indies, Barbados, 2000. B.Sc., University of West Indies, Barbados, 2000.

**Hyle, Adrienne**, Professor, Educational Leadership and Policy Studies, 2008. Ph.D., Kansas State University, 1987. M.Phil., University of Kansas, 1977. M.A., University of Kansas, 1974. B.A., Kansas State University, 1972.

I

**Ickes, William**, Professor, Psychology, 1982. Ph.D., The University of Texas at Austin, 1973. B.S., Brigham Young University, 1969.

**Ignagni, Joseph**, Professor, Political Science. Ph.D., Michigan State University, 1989. M.A., Michigan State University, 1986. M.S., Purdue University, 1984. B.S., Michigan State University, 1981.

**Ikeda, Zenas**, Assistant Professor, Art + Art History, 2009. M.F.A., Kansas State University, 2008. B.F.A., Kansas State University, 2000.

**Imrhan, Sheik**, Associate Professor, Industrial and Manufacturing Systems Engineering, 1986. Ph.D., Texas Tech University, 1983. M.S., University of Alabama, 1981. B.S., University of Guyana, 1973.

**Ingram, Penelope**, Associate Professor, English. Ph.D., University of New South Wales, 1999. M.A., Yale University, 1994. B.A., Smith College, 1992.

**Ingram, Scott**, Visiting Assistant Professor, .

**Ingram, Tom**, Associate Professor, Communication, 1982. Ph.D., University of North Texas, 1982. M.B.A., West Texas State University, 1976. B.B.A., The University of Texas at Austin, 1975.

**Iqbal, Samir**, Assistant Professor, Electrical Engineering, 2007. Ph.D., Purdue University, 2007. B.S., NED University of Engineering and Technology, Kara..., 1997.

**Isbell, Steve**, Lecturer and Assistant to the Chair, Finance and Real Estate.

**Isengildina, Olga**, Associate Clinical Professor, Economics, 2012. Ph.D., Mississippi State University, 2000. M.S., Mississippi State University, 1996. B.A., Tashkent State University, 1993.

**Ishii, Timothy**, Associate Professor, Music, 2004. M.M., University of North Texas, 1991. B.M., University of North Texas, 1987.

**Israel-Pelletier, Aimée**, Professor, .

**IV, James Welch**, Assistant Professor, Interdisciplinary Studies. Ph.D., University of Texas at Dallas, 2009. M.A.I.S., Texas State University, 2003. B.A.I.S., Naropa University, 1992.

J

**Jaafari, Fajer**, Adjunct Professor, Physics. Ph.D., .

**Jackson, Christopher**, Assistant Professor, Physics.

**Jacobson, Heather**, Associate Professor, Sociology and Anthropology, 2006. Ph.D., Brandeis University, 2006. M.A., Brandeis University, 2001. M.Phil., Trinity College, Dublin, 1995. B.A., Carnegie Mellon University, 1993.

**Jain, Ankur**, Assistant Professor, Mechanical Aerospace Engineering. Ph.D., Stanford University, 2007. M.S., Stanford University, 2003. B.Tech., Indian Institute of Technology, De..., 2001.

**Jalloh, Alusine**, Associate Professor, History, 1993. Ph.D., Howard University, 1993. M.A., Howard University, 1989. B.A., University of Sierra Leone, 1986.

**James, George Truett**, Lecturer, School of Architecture.

**Janakiraman, Narayanan**, Assistant Professor, Marketing, 2012. Ph.D., University of Pennsylvania, 2003. B.A., Pondicherry Central University, 1995. B.Eng., Government College of Technology, 1993.

**Jang, Chyng-Yang**, Associate Professor, Communication, 2004. Ph.D., Michigan State University, 2003. M.A., Michigan State University, 1996. B.S., National Taiwan University, 1991.

**Jansma, Pamela**, Professor/Dean, College of Science, Earth and Environmental Sciences. Ph.D., Northwestern University, 1988. M.S., Northwestern University, 1984. B.S., Stanford University, 1980.

**Jaramillo, Fernando**, Associate Professor, Department Chair, Marketing, 2009. Ph.D., University of South Florida, 2004. M.B.A., Oregon State University, 1998. Postgraduate Specializaiton Diploma, Universidad Andina Simon Bolivia, 2000. B.S., Universidad Catolica, 1993.

**Jenkins, Terri**, Clinical Instructor, Nursing, 2005. MSN, Ball State University, 2003. BSN, Texas Christian University, 1992.

**Jensen-Campbell, Lauri**, Associate Professor, Psychology, 2001. Ph.D., Texas AM University, 1995. M.S., Texas AM University, 1991. B.A., Nyack College, 1987.

**Jeon, Junha**, Assistant Professor, Chemistry Biochemistry, 2011. Ph.D., University of Minnesota, 2009. M.S., Sungkyunkwan University, 2002. B.S., Sungkyunkwan University, 2000.

**Jeong, Seokjin**, Assistant Professor, Criminology Criminal Justice. Ph.D., Michigan State University, 2010. M.S., Michigan State University, 2005. B.A., Michigan State University, 2002.

**Jessup, Carol**, Associate Professor, Music, 1978. D.M.A., University of Michigan, 1987. B.A., The University of Texas of the Permian Basin, 1977. M.M., Michigan State University, 1971. B.M., Texas Tech University, 1969.

**Jin, Mingwu**, Assistant Professor, Physics, 2014. Ph.D., Illinois Institute of Technology, .

**John, Lauri**, Clinical Assistant Professor, Nursing. Ph.D., Texas Women's University, 1997. M.S.N., The University of Texas Health Science Center Houston, 1990. B.S.N., Loyola University of Chicago, 1978.

**Johnson, Ernest**, Assistant Clinical Professor, Educational Leadership and Policy Studies, 1995. Ed.D., Texas AM University, 1992. M.Ed., The University of Texas at Austin, 1978. B.A., Texas AM University, 1971.

**Johnson, Taylor**, Assistant Professor, Computer Science and Engineering, 2013. M.S. Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, 2010. Ph.D. Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, 2013.

**Johnson-Winters, Kayunta**, Assistant Professor, Chemistry Biochemistry. Ph.D. Fellowship, University of Arizona, 2010. Ph.D., University of Wisconsin-Milwaukee, 2006. B.A., Alverno College, 1999.

**Jolly, Marilyn**, Associate Professor, Art + Art History, 1999. M.F.A., University of Oklahoma, 1983. B.A., University of Science and Arts of Oklahoma, 1972.

**Jones, David**, Associate Dean/ARCH Graduate Advisor, School of Architecture, 1970. B.ARCH, University of Oklahoma, 1970.

**Jones, Erick**, Associate Professor, Industrial and Manufacturing Systems Engineering. Ph.D., University of Houston, 2003. M.S., University of Houston, 1996. B.S., Texas AM University, 1993.

**Jordan, Cathleen**, Professor, Social Work, 1985. Ph.D., University of California at Berkeley, 1986. M.S.S.W., The University of Texas at Arlington, 1979. B.A., University of Houston, 1973.

**Jorgensen, David**, Professor and Associate Chair, Mathematics, 1998. Ph.D., University of Nebraska, 1996. M.S., University of Nebraska, 1991. B.S., San Diego State University, 1989.

**Jorgensen, David**, Professor, Mathematics, 1998. Ph.D., University of Nebraska, 1996. M.S., University of Nebraska, 1991. B.A., San Diego State University, 1989.

**Jorgensen, Theresa**, Associate Professor, Mathematics, 2007. Ph.D., University of Nebraska, 2000. M.S., University of Nebraska, 1997. B.A., University of St. Thomas, 1993.

**Jung, Sungyong**, Associate Professor, Electrical Engineering. Ph.D., Georgia Institute of Technology, 2002. M.S., Georgia Institute of Technology, 1993. B.S., Yeungnam University, 1991.

**Justice, Susan**, Clinical Instructor, Nursing, 2005. MSN, UT Arlington, 1994. BSN, UT Arlington, 1986.

## K

**Kalanzi, Dorothy**, Visiting Assistant Professor, .

**Kamangar, Farhad**, Professor, Computer Science and Engineering, 1983. Ph.D., The University of Texas at Arlington, 1980. M.S., The University of Texas at Arlington, 1977. B.S., University of Tehran, 1975.

**Kania, Sonia**, Associate Professor, .

**Kearny, Henry**, Lecturer, Electrical Engineering.

**Keens, David**, Emeritus - pending, .

**Keller, David**, Associate Professor, Kinesiology, 2007. Ph.D., University of North Texas Health Science Center at Fort Worth, 2004. M.S., University of North Texas Health Science Center at Fort Worth, 2002. B.S. Exercise Science, University of Texas at Arlington, 2000.

**Kenarangui, Rasool**, Senior Lecturer, Electrical Engineering, 1995. Ph.D., Iowa State University, 1980. M.S., Iowa State University, 1978. B.S., Iowa State University, 1976.

- Kenaston-French, Karen**, Associate Professor, Music. D.M.A., University of North Texas, 2003. M.M., Southern Methodist University, 1986. M.S.M., Perkins School of Theology, 1986. B.A., West Virginia Wesleyan College, 1984.
- Kenworthy, Jared**, Associate Professor, Psychology, 2005. Ph.D., University of Southern California, 2002. M.A., University of Southern California, 1998. B.S., Brigham Young University, 1996.
- Khalili, Bahram**, Senior Lecturer, Graduate Advisor, Computer Science and Engineering.
- Khanduri, Ritu**, Assistant Professor, Sociology and Anthropology, 2007. Ph.D., University of Texas at Austin, 2007. M.Phil., Jawaharlal Nehru University, New Delhi, 1995. M.A., Jawaharlal Nehru University, New Delhi, 1993. B.A., University of Delhi, New Delhi, 1991.
- Khare, Adwait**, Assistant Professor, Marketing, 2010. Ph.D., University of Pittsburgh, 2003. M.S., Virginia Tech, 1997. B.S., Centre for Environmental Planning, 1993. B.Arch., Visvesvaraya Regional College of Engineering, 1990.
- Khavul, Susanna**, Associate Professor, Management, 2006. Ph.D., Boston University, 2001. B.A., University of California Berkeley, 1991.
- Killian, Michael**, Assistant Professor, Social Work.
- Kilpatrick, Cynthia**, Assistant Professor, Linguistics, 2009. Ph.D., University of California, San Diego, 2009. M.A., University of Texas at El Paso, 2003. B.A., Lee College, 1992.
- Kilpatrick, Gareth J.**, Senior Military Tactics Instructor, .
- Kim, Choong-Un**, Professor, Materials Science and Engineering, 1996. Ph.D., University of California at Berkeley, 1993. M.S., Seoul National University, 1987. B.A., Seoul National University, 1985.
- Kim, Daejong**, Associate Professor, Mechanical Aerospace Engineering, 2011. Ph.D., University of Texas at Austin, 2004. M.S., Seoul National University, Korea , 1993. B.S., Seoul National University, Korea , 1991.
- Kim, Mi Hyun**, Senior Lecturer, .
- Kim, Soo Hong**, Associate Professor, Music. D.M.A., University of North Texas, 1997. M.M., Ewha Womens University, Seoul, Korea, 1986. B.M., Ewha Womens University, Seoul, Korea, 1984.
- Kim, Young-Tae**, Assistant Professor, Bioengineering, 2011. Ph.D., University of Utah, 2004. B.S., Yonsei University, KOREA, 1999.
- Kirk, Wiley P.**, Research Professor, Materials Science and Engineering, 1999. Ph.D., Stony Brook University, 1970. M.S., Stony Brook University, 1967. B.A., Washington University, 1964.
- Klahr, Douglas**, Associate Professor, School of Architecture. Ph.D. History of Art + Architecture, Brown University, 2002. MA. History of Architecture, University of Virginia, 1998. BA. Hisotry of Art + Architecture/Psychology, Brown University, 1977.
- Koh, Seong Jin**, Associate Professor, Materials Science and Engineering. Ph.D., University of Illinois at Urbana-Champaign, 1998. B.S., Seoul National University, 1987.
- Kojouharov, Hristo**, Professor and Graduate Advisor, Mathematics, 2000. Ph.D., University of Wyoming, 1998. M.Sc., Sofia University, Bulgaria, 1994. B.A., Sofia University, Bulgaria, 1993.
- Kondraske, George V.**, Professor, Electrical Engineering, 1982. Ph.D., The University of Texas at Arlington The Univers..., 1982. M.S., The University of Texas at Arlington The Univers..., 1982. B.S., University of Rochester, 1978.
- Kongevick, Joseph**, M.F.A., Associate Professor, Theatre Arts, 1979. M.F.A., Texas Christian University, 1976. B.F.A., University of Wisconsin at Superior, 1974.
- Korzeniowski, Andrzej**, Professor, Mathematics, 1983. Ph.D., Wroclaw University, 1978. M.S., Wroclaw University, 1974.
- Koymen, Ali**, Professor, Physics, 1990. Ph.D., University of Michigan, 1984. M.S., University of Michigan, 1980. B.S., University of Hacettepe, Turkey, 1977.
- Krajewski, Bruce**, Professor, English, 2013. BA, Glassboro State College (now Rowan U), 1981. MA, University of Iowa, 1983. PhD, University of Iowa, 1988.
- Krasij, Mark**, Lecturer, Mathematics. M.S. , The University of Texas at Arlington, 2009.
- Krawietz, Paul**, Clinical Assistant Professor, Kinesiology, 2006. Ed.D., Texas A M University - Commerce, 2000. M.A., Eastern Kentucky University, 1992. B.S., Texas Tech University, 1990.

**Kribs-Zaleta, Christopher**, Professor, Mathematics, 1997. Ph.D., University of Wisconsin, 1997. M.S., Georgia Institute of Technology, 1991. A.B., Duke University, 1989.

**Kroll, Peter**, Associate Professor, Chemistry Biochemistry. Habilitation, Aachen, 2005. Ph.D. Fellowship, Cornell, 1999. Ph.D., University of Technology Darmstadt, 1996. Diploma, University of Heidelberg, 1993.

**Kruzic, Andrew**, Associate Professor, Civil Engineering, 1988. Ph.D., University of California at Davis, 1984. M.S., University of California at Berkeley, 1976. B.S., Loyola University of Los Angeles, 1975.

**Kuhner, Craig**, Professor, School of Architecture, 1978. M.ARCH, 1970. B.A., University of Pennsylvania, 1964.

**Kumar, Ratan**, Professor in Practice, Mechanical and Aerospace Engineering. Ph.D., .

**Kung, David**, Professor, Computer Science and Engineering, 1991. Ph.D., Norwegian Institute of Technology, 1984. B.S., Peking University, 1977. M.S., Norwegian Institute of Technology, .

**Kunkel, Jerald**, Assistant Professor in Practice, School of Architecture, 2003. M. ENG Structures, UT-Arlington, 1994. BS. CE, UT-Arlington, 1979.

**Kunovich, Robert**, Associate Professor, Sociology and Anthropology, 2004. Ph.D., 2001. M.A., The Ohio State University, 1996. B.A., Miami University, 1993.

**Kyle, Donald**, Professor, History, 1984. Ph.D., McMaster University, 1981. B.Ed., University of Toronto, 1977. M.A., McMaster University, 1974. B.A., York University, 1973.

## L

**Lacefield, Gary**, Associate Clinical Professor, Marketing, 2002. Ph.D., Texas A M University, 1997. M.A., Dallas Baptist University, 1992. B.A., Dallas Baptist University, 1991.

**LaFevor, David**, Assistant Professor, History, 2013.

**LaFontaine, Kim**, M.F.A., U.S.A. 829, Professor and Chair, Theatre Arts, 1999. M.F.A., University of Southern California, 1981. B.A., St. Cloud State University, 1978.

**Laird, Sandra**, Clinical Instructor, Nursing, 2011. D.N.P. - In Progress, The University of Texas as Arlington, 2013. M.S.N. - Acute Care Nurse Practitioner, The University of Texas at Arlington, 1996. B.S.N., Texas Christian University, 1992.

**Land, Christopher Jared**, M.F.A., Specialist, Theatre Arts, 2008. B.S. in Theatre Arts, Lamar University, 2002. M.F.A., University of Memphis, 2007.

**Land, Laurie**, M.F.A., Senior Lecturer, Theatre Arts, 2009. Associate of Arts, Tarrant County Community College, 2000. B.S. in Theatre Arts, Lamar University, 2003. M.F.A. in Theatrical Design, University of Memphis, 2007.

**Lange, Diane**, Associate Professor, Music, 1999. Ph.D., Michigan State University, 1999. M.M.Ed., Central Michigan University, 1995. B.M.Ed., Central Michigan University, 1986.

**Lapthisophon, Stephen**, Visiting Assistant Professor, Art + Art History.

**Laurent, Paul St.**, Clinical Assistant Professor, Nursing, 2014. MSN, University of Southern Indiana, ACNP, 2003. BSN, University of Southern Indiana, 2002. ADN, Brookhaven College, 1993.

**Lauster, Darryl**, Assistant Professor, Art + Art History. M.F.A., University of Houston, 1998. B.A., San Diego State University, 1995.

**Lavelle, James**, Associate Professor, Ph.D. Coordinator, Mangement, 2002. Ph.D., University of Utah, 1999. B.A., University of Washington, 1989.

**Lawrence, Kent**, Professor, Mechanical Aerospace Engineering, 1961. Ph.D., Arizona State University, 1965. M.S., Texas Tech University, 1960. B.S., Texas Tech University, 1959.

**Layman, Shannon**, Lecturer, .

**Le, Chien**, Lecturer, .

**Lee, Joohi**, Associate Professor, Educational Curriculum Instruction. Ph.D., Indiana State University, 2004. M.E.D., Duksung Womenas University, 1996. B.A., Chong Shin University, 1994.

**Lee, Wei-Jen**, Professor, Electrical Engineering, 1986. Ph.D., The University of Texas at Arlington, 1985. M.S., National Taiwan University, 1980. B.S., National Taiwan University, 1978.

**Leffingwell, Jon**, Associate Professor, Educational Curriculum Instruction, 1971. Ph.D., University of North Texas, 1971. M.Ed., The University of North Texas, 1966. B.S., The University of North Texas, 1963.

**Leflore, Judy**, Professor, Nursing, 2003. M.S.N., The University of Texas at Arlington, 2003. Ph.D., Texas Woman's University, 2000. M.S. Business, Amber University, 1991. B.S.N., The University of Texas at Arlington, 1988.

**Lehmann, Peter**, Professor, Social Work.

**Lei, Yu**, Associate Professor, Computer Science and Engineering. Ph.D., North Carolina State University, 2002. M.S., Chinese Academy of Sciences, 1996. B.S., Wuhan University, 1993.

**Leininger, Jim**, Senior Lecturer, Civil Engineering.

**Levine, David**, Professor, Psychology, 1983. Ph.D., Massachusetts Institute of Technology, 1975. M.S., University of Chicago, 1968. B.A., Harvard College, 1967.

**Levine, David**, Senior Lecturer, Computer Science and Engineering. M.S.C.S., The University of Texas at Arlington, 1975. B.S., University of Texas at Austin, 1974.

**Lewis, Frank L.**, Professor, Electrical Engineering, 1990. Ph.D., Georgia Institute of Technology, 1981. M.S., University of West Florida, 1977. B.S., Rice University, 1971.

**Li, Chengkai**, Associate Professor, Computer Science and Engineering, 2011. Ph.D., University of Illinois at Urbana-Champaign, 2007. M.Eng., Nanjing University, 2000. B.S., Nanjing University, 1997.

**Li, Jianling**, Professor, City and Regional Planning. Ph.D., University of California at Los Angeles, 1997. M.A., University of California at Los Angeles, 1992. B.S., Zhongshan University, 1982.

**Li, Ren-Cang**, Professor, Mathematics, 2006. Ph.D., University of California at Berkeley, 1992. M.S., The Chinese Academy of Sciences, China, 1988. B.S., Xiamen University, China, 1985.

**Liang, Qilian**, Professor, Electrical Engineering, 2002. Ph.D., University of Southern California, 2000. M.S., Beijing University of Posts and Telecommunications, 1996. B.S., Wuhan University, 1993.

**Liang, Szu-Yen (Neal)**, Assistant Professor, .

**Liao, Guojun**, Professor, Mathematics, 1989. Ph.D., University of California at Berkeley, 1985. M.A., University of California at Berkeley, 1981.

**Liegey-Dougall, Angela**, Assistant Professor, Psychology.

**Lieser, Carol**, Clinical Assistant Professor, Nursing, 2011. Ph.D., The University of Texas at Arlington, 2012. M.S.N., The University of Texas at Arlington, 1997. B.S.N., Berea College Berea, 1972.

**Liles, Donald**, Professor, Industrial and Manufacturing Systems Engineering, 1979. Ph.D., The University of Texas at Arlington, 1978. M.S., The University of Texas at Arlington, 1974. B.S., The University of Texas at Arlington, 1970.

**Lima, Benjamin**, Assistant Professor, Art + Art History.

**Lin, Qing**, Associate Professor, Psychology, 2009. PhD in Medicine, Fudan University, China, 1991. MS in Medicine, Fujian Medical University, China, 1986. MD in Medicine, Fujian Medical University, China, 1980.

**Lindley, Marie**, Clinical Instructor, Nursing, 2011. M.S.N., Columbia University, NY, 1999. B.S.N., William Paterson University, Wayne, NJ, 1994.

**Ling-Tam, Jing**, Professor, Music, 1989. M.M., New England Conservatory of Music, 1976. B.M., New England Conservatory of Music, 1975.

**Little, Thomas**, Associate Adjunct Professor, Political Science, 1992. Ph.D., Ohio State University, 1991. M.A., Ohio State University, 1989. B.A., University of North Carolina at Greensboro, 1986.

**Liu, Chaoqun**, Professor, Mathematics, 2000. Ph.D., University of Colorado, 1989. M.S., Tsinghua University, 1981. B.S., Tsinghua University, 1967.

**Liu, Donggang**, Associate Professor, Computer Science and Engineering. Ph.D., North Carolina State University, 2005. M.S., Chinese Academy of Science, 2001. B.S., Beijing Institute of Technology, 1998.

**Liu, Fuqiang**, Assistant Professor, Materials Science and Engineering, 2001. Ph.D., Pennsylvania State University, 2006. M.S., Chinese Academy of Sciences, 2002. B.S., Beijing University of Chemical Technologies, 1997.

**Liu, Hanli**, Professor, Bioengineering, 1996. Ph.D., Wake Forest University, 1992. M.S., Wake Forest University, 1990. B.S., Beijing Normal University, 1983.

**Liu, Ping**, Professor, Physics. Ph.D., University of Amsterdam, Netherlands, 1994. M.S., Central-South University, China, 1987.

**Liu, Yonghe**, Associate Professor, Computer Science and Engineering. Ph.D., Rice University, 2003. M.S., Tsinghua University, 1999. B.S., Tsinghua University, 1998.

**Liu, Yue**, Professor, Mathematics, 1997. Ph.D., Brown University, 1994. M.A., Zhejiang University, 1987.

**Long, Dwight**, Lecturer, Management.

**Lopez, Nicolette**, Assistant Professor in Practice, Psychology, 2007. Ph.D., University of North Texas, 2007. M.S., University of North Texas, 2005. B.A., University of North Texas, 2001.

**Lopez, Ramon**, Professor, Physics. Ph.D., Rice University, 1986. M.S., Rice University, 1984. B.S., University of Illinois at Urbana-Champaign, 1980.

**Lovely, Carl**, Professor, Chemistry Biochemistry. Ph.D., University of Birmingham, 1990. B.Sc., University of Birmingham, 1987.

**Lowry, Connie**, Clinical Instructor, Nursing, 2005. MHA, University of Phoenix, 2006. MSN, University of Phoenix, 2005. BSN, Texas Christian University, 1979.

**Lozano, Benito Huerta**, Professor, Art + Art History, 1997. M.A., New Mexico State University, 1978. B.F.A., University of Houston, 1976.

**Lu, Frank**, Professor, Mechanical Aerospace Engineering, 1987. Ph.D., Pennsylvania State University, 1988. M.S.E., Princeton University, 1983. M.A., Cambridge University, 1980. B.A., Cambridge University, 1976.

**Luckett, James**, Clinical Instructor, Nursing, 2015. MSN, The University of Texas at Arlington, FNP, 1998. BSN, Texas Woman's University, 1981.

**Luo, Cheng**, Professor, Mechanical Aerospace Engineering. Ph.D., University of California, Berkeley, 2000. M.S., University of Houston, 1997. B.S., Hunan University, 1993.

## M

**MacDonald, Heath**, Assistant Professor in Practice, School of Architecture, 2003.

**Macdonnell, Frederick**, Professor, Chemistry Biochemistry, 1994. Ph.D., Northwestern University, 1993. B.S., University of Vermont, 1986.

**Macias, Christopher J.**, Adjunct Professor, .

**Mack, David**, Professor in Practice, Assistant Dean and Director Goolsby Leadership Academy, .

**Mackey, Doris (Dee)**, Clinical Instructor, Nursing, 2010. MBA, Amberton University, 2003. BSN, University of Mary Hardin-Baylor, 1997.

**Maddalena, Luca**, Assistant Professor, Mechanical Aerospace Engineering, 2011. Ph.D., Virginia Polytechnic Institute and State Universit..., 2007. M.S.E., Laurea Degree in Aerospace Engineering, Politecnico..., 2004.

**Madden, Elissa**, Assistant Professor, Social Work. Ph.D., The University of Texas at Austin, 2010. M.S.W., Baylor University, 2001. B.A., Baylor University, 1997.

**Madsen, Amy**, Clinical Instructor, Nursing, 2010. MSN, University of Phoenix, 2009. BSN, Texas Woman's University, 2001.

**Magnusson, Robert**, Professor, Electrical Engineering, 1984. Ph.D., Georgia Institute of Technology, 1976. M.S., Georgia Institute of Technology, 1973. B.S., University of Central Florida, 1971.

**Mahapatra, Radha**, Professor, Ph.D. Coordinator Information Systems, Information Systems Operations Management, 1998. Ph.D., Texas AM University, 1994. P.G.D.M., Indian Institute of Management, 1986. B.S., Regional Engineering College, India, 1983.

**Maher, Dennis**, Ph.D., L.M.D.A., Associate Professor, Theatre Arts, 1982. Ph.D., University of Wisconsin, 1980. M.A., Memphis State University, 1974. B.A., St. Louis University, 1972.

**Maizlish, Stephen**, Associate Professor, Hisroty, 1979. Ph.D., University of California at Berkeley, 1978. M.A., University of Michigan, 1968. B.A., University of California at Berkeley, 1967.

**Major, Sayda**, Clinical Instructor, Nursing, 2008. M.S.N. - Acute Care Nurse Practitioner, The University of Texas at Arlington, 2006. B.S.N., University of Texas at Tyler, 1999.

**Makedon, Fillia**, Professor, Computer Science and Engineering. Ph.D., Northwestern, 1982.

**Makeev, Andrew**, Professor, Mechanical Aerospace Engineering.

**Makori, Janet**, Clinical Instructor, Nursing, 2012. MSN, Texas Woman's University, 2010. BSN, UT Arlington, 2008.

- Malai, Evguenia**, Assistant Professor, Educational Curriculum Instruction, 2011. Ph.D., Purdue University, 2005. M.S., Chuvash State Pedagogical University, Russia, 2005.
- Mancini, Mary (Beth)**, Associate Dean/Chair UG Programs Professor, Nursing, 2004. PhD, UT Arlington , 2004. MSN, University of Rhode Island, 1982. BSN, Rhode Island College, 1976.
- Mandal, Subhrangsu**, Associate Professor, Chemistry Biochemistry. Post Doctoral, HHMI-University of Medicine and Dentistry of ..., 2005. Post Doctoral, University of Alberta, 1999. Ph.D., Indian Institute of Science, 1998. M.Sc., Kalyani University, 1992.
- Mangold, Ellen**, Clinical Instructor, Nursing, 2004. MSN, Texas Woman's University, 2001. BSN, Texas Woman's University, 1996.
- Mann, Martha**, Associate Professor, Psychology, 1983. Ph.D., State University of New York at Albany, 1983. M.A., Anna Maria College, 1977. B.A., Anna Maria College, 1975. R.N., Worcester City Hospital School of Nursing, 1973.
- Manry, Michael T.**, Professor, Electrical Engineering, 1982. Ph.D., The University of Texas at Austin, 1976. M.S., The University of Texas at Austin, 1973. B.S., The University of Texas at Austin, 1971.
- Marichal, Albert**, Assistant Professor, School of Architecture, 2009. M.ARCH, Harvard University, .MS. Architecture Urban Design, Columbia University, .B.ARCH, University of Houston, .BS. Environmental Design, University of Houston, .
- Mariottini, Gian-Luca**, Assistant Professor, Computer Science and Engineering.
- Mark, Richard**, Associate Professor, Accounting, 1985. L.L.M., University of Denver, 1977. J.D., University of Colorado, 1974. B.S., University of Colorado, 1971.
- Marshall, Linda (Jan)**, Clinical Instructor, Nursing, 2007. MSN, Texas Woman's University, 1994. BSN, Stephen F. Austin University, 1984.
- Marshall, Thomas**, Professor, Political Science, 1976. Ph.D., University of Minnesota, 1976. B.A., Miami University, 1971.
- Martin, Leisa**, Assistant Professor, Educational Curriculum Instruction, 2012. Ph.D., Univ. of Oklahoma, 2003. M.S., Florida International Univ., 1999. B.S., Florida State Univ., 1992.
- Martinez-Cosio, Maira**, Associate Professor, Urban and Public Affairs. M.A., University of California at San Diego, 2003. Ph.D., University of California at San Diego, 2003. M.Ed., University of San Diego, 1995. B.A., University of California at San Diego, 1982.
- Martinez-Cosio, Maria**, Associate Professor, Public Administration. M.A., University of California at San Diego, 2003. Ph.D., University of California at San Diego, 2003. M.Ed., University of San Diego, 1995. B.A., University of California at San Diego, 1982.
- Maruszczak, John**, Associate Professor, School of Architecture, 1982. M.ARCH, Princeton University, 1980. B.ARCH, The Cooper Union, 1975.
- Marynick, Dennis**, Professor Emeritus, Chemistry Biochemistry.
- Maryol, Gladys**, Clinical Instructor Director of BSN Programs, Nursing, 2004. MHA, UT Arlington, 1992. BSN, Texas Christian University, 1966.
- Matheson, Neill**, Associate Professor, English, 2003. Ph.D., Johns Hopkins University, 1995. M.A., Johns Hopkins University, 1987. B.A., Reed College, 1983.
- Mattingly, Stephen**, Associate Professor, Civil Engineering, 2002. p.H.d., University of California,Irvine, 2000. M.S., The University of Texas at Arlington, 1994. B.S., Rice University, 1991.
- Mattioli, Glen**, Professor, Earth and Environmental Sciences. Ph.D., Northwestern University, Evanston, IL, 1987. M.S., Northwestern University, Evanston, IL, 1982. B.A., University of Rochester, Rochester, NY, 1980.
- May, Cedrick**, Associate Professor, English, 2007. Ph.D., Penn State University, 2003. M.A., University of Texas at Arlington, 1998. B.A., University of Texas at Arlington, 1996.
- McClellan, Bethany**, Clinical Instructor, Nursing, 2000. M.S.N., University of Texas at Arlington, 1993. B.S.N., Incarnate Word, 1983.
- McConnell, Donald**, Professor, Accounting, 1978. Ph.D., University of North Texas, 1981. M.S., Oklahoma State University, 1971. B.S., Oklahoma State University, 1970.
- Mcdonough, Paul**, Associate Professor, Kinesiology, 2007. Ph.D., Florida State University, 2000. M.S., Northeastern University, 1995. B.S., University of Massachusetts,Boston, 1992.
- Mcfadyen, Margaret**, Associate Professor, Management. Ph.D., Texas AM University - Management, 2000. M.B.A., Texas Tech University, 1981. B.B.A., Texas Tech University - Marketing, 1980.

**Mcgee, Jeffrey**, Associate Professor, Management, 1995. Ph.D., University of Georgia, 1992. M.B.A., Emporia State University, 1986. B.B.A., Southwestern College, 1985.

**McGhee, Terra**, Lecturer, Internship Coordinator, Accounting.

**McKay, Howard**, Clinical Instructor, Nursing, 2007. Post Master's Certificate, ACPNP, The University of Texas at Arlington, 2004. M.S.N., Wichita State University, 1995. B.S.N., Wichita State University, 1991.

**McKeown, Barry**, Professor, Kinesiology, 1983. Ph.D., University of Illinois, 1979. M.S., South Dakota State University, 1967. B.S., South Dakota State University, 1966.

**McLean, Janet**, Clinical Instructor, Nursing, 2007. MSN, UT Arlington, 1992. BSN, Texas Woman's University, 1969.

**McMahan, Gary**, Associate Professor, Management, 1996. Ph.D., Texas AM University, 1993. M.B.A., George Washington University, 1983. B.S., Oakland University, 1981.

**McWilliams, R Leighton**, Associate Professor, Art + Art History. M.F.A., Florida State University, 1982. B.B.A., The University of Texas at Arlington, 1978.

**Megwa, Eronini**, Associate Professor, Communication. Ph.D., University of Missouri Columbia, 1987. M.S., Iowa State University of Science Technology, 1982. B.S., University of Nigeria, 1978.

**Mehta, Madan**, Professor, School of Architecture, 1985. Ph.D., University of Liverpool, 1974. M.Bldg.S., University of Sydney, 1967. University of Roorkee, India, 1961, .

**Meiners, Roger**, Professor, Department Chair, Economics, 1993. J.D., University of Miami, 1978. Ph.D., Virginia Polytechnic Institute, 1976. M.A., University of Arizona, 1972. B.A., Washington State University, 1970.

**Meletis, Efsthios**, Professor, Materials Science and Engineering, 2005. Ph.D., Georgia Institute of Technology, 1981. M.S., Georgia Institute of Technology, 1978. Diploma, National Technical University, Athens, 1975.

**Mellgren, Roger**, Professor, Psychology, 1988. Ph.D., Indiana University, 1970. B.A., University of Kansas, 1966.

**Melotto, Maeli**, Assistant Professor, Biology.

**Melton, Janet**, Clinical Assistant Professor, .

**Meng, Desheng**, Associate Professor, Mechanical Aerospace Engineering, 2014.

**Mercado-Sierra, Marta**, Assistant Professor in Practice, Social Work.

**Messersmith, David**, Lecturer, School of Architecture.

**Michael, Jacqueline**, Clinical Assistant Professor, Nursing, 2005. Ph.D., Texas Woman's University, 2005. M.S.N., University of Texas at El Paso, 1999. W.H.C.N.P., University of Texas Southwestern Medical Center, 1993. B.S.N., Texas Woman's University, 1990.

**Michael, Nancy**, Senior Lecturer, Mechanical Aerospace Engineering.

**Michalski, Jeanne**, Assistant Clinical Professor, Management.

**Miletich, Marko**, Assistant Professor, .

**Miller, Ashley**, Assistant Professor, English, 2012. PhD, Indiana University, 2011. MA, Indiana University, 2005. BA, 2001, .

**Mintz-Binder, Ronda**, Assistant Professor, Nursing, 2011. D.N.P., Case Western Reserve, 2007. M.N., UCLA, 1985. B.S.N., UCLA, 1982. B.A., UC Riverside, 1980.

**Mitchell, Glenda**, Lecturer, Mathematics. M.S., The University of Texas at Arlington, 1997.

**Mitschke, Diane**, Associate Professor, Social Work, 2006. Ph.D., University of Hawaii at Manoa, Honolulu, 2006. M.S.W., University of Michigan, 2001. B.S.W., University of Texas at Austin, 2000.

**Moarke, Lindy**, Clinical Instructor, Nursing, 2005. M.S.N., University of Pennsylvania, 2004. B.S.N., Texas AM University at Corpus Christi, 1992.

**Mohanty, Samarendra**, Assistant Professor, Physics.

**Monghate, Marcia**, Clinical Instructor, Nursing, 2011. MPH, University of Oklahoma, 1984. MSN, University of Cincinnati, 1972. BSN, University of Cincinnati, 1968.



**Moody, Shanna**, Lecturer and Math Learning Resource Director, Mathematics, 2013. M.S., Tarleton State University, 2005. B.S., Angelo State University, 2002.

**Moon, Hyejin**, Associate Professor, Mechanical and Aerospace Engineering, 2007. Ph.D., University of California, Los Angeles, CA, 2005. M.S., Sogang University, 1997. B.S., Sogang University, 1995.

**Moore, Jodie**, Clinical Instructor, Nursing, 2012. M.S.N., The University of Texas at Arlington, ACNP, 2010. B.S.N., Texas Woman's University, 2006.

**Moore, Sara**, Clinical Instructor, Nursing, 2007. Post Master's Certificate, ACPNP, The University of Texas at Arlington, 2005. M.S.N., The University of Texas at Arlington, PNP, 2002. B.S.N., Thomas Jefferson University, 1993.

**Morales-Camargo, Emmanuel**, Assistant Professor, Finance and Real Estate, 2013.

**Morr, Brian**, Clinical Instructor, Nursing, 2008. MSN, University of Michigan, 1979. BSN, Bowling Green State University, 1975.

**Morris, Christopher**, Professor, History, 1992. Ph.D., University of Florida, 1991. M.A., University of Western Ontario, 1985. B.A., University of Western Ontario, 1981.

**Morris, Timothy**, Professor, English, 1990. Ph.D., Princeton University, 1983. B.A., Michigan State University, 1979.

**Mostashari, Shalah**, Visiting Assistant Professor, Economics, 2012. Ph.D., University of Texas at Austin, 2010. M.S., University of Texas at Austin, 2002. B.A., Hollins University, 1992.

**Mullins, Baxter**, Professor in Practice, Mechanical Aerospace Engineering.

**Musielak, Dora**, Adjunct Professor, Physics. Ph.D., .

**Musielak, Zdzislaw**, Professor, Physics, 1999. Ph.D., University of Gdansk, 1980. M.S., 1976. B.S., A. Mickiewicz University, 1975.

**Mydlarz, Laura**, Associate Professor, Biology, 2006. Ph.D., University of California at Santa Barbara, 2004. M.S., Florida Atlantic University, 1998. B.S., Florida Atlantic University, 1996.

**Myers, Helen**, Clinical Instructor, Nursing, 2005. BSN, UT Arlington, 1992. BSN, UT Arlington, 1985.

**Myers, Joyce**, Clinical Assistant Professor, .

N

**Nagoshi, Craig**, Associate Professor, .

**Nagoshi, Craig**, Associate Professor, Psychology, 2013.

**Nagoshi, Julieann**, Assistant Professor, Social Work.

**Najafi, Mohammad**, Professor of Practice, Civil Engineering. M.S., Purdue University, 1988. Ph.D., Louisiana Tech University, 1983. B.S., Texas Tech University, 1976.

**Napier, Randall**, Clinical Assistant Professor, Information Systems and Operations Management, 2013. Ph.D. Operations Management, UT Arlington, 2012. Doctor of Jurisprudence, University of Houston Law Center, 1986. M.S. Management-Accounting, Florida International University, 1977. B.A. Economics, Northwestern University, 1972.

**Narayanasamy, Arun**, Visiting Assistant Professor, Finance and Real Estate, 2012.

**Narrett, David**, Associate Professor, History, 1984. Ph.D., Cornell University, 1981. M.A., Cornell University, 1976. B.A., Columbia University, 1973.

**Nason, Joshus**, Assistant Professor, School of Architecture, 2012. MBA, Texas Tech, .M.ARCH, Texas Tech, .BS. ARCH, Texas Tech, .

**Nelson, Edward**, Lecturer, School of Architecture.

**Nelson, Kristine**, Simulation Operations Manager, Nursing, 2013. MN, Oregon Health Science University, 1983. BSN, Oregon Health Science University, 1976.

**Nelson, Larry**, Associate Professor, Kinesiology.

**Nerur, Sridhar**, Professor, Information Systems and Operations Management, 2002. PHD, University of Texas at Arlington, 1994. Post Graduate Diploma in Management, Indian Institute of Management, 1988. B.Engineering, Bangalore University, 1983.

**Nestell, Galina**, Adjunct Professor, Earth and Environmental Sciences, 1998. Ph.D., All Russia Geological Research Institute, 1990. B.S., Leningrad Mining Institute, 1979.

**Nestell, Merlynd**, Professor, Earth and Environmental Sciences, 1969. M.A., Princeton University, 1977. Ph.D., Oregon State University, 1966. M.A., University of Wisconsin, B.A., Andrews University, 1957. .

**Nestell, Merlynd**, Professor, Mathematics, 1969. M.A., Princeton University, 1977. Ph.D., Oregon State University, 1966. M.A., University of Wisconsin, 1959. B.A., Andrews University, 1957.

**Ngai, Joseph**, Assistant Professor, Physics, 2012. Ph.D., University of Toronto, 2007. M.S., University of Toronto, 2002. B.S., University of Alberta, 2001.

**Nguyen, Kytai**, Associate Professor, Bioengineering. Ph.D., Rice University, 2000. B.S., The University of Minnesota, 1995.

**Nguyen, Tuan M.**, Adjunct Professor, .

**Nickols, Juanita**, Clinical Instructor, Nursing, 2012. MSNEd, UT Arlington, 2012. BSN, UT Austin, 1991.

**Nomura, Seiichi**, Professor, Mechanical Aerospace Engineering, 1982. D.Eng., University of Tokyo, 1982. Ph.D., University of Delaware, 1980. M.S., University of Tokyo, 1977. B.S., University of Tokyo, 1974.

**Noort, Kimberly Van**, Associate Vice Provost for Undergraduate Studies, Modern Languages. Ph.D., Boston University, 1995. M.A., University of Nebraska-Lincoln, 1988. B.A., University of Nebraska-Lincoln, 1986.

**Nordtvedt, Liliana**, Associate Professor, Management, 2004. Ph.D., University of Memphis, 2005. M.B.A., Indiana University of Pennsylvania, 1999. B.S., Universidad de los Andes, 1998.

**Norman, Susan**, Clinical Instructor, Nursing, 2012. MSN Ed, Texas Woman's University, 2010. BSN, UT Arlington, 2004.

**North, Kenda**, Professor, Art + Art History, 1989. M.F.A., State University of New York at Buffalo, 1976. B.A., Colorado College, 1972.

**Nussbaum, Charles**, Associate Professor, Philosophy and Humanities, 1991. Ph.D., Emory University, 1988. M.A., New York University, 1980. M.S., Julliard School of Music, 1970. B.S., Julliard School of Music, 1969.

## O

**Oraintara, Soontorn**, Associate Professor, Electrical Engineering, 2001. Ph.D., Boston University, 2000. M.S., University of Wisconsin, 1996. B.S., King Mongkut's Institute of Technology, 1975.

**Ortiz, Andrew**, Associate Professor, Art + Art History, 1998. M.F.A., State University of New York at Brockport, 1995. M.A., Humboldt State University, 1992. B.A., Humboldt State University, 1990.

**Ozdil, Taner**, Associate Professor, School of Architecture, 2007. Ph.D. Urban Regional Science, Texas AM University, 2006. M. LA, University of Colorado-Denver, 1996. B. LA, Ankara University, 1992.

**Ozturk, Nurcan**, Research Associate Professor, Physics, 2001. PhD, .

**Ozuna, Taryn**, Assistant Professor, ELPS, 2013. BA, Baylor University, 2003. MS, Baylor University, 2005. PhD, University of Texas at Austin, 2012.

**O'Dell, James Mike**, Senior Lecturer, Graduate Advisor, Computer Science and Engineering.

## P

**Palmer, Stanley**, Professor, History, 1973. Ph.D., Harvard University, 1973. A.B., Brown University, 1966.

**Palmeri, Nancy**, Professor, Art + Art History, 1996. M.F.A., University of Nebraska, 1993. B.F.A., Southern Illinois University, 1989.

**Pant, Mohan**, Assistant Professor, Educational Curriculum Instruction, 2012. Ph.D., Southern Illinois University Carbondale, 2011. M.S., Southern Illinois University Carbondale, 2006. M.S., Tribhuvan University Kathmandu, Nepal, 1995.

**Park, Heekyeong**, Assistant Professor, Psychology.

**Park, Sangwook**, Assistant Professor, Physics.

**Parker, Patti**, Clinical Instructor, Nursing, 1994. Post Master's Certificate, ANP/GNP, The University of Texas at Arlington, 1994. M.S.N., The University of Texas at Arlington, 1991. B.S.N., Baylor University, 1983.

**Parker-Ryan, Sally**, Adjunct Professor, .

**Passy, Sophia**, Associate Professor, Biology, 2001. Ph.D., Bowling Green State University, 1997. M.S., Sofia University, 1996.

**Patrick, Vicki**, Clinical Instructor, Nursing, 1997. Post Master's Certificate, ACNP, The University of Texas at Arlington, 1998. M.S.N., University of Colorado, 1976. B.S.N., Texas Christian University, 1972. Diploma, John Peter Smith Hospital School of Nursing, 1970.

- Paulus, Paul**, Professor, Psychology, 1970. Ph.D., University of Iowa, 1971. M.A., University of Iowa, 1970. B.A., Otterbein College, 1966.
- Peng, Yuan**, Associate Professor, Psychology, 2001. Ph.D., The University of Texas Medical Branch, 1996. M.D., West China University of Medical Sciences, 1985.
- Perera, Roshan**, Assistant Professor, Chemistry Biochemistry, 2008. Ph.D. Fellowship, The Scripps Research Institute, 2008. Ph.D., University of South Carolina, 2005. M.S., University of Tromso, Norway, 1999. B.S., Institute of Chemistry Ceylon, 1997.
- Perley, Mary Jo**, Clinical Assistant Professor, Nursing. Ph.D., Ohio State University, 1986. M.S.N., Ohio State University, 1981. B.S.N., Texas Christian University, 1972.
- Perrotti, Linda**, Assistant Professor, Psychology, 2006. Ph.D., Grad School U. Center of the City University of ..., 2000. M.Phil., Grad School U. Center of the City University of ..., 1999. B.S., Montclair State University, 1992.
- Peterson, Lynn**, Professor, Interim Chair, Associate Dean of Engineering, Computer Science and Engineering, 1982. Ph.D., The University of Texas Southwestern Medical Center..., 1978. M.S., University of Michigan, 1966. M.A., Duke University, 1963. B.A., Wittenberg University, 1962.
- Petruso, Karl**, Professor/Dean, Honors College, Anthropology, 1990. Ph.D., Indiana University, 1978. M.A., Indiana University, 1975. A.B., Villanova University, 1972.
- Philp, Kenneth**, Professor Emeritus, History, 1968. Ph.D., Michigan State University, 1968. M.A., University of Michigan, 1964. B.A., Michigan State University, 1963.
- Pierce, Bradley**, Assistant Professor, Chemistry Biochemistry. Ph.D., Carnegie Mellon University, 2003. B.S., California State University, Chico, 1996.
- Pillai, Vijayan**, Professor, Social Work, 1999. Ph.D., University of Iowa, 1983. M.A., University of Indor, India, 1972. B.S.C., University of Trivandrum, India, 1970.
- Pledger, Thomas G.**, Adjunct Professor, .
- Plonien, Cynthia**, Clinical Assistant Professor, Nursing, 2013. D.N.P., Texas Christian University, 2012. M.S.N., The University of Texas at Arlington, 1984. B.S.N., The University of Texas at Arlington, 1978.
- Plumer, Patricia**, Clinical Instructor, Nursing, 2008. MSN, San Jose State University, 1983. BSN, California State University, 1978.
- Plummer, Jack**, Emeritus, .
- Pole, Kathryn**, Assistant Professor, Educational Curriculum Instruction, 2012. Ph.D., Texas Woman's University, 2006. M.L.S., University of North Texas, 1982. B.S., Stephen F. Austin State University, 1980.
- Pomerantz, Martin**, Professor Emeritus, Chemistry Biochemistry, 1976. Ph.D., Yale University, 1964. M.S., Yale University, 1961. B.S., City College of New York, 1959.
- Pool, Christopher**, Assistant Professor, Music. D.M.A., University of Arizona, 2004. M.M., University of Oklahoma, 1997. B.M., University of Central Oklahoma, 1995.
- Popa, Dan**, Associate Professor, Electrical Engineering. Ph.D., Rensselaer Polytechnic Institute, 1998. M.S., Dartmouth College, 1994. B.A., Dartmouth College, 1993.
- Poppo, Phillip**, Professor, Social Work, 2006. Ph.D., Washington University, 1977. M.S.W., Washington University, 1972. B.A., University of North Texas, 1969.
- Porter, Kevin**, Associate Professor, English, 2002. Ph.D., University of Wisconsin, 2002. M.A., Auburn University, 1997. B.A., Trenton State College, 1992.
- Posey, Kim**, Clinical Assistant Professor, Nursing, 2012. DNP, Texas Christian University, 2014. Post Master's, ANP, The University of Texas at Arlington, 2000. MSN, The University of Texas at Arlington, 2000. BSN, Texas Woman's University, 1997.
- Postigo, Gloria Zúñiga y.**, Adjunct Professor, .
- Poudyal, Narayan**, Research Assistant Professor, Physics. Ph.D., .
- Powell, Linton**, Professor, Music, 1976. Ph.D., University of North Carolina, 1974. M.F.A., University of Georgia, 1969. B.M., Florida State University, 1966.
- Prabakar, Srinivas**, Senior Lecturer, Civil Engineering .

**Prater, Edmund**, Associate Professor, Information Systems Operations Management, 2001. Ph.D., Georgia Institute of Technology, 1999. M.S., Georgia Institute of Technology, 1996. M.S., Georgia Institute of Technology, 1988. B.S., Tennessee Technological University, 1986.

**Pribanic-Smith, Erika**, Assistant Professor, Communication. Ph.D., University of Alabama, 2010. M.A., University of Alabama, 1999. B.A., Mount Union College, 1997.

**Price, Martin**, Professor Emeritus, School of Architecture.

**Priddy, Kristen**, Clinical Instructor, Nursing, 1997. MSN, UT Medical Branch at Galveston, 1995. BSN, Oklahoma Baptist University, 1990.

**Priest, John**, Professor, Industrial and Manufacturing Systems Engineering, 1982. Ph.D., The University of Texas at Arlington, 1980. M.S., The University of Texas at Arlington, 1975. B.S., General Motors Institute, 1973.

**Puppala, Anand**, Professor, Civil Engineering, 1996. Ph.D., Louisiana State University, 1993. M.S., Indian Institute of Technology, 1987. B.S., Andhra University, 1985.

## Q

**Quevedo, Steven**, Associate Professor, School of Architecture, 1991. M.ARCH, UT-Arlington, 1989. BS. ARCH, UT-Arlington, 1985.

**Quick, Jim**, Professor, Management, 1977. Ph.D., University of Houston, 1977. M.B.A., University of Houston, 1975. A.B., Colgate University, 1968.

## R

**Raja, M K.**, Professor, Information Systems Operations Management, 1981. M.S., University of Houston, 1978. Ph.D., Texas Tech University, 1971. M.E., Indian Institute of Technology, 1968. B.E., University of Madras, 1966.

**Rajeshwar, Krishnan**, Professor, Chemistry Biochemistry, 1983. Ph.D., Indian Institute of Science, 1974. M.S., Indian Institute of Technology, 1971. B.S., University College, Trivandrum, India, 1969.

**Rakowski, David**, Associate Professor, Finance and Real Estate, 2013.

**Rao, Kamisetty R.**, Professor, Electrical Engineering, 1966. Ph.D., University of New Mexico, 1966. M.S., University of Florida, 1960. M.S., University of Florida, 1959. B.E., University of Madras, 1952.

**Rasheed, Abdul**, Professor, Department Chair, Management, 1988. Ph.D., University of Pittsburgh, 1988. P.G.D.M., Indian Institute of Management, 1981. B.S., Kerala University, India, 1972.

**Rasmussen, Stephanie**, Assistant Professor, Accounting.

**Raudonis, Barbara**, Associate Professor, Nursing, 1997. Ph.D., The University of Texas at Austin, 1991. M.S., University of Colorado, 1984. M.S. Pathology, University of Maryland, 1978. B.S.N., The Catholic University of America, 1978.

**Ray, Christopher**, Associate Professor, Kinesiology, 2007. Ph.D., University of Georgia, 2004. M.S., University of Tennessee, 1998. B.S., University of Tennessee, 1997.

**Razavi, Mohammad**, Senior Lecturer, Civil Engineering .

**Reeder, Harry**, Professor, Philosophy and Humanities, 1982. Ph.D., University of Waterloo, 1977. M.A., University of Waterloo, 1974. B.A., University of Illinois, 1968.

**Reid, Mary Beth**, Clinical Assistant Professor, Nursing, 2011. PhD, University of North Texas, 2005. MSN, Texas Woman's College, 1999. BSN, Texas Woman's University, 1979.

**Reinhardt, Steven**, Associate Professor, History, 1987. Ph.D., Northern Illinois University, 1982. M.A., University of Wisconsin at Madison, 1973. B.A., Southern Illinois University, 1971.

**Rejcek, James**, Adjunct Professor, Physics. Ph.D., .

**Repsis, John**, Senior Lecturer, Graduate Advisor, Accounting, 1987. J.D., Southern Methodist University, 1979. M.B.A., Southern Methodist University, 1979. M.P.A., University of Texas at Arlington, 1979. B.A., Northwestern University, 1975.

**Resch, Jake**, Assistant Professor, Kinesiology. B.S., South Dakota State University, 2003.

**Rex-Lear, Madeline**, Lecturer, Psychology.

**Ricard, Mark**, Professor, Kinesiology, 2005. Ph.D., Southern Illinois University, 1986. M.A.T., Southeast Missouri State University, 1982. B.S., University of Vermont, 1978.

**Richards, James**, Associate Professor, School of Architecture.

- Richardson, Timothy**, Associate Professor, English, 2004. Ph.D., Loyola University, Chicago, 2004. M.F.A., Old Dominion University, 1997. B.A., University of North Texas, 1994.
- Richarme, Michael**, Assistant Clinical Professor, Internship Coordinator, Marketing, 2006. Ph.D., University of Texas at Arlington, 2006. B.S., University of Pennsylvania, 1989. M.A., University of Texas at Austin, 1979. B.A., University of Texas at Arlington, 1977.
- Richmond, Douglas**, Professor Emeritus, History, 1976. Ph.D., University of Washington, 1976. M.A., University of Washington, 1971. B.A., University of Washington, 1968.
- Riley, Jennifer**, Clinical Instructor, Nursing, 2013. FNP, University of Texas School of Nursing, 2009. BSN, University of Texas at Austin, 2004.
- Rimmer, Lora A.**, Professor of Military Science, Military Science.
- Rings, Lana**, Associate Professor, Modern Languages, 1985. Ph.D., University of Southern California, 1985. M.A., University of Missouri, 1973. B.A., Washburn University of Topeka, 1970.
- Robbins, Jeffrey**, Clinical Instructor, Nursing, 2013. MBA, Amberton University, 2009. BSN, UT Arlington, 2011. ADN, Tarrant County College, 2009. BS Management, Amberton University, 1990.
- Robinson, James**, Professor, Biology, 1978. Ph.D., Utah State University, 1978. M.S., Polytechnic Institute of Brooklyn, 1971. B.S., Polytechnic Institute of Brooklyn, 1967.
- Robinson-Freeman, Ericka**, Assistant Professor in Practice, Social Work.
- Rodnitzky, Jerry**, Professor, History, 1966. Ph.D., University of Illinois, 1967. M.A.T., University of Chicago, 1962. B.A., University of Chicago, 1959.
- Rodrigues, Jorge**, Assistant Professor, Biology.
- Rodriguez, Alejandro**, Associate Professor, Urban and Public Affairs. Ph.D., Florida International University, 1999. M.P.A., Marist College, 1991. B.S., City College of New York, 1982.
- Rodriguez, Alejandro**, Associate Professor, Public Administration. Ph.D., Florida International University, 1999. M.P.A., Marist College, 1991. B.S., City College of New York, 1982.
- Rodriguez, John**, Associate Professor, Criminology Criminal Justice. Ph.D., Prairie View AM University, 2007. M.S., University of Texas-Pan American, 2003. B.S., University of Texas-Pan American, 1998.
- Roelke, Corey**, Lecturer, Biology.
- Roemer, Kenneth**, Professor, English, 1971. Ph.D., University of Pennsylvania, 1971. M.A., University of Pennsylvania, 1968. B.A., Harvard University, 1967.
- Rogers, Jaimie**, Professor, Industrial and Manufacturing Systems Engineering. Ph.D., The University of Texas at Arlington, 1985. M.S., The University of Texas at Arlington, 1981. B.S., The University of Missouri at Columbia, .
- Rogers, Jimmy**, Senior Lecturer, Chemisry Biochemistry.
- Rogers, Meagan**, Clinical Instructor, Nursing, 2011. MSN Ed, Walden University, 2011. BSN, Texas Christian University, 2005.
- Rogers, Robert**, Clinical Professor, MSMR Program Director, Marketing, 2007. Ph.D., Business Administration, University of Nebraska, 1979. M.A., Marketing, University of Nebraska, 1973. B.A., Latin American Studies, University of Nebraska, 1971.
- Romanoschi, Stefan**, Associate Professor, Civil Engineering. Ph.D., Louisiana State University, 1999. M.S., Louisiana State University, 1996. B.S., Technical University Gheorghe Asachi Iassy Romania, 1991.
- Romero-Ortega, Mario**, Associate Professor, Bioengineering, 2011. Post Doctoral, Univ. Texas Southwestern Medical Ctr, 2002. Post Doctoral, Univ. Texas Southwestern Medical Ctr, 1999. Ph.D., Tulane University, 1997. B.S., Guadalajara University, 1991.
- Roner, Michael**, Associate Professor, Biology, 2002. Ph.D., 1986. M.S., Miami University, 1983. B.S., Oregon State University, 1980.
- Rosado, Luis**, Professor, Educational Curriculum Instruction. Ed.D., Texas AM University at Kingsville, 1986. M.Ed., Boston State College, 1980. B.A., University of Puerto Rico, 1975.
- Rose, Sarah**, Assistant Professor, History, 2009. Ph.D., University of Illinois at Chicago, 2008. M.A., University of Chicago, 2001. B.A., University of Chicago, 1997.
- Rosenberger, Jay**, Associate Professor, Industrial and Manufacturing Systems Engineering, 2003. Ph.D., Georgia Institute of Technology, 2001. M.S., University of California ,Berkeley, 1997. B.S., Harvey Mudd, 1996.

**Rouse, Linda**, Associate Professor, Sociology and Anthropology, 1985. Ph.D., Florida State University, 1979. M.A., Adelphi University, 1972. B.S., Cornell University, 1968.

**Rowe, Harold**, Assistant Adjunct Professor, Earth and Environmental Sciences, 2008. Ph.D., Stanford University, 2002.

**Roye, Jennifer**, Clinical Instructor Clinical Coordinator APBSN, Nursing, 2003. MSN, UT Arlington, 2003. BSN, UT Arlington, 1998.

**Rueda-Acedo, Alicia**, Associate Professor, Modern Languages, 2005. B.A./M.A. in Journalism, University of Seville, Spain, 1998. B.A./M.A. in Translation and Interpreting, University of Granada, Spain, 2001. Sworn Translator of Spanish and English, Spanish Ministry of Foreign Affairs, 2001. Ph.D. in Hispanic Languages and Literatures, University of California, Santa Barbara, .

**Ruiz-Pérez, Ignacio**, Associate Professor, Modern Languages, 2005. Ph.D., University of California, Santa Barbara, 2005. Licencia, University of Veracruz, Mexico, 1998.

**Rusher, Thomas**, Lecturer, School of Architecture.

**Russell, Howard**, Senior Lecturer, Electrical Engineering, 2005. Ph.D., Santa Clara University, 1976. M.S., Texas A M University, 1967. B.S., Texas A M University, 1966.

**Ryan, Josephine**, Lecturer, Sociology and Anthropology.

**Ryan, Scott**, Professor/Dean, School of Social Work, Social Work.

## S

**Sabbagh, Joseph**, Assistant Professor, Linguistics, 2009. Ph.D., Massachusetts Institute of Technology, 2005. B.A., University of California, Santa Cruz, 2000.

**Sabherwal, Sanjiv**, Associate Professor, Finance and Real Estate, 2004. Ph.D., Georgia Institute of Technology, 2000. M.B.A., University of Miami, 1990. B.T., Indian Institute of Technology, New Delhi, 1987.

**Sagar, Ram**, Adjunct Professor, Physics. Ph.D., .

**Saini, Ritesh**, Assistant Professor, Ph.D. Advisor, Marketing, 2009. Ph.D., University of Pennsylvania - Wharton, 2008. M.S., University of Pennsylvania, 2001. B.Eng., MN Regional Engineering College, 1995.

**Salinas, Cristina**, Assistant Professor, History, 2012. Ph.D., University of Texas, 2011.

**Sanchez, Katherine**, Assistant Professor, Social Work. Ph.D., University of Texas at Austin, 2011. M.S.S.W., University of Texas at Austin, 1992. B.A., University of Texas at Austin, 1989.

**Sanchez, Terri**, Visiting Assistant Professor, Music, 2013.

**Sanders, Robert**, Physics. Ph.D., .

**Sandhu, Kamal**, Simulation Facilitator, Nursing, 2013. MSN Ed, UT Arlington, 2012. BSN, UT Arlington, 2007.

**Sarkar, Salil**, Associate Professor, Ph.D. Program Coordinator, Finance and Real Estate, 1997. Ph.D., Louisiana State University, 1991. M.B.A., Northeast Louisiana University, 1987. B.S., Indian Institute of Technology, 1977.

**Sasley, Brent**, Associate professor, Political Science. Ph.D., McGill University, 2007. M.A. , University of Manitoba, 1998. B.A., University of Manitoba, 1994.

**Sattler, Melanie**, Associate Professor and Graduate Advisor, Civil Engineering, 2003. Ph.D., The University of Texas at Austin, 1996. M.S., The University of Texas at Austin, 1993. B.S., Texas AM University, 1990.

**Saunders, Daniel B.**, Assistant Professor, Educational Leadership and Policy Studies.

**Savko, Carolyn**, Lecturer, Music.

**Saxe, Allan**, Associate Professor, Political Science, 1965. Ph.D., University of Oklahoma, 1969. M.A., University of Oklahoma, 1963. B.A., University of Oklahoma, 1961.

**Saxon, Gerald**, Associate Professor, History, 1987. Ph.D., University of North Texas, 1979. M.A., Lamar University, 1975. B.A., Lamar University, 1973.

**Scannapieco, Maria**, Professor, Social Work, 1996. Ph.D., University of Minnesota, 1991. M.S.W., Temple University, 1984. B.S.W., California State University, 1980.

**Schachar, Ronald**, Adjunct Professor, Physics. Ph.D., .

**Schargel, Walter**, Lecturer, Biology.

**Scheid, Susan**, Simulation Facilitator, Nursing, 2009. MSN Ed, UT Tyler, 2009. BSN, Baylor University, 1982.

**Shelly, Zoltan**, Professor Emeritus, Chemistry Biochemistry, 1977. D.Sc., Vienna Technical University, 1967. B.S., Vienna Technical University, 1962.

**Schira, Mary**, Associate Dean, Nursing, 1992. Ph.D., Medical College of Georgia, 1997. M.S.N., Duke University, 1980. B.S.N., Ohio State University, 1974.

**Schizas, Ioannis**, Assistant Professor, Electrical Engineering. Ph.D., University of Minnesota, 2011. M.Sc., University of Minnesota, 2007. 5-year Diploma, University of Patras, Greece, 2004.

**Schug, Kevin**, Associate Professor, Chemistry Biochemistry, 2005. Virginia Polytechnic Institute State University, 2002, B.S.. College of William Mary, 1998, .

**Schwartz, Marc**, Professor, Educational Curriculum Instruction, 2007. Ed.D., Harvard University, 2000. M.Ed., University of New Hampshire, 1983. B.S., University of New Hampshire, 1982.

**Scielzo, Shannon**, Assistant Professor, Psychology.

**Scott, Karen**, Senior Lecturer, Information Systems and Operations Management, 1999. M.S. Information Systems, UT Arlington, 1997. B.B.A. Finance, UT Arlington, 1990.

**Sears, Ken**, Senior Lecturer, Information Systems and Operations Management, 2002. MBA, UT Arlington, 1996. B.A.B.A., Dallas Baptist University, 1994.

**Semingson, Peggy**, Assistant Professor, Educational Curriculum Instruction, 2008. Ph.D., University of Texas, 2008. M.Ed., Texas State University, 2004. B.A., University of California, Santa Barbara, 1996.

**Seo, Dong-Jun**, Associate Professor, Civil Engineering. Ph.D., Utah State University, 1988. M.S., Massachusetts institute of Technology, 1985. B.S., Seoul National University, 1983.

**Sharma, Suresh**, Professor, Physics, 1977. Ph.D., Brandeis University, 1976. M.S., Meerut University, India, 1967. B.S., Agra University, India, 1965.

**Shaw, Charla Markham**, Associate Professor, Communication, 1993. Ph.D., Louisiana State University, 1993. M.A., Baylor University, 1987. B.A., Angelo State University, 1986.

**Shelton, Beth Anne**, Professor, Sociology and Anthropology, 1994. Ph.D., The University of Texas at Austin, 1984. M.A., The University of Texas at Austin, 1980. B.S., Southern Methodist University, 1977.

**Shelton, Jason**, Assistant Professor, Sociology and Anthropology. Ph.D., University of Miami, 2005. M.A., University of Miami, 2000. B.A., Kent State University, 1998.

**Shiakolas, Panayiotis**, Associate Professor, Mechanical Aerospace Engineering, 1996. Ph.D., The University of Texas at Arlington, 1992. M.S., The University of Texas at Austin, 1988. B.S., The University of Texas at Austin, 1986.

**Shin, Donghyun**, Assistant Professor, Mechanical Aerospace Engineering. Ph.D., Texas AM University, 2011. M.S., Ohio University, 2008. B.S., Hanyang University, 2006.

**Shipman, Barbara**, Associate Professor, Mathematics, 1998. Ph.D., University of Arizona, 1995. B.S., University of Arizona, 1989.

**Sikora, Riyaz**, Associate Professor, Information Systems Operations Management, 2002. Ph.D., University of Illinois at Urbana-Champaign, 1994. B.Eng., Osmania University, 1987.

**Silva, David**, Professor, Linguistics, 1993. Ph.D., Cornell University, 1992. M.A., Cornell University, 1989. A.B.MCL, Harvard University, 1986.

**Skantz, Terrance**, Associate Professor, Accounting. Ph.D., Oklahoma State University, 1979. M.S., University of Southern Miss., 1973. B.S., University of Southern Miss., 1972.

**Sledge, Daniel**, Assistant Professor, Political Science, 2010. Ph.D., Cornell University, 2010. M.S., Cornell University, 2008. B.A., Indiana University-Bloomington, 2003.

**Slinkman, Craig**, Professor, Information Systems Operations Management, 1979. Ph.D., University of Minnesota, 1984. M.B.A., Bowling Green University, 1975. B.S., Bowling Green University, 1974.

**Sloan, Kevin**, Assistant Professor in Practice, School of Architecture.

- Small, Eusebius**, Assistant Professor, Social Work. Ph.D. Fellowship, Washington University, 2011. Ph.D., University of Houston, 2009. M.S.S.W., Columbia University, NY, 2001. B.S.W., Ramapo College, 2000.
- Smallwood, Aaron**, Associate Professor, Economics, 2006. Ph.D., Florida State University, 2001. M.S., Florida State University, 2000. B.S., Florida State University, 1995.
- Smith, Brian J.**, Adjunct Professor, .
- Smith, David**, Lecturer, Mathematics. M.S., The University of Texas at Arlington, 2000.
- Smith, Dudley**, Professor in Practice, Mechanical Aerospace Engineering.
- Smith, Dwain Ya-Ke**, Assistant Professor, Art + Art History.
- Smith, Eric**, Associate Professor, Biology.
- Smith, Jason**, Clinical Instructor, Nursing, 2015. MSN, PMHNP, The University of Texas at Arlington, 2010. BSN, The University of Texas at Arlington, 2010. AAS, Nursing, Paris Junior College, 1999.
- Smith, Johanna**, Associate Professor, English, 1988. Ph.D., Claremont Graduate School, 1985. M.A., Claremont Graduate School, 1971. B.A., University of San Francisco, 1969.
- Smith, John**, Professor, Educational Curriculum Instruction, 2008. Ph.D., University of North Carolina at Chapel Hill, 1987. M.A., University of Utah, 1980. B.S., Brigham Young University, 1975.
- Smith, Kristy**, Senior Lecturer, Criminology Criminal Justice. M.A., University of Texas at Arlington, 2009. B.A., University of Texas at Arlington, 2004.
- Smith, Richard A.**, Senior Lecturer, Criminology Criminal Justice. Ph.D., University of Texas at Arlington, 2000. M.A., University of South Florida, 1975. B.A., Florida Presbyterian College, 1971.
- Smith, Shelley**, Professor, Sociology and Anthropology, 1991. Ph.D., University of Michigan, 1990. A.M., University of Michigan, 1985. B.A., Southern Methodist University, 1984. B.S., Southern Methodist University, 1984.
- Smith-Osborne, Alexa**, Associate Professor, Social Work, 2006. Ph.D., University of Maryland, 2006. M.S.W., University of Maryland, 1975. B.A., University of Virginia, 1973.
- Snow, Diane**, Clinical Professor, Nursing, 1979. Post Master's Certificate, The University of Texas at Arlington, PMHNP, 1995. Ph.D., Texas Woman's University, 1992. M.S.N., The University of Texas at Arlington, 1979. B.S.N., Duke University, 1967.
- Sol, Antoinette**, Associate Professor, Modern Languages, 1995. Ph.D., University of California at Los Angeles, 1994. M.A., University of California at Los Angeles, 1990. B.A., Loyola-Marymount University, 1975.
- Solomons, John**, Associate Professor, Music, 1997. D.M.A., University of North Texas, 2003. M.M., University of Hartford, 1984. B.M., Texas Christian University, 1982.
- Speier, Amy**, Assistant Professor, Sociology and Anthropology, 2012. Ph.D., University of Pittsburgh, 2005. B.S., University of California Berkeley, 1997.
- Spivey, Christy**, Assistant Professor, Economics. Ph.D., The University of Texas at Austin, 2006. B.Ss., Tulane University, 1998.
- Spurlock, Barry**, Lecturer, Physics, 1998. Ph.D., University of Texas at Arlington, .
- Srinidhi, Bin**, Professor, Accounting, 2012. Ph.D., Columbia University, 1984.
- Standlee, Larry**, Associate Adjunct Professor, Earth and Environmental Sciences, 2000. Ph.D., Rice University, 1978.
- Stavridis, Andreas**, Assistant Professor, Civil Engineering. Ph.D., University of California, San Diego, 2009. M.Sc., University of California, San Diego, 2004.
- Stefan, Alexandra**, Senior Lecturer, Undergraduate Advisor, Computer Science and Engineering, 2013. M.S. Computer Science, Boston University, .Ph.D. Computer Science, University of Texas Arlington, 2012.
- Stephanou, Harry**, Professor, Electrical Engineering, 2004. Ph.D., Purdue University, 1976. M.S.E., Purdue University, 1973. B.S.E.E., American University of Beirut, 1972.
- Stephens, Noni**, Clinical Instructor, Nursing, 2003. MSN, UT Arlington, 1998. BSN, University of Texas at Houston, 1977.



- Stevenson, Dixie**, Clinical Instructor, Nursing, 2012. M.S.N., The University of Texas at Arlington, 2004. B.S.N., The University of Texas at Arlington, 1992.
- Stiller, Janeth**, Clinical Assistant Professor, Nursing, 2001. PhD, Texas Woman's University, 2000. MSN, Texas Woman's University, 1985. BSN, Texas Christian University, 1976.
- Stodnick, Jacqueline**, Associate Professor, English, 2002. Ph.D., University of Notre Dame, 2002. M.Phil., University of Manchester, 1995. B.A., University of Manchester, 1994.
- Stohr, Rachel**, Assistant Professor, Communication, 2013. Ph. D., University of Nebraska, 2013. M.A., University of New Mexico, 2009. B.A., University of New Mexico, 2006.
- Story, Dale**, Professor, Political Science, 1978. Ph.D., Indiana University, 1978. M.A., Indiana University, 1974. B.A., Southern Methodist University, 1972.
- Stotter, Douglas**, Associate Professor, Music, 2005. D.M.A., University of Iowa, 1993. M.M., University of Michigan, 1985. B.M.E., University of Michigan, 1983.
- Stvan, Laurel**, Associate Professor, Linguistics, 2001. Ph.D., Northwestern University, 1998. M.A., 1988. B.A., University of Illinois at Chicago, 1986.
- Su, Chunke**, Associate Professor, Communication. Ph. D., University of Illinois at Urbana, Champaign, 2007. M.A., University of Illinois at Urbana, Champaign, 2002. B.A., Peking University, Beijing, 2000.
- Su, Jianzhong**, Professor and Chair, Mathematics, 1990. Ph.D. , University of Minnesota, 1990. B.S. , Shanghai Jiaotong University, 1984.
- Su, Jianzhong**, Professor, Mathematics, 1990. Ph.D., University of Minnesota, 1990. B.S., Shanghai Jiaotong University, 1984.
- Subbarao, Kamesh**, Associate Professor, Mechanical Aerospace Engineering. Ph.D., Texas AM University, 2001. M.S., Indian Institute of Science, 1995. B.Tech., Indian Institute of Science, 1993.
- Subramaniam, Chandra**, Associate Professor, Department Chair, Accounting, 2003. Ph.D., University of Minnesota, 1993. B. Acct., University of Minnesota, 1984. M.B.A., Univeristy of Minnesota, 1984. B.Sc., University of Malaya, 1978.
- Sun-Mitchell, Shan**, Professor, Mathematics, 2007. Ph.D., Indiana University, 1992. M.S., Indiana University, 1989. B.S., Tongji University, 1982.
- T**
- Tang, Liping**, Professor, Bioengineering Professor. Ph.D., University of Minnesota, 1992. M.S., National Taiwan University, 1988. B.S., Tunghai University, 1986.
- Tanizaki, Seiichiro**, Lecturer, Chemistry Biochemistry.
- Taylor, Lisa**, Clinical Assistant Professor, Nursing, 2006. Ph.D., Texas Woman's University, 2000. Post Master's Certificate, Texas Woman's University, FNP, 1995. M.S.N., Texas Woman's University, 1994. B.S.N., Texas Woman's University, 1979.
- Taylor, Martin**, Professor, Accounting, 1988. Ph.D., The University of Texas at Austin, 1974. M.B.A., The University of Texas at Austin, 1970. B.Comm., University of Cape Town, 1966.
- Taylor, Pat D.**, Program Director of Landscape Architecture, School of Architecture. Ph.D Organizational Studies, University of Texas at Austin , .MS Park Administration/Landscape Architecture, Texas Tech University, .BS Park Administration/Landscape Architecture, Texas Tech University, .
- Taylor, Robert**, Professor in Practice, Mechanical Aerospace Engineering.
- Teng, James**, Professor, Information Systems Operations Management, 2002. M.S., University of Illinois, 1971. Ph.D., University of Minnesota, 1971. B.A., National Taiwan University, 1966.
- Terrasi, Salvatore**, Assistant Professor, Art + Art History.
- Thomas, Daniel L.**, Adjunct Professor, .
- Thomas, GiGi**, Clinical Assistant professor, Nursing, 2015. DNP, The University of Texas at Arlington, 2013. MSN, The University of Texas at Arlington, FNP, 2008. BSN, The Univrsity of Texas ar Arlington, 2004.
- Thomas, Patricia**, Clinical Assistant Professor, Nursing, 2010. PhD, UT Arlington, 2011. MSN, Vanderbilt University, 1991. BSN, University of Memphis, 1988.
- Thompson, Claude**, Lecturer, School of Architecture.
- Tibbals, Harry Fred**, Research Professor, Materials Science and Engineering, 2003. Ph.D., University of Houston, 1970. B.S., Baylor University, 1965.

**Tice, Kathleen**, Clinical Assistant Professor, .

**Tiernan, Carter**, Senior Lecturer, Assistant Dean of Engineering , of the College of Engineering, 2001. B.A., University of Tennessee, 1983. M.S., The University of Texas at Dallas, 1987. Ph.D., The University of Texas at Arlington, 1992.

**Tigner, Amy**, Associate Professor, English, 2006. PhD, Stanford University, 2003. M. A., University of Wyoming, 1994. B. A., University of Wyoming, 1988.

**Timmons, Richard**, Professor, Chemistry Biochemistry, 1977. Ph.D., The Catholic University of America, 1962. B.Sc., St. Francis Xavier University, Canada, 1958.

**Tinajero, Cynthia**, Clinical Instructor, Nursing, 2010. MSN Ed, Texas Woman's University, 2009. BSN, UT El Paso, 2004.

**Tindell, Shawn**, Clinical Instructor Clinical Coordinator BSN, Nursing, 2010. MSN, UT Arlington, 2009. BSN, UT Arlington, 1982.

**Tjuatja, Saibun**, Associate Professor, Electrical Engineering, 1993. Ph.D., The University of Texas at Arlington, 1992. M.S., Purdue University, 1988. B.S., The University of Texas at Arlington, 1987.

**Tobolowsky, Barbara**, Assistant Professor, Educational Leadership and Policy Studies, 2009. Ph.D., University of California, Los Angeles, 2001. M.A., University of California, Los Angeles, 1998. M.A., Northwestern University, 1979. B.S., University of Texas at Austin, 1976.

**Tommerdahl, Jodi**, Associate Professor, Educational Curriculum Instruction, 2010. Ph.D., La Sorbonne, 2002. D.E.A., Ecole des Hautes Etudes en Sciences Sociales, 1996. M.A., University of London, 1994. University of Minnesota, 1991, .

**Tong, Albert**, Associate Professor, Mechanical Aerospace Engineering, 1983. Ph.D., Carnegie-Mellon University, 1983. M.S., California Institute of Technology, 1978. B.S., University of Hawaii, 1977.

**Tonry, Lianne**, Clinical Instructor, Nursing, 2013. MN, University of South Carolina, 1991. BSN, University of New Hampshire, 1982.

**Torti, Russell**, Adjunct Professor, Physics. Ph.D., .

**Trache, Maria**, Associate Professor, Educational Leadership and Policy Studies.

**Trejo, Angela**, Clinical Instructor, Nursing, 2011. MSN, Loyola University New Orleans, 2008. BSN, Loyola University Chicago, 2002.

**Tremayne, Mark**, Assistant Professor, Communication. Ph.D., University of Wisconsin, Madison, 2002. M.A., University of Texas, Austin, 1998. B.A., University of California, Berkeley, 1989.

**Trevino, Roberto**, Professor Emeritus, .

**Trowbridge, Cynthia**, Associate Professor, Kinesiology, 2004. Ph.D., Brigham Young University, 2004. M.S., Indiana State University, 1994. B.S., University of Colorado, 1992.

**Tsay, Jeffrey**, Professor, Accounting, 1974. Ph.D., University of Missouri, 1973. M.A., University of Missouri, 1969. B.B.A., National Chengchi University, 1966.

U

**Urban, Regina**, Clinical Instructor, Nursing, 2012. MSN, Texas Tech University, 2011. BSN, Texas Christian University, 1997.

**Usai, Giulio**, Research Assistant Professor, Physics. Ph.D., .

V

**Vaccaro, Mary**, Professor, Art + Art History, 1994. Ph.D., Columbia University, 1994. M.A., Columbia University, 1988. B.A., Williams College, 1986.

**Vancliff, Michaela**, Professor, Mathematics, 1998. Ph.D., University of Washington, 1993. B.S., University of Warwick, 1986.

**Varner, Michael**, Associate Professor, Music, 1981. D.M.A., University of North Texas, 1999. M.M., University of Michigan, 1977. B.M.E., Bowling Green State University, 1976.

**Vartapetian, Armen**, Research Assistant Professor, Physics. Ph.D., .

**Vasilyev, Michael**, Associate Professor, Electrical Engineering, 2011. Ph.D., Northwestern University, Evanston, IL, 1999. M.S., Moscow Institute of Physics and Technology, Russia, 1993.

**Veerabathina, Nila**, Senior Lecturer, Physics, 2005. Ph.D., Aryabhata Research Institute of Observational Sciences (ARIES)/ Kumaun University, Naini Tal, India , 2003. M.S., Punjabi University, 1994. B.S., Kurukshetra University, 1992.

**Veit, Dennis**, Lecturer, Graduate Advisor, Internship Coordinator, Management.

**Velez, Lea**, Assistant Professor in Practice, Social Work.

**Venkataraman, Ramgopal**, Associate Professor, Accounting, 2013. Ph.D., Pennsylvania State University, 2001. B. Sc. (Physics), University of Madras, 1984.

**Viancourt, Mary Ellen**, Clinical Instructor, Nursing, 2011. MSN, University of California, San Francisco, 1974. BSN, California State University, 1973.

W

**Walker, Roger**, Professor, Computer Science and Engineering, 1973. Ph.D., The University of Texas at Austin, 1972. M.S., The University of Texas at Austin, 1970. B.S., The University of Texas at Austin, 1963.

**Wallace, Jamie**, Lecturer, School of Architecture. BS. INTD, UT-Arlington, 2009. M.ARCH, UT-Arlington, 2013.

**Wallman, Jeff**, Assistant Clinical Professor, Marketing, 2014. Ph.D, The University of Wisconsin, 2005. M.M., Northwestern University, 1987. B.S., Cornell College, 1976.

**Walsh, Matthew**, Assistant Professor, .

**Walvoord, Martha**, Associate Professor, Music, 2006. D.M.A., University of Michigan, 2005. M.M., University of Michigan, 2002. B.M., Rice University, 2000.

**Wang, Bo**, Professor, Mechanical Aerospace Engineering, 1983. Ph.D., University of Virginia, 1974. M.S., University of Missouri, 1970. B.S., National Taiwan University, 1967.

**Wang, Jingguo**, Associate Professor, Information Systems Operations Management, 2007. Ph.D., State University of New York at Buffalo, 2007. M.S., State University of New York at Buffalo, 2005. B.S. , Fudan University, 1998.

**Wang, Shouyi**, Assistant Professor, Industrial and Manufacturing Systems Engineering. Ph.D., Rutgers, 2012. M.S., Delft University of Technology, 2005. B.S, Harbin Institute of Technology, 2003.

**Ward, Michael**, Professor, Economics, 2002. Ph.D., University of Chicago, 1993. M.A., University of Chicago, 1986. B.A., University of California, Los Angeles, 1983.

**Warren, James**, Assistant Professor, English. Ph.D., The University of Texas at Austin, 2006. M.A., The University of Virginia, 1999. B.A., The University of Oklahoma, 1997.

**Washington, Sara**, Clinical Instructor, Nursing, 2009. MSN, Texas Woman's University, 1990. BSN, Texas Woman's University, 1977.

**Wasserman, Lewis**, Associate Professor, Educational Leadership and Policy Studies. J.D., St. John's University School of Law, 1984. Ph.D., Hofstra University, 1974. M.A., Hofstra University, 1973. B.A., Hofstra University, 1969.

**Watson, Larry**, Assistant Professor, Social Work. Ph.D., University of Texas at Arlington, 2007. M.S.S.W., University of Texas at Arlington, 1980. M.A., Sam Houston State University, 1975. B.S., Texas Tech University, 1971.

**Watson, Sonja**, Assistant Professor, Modern Languages, 2007. M.A., University of Tennessee, 2005. Ph.D., University of Tennessee, 2005. B.A., College of William and Mary, 1996.

**Weatherton, Yvette**, Senior Lecturer, Civil Engineering.

**Weems, Bob**, Associate Professor, Computer Science and Engineering, 1985. Ph.D., Northwestern University, 1984. M.S., Northwestern University, 1982. B.A., Lewis University, Illinois, 1980.

**Weiss, Alexander**, Department Chair, Professor, Physics, 1984. Physics, Brandeis University, 1983. B.S., City College of New York, 1976.

**Weiss, Barton**, Associate Professor, Art + Art History, 1998. M.F.A., Columbia University, 1978. B.A., Temple University, 1975.

**West, Mike**, Clinical Professor, Economics, 2013. Ed.D., Nova Southeastern University, 2002. M.S. Economics, University of North Texas, 1987. B.S. Psychology, University of North Texas, 1977.

**West, Royce**, Senior Lecturer, Criminology Criminal Justice. J.D., Texas Southern University, 2008. B.S., Southern University, 1997.

**Westmoreland, Sandra**, Lecturer, Biology.

**Wetz, David A.**, Assistant Professor, Electrical Engineering, 2011. Ph.D., Texas Tech University, 2006. M.S., Texas Tech University, 2004. B.S., Texas Tech University, 2003.

**Wheat, Dustin**, Lecturer, School of Architecture, 2009. M.ARCH, UT-Arlington, 2008. BS. ARCH, UT-Arlington, 2006.

- White, Alison**, Clinical Assistant Professor, Kinesiology, 2013. Ph.D., University of Arkansas Fayetteville, Arkansas, 2005. M.Ed. , East Tennessee State University, 1997. B.S.E., University of Arkansas, Fayetteville, Arkansas, 1995.
- White, Andrew**, Professor, Physics, 1991. Ph.D., Westfield College, University of London, 1972. B.Sc., University of Southampton, 1969.
- White, Pamela**, Clinical Instructor Clinical Coordinator APBSN, Nursing, 2012. MSN, Northwestern State University of Louisiana, 1999. BSN, Northwestern State University of Louisiana, 1987.
- Whiteside, Mary**, Professor, Information Systems Operations Management, 1984. Ph.D., Texas Tech University, 1974. M.S., Texas Tech University, 1966. B.A., The University of Texas at Austin, 1965.
- Whittemore, Andrew**, Assistant Professor, City and Regional Planning. Ph.D., University of California, Los Angeles, 2010. M.C.P., Massachusetts Institute of Technology, 2004. B.A., Haverford College, 2002.
- Wickham, John**, Professor, Earth and Environmental Sciences, 1992. Ph.D., Johns Hopkins University, 1969. B.A., Pomona College, 1960.
- Wigley, Shelley**, Assistant Professor, Communication. Ph.D., University of Oklahoma, 2007. M.A., Oklahoma State University, 1999. B.S., Oklahoma State University, 1991.
- Wilensky, Terrance**, Assistant Clinical Professor, Management.
- Wilk-Blaszczak, Malgosia**, Lecturer, Biology.
- Williams, James**, Professor, Civil Engineering, 1986. Ph.D., The University of Texas at Austin, 1986. M.S.C.E., University of New Mexico, 1977. B.S., University of New Mexico, 1976.
- Williams, Leslie**, Clinical Instructor, Nursing, 2015. MSN, The University of Texas at Arlington, NNP, 2011. BSN, Texas Woman's University, 2006.
- Williford, Kenneth**, Chair, .
- Williford, Kenneth**, Associate Professor, Philosophy and Humanities, 2009. Ph.D., University of Iowa, 2003. M.A., University of Iowa, 2000. B.A., UT Arlington, 1995.
- Wilson, Nancy**, Clinical Assistant Professor, Nursing, 1998. J.D., Southern Methodist University School of Law, 1987. MSN, UT Arlington, 1982. MA, UT Arlington, 1981. BSN, Texas Woman's University, 1980.
- Wilson, Donald**, Professor, Mechanical Aerospace Engineering, 1968. Ph.D., The University of Texas at Arlington, 1973. M.S., University of Tennessee, 1965. B.S., Georgia Institute of Technology, 1961.
- Wilson, Judy**, Associate Professor, Kinesiology, 2000. Ph.D., Kent State University, 1984. M.S., California Polytechnic University, 1978. B.S., Pacific Union College, 1972.
- Wilson, Linda**, Lecturer, .
- Wimberly, Clarence**, Senior Lecturer, Mechanical Aerospace Engineering, 2011. Ph.D., Texas AM University, 1968. M.S., The University of Alabama, 1965. B.S., Texas AM University, 1961.
- Winguth, Arne**, Assistant Professor, Earth and Environmental Sciences, 2007. Ph.D., University of Hamburg and Max-Planck-Institute, 1997. M.S., University of Hamburg and Max-Planck-Institute, 1992. B.S., University of Hamburg, 1987.
- Witzel, Jeffrey**, Assistant Professor, Linguistics. Ph.D., University of Arizona, 2010. M.A., University of Arizona, 2007. M.A., University of Hawaii, 2002. B.A., University of Massachusetts at Amherst, 1997.
- Witzel, Naoko**, Assistant Professor, Linguistics and TESOL, 2013. PhD, University of Arizona, .
- Wood, Glen**, Clinical Instructor, Nursing, 2007. MSN, Vanderbilt University, 1997. BSN, University of Tennessee, 1993. BA, University of Tennessee, 1992.
- Wood, Nicholas**, Professor, .
- Wood, Phyllis**, Clinical Assistant Professor, Nursing, 2012. D.N.P., Concordia University Wisconsin, 2010. M.S.N., Baylor University, Louise Herrington School of Nursing, 2006. B.S.N., Baylor University, Louise Herrington School of Nursing, 1999.
- Woods, Robert**, Professor, Mechanical Aerospace Engineering, 1974. Ph.D., Oklahoma State University, 1971. M.S., Oklahoma State University, 1970. B.S., Southern Methodist University, 1968.
- Woody, Debra**, Associate Professor/Associate Dean for Academic Affairs, Social Work, 1996. PhD, Virginia Commonwealth, 1996. MSW, Columbia University, 1981. BSW, Texas Christian University, 1979.

**Wright, Beth**, Professor/Dean, College of Liberal Arts, Art + Art History, 1984. Ph.D., University of California at Berkeley, 1978. M.A., University of California at Berkeley, 1972. B.A., Brandeis University, 1970.

**Wright, Kimberly**, Clinical Assistant Professor, Nursing, 2011. DNP, .MSN, Arkansas State University, FNP, 2007. BSN, University of Tennessee at Memphis, 1993.

**Wright, Lee Carroll**, Professor Emeritus, School of Architecture. M.ARCH, UT-Austin, 1968. B.ARCH, UT-Austin, 1963.

**Wright, Matthew**, Associate Professor, Computer Science and Engineering, 2005. Ph.D., University of Massachusetts, 2005. M.S., University of Massachusetts, 2002.

**Wunder, Timothy**, Associate Clinical Professor, Graduate Advisor, Economics. Ph.D., Colorado State University, 2003. M.A., Colorado State University, 1998. B.A., Western Washington University, 1993.

**Wyrick, Nancy**, Clinical Instructor, Nursing, 2000. M.S., University of Texas at Arlington, 1993. B.S.N., University of Texas at Arlington, 1989.

X

**Xu, Ling**, Assistant Professor, Social Work.

Y

**Yakas, James**, Instructor, Music.

**Yang, Bo**, Assistant Professor, Mechanical Aerospace Engineering. Ph.D., University of Houston, 1998. M.S., University of Houston, 1996. B.S., University of Science and Technology of China, 1992.

**Yang, Zhiyong**, Associate Professor, Marketing, 2007. Ph.D., Concordia University, 2007. B. A., Zhejiang University, 2002. M.S., Zhejiang University, 1998. B.S., N. China Electric Power University, 1990.

**Yasar, Mahmut**, Associate Professor, Economics, 2007. Ph.D., University of Illinois at Urbana-Champaign, 2002. M.B.A., University of Illinois at Urbana-Champaign, 1997. M.S.B.A., University of Illinois at Urbana-Champaign, 1996. B.A., Ankara University, 1992.

**Yazdani, Nur**, Professor, Civil Engineering, 2005. Ph.D., University of Maryland, College Park, 1984. M.S., University of Oklahoma, 1981. B.S., University of Engineering and Technology, Dhaka, B..., 1977.

**Yilla, Abu**, Clinical Assistant Professor, Kinesiology, 1996. Ph.D., Texas Woman's University, 1997. M.S. Physical Education, Texas Woman's University, 1993. B.A. Physical Education, University of Texas at Arlington, 1987. B.A. Economics, University of Nottingham, 1978.

**Yoon, Jiyeon**, Associate Professor, Educational Curriculum Instruction, 2012. Ph.D., Indiana University, 2002. B.S., Ewha Womens University, Seoul, Korea, 1991.

**Yoon, Suwon**, Assistant Professor, Linguistics and TESOL, 2013. PhD, University of Chicago, 2003. MA, Seoul National University, 2001. BA , University of Seoul, .

**Young, Robert**, Professor, Sociology and Anthropology, 1991. Ph.D., University of Michigan, 1982. M.A., University of Kentucky, 1977. B.A., Auburn University, 1972.

**Youssefzadeh, Bijan**, Program Director of Architecture Interior Design, School of Architecture, 2005. M.ARCH, Cornell University, 1984. BS. ARCH, UT Arlington, 1981.

**Yu, Jaehoon**, Professor, Physics, 2001. M.S., Korea University, 1985. B.A., Korea University, 1985. Ph.D., State University of New York at Stony Brook, 1983.

**Yu, Xinbao**, Assistant Professor, Civil Engineering. Ph.D., Case Western Reserve University, 2009. M.S., Clarkson University, 2005. M.S., Southeast University, 2003. B.S., Chang'an University, 2000.

**Yuan, Baohong**, Assistant Professor, Bioengineering, 2011. Ph.D., University of Connecticut, 2006. Ph.D., Harbin Institute of Technology, 2002. B.S., Harbin Institute of Technology, 1997.

**Yuan, Feirong**, Assistant Professor, Management.

Z

**Zaleta, Christopher Kribs**, Professor, Educational Curriculum Instruction, 1997. Ph.D., University of Wisconsin at Madison, 1997. M.S.E.E., Georgia Institute of Technology, 1991. A.B., Duke University, 1989. B.S.E.E., Duke University, 1988.

**Zaruba, Gergely**, Professor, Computer Science and Engineering, 2008. Ph.D., University of Texas at Dallas, 2001. M.S., Technical University of Budapest, 1997.

**Zastoupil, John**, Lecturer, Music, 2012.

**Zeng, Li**, Assistant Professor, Industrial and Manufacturing Systems Engineering. Ph.D., University of Wisconsin - Madison, 2009. M.S., University of Wisconsin - Madison, 2007. M.S., Tsinghua University, China, 2004. B.S., Tsinghua University, China, 2002.

**Zhang, Jie**, Associate Professor, Information Systems Operations Management, 2007. Ph.D., University of Rochester, NY, 2003. M.S., University of Rochester, NY, 2001. B.Eng., Tianjin University, China, 1997.

**Zhang, Qiming**, Professor, Physics, 1996. Ph.D., International School for Advanced Studies, 1989. M.S., Beijing University of Science and Technology, 1984. B.S., Sichuan University, 1982.

**Zhang, Yi (Leaf)**, Assistant Professor, ELPS, 2012. BA, Zhengzhou University, 2003. BGS, Fort Hays State University, 2004. MS, Fort Hays State University, 2005. PhD, Iowa State University, 2011.

**Zhang, Yuejiao**, Assistant Professor, English. Ph.D., University of Central Florida, 2010. M.A., Indiana University Purdue University Fort Wayne, 2005.

**Zhou, Weidong**, Associate Professor, Electrical Engineering. Ph.D., University of Michigan, Ann Arbor, 2001. M.D., Tsinghua University, China, 1996. B.S., Tsinghua University, China, 1993.

**Zimmer, Kenyon**, Assistant Professor, History. Ph.D., University of Pittsburgh, 2010. M.A., University of Pittsburgh, 2005. B.A., Bennington College, 2002.

**Zloliniski, Christian**, Associate Professor, Sociology and Anthropology, 2001. Ph.D., University of California at Santa Barbara, 1998. M.A., University of California at Santa Barbara, 1989. B.A., Universidad Autonoma de Madrid, 1984.

# Course Descriptions

---

- Accounting (ACCT) (p. 722)
- Advertising (ADVT) (p. 726)
- Aerospace Engineering (AE) (p. 726)
- Aerospace Studies (AS) (p. 731)
- Affiliated Studies Abroad (ASA) (p. 732)
- African-American Studies (AAST) (p. 732)
- Anthropology (ANTH) (p. 735)
- Arabic (ARAB) (p. 740)
- Architecture (ARCH) (p. 741)
- Art & Art History (ART) (p. 748)
- Astronomy (ASTR) (p. 759)
- Bilingual ESL Early Child Prog (BEEP) (p. 759)
- Bioengineering (BE) (p. 760)
- Biology (BIOL) (p. 767)
- Broadcast Communication (BCMN) (p. 777)
- Business Administration (BSAD) (p. 778)
- Business Administration (BUSA) (p. 779)
- Business Communication (BCOM) (p. 780)
- Business Decisions (BDEC) (p. 780)
- Business Honors (BHNR) (p. 780)
- Business Law (BLAW) (p. 780)
- Business Statistics (BSTAT) (p. 781)
- Chemistry & Biochemistry (CHEM) (p. 782)
- Chinese (CHIN) (p. 789)
- City and Regional Planning (CIRP) (p. 790)
- Civil Engineering (CE) (p. 795)
- Classics (CLAS) (p. 807)
- Communication (COMM) (p. 808)
- Communication Studies (COMS) (p. 810)
- Communications Technology (CTEC) (p. 811)
- Computer Science and Engineering (CSE) (p. 812)
- Computer Science (CS) (p. 812)
- Criminology & Criminal Justice (CRCJ) (p. 822)
- Dance Activity (DNCA) (p. 826)
- Dance Theory (DNCE) (p. 827)
- Early Childhood Education (ECED) (p. 827)
- Economics (ECON) (p. 828)
- Education Counseling (EDCO) (p. 837)
- Education (EDUC) (p. 833)
- Education (EDUCIR) (p. 837)
- Education Middle Level (EDML) (p. 838)
- Educational Administration (EDAD) (p. 839)
- Educational Administration (EDADIR) (p. 845)
- Educational Technology (EDTC) (p. 845)
- Electrical Engineering (EE) (p. 846)
- Elementary Education (ELED) (p. 857)
- Eng for Speakers of Other Lang (ESOL) (p. 859)
- Engineering (ENGR) (p. 859)
- Engineering Mechanics (EM) (p. 860)

- English (ENGL) (p. 860)
- Environmental and Sustainability (ESST) (p. 871)
- Environmental Science and Engineering (EVSE) (p. 869)
- Exchange Courses (EXCH) (p. 871)
- Executive Master of Business Administration (EMBA) (p. 872)
- Exercise and Sport Activity (EXSA) (p. 873)
- Exercise and Sport Studies (EXSS) (p. 874)
- Finance (FINA) (p. 875)
- First Year Seminar - Art (FS-ART) (p. 878)
- First Year Seminar - Biology (FS-BIOL) (p. 878)
- First Year Seminar - Business (FS-BUSA) (p. 878)
- First Year Seminar - Communications (FS-COMM) (p. 878)
- First Year Seminar - Criminal Justice (FS-CRCJ) (p. 878)
- First Year Seminar - English (FS-ENGL) (p. 878)
- First Year Seminar - History (FS-HIST) (p. 879)
- First Year Seminar - Management (FS-MANA) (p. 879)
- First Year Seminar - Math (FS-MATH) (p. 879)
- First Year Seminar - Modern Languages (FS-MODL) (p. 879)
- First Year Seminar - Nurse (FS-NURS) (p. 879)
- First Year Seminar - Theater (FS-THEA) (p. 879)
- First Year Seminar - University Studies (FS-UNIV) (p. 879)
- First Year Seminar -Philosophy (FS-PHIL) (p. 880)
- French (FREN) (p. 880)
- Geography (GEOG) (p. 883)
- Geology (GEOL) (p. 883)
- German (GERM) (p. 889)
- Global (GLOBAL) (p. 892)
- Greek (GREK) (p. 892)
- Health Care Administration (HCAD) (p. 894)
- Health (HEED) (p. 892)
- History (HIST) (p. 895)
- Honors (HONR) (p. 905)
- Honors-Architecture (HONR-AR) (p. 907)
- Honors-Business (HONR-BU) (p. 907)
- Honors-Education (HONR-ED) (p. 908)
- Honors-Engineering (HONR-EN) (p. 908)
- Honors-Liberal Arts (HONR-LA) (p. 908)
- Honors-Nursing (HONR-NU) (p. 909)
- Honors-Science (HONR-SC) (p. 909)
- Honors-Social Work (HONR-SW) (p. 910)
- Honors-Visual & Performing Arts (HONR-VP) (p. 910)
- Humanities (HUMA) (p. 910)
- Industrial and Manufacturing Systems Engineering (IE) (p. 911)
- Information Systems (INSY) (p. 917)
- Insurance (INSU) (p. 921)
- Interdisciplinary Studies (INTS) (p. 921)
- Interior Design (INTD) (p. 922)
- Introduction to Liberal Arts (COLA) (p. 924)
- Journalism (JOUR) (p. 924)
- Kinesiology (KINE) (p. 925)
- Korean (KORE) (p. 934)
- Landscape Architecture (LARC) (p. 935)



- Latin (LATN) (p. 937)
- Leadership Studies (LSHP) (p. 938)
- Linguistics (LING) (p. 938)
- Literacy Studies (LIST) (p. 943)
- Literacy Studies (LISTIR) (p. 945)
- Management (MANA) (p. 946)
- Management Sciences (MASI) (p. 950)
- Marketing (MARK) (p. 950)
- Materials Science and Engineering (MSE) (p. 954)
- Mathematical Sciences (MSCI) (p. 959)
- Mathematics Education (MAED) (p. 970)
- Mathematics (MATH) (p. 959)
- Mechanical and Aerospace Engineering (MAE) (p. 975)
- Mechanical Engineering (ME) (p. 970)
- Mexican American Studies (MAS) (p. 980)
- Military Science (MILS) (p. 982)
- Modern Languages (MODL) (p. 983)
- Music (MUSI) (p. 984)
- Nuclear Engineering (NE) (p. 1003)
- Nursing - Elective (AP) (NURS-EL) (p. 1012)
- Nursing - Independent Studies (NURS-IS) (p. 1012)
- Nursing - Lower Level (NURS-LL) (p. 1012)
- Nursing - Mexico Study Abroad (NURS-MX) (p. 1012)
- Nursing - Student Success (NURS-SS) (p. 1013)
- Nursing - Upper Level (NURS-UL) (p. 1013)
- Nursing (NURS) (p. 1003)
- Nursing Transferred Course (NRST) (p. 1013)
- Operations Management (OPMA) (p. 1013)
- Philosophy (PHIL) (p. 1015)
- Physical Education (PHED) (p. 1018)
- Physics (PHYS) (p. 1018)
- Political Science (POLS) (p. 1023)
- Portuguese (PORT) (p. 1030)
- Psychology (PSYC) (p. 1031)
- Public and Urban Administration (PUAD) (p. 1039)
- Public Relations (PREL) (p. 1039)
- Real Estate (REAE) (p. 1040)
- Russian (RUSS) (p. 1042)
- School of Urban and Public Affairs (SUPA) (p. 1045)
- Science Education (SCED) (p. 1048)
- Science (General) (SCIE) (p. 1045)
- Social Work (SOCW) (p. 1049)
- Sociology (SOCI) (p. 1057)
- Spanish (SPAN) (p. 1061)
- Special Topics (SPEC) (p. 1065)
- Statistics (STATS) (p. 1066)
- Students Obtain Acad Readiness (SOAR) (p. 1067)
- SUSTAINABILITY (SUST) (p. 1044)
- Theatre Arts (THEA) (p. 1067)
- University College (UNIV) (p. 1072)
- Urban and Public Affairs (URPA) (p. 1072)
- Urban Planning and Public Policy (UPPP) (p. 1072)

- Women's Studies (WOMS) (p. 1078)

## Accounting (ACCT)

### COURSES

#### **ACCT 2301. PRINCIPLES OF ACCOUNTING I. 3 Hours. (TCCN = ACCT 2301)**

The accounting process and its informational output. Financial accounting concepts, basic procedures, and the resulting reports. Recognition and creation of accounting information as bases for decisions. Prerequisite: 30 credit hours.

#### **ACCT 2302. PRINCIPLES OF ACCOUNTING II. 3 Hours. (TCCN = ACCT 2302)**

A study of managerial accounting concepts and techniques. Topics include cost behavior, budgeting, responsibility accounting, and product costing. Prerequisite: ACCT 2301 with a grade of C or higher.

#### **ACCT 3133. PROFESSIONALISM IN ACCOUNTING. 1 Hour.**

Topics to engender a stronger sense of professionalism: business and social etiquette, self-assessment, professional deportment, networking, effective communication skills, and dressing professionally. Topics primarily presented by accomplished professionals from public accounting, industry, and government. Prerequisite: Accounting major and ACCT 3311, can be taken concurrently.

#### **ACCT 3303. INTRODUCTION TO ACCOUNTING INFORMATION SYSTEMS. 3 Hours.**

The structure of contemporary accounting systems with emphasis on controls, auditing, reporting, and efficient operation. Prerequisite: ACCT 2302 and INSY 2303 with grades of C or higher.

#### **ACCT 3309. ACCOUNTING FOR MANAGERS. 3 Hours.**

Planning, controlling, decision making, and performance evaluation. Uses a variety of teaching techniques (e.g., problems, cases, and projects) and is open only to non-accounting majors. Credit will not be given for both this course and ACCT 4302. Prerequisite: ACCT 2302 with a grade of C or higher.

#### **ACCT 3311. FINANCIAL ACCOUNTING I. 3 Hours.**

The environment of accounting, development of standards, basic theory, financial statements, worksheets, annuities and present value, receivables, inventories, liabilities, plant assets, depreciation and depletion, and intangible assets. Prerequisite: ACCT 2302 with a grade of C or higher and successful completion of basic accounting skills exam. (See the departmental website for details about the exam.).

#### **ACCT 3312. FINANCIAL ACCOUNTING II. 3 Hours.**

Stockholders' equity, earnings per share, investments in bonds and stocks, equity method, revenue recognition, accounting changes, error analysis, income taxes, leases, and cash flows. Prerequisite: ACCT 3311 with a grade of C or higher.

#### **ACCT 3315. PRINCIPLES OF FEDERAL INCOME TAX. 3 Hours.**

A study of general federal income tax principles such as income, deductions, losses, and property transactions. The principles of individual taxation will be covered as well as an overview of tax considerations for entities such as corporations and partnerships. Prerequisite: Accounting major with junior standing and ACCT 3311 with a grade of C or higher.

#### **ACCT 4191. STUDIES IN ACCOUNTING. 1 Hour.**

Advanced studies, on an individual basis, in the various fields of accounting. Prerequisite: Senior standing and permission of instructor. May be repeated for credit with consent of department chair.

#### **ACCT 4291. STUDIES IN ACCOUNTING. 2 Hours.**

Advanced studies, on an individual basis, in the various fields of accounting. Prerequisite: Senior standing and permission of instructor. May be repeated for credit with consent of department chair.

#### **ACCT 4302. ACCOUNTING IN MANAGERIAL PLANNING AND CONTROL. 3 Hours.**

The role and development of accounting and other information for use in planning, control, decision making, and performance evaluation. Application of appropriate quantitative and statistical methods. Prerequisite: Accounting major with junior standing and ACCT 3311 with grade of C or higher, and INSY 2303 and BSTAT 3321.

#### **ACCT 4304. COST ACCOUNTING. 3 Hours.**

Concepts and purposes underlying the development and reporting of cost accounting information. Job order costing, process costing, standard costs, and variance analysis. Prerequisite: Accounting major with junior standing and ACCT 4302 with a grade of C or higher.

#### **ACCT 4318. AUDITING. 3 Hours.**

Principles, concepts, and techniques which are appropriate to the acquisition, evaluation, and documentation of audit evidence. Internal control concepts, financial compliance, and operational auditing. Prerequisite: Accounting major with junior standing and ACCT 3303 and ACCT 3312 with grades of C or higher.

#### **ACCT 4325. GOVERNMENTAL ACCOUNTING. 3 Hours.**

Budgeting, accounting, and financial reporting for local governmental units, hospitals, voluntary health and welfare organizations, and other nonprofit entities. Prerequisite: Accounting major with junior standing and ACCT 3312 with a grade of C or higher.

#### **ACCT 4331. SEMINAR IN ACCOUNTING. 3 Hours.**

Readings and discussions of special topics in accounting. Prerequisite: Junior or senior standing and consent of instructor. May be repeated for credit with consent of department chair.

**ACCT 4332. INTERNAL AUDITING I. 3 Hours.**

A comprehensive study of internal auditing standards, ethics, concepts, audit techniques, and reporting practices. Prerequisite: Accounting major with junior standing and ACCT 3303 with a grade of C or higher or consent of the instructor.

**ACCT 4333. INTERNAL AUDITING II. 3 Hours.**

An advance study of operational, organizational, and quality control audits. Topics will include operational audit methodology, audits of administrative and support services, audits of line functions, and audits of special areas. Prerequisite: Accounting major with junior standing and ACCT 4332 with a grade of C or higher and a 3.0 GPA.

**ACCT 4391. STUDIES IN ACCOUNTING. 3 Hours.**

Advanced studies, on an individual basis, in the various fields of accounting. Prerequisite: Senior standing and permission of instructor. May be repeated for credit with consent of department chair.

**ACCT 4393. ACCOUNTING INTERNSHIP. 3 Hours.**

Practical training in accounting. Analysis of theory applied to real life situations. May be used as an advanced business elective only; graded on a pass/fail basis. No credit will be given for previous experience or activities. Prerequisite: Accounting major with junior standing and consent of department internship advisor.

**ACCT 5133. PROFESSIONALISM IN ACCOUNTING. 1 Hour.**

Topics to engender a stronger sense of professionalism: business and social etiquette, self-assessment, professional deportment, networking, effective communication skills, and dressing professionally. Topics primarily presented by accomplished professionals from public accounting, industry, and government. Prerequisite: ACCT 5311 with a grade of C or higher or acceptance in the PPIA .

**ACCT 5199. GRADUATE ACCOUNTING INTERNSHIP. 1 Hour.**

Practical training in accounting. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**ACCT 5299. GRADUATE ACCOUNTING INTERNSHIP. 2 Hours.**

Practical training in accounting. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**ACCT 5301. ACCOUNTING ANALYSIS I. 3 Hours.**

Introduction to concepts, purposes, problems, methodology, and terminology of financial accounting.

**ACCT 5302. ACCOUNTING ANALYSIS II. 3 Hours.**

Introduction to concepts, purposes, problems, methodology, and terminology of managerial accounting. Prerequisite: ACCT 5301 with a grade of C or higher.

**ACCT 5307. MEASUREMENT AND ANALYSIS FOR BUSINESS DECISION-MAKING. 3 Hours.**

This course provides students with a comprehensive overview of financial reporting, analysis and measurement issues in the context of business decision making. Student will gain an understanding of financial statements and their underlying measurements. They will then use this understanding to conduct analyses using financial ratios. Students will then explore the role of cost measurements, allocations, etc. in determining the performance measures of parts of the organization and their inter-relationship with both choosing and evaluating strategies in various business contexts. They will cover issues such as matching strategies to performance measures, choosing and evaluating key performance indicators and balanced scorecards, etc. Prerequisite: Must be a major in the MS in Engineering Management or MS in Business Analytics. Consent of Accounting Department required.

**ACCT 5311. FINANCIAL ACCOUNTING I. 3 Hours.**

Examination of financial accounting process, problems encountered in preparation of financial statements, and concepts and principles used to resolve these problems. Prerequisite: ACCT 5301 with a grade of C or higher.

**ACCT 5312. FINANCIAL ACCOUNTING II. 3 Hours.**

Study of additional problems encountered in preparation of financial statements. Prerequisite: ACCT 5311 with a grade of C or higher.

**ACCT 5313. SOFTWARE TOOLS. 3 Hours.**

An in-depth study of software that would likely be used by accountants and other business people. May include spreadsheet, database, and accounting software, tax software, and other types of tools such as XBRL and XML. Prerequisite: ACCT 5302 with a grade of C or higher.

**ACCT 5314. PRINCIPLES OF FEDERAL INCOME TAX. 3 Hours.**

A study of general federal income tax principles such as income, deductions, losses and property transactions. The principles of individual taxation will be covered as well as an overview of tax considerations for entities such as corporations and partnerships. Prerequisite: ACCT 5301 with a grade of C or higher.

**ACCT 5315. ACCOUNTING SYSTEMS ANALYSIS. 3 Hours.**

Analysis and design of business information processes. Includes coverage of control concepts, audit trails, and the uses of information technology. Emphasis on the role of accounting in collecting, storing, and communicating information for management planning and control. Prerequisite: ACCT 5302 with a grade of C or higher.

**ACCT 5316. AUDITING CONCEPTS AND PRACTICES. 3 Hours.**

Concentrates on practice of professional accounting and auditing. Emphasizes decision making in a variety of unstructured situations where decisions demand a grasp of purpose, method, and judgment for their resolution. May not be taken for credit by students who have received credit for a course in auditing. Prerequisite: ACCT 5312 and ACCT 5315 with grades of C or higher.

**ACCT 5317. COST ACCOUNTING. 3 Hours.**

Uses and classification of costs incurred in manufacturing. Emphasis on concepts involved in assignment and reporting of costs under job order, process, standard and direct costing systems. Prerequisite: ACCT 5302 with a grade of C or higher.

**ACCT 5318. STUDIES IN AUDITING. 3 Hours.**

A critical analysis of advanced topics in both auditing theory and professional practice. Emphasis on: development of auditing theory, generally accepted auditing standards, professional responsibilities, auditing EDP, SEC practice and reporting, cases in audit decision making, and analyses of emerging issues and contemporary problems in auditing. Prerequisite: ACCT 5316 with a grade of C or higher.

**ACCT 5319. FINANCIAL ACCOUNTING III. 3 Hours.**

Accounting for business combinations, preparation of consolidated financial statements, multinational operations, partnerships, and estates and trusts. Prerequisite: ACCT 5312 with a grade of C or higher.

**ACCT 5320. GOVERNMENTAL AND NONPROFIT ACCOUNTING. 3 Hours.**

Budgeting, accounting and financial reporting, managerial control, and auditing considerations of governmental and nonprofit entities. Prerequisite: ACCT 5312 with a grade of C or higher.

**ACCT 5321. RESEARCH IN ACCOUNTING ISSUES. 3 Hours.**

Designed to improve student's ability to research complex areas in accounting and to sharpen understanding and application of accounting concepts and principles. Case studies and problems considered and analyzed. Prerequisite: Excel certification and ACCT 5312 with a grade of C or better.

**ACCT 5322. ACCOUNTING FOR MANAGEMENT PLANNING AND CONTROL. 3 Hours.**

Concentrates on information needs of management for planning and control of operations. Topics include setting corporate objectives, behavioral problems, capital budgeting and profit-planning, the use of quantitative tools, divisional performance evaluation, and transfer pricing. May not be taken for credit by students who previously received credit for ACCT 4302 or equivalent. Prerequisite: ACCT 5302 with a grade of C or higher.

**ACCT 5324. FINANCIAL STATEMENT ANALYSIS. 3 Hours.**

A study of the basic financial statements and their use by managers, investors, and creditors. Prerequisite: ACCT 5302 with a grade of C or higher.

**ACCT 5327. CONTEMPORARY ISSUES IN ACCOUNTING THEORY. 3 Hours.**

Designed to familiarize students with significant problems currently facing the accounting profession, to examine in depth various solutions proposed by accounting scholars and others, and to strengthen student understanding of today's critical issues in accounting theory. Prerequisite: ACCT 5312 with a grade of C or higher.

**ACCT 5329. CONTEMPORARY ISSUES IN ACCOUNTING INFORMATION SYSTEMS. 3 Hours.**

An exploration of current topics critical to accounting information systems. The course is designed to enhance student understanding of emerging issues and technologies related to reporting, internal controls, system security and effectiveness. Topics may change semester to semester. Prerequisite: ACCT 5315 with a grade of C or higher.

**ACCT 5330. INTERNATIONAL ACCOUNTING AND FINANCIAL REPORTING. 3 Hours.**

Financial accounting and reporting principles and practices in various countries, the role of accounting in economic development, as well as the accounting considerations in international business operations -- e.g. foreign currency translation, auditing, accounting systems, taxation, and sensitive payments. Prerequisite: ACCT 5302 with a grade of C or higher.

**ACCT 5332. OPERATIONAL AUDITING. 3 Hours.**

A study of operational audit methodology for management audits. Audits of administrative and support functions, and other special areas such as fraud audits. Prerequisite: Graduate standing and six hours of accounting with grades of C or higher.

**ACCT 5335. DESIGN OF ACCOUNTING SYSTEMS. 3 Hours.**

A detailed study of the data entry, storage (file design), internal control, and reporting requirements of accounting systems, followed by the development of a significant accounting subsystem using a software development tool. Prerequisite: ACCT 5315 with a grade of C or higher.

**ACCT 5339. TAX PLANNING AND RESEARCH. 3 Hours.**

A study of the use of various techniques and procedures available in evaluating issues arising under federal income tax law. Emphasizes research into individual and business tax problems and planning alternatives. Prerequisite: ACCT 5314 with a grade of C or higher.

**ACCT 5340. STUDY OF FEDERAL INCOME TAX FOR ENTITIES OTHER THAN INDIVIDUALS. 3 Hours.**

Comprehensive analysis of the federal income tax consequences applicable to entities other than individuals. Analysis of the relevant tax principles of corporations, partnerships, trusts and estates will be undertaken. Cannot be taken for credit within the 36-hour program requirements for Master of Science in Taxation program. Prerequisite: ACCT 5314 with a grade of C or higher.

**ACCT 5341. TAXATION OF PASSTHROUGH ENTITIES. 3 Hours.**

Analysis of the federal income tax rules governing passthrough entities. Prerequisite: ACCT 5339 with grade of C or higher. Credit will not be received for both ACCT 5340 and ACCT 5341.

**ACCT 5342. TAX PROBLEMS OF CORPORATIONS AND SHAREHOLDERS. 3 Hours.**

Analysis of the federal income tax rules governing corporations and shareholders. Subjects include corporate formations, corporate capital structure, administrative requirements affecting corporations, the corporate alternative minimum tax, special tax provisions (such as the personal holding company and accumulated earnings taxes and the collapsible corporation rules), nonliquidating distributions, stock dividends, redemptions and partial liquidations, liquidating distributions, corporate reorganizations, and Subchapter S corporations. Prerequisite: Excel certification and ACCT 5339 with grade of C or higher. Credit will not be received for both ACCT 5340 and ACCT 5342.

**ACCT 5343. TAX PROBLEMS OF TRANSACTIONS IN REAL ESTATE. 3 Hours.**

Problems and elections relating to the acquisition, holding, and disposition of real property. Subjects include means of acquisition and disposition, capital gains and losses, deferred payment sales, organization of syndicates, sale and leaseback, dissolutions, and general tax-saving methods. Prerequisite: ACCT 5339 with grade of C or higher.

**ACCT 5345. STATE AND LOCAL TAXATION. 3 Hours.**

Introduction to the principles and practices of state and local taxation. Topics considered in the course include the application of both inter- and intra-state taxation, allocation and apportionment principles and issues in relation to the predominant forms of state taxes, such as franchise, sales, use, income, ad valorem, and property tax. Prerequisite: ACCT 5339 with grade of C or higher.

**ACCT 5346. TAX PRACTICE AND PROCEDURE. 3 Hours.**

This course overviews the procedural aspects of dealing with the Internal Revenue Service. The focus is from the private practitioner's perspective in assisting clients in navigating the Service's administrative requirements. Topics include administrative organization of the Service, tax audits, the use of Service administrative summonses, statutes of limitation, penalties, interest charges, civil and criminal procedures and appeals. Prerequisite: ACCT 5339 with grade of C or higher.

**ACCT 5347. FEDERAL TAXATION OF GIFTS AND ESTATES. 3 Hours.**

A comprehensive survey of the principles and procedures involved in determining the federal estate tax and the supplementary federal gift tax including taxability and valuation of property and the determination of deductions and credits. Prerequisite: ACCT 5339 with grade of C or higher.

**ACCT 5352. INFORMATION SYSTEMS AUDIT AND CONTROL. 3 Hours.**

A study of modern approaches to the audit and control of business information systems. Prerequisite: ACCT 5315 and ACCT 5316 with grades of C or higher.

**ACCT 5353. STATISTICAL TECHNIQUES USED IN ACCOUNTING. 3 Hours.**

A study of statistical techniques used in accounting. Topics include alternative sample selection methods, attribute methods, mean-per-unit estimation, ratio and difference estimation, monetary unit sampling, and regression analysis. Prerequisite: STAT 5301 with a grade of C or higher.

**ACCT 5366. FRAUD EXAMINATION. 3 Hours.**

Analysis of fraud examiner and auditor responsibilities and current methodologies with respect to financial fraud investigation, detection, and prevention. Management's responsibilities for fraud deterrence and implementation of effective prevention measures. Identification, analysis, and examination of financial fraud using actual case studies. Prerequisite: ACCT 5316 with a grade of C or higher.

**ACCT 5380. ETHICS IN ACCOUNTING. 3 Hours.**

This course is intended to introduce students to ethical reasoning, integrity, objectivity, independence, professionalism and other core values. The course incorporates the essentials of professional responsibilities, including elements of trust and communications with clients and other professionals. Both ethical principles and rules are considered. This course is intended to satisfy conditions of the Texas State Board of Public Accountancy that require candidates for the CPA Exam to have completed an approved ethics course. Prerequisite: ACCT 5312 or equivalent.

**ACCT 5382. INDEPENDENT STUDIES IN ACCOUNTING. 3 Hours.**

Extensive analysis of an accounting topic. Prerequisite: Consent of faculty member and department chair.

**ACCT 5392. SELECTED TOPICS IN ACCOUNTING. 3 Hours.**

In-depth study of selected topics in accounting. May be repeated when topics vary. Prerequisite: consent of instructor.

**ACCT 5398. THESIS. 3 Hours.**

Thesis. Graded F, R. Prerequisite: permission of Accounting Graduate Advisor.

**ACCT 5399. GRADUATE ACCOUNTING INTERNSHIP. 3 Hours.**

Practical training in accounting. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**ACCT 5698. THESIS. 6 Hours.**

Thesis. Graded F, R. Prerequisite: permission of Accounting Graduate Advisor.

**ACCT 6101. ACCOUNTING RESEARCH COLLOQUIUM. 1 Hour.**

A forum in which visiting scholars and U.T. Arlington faculty members present and discuss results of their contemporary research. Doctoral students participate by meeting with visiting scholars, reading the research papers, providing written critiques, and discussing the papers. Doctoral students are required to enroll and attend the colloquia presentations each fall and spring semester until the students pass all their comprehensive examinations. May be repeated for credit. Prerequisite: consent of College PhD advisor.

**ACCT 6309. SEMINAR IN ACCOUNTING RESEARCH I. 3 Hours.**

Analysis of the theoretical and empirical literature in accounting. Prerequisite: consent of College PhD advisor.

**ACCT 6310. SEMINAR IN ACCOUNTING RESEARCH II. 3 Hours.**

Continuation of analysis of the theoretical and empirical literature in accounting. Prerequisite: ACCT 6309 with a grade of C or higher and consent of the College Ph.D. advisor.

**ACCT 6311. SEMINAR IN ACCOUNTING RESEARCH III. 3 Hours.**

Continuation of analysis of the theoretical and empirical literature in accounting. Prerequisite: ACCT 6310 with a grade of C or higher and consent of the College Ph.D. advisor.

**ACCT 6312. SEMINAR IN ACCOUNTING RESEARCH IV. 3 Hours.**

Continuation of analysis of the theoretical and empirical literature in accounting. Prerequisite: ACCT 6310 with a grade of C or higher and consent of the College Ph.D. advisor.

## Advertising (ADVT)

### COURSES

**ADVT 2337. INTRODUCTION TO ADVERTISING. 3 Hours. (TCCN = COMM 2327)**

The role of advertising in society. Basic concepts include marketing message creation, budget determination, agency-client relationships, and social responsibility of advertisers.

**ADVT 3304. STRATEGIC COMMUNICATION I. 3 Hours.**

Introductory strategy course focusing on creative communication in advertising and marketing communication planning. The evolution and development of the strategic creative process is evaluated relative to campaign objectives and research, especially as it impacts Integrated Marketing Communication and branding programs. Students successfully completing Strategic Communication I advance to Strategic Communication II. Prerequisite: JOUR 1345, ADVT 2337, MATH 1308, COMM 2315 all with a minimum grade of C (2.0/4.0 scale).

**ADVT 3305. ADVERTISING MEDIA. 3 Hours.**

Decision-making in selection and use of advertising media. Evaluation of media alternatives in terms of marketing communication objectives and strategy, audience analysis, media-market research, cost, and editorial/program content. Media plans are developed consistent with Integrated Marketing Communication and branding programs. Prerequisite: JOUR 1345, ADVT 2337, COMM 2315, and MATH 1308, all with a grade of C or better.

**ADVT 3306. STRATEGIC COMMUNICATION II. 3 Hours.**

Advanced strategy course building on the foundation from Strategic Communication I; assumes a basic understanding of strategy and research. Advanced critiques of existing campaigns coupled with the development of strategic communication for various media, including print, broadcast, direct mail, and Internet. Persuasive presentation of strategies and executions to others as in an agency setting; includes copywriting, basic art direction, and multimedia usage. Prerequisite: ADVT 3304, COMM 3303.

**ADVT 4300. INTEGRATED MARKETING COMMUNICATION (IMC) CASE STUDIES. 3 Hours.**

Theory and management of such functional integrated marketing communication areas as advertising, public relations, sales promotion, and direct response are evaluated relative to targets, timing, and messages strategies. The case method approach is used to review and evaluate the strengths and weaknesses of IMC strategy and planning relative to brand management. Prerequisite: ADVT 3304.

**ADVT 4301. ADVERTISING AND IMC CAMPAIGNS. 3 Hours.**

Advanced study in the application of advertising and marketing communication theories. Advertising campaigns are developed consistent with Integrated Marketing Communication and branding programs. Student agency teams develop speculative advertising and IMC plans for organizations, products and/or brands. Prerequisite: ADVT 3305, ADVT 3306, ADVT 4300.

**ADVT 4391. CONFERENCE COURSE. 3 Hours.**

Topic assigned on an individual basis, covering individual research or study in the designated areas. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: COMM 2315 and 60 or more hours earned and permission of the department.

**ADVT 4393. SPECIAL TOPICS. 3 Hours.**

Special studies in advertising. Topic varies from semester to semester. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: COMM 2315 and 60 or more hours earned and permission of the department.

**ADVT 4395. PROFESSIONAL INTERNSHIP. 3 Hours.**

Individual research while working with business and industry. Individual conference to be arranged. Prerequisite: COMM 2315, ADVT 3304 or ADVT 3305, 60 or more hours earned and permission of the department. Graded Pass/Fail.

## Aerospace Engineering (AE)

### COURSES

**AE 5101. GRADUATE SEMINAR. 1 Hour.**

The purpose is to acquaint graduate students with ongoing research at UTA, and outside in academia and industry. Seminars are given by graduate students of the department based on their ongoing research. Seminars are also given by external speakers from academia, industry and government.

**AE 5191. ADVANCED STUDIES IN AEROSPACE ENGINEERING. 1 Hour.**

Individual research or design project performed for fulfilling the requirements of the Master of Engineering degree option. Prior approval of the AE Graduate Advisor is required for enrollment. A written and/or oral report is required.

**AE 5291. ADVANCED STUDIES IN AEROSPACE ENGINEERING. 2 Hours.**

Individual research or design project performed for fulfilling the requirements of the Master of Engineering degree option. Prior approval of the AE Graduate Advisor is required for enrollment. A written and/or oral report is required.

**AE 5300. PREPARATORY COURSE FOR AEROSPACE ENGINEERING. 3 Hours.**

The course may be offered with multiple sections, wherein each section is paired with a corresponding UG course being offered that semester. The purpose of this course is to strengthen academic preparation of students who were found inadequately prepared for a graduate degree in Aerospace Engineering. Students can concurrently enroll in multiple sections and may need to enroll in this course multiple times until their academic preparation is deemed complete. In order to pass this class, the student has to earn at least a B grade in aggregate based on all the assignments and exams. May be repeated as often as required.

**AE 5301. ADVANCED TOPICS IN AEROSPACE ENGINEERING. 3 Hours.**

To provide formal instruction in special topics pertinent to Aerospace Engineering from semester to semester depending on the availability of faculty. May be repeated for credit as provided topics change.

**AE 5302. ADVANCED FLIGHT MECHANICS. 3 Hours.**

Rigid body motion. Kinematics and dynamics of aerospace vehicles. Linear and nonlinear control of aircraft and spacecraft. Advanced aircraft and spacecraft modeling and control issues. Prerequisite: MAE 3405 and MAE 4310.

**AE 5303. CLASSICAL METHODS OF CONTROL SYSTEMS ANALYSIS AND SYNTHESIS. 3 Hours.**

Equip the student with familiarity of significant tools of the control engineer. Topics covered include controllers and their effect on system performance and stability, block diagram algebra, stability and analysis, system performance definition, root locus, frequency techniques, and state variable methods. Digital simulation tools for design and simulation of control systems. Demonstration of controller design and performance in the laboratory. Also offered as ME 5303.

**AE 5305. DYNAMIC SYSTEMS MODELING. 3 Hours.**

To equip the student with the capability of determining the necessary equations for distributed and lumped parameter modeling of mixed physical system types including mechanical, fluid, electrical, and thermal components. Models are formulated for computer simulation and analysis for systems with deterministic and stochastic inputs. Topics of random vibration and system identification are included. Also offered as ME 5305.

**AE 5310. FINITE ELEMENT METHODS. 3 Hours.**

Finite element method in the study of the static response of complex structures and of continua applications to field problems; analytical methods emphasized and digital computer application undertaken. Also offered as ME 5310.

**AE 5311. STRUCTURAL DYNAMICS. 3 Hours.**

Natural frequencies; forced response of complex structural systems studied through the use of the finite element method; computational aspects of these problems discussed, and digital computer applications undertaken. Also offered as ME 5311.

**AE 5312. CONTINUUM MECHANICS. 3 Hours.**

Study of the underlying physical and mathematical principles relating to the behavior of continuous media; interrelationships between fluid and solid mechanics. Also offered as ME 5312.

**AE 5313. FLUID DYNAMICS. 3 Hours.**

Basic conservation laws, flow kinematics, special forms of the governing equations, two-dimensional potential flows, surface waves and some exact solutions of viscous incompressible flows. Also offered as ME 5313.

**AE 5314. FRACTURE MECHANICS IN STRUCTURAL DESIGN. 3 Hours.**

Linear elastic fracture mechanics, general yielding fracture mechanics, damage tolerance and durability design, fail safe and safe life design criteria, analysis of fatigue crack growth, residual strength analysis. Also offered as ME 5314.

**AE 5315. FUNDAMENTALS OF COMPOSITES. 3 Hours.**

Fundamental relationships between the mechanical and hygrothermal behavior and the composition of multiphase media; failure criteria. Also offered as ME 5315.

**AE 5322. AEROELASTICITY. 3 Hours.**

Math models for the steady aerodynamics and structural stiffness of aircraft wings are presented and combined into a static aeroelastic math model. Loss of wing lift due to static aeroelasticity as well as the structural instability called aeroelastic divergence are covered.

**AE 5325. COMBUSTION. 3 Hours.**

Fundamental treatment of problems involving simultaneous occurrence of chemical reaction and transfer of heat, mass and momentum. Topics include kinetically controlled combustion phenomena; diffusion flames in liquid fuel combustion; combustion of solids; combustion of gaseous fuel jets; flames in premixed gasses. Also offered as ME 5325.

**AE 5326. AIR-BREATHING PROPULSION. 3 Hours.**

Development of thrust and efficiency equations, thermodynamic cycle analysis, cycle design methods of aerospace propulsion systems, component performance analysis methods, component matching and dynamic interactions, and vehicle/propulsion-system integration.

**AE 5327. COMPUTATIONAL AERODYNAMICS I. 3 Hours.**

Solution of engineering problems by finite-difference methods, emphasis on aerodynamic problems characterized by single linear and non-linear equations, introduction to and application of major algorithms used in solving aerodynamics problems by computational methods.

**AE 5328. COMPUTATIONAL AERODYNAMICS II. 3 Hours.**

Review of the fundamental equations of aerodynamics, development of methods for solving Euler, boundary-layer, Navier-Stokes, and parabolized Navier-Stokes equations, application to practical aerodynamic analysis and design problems.

**AE 5331. ANALYTIC METHODS ENGINEERING. 3 Hours.**

Introduction to advanced analytic methods in engineering. Methods include multivariable calculus and field theory, Fourier series, Fourier and Laplace Transforms. Also offered as ME 5331. Prerequisite: Undergraduate degree in engineering, physics, or mathematics.

**AE 5332. ENGINEERING ANALYSIS. 3 Hours.**

Introduction to partial differential equations and complex variable theory with application to modeling of physical systems. Also offered as ME 5332.

**AE 5335. OPTIMAL CONTROL OF DYNAMIC SYS. 3 Hours.**

Linear and nonlinear optimization methods; optimal control; continuous time Ricatti equation; bang-bang control; singular arcs; differential inclusions; collocation techniques; design of optimal dynamic system trajectories. Also offered as ME 5335.

**AE 5336. OPTIMAL ESTIMATION OF DYNAMIC SYSTEMS. 3 Hours.**

Kalman filter design and implementation. Optimal filtering for discrete-time and continuous-time dynamical systems with noise. Wiener filtering. State-space determination. Prerequisite: Prior introductory systems or identification course is desirable. Also offered as ME 5336 and EE 6327.

**AE 5337. INTRODUCTION TO ROBOTICS. 3 Hours.**

An overview of industrial robots and their application to traditional and emerging applications. Coordinate systems and homogeneous transformations, kinematics of manipulators; motion characteristics and trajectories; dynamics and control of manipulators; actuation and design issues. Programming of industrial robotic manipulators in the laboratory. Also offered as ME 5337.

**AE 5338. ANALYTICAL & COMPUTATIONAL DYN. 3 Hours.**

The course focuses on developing the equations of motion for dynamic systems composed of multiple, connected and unconnected, rigid bodies using Kane's method and the Lagrangian approach. The resulting model is used to simulate and visualize the predicted motion. Topics include kinematics, Euler parameters, kinematic constraints, virtual work, the calculus of variations, energy, momentum, contact, impact, and checking functions. Also offered as ME 5338.

**AE 5339. STRUCTURAL ASPECTS OF DESIGN. 3 Hours.**

Emphasis on determination of stresses and prediction of failure in machine and structural components; stress-strain relations in elastic and plastic regions; static failure and failure criteria; contact stress; notched sensitivity; strain-fatigue life relationship; characteristics of cracks in structural components. Also offered as ME 5339.

**AE 5341. CONTROL SYSTEM COMPONENTS. 3 Hours.**

The components and hardware used in electronic, hydraulic, and pneumatic control systems; techniques of amplification, computation, compensation, actuation, and sensing; modeling of multiport systems as well as servo systems analysis. Pulse modulated systems. Prerequisite: Undergraduate introductory control course in Mechanical Engineering or equivalent or ME 5303 or equivalent. Also offered as ME 5341.

**AE 5342. GAS DYNAMICS. 3 Hours.**

Review of fundamental compressible flow theory, method of characteristics for perfect gases, the Rankine-Hugoniot conditions, linearized flow theory. Also offered as ME 5342.

**AE 5345. NUMERICAL HEAT TRANSFER. 3 Hours.**

Discussion of numerical methods for conduction and convection heat transfer problems includes introduction to various computational techniques suitable for digital computers. Finite difference method is emphasized. Also offered as ME 5345.

**AE 5347. ROCKET PROPULSION. 3 Hours.**

Thrust and efficiency relations, trajectory analysis, introduction to design and performance analysis of chemical (liquid and solid), electrical and nuclear rocket systems, combined cycle propulsion systems, and pulse detonation rockets.

**AE 5348. HYPERSONIC PROPULSION. 3 Hours.**

Design and performance analysis of propulsion systems for sustained flight at hypersonic speeds, airframe/propulsion system integration, supersonic combustion, finite-rate chemistry effects, radiative cooling.

**AE 5360. MULTIDISCIPLINARY INVERSE DESIGN AND OPTIMIZATION. 3 Hours.**

For a new design of any realistic device to be competitive, it must satisfy a number of often conflicting requirements, objectives, and constraints. This course offers a variety of basic concepts and methodologies for inverse design and optimization with practical applications in fluid mechanics, heat transfer, elasticity, and electromagnetism. Also offered as ME 5360.

**AE 5362. GUIDANCE, NAVIGATION, AND CONTROL OF AEROSPACE VEHICLES. 3 Hours.**

Basics of flight dynamics and control. Autopilot structures for aerospace vehicles (aircraft, missiles, launch vehicles). Equilibrium glide trajectories for atmospheric flight. Discussion of the various guidance algorithms used in aircraft/missiles/launch vehicles. Basics of Kalman filtering, sensor and data fusion. Selection and trade-off between various navigation components such as the IMU, GPS and other navigation components. Integration of the guidance, navigation and control components in aerospace vehicles.

**AE 5363. INTRODUCTION TO ROTORCRAFT ANALYSIS. 3 Hours.**

History of rotorcraft. Behavior of the rotor blade in hover and forward flight. Rotor configurations, dynamic coupling with the fuselage, elastic and aeroelastic effects. Also offered as ME 5363.

**AE 5364. INTRODUCTION TO AERODYNAMICS OF ROTORCRAFT. 3 Hours.**

Practical aerodynamics of rotors and other components of rotorcraft. Introduction to performance, handling qualities, and general flight mechanics related to rotorcraft design, test, and certification requirements. Emphasis is on real rotorcraft mission capabilities as defined by the customer. Also offered as ME 5364.



**AE 5365. INTRODUCTION TO HELICOPTER AND TILTROTOR SIMULATION. 3 Hours.**

Dynamic and aerodynamic modeling of rotorcraft elements using vector mechanics, linear algebra, calculus and numerical methods. Special emphasis on rotors, aerodynamic interference, proper axis system representation, model assembly methods and trimming. Also offered as ME 5365.

**AE 5367. HIGH-SPEED AIRCRAFT AND SPACE ACCESS VEHICLE DESIGN. 3 Hours.**

An introductory course on high-speed aircraft and space access vehicle design. The course concentrates on reusable flight vehicles. Topics covered are historical case studies, design disciplines, design space visualization and proof of design convergence. Prerequisites: consent of the instructor.

**AE 5368. FLIGHT VEHICLE SYNTHESIS AND SYSTEMS ENGINEERING. 3 Hours.**

An introductory course on multi-disciplinary design decision-making applied to flight vehicle design. The course introduces decision-making techniques leading to efficient aerospace product design. The following main topics are covered: a) management domain, b) operational domain, c) engineering domain. Prerequisites: MAE 4350, MAE 4351 or equivalent.

**AE 5372. PARAMETRIC SIZING OF HIGH-SPEED AIRCRAFT. 3 Hours.**

An introductory course on high-speed aircraft design. Aimed to develop insight into basic concepts underlining the analysis and design of supersonic and hypersonic aircraft. Topics covered are historical case studies, design disciplines, and design methodologies. Prerequisite: MAE 4350, MAE 4351 or equivalent.

**AE 5374. NONLINEAR SYSTEMS ANALYSIS AND CONTROLS. 3 Hours.**

Nonlinear systems; phase plane analysis; Poincare-Bendixon theorems; nonlinear system stability; limit cycles and oscillations; center manifold theorem, Lyapunov methods in control; variable structure control; feedback linearization; backstepping techniques. Also offered as ME 5374.

**AE 5378. INTRODUCTION TO UNMANNED VEHICLE SYSTEMS. 3 Hours.**

Introduction to UVS (Unmanned Vehicle Systems) such as UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground System) and UMS (Unmanned Maritime System), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. UVS missions could include student competitions sponsored by various technical organizations. This course is team-taught by engineering faculty. Also offered as MAE 4378 and ME 5378.

**AE 5379. UNMANNED VEHICLE SYSTEM DEVELOPMENT. 3 Hours.**

Introduction to the technologies needed to create an UVS (Unmanned Vehicle System). Integration of these technologies (embodied as a set of sensors, actuators, computing and mobility platform sub-systems) into a functioning UVS through team work. UVS could be designed to compete in a student competition sponsored by various technical organizations or to support a specific mission or function defined by the instructors. This course is team-taught by engineering faculty. Also offered as MAE 4379 and ME 5379. Prerequisite: B or better in MAE 4378 or AE 5378 or ME 5378 and admission to the UVS certificate program.

**AE 5380. DESIGN OF DIGITAL CONTROL SYSTEMS. 3 Hours.**

Difference equations, Z- and w-transforms, discrete TF (Transfer Function). Discrete equivalence (DE) to continuous TF. Aliasing & Nyquist sampling theorem. Design by DE, root locus in z-plane & Youla parameterization. Discrete state-space model, minimality after sampling, pole placement, Moore-Kimura method, linear quadratic regulator, asymptotic observer. Computer simulation and/or lab implementation. Also offered as ME 5380, EE 5324. Prerequisite: MAE 4310 or equivalent.

**AE 5381. BOUNDARY LAYERS. 3 Hours.**

An introductory course on boundary layers. The coverage emphasizes the physical understanding and the mathematical foundations of boundary layers, including applications. Topics covered include laminar and turbulent incompressible and compressible layers, and an introduction to boundary layer transition. Also offered as ME 5381.

**AE 5382. ADVANCED ASTRONAUTICS. 3 Hours.**

Topics include orbital mechanics, orbital maneuvering, relative motion, orbit determination and estimation, three body problem, perturbations and numerical techniques.

**AE 5383. HYPERSONIC FLOW. 3 Hours.**

General features of hypersonic flow fields. Inviscid hypersonic flow: thin shock layer theory, Newtonian flow, constant density solutions, small disturbance theory, method of characteristics.

**AE 5385. HIGH TEMPERATURE GASDYNAMICS. 3 Hours.**

Surveys kinetic theory, statistical mechanics, and chemical reaction rate theory. Application to the prediction of thermodynamic properties of gasses and the analysis of problems in high-temperature gasdynamics.

**AE 5386. WIND/WAVE/OCEAN CURRENT ENERGY HARVESTING SYSTEMS I - FUNDAMENTALS. 3 Hours.**

A broad senior/graduate first course in wind/wave/ocean current energy harvesting systems, focused on fundamentals, and serving as the basis for subsequent MAE specialized follow-on graduate course offerings focused on structures (conventional and composite), aero/hydro-mechanical response and control, and tailoring and smart material actuation, respectively, as well as for non-MAE, specialized graduate courses.

**AE 5391. ADVANCED STUDIES IN AEROSPACE ENGINEERING. 3 Hours.**

Individual research or design project performed for fulfilling the requirements of the Master of Engineering degree option. Prior approval of the AE Graduate Advisor is required for enrollment. A written and/or oral report is required.

**AE 5398. THESIS. 3 Hours.**

Graded R/F only.

**AE 5400. Preparatory Course for Aerospace Engineering. 4 Hours.**

The course may be offered with multiple sections, wherein each section is paired with a corresponding UG course being offered that semester. The purpose of this course is to strengthen academic preparation of students who were found inadequately prepared for a graduate degree in Aerospace Engineering. Students can concurrently enroll in multiple sections and may need to enroll in this course multiple times until their academic preparation is deemed complete. In order to pass this class, the students has to earn at least a B grade in aggregate based all the assignments and exams. May be repeated as often as required.

**AE 5698. THESIS. 6 Hours.**

Graded P/R/F.

**AE 6196. AEROSPACE ENGINEERING INTERNSHIP. 1 Hour.**

For students participating in internship programs. Requires prior approval of Graduate Advisor.

**AE 6197. RESEARCH IN AEROSPACE ENGINEERING. 1 Hour.**

Research.

**AE 6297. RESEARCH IN AEROSPACE ENGINEERING. 2 Hours.**

Research.

**AE 6299. DISSERTATION. 2 Hours.**

Dissertation. Prerequisite: Admission to candidacy for the Doctoral of Philosophy degree.

**AE 6310. ADVANCED FINITE ELEMENT METHODS. 3 Hours.**

Modeling of large systems, composite and incompressible materials, substructuring, mesh generation, solids applications, nonlinear problems. Also offered as ME 6310.

**AE 6311. ADVANCED STRUCTURAL DYNAMICS. 3 Hours.**

Normal mode method for undamped and proportionally damped systems, component mode synthesis, generally damped systems, complex modes, effect of design modification on system response. Also offered as ME 6311. Prerequisite: ME 5311, AE 5311 or equivalent.

**AE 6315. ADVANCED COMPOSITES. 3 Hours.**

Review of current state-of-the-art applications of composites: composite structural analysis; structural properties, damage characterization and failure mechanism; stiffness loss due to damage, notched sensitivity; delamination; impact; fatigue characteristics; composite material testing; material allowables; characteristics of composite joints. Also offered as ME 6315 and MSE 5349. Prerequisite: ME 5315, AE 5315 or MSE 5348 or equivalent.

**AE 6337. ADVANCED ROBOTICS. 3 Hours.**

Advanced robotic design concepts considering structural statics, dynamics and control strategies for both rigid and flexible manipulators will be studied using optimization techniques and analytical approaches and introduction to micro- and mobile robotic devices. Study of emerging applications of robotics will be explored. Digital simulation of robotic devices and programming and demonstration of robotic devices in the laboratory. Prerequisites AE 5337, ME 5337 or equivalent.

**AE 6345. TURBULENCE. 3 Hours.**

Physical, numerical and theoretical aspects of turbulence. Review of the conservation equations for incompressible flow. Statistical descriptions pertaining to fluid mechanics. Classical description of turbulence via Reynolds averaging is developed with emphasis on homogeneous, isotropic turbulence. Application to free and wall-bounded flows. Modeling and simulation, including direct numerical simulation, classical turbulence modeling, PDF methods and large eddy simulation. Familiarity with vector or tensor notation is expected. Prerequisite: An advanced course in fluid mechanics (AE 5313/ME 5313) or continuum mechanics (AE 5312/ME 5312).

**AE 6397. RESEARCH IN AEROSPACE ENGINEERING. 3 Hours.**

Research.

**AE 6399. DISSERTATION. 3 Hours.**

Dissertation. Prerequisite: Admission to candidacy for the Doctor of Philosophy degree.

**AE 6697. RESEARCH IN AEROSPACE ENGINEERING. 6 Hours.**

Research.

**AE 6699. DISSERTATION. 6 Hours.**

Dissertation. Prerequisite: Admission to candidacy for the Doctor of Philosophy degree.

**AE 6999. DISSERTATION. 9 Hours.**

Dissertation. Prerequisite: Admission to candidacy for the Doctor of Philosophy degree.

**AE 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Aerospace Studies (AS)

### COURSES

**AS 1121. FOUNDATION OF THE UNITED STATES AIR FORCE. 1 Hour.**

(AS 1121 in the fall and AS 1122 in the spring) AS 100 is a survey course designed to introduce students to the U.S. Air Force and Air Force ROTC. Featured topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, and an introduction into communication skills. Leadership Laboratory (AS 1001) complements this course by providing cadets with followership experiences.

**AS 1122. FOUNDATION OF THE UNITED STATES AIR FORCE. 1 Hour.**

(AS 1121 in the fall and AS 1122 in the spring) AS 100 is a survey course designed to introduce students to the U.S. Air Force and Air Force ROTC. Featured topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, and an introduction into communication skills. Leadership Laboratory (AS 1001) complements this course by providing cadets with followership experiences.

**AS 1181. LEADERSHIP LABORATORY. 1 Hour.**

(LLAB) (Every semester). The AS 100 and AS 200 LLabs include a study of Air Force customs and courtesies, drill and ceremonies, and military commands. The LLAB also includes studying the environment of an Air Force officer and learning about areas of opportunity available to commissioned officers. The AS 300 and AS 400 LLAB consist of activities classified as leadership and management experiences. They involve the planning and controlling of military activities of the cadet corps; and the preparation and presentation of briefings and other oral and written communications. LLAB also include interviews, guidance, and information that will increase the understanding, motivation, and performance of other cadets.

**AS 2121. THE EVOLUTION OF USAF AIR AND SPACE POWER. 1 Hour.**

(AS 2121 in the fall and AS 2122 in the spring) AS 200 is a survey course designed to examine general aspects of air and space power through a historical perspective. Utilizing this perspective, the course covers a time period from the first balloons and dirigibles to the space-age global positioning systems of the Persian Gulf War. Historical examples are provided to extrapolate the development of Air Force capabilities (competencies), and missions (functions) to demonstrate the evolution of what has become today's USAF air and space power. Furthermore, the course examines several fundamental truths associated with war in the third dimension: e.g. Principles of War and Tenets of Air and Space Power. As a whole, this course provides the student with a knowledge level understanding for the general element and employment of air and space power, from an institutional, doctrinal, and historical perspective. In addition, the students will continue to discuss the importance of the Air Force Core Values with the use of operational examples and historical Air Force leaders and will continue to develop their communication skills. In addition, Leadership Laboratory (AS 1001) is mandatory for Air Force ROTC cadets (not special students), and it complements this course by providing cadets with followership experiences. Professional Officer Courses (POC).

**AS 2122. THE EVOLUTION OF USAF AIR AND SPACE POWER. 1 Hour.**

(AS 2121 in the fall and AS 2122 in the spring) AS 200 is a survey course designed to examine general aspects of air and space power through a historical perspective. Utilizing this perspective, the course covers a time period from the first balloons and dirigibles to the space-age global positioning systems of the Persian Gulf War. Historical examples are provided to extrapolate the development of Air Force capabilities (competencies), and missions (functions) to demonstrate the evolution of what has become today's USAF air and space power. Furthermore, the course examines several fundamental truths associated with war in the third dimension: e.g. Principles of War and Tenets of Air and Space Power. As a whole, this course provides the student with a knowledge level understanding for the general element and employment of air and space power, from an institutional, doctrinal, and historical perspective. In addition, the students will continue to discuss the importance of the Air Force Core Values with the use of operational examples and historical Air Force leaders and will continue to develop their communication skills. In addition, Leadership Laboratory (AS 1001) is mandatory for Air Force ROTC cadets (not special students), and it complements this course by providing cadets with followership experiences. Professional Officer Courses (POC).

**AS 3301. LEADERSHIP STUDIES. 3 Hours.**

(AS 3301 in the fall and AS 3311 in the spring). AS 300 is a study of leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and communication skills required for an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory Leadership Laboratory (AS 1001) complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course.

**AS 3311. LEADERSHIP STUDIES. 3 Hours.**

(AS 3301 in the fall and AS 3311 in the spring). AS 300 is a study of leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and communication skills required for an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory Leadership Laboratory (AS 1001) complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course.

**AS 4301. NATIONAL SECURITY AFFAIRS/PREPARATION FOR ACTIVE DUTY. 3 Hours.**

(AS 4301 in the fall and 4311 in the spring). AS 400 examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest focus on the military as a profession, officership, military justice, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis is given to refining communication skills. An additional Leadership Laboratory (AS 1001) complements this course by providing advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of this course.

**AS 4311. NATIONAL SECURITY AFFAIRS/PREPARATION FOR ACTIVE DUTY. 3 Hours.**

(AS 4301 in the fall and AS 4311 in the spring). AS 400 examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest focus on the military as a profession, officership, military justice, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis is given to refining communication skills. An additional Leadership Laboratory (AS 1001) complements this course by providing advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of this course.

## Affiliated Studies Abroad (ASA)

### COURSES

ASA 1191. AFFILIATED STUDY ABROAD. 1 Hour.

ASA 1291. AFFILIATED STUDY ABROAD. 2 Hours.

ASA 1391. AFFILIATED STUDIES ABROAD. 3 Hours.

ASA 1491. AFFILIATED STUDIES ABROAD. 4 Hours.

ASA 1591. AFFILIATED STUDIES ABROAD. 5 Hours.

ASA 2191. AFFILIATED STUDY ABROAD. 1 Hour.

ASA 2291. AFFILIATED STUDY ABROAD. 2 Hours.

ASA 2391. AFFILIATED STUDIES ABROAD. 3 Hours.

ASA 2491. AFFILIATED STUDIES ABROAD. 4 Hours.

ASA 2591. AFFILIATED STUDIES ABROAD. 5 Hours.

ASA 3191. AFFILIATED STUDY ABROAD. 1 Hour.

ASA 3291. AFFILIATED STUDIES ABROAD. 2 Hours.

ASA 3391. AFFILIATED STUDIES ABROAD. 3 Hours.

ASA 3491. AFFILIATED STUDIES ABROAD. 4 Hours.

ASA 3591. AFFILIATED STUDIES ABROAD. 5 Hours.

ASA 4191. AFFILIATED STUDY ABROAD. 1 Hour.

ASA 4291. AFFILIATED STUDIES ABROAD. 2 Hours.

ASA 4391. AFFILIATED STUDIES ABROAD. 3 Hours.

ASA 4491. AFFILIATED STUDIES ABROAD. 4 Hours.

ASA 4591. AFFILIATED STUDIES ABROAD. 5 Hours.

ASA 4691. AFFILIATED STUDY ABROAD. 6 Hours.

ASA 5291. AFFILIATED STUDIES ABROAD. 2 Hours.

ASA 5391. AFFILIATED STUDIES ABROAD. 3 Hours.

ASA 5491. AFFILIATED STUDIES ABROAD. 4 Hours.

ASA 5591. AFFILIATED STUDIES ABROAD. 5 Hours.

ASA 5691. AFFILIATED STUDIES ABROAD. 6 Hours.

## African-American Studies (AAST)

## COURSES

### **AAST 2300. INTRODUCTION TO AFRICAN AMERICAN STUDIES. 3 Hours.**

This course introduces students to the African American experience in the United States, including an interdisciplinary analysis of the African American experience in politics, the arts, folklore, religion, economics, sociology, psychology, and community development; and an examination of local history, contemporary issues, and recent events in the African American community.

### **AAST 2337. ECONOMICS OF SOCIAL ISSUES. 3 Hours.**

Economic consequences and solutions of current social issues. Each semester, a series of topics will be covered in line with current events and the instructor's expertise to facilitate an understanding of the economic structure. Will not serve to meet degree requirements for College of Business Administration majors. Offered as AAST 2337 and ECON 2337; credit will be granted in only one department.

### **AAST 3301. HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT I. 3 Hours.**

The first of two required human behavior courses that explore, within the context of a strengths and empowerment perspective, knowledge of the bio-psycho-social development of persons from birth through young adulthood. Offered as AAST 3301 and SOCW 3301; credit will be granted in only one department.

### **AAST 3317. HUMAN BEHAVIOR AND DIVERSE POPULATIONS. 3 Hours.**

Introduction to theoretical, practical, and policy issues related to diverse populations. Historical, political, and socioeconomic forces are examined that maintain discriminatory and oppressive values, attitudes, and behaviors in society and in all levels of organizational behavior. Prerequisite: SOCW 2311, SOCW 2313. Offered as AAST 3317 and SOCW 3317; credit will be granted in only one department.

### **AAST 3324. THE COMING OF THE CIVIL WAR, 1820-1860. 3 Hours.**

Sectional conflict in the United States from the Missouri Compromise of 1820 to the election of Abraham Lincoln in 1860. Southern separatism, slavery as a political issue, the antislavery movement, the breakup of the national political system, and the failure of sectional compromise. Offered as AAST 3324 and HIST 3324; credit will be granted in only one department.

### **AAST 3327. THE NEW SOUTH, 1863-PRESENT. 3 Hours.**

From military defeat to Sun Belt growth. Topics include Reconstruction, segregation, migration of Southerners to the North and West, depressions, reforms, Civil Rights, Moral Majority, cultural expressions in literature and music. Offered as AAST 3327 and HIST 3327; credit will be granted in only one department.

### **AAST 3330. CULTURAL DIVERSITY AND IDENTITY. 3 Hours.**

The ways identity is constructed in contemporary societies in an increasingly complex and multicultural world. Ethnic, racial, gender, and class identities. How and when identity is asserted and assigned, and how it can both draw boundaries and forge ties between peoples. Formerly listed as ANTH 2350. Credit cannot be given for both ANTH 2350 and ANTH 3330. Also listed as MAS 3330; credit cannot be granted for both ANTH 3330 and MAS 3330. Offered as AAST 3330 and ANTH 3330; credit will be granted in only one department.

### **AAST 3332. COMPARATIVE KINSHIP AND FAMILY SYSTEMS. 3 Hours.**

Variation in kinship and family systems from crosscultural and evolutionary perspectives. Structure, function, and dynamics of kinship and family systems as adaptations to diverse ecological, social, and historical circumstances. Implications of this approach for understanding kinship and family in American society also addressed. Formerly listed as ANTH 4338. Credit cannot be given for both ANTH 3338 and ANTH 4338. Also offered as WOMS 3338; credit will be granted only once. Offered as AAST 3332 and ANTH 3338; credit will be granted in only one department.

### **AAST 3336. SOCIAL INEQUALITY. 3 Hours.**

Examines the processes, characteristics, and consequences of social inequality in society. Topics include the social class structure, status groups, and elite power structure as they influence people's life chances. Offered as AAST 3336 and SOCI 3336; credit will be granted in only one department.

### **AAST 3337. RACIAL & ETHNIC GROUPS IN US. 3 Hours.**

Compares the immigration, acculturation, and adjustment processes of various racial/ethnic groups in the U.S. Examines historical and contemporary discrimination in relation to the social conditions of racial/ethnic minority groups in the U. S. Topics include classical and contemporary theory; individualistic, cultural, and structural arguments about social arrangements; and conflict among majority and minority groups. Prerequisite: SOCI 1311. Credit will not be granted for both SOCI 3337 and SOCI 4310 or for MAS 3337 and MAS 4310. Offered as AAST 3337 and SOCI 3337; credit will be granted in only one department.

### **AAST 3338. CONTEMPORARY BLACK EXPERIENCE. 3 Hours.**

An overview of recent research concerning the African American experience in the post-civil rights era. Topics include explanations for racial differences across spheres of society such as income, education, and occupation; the debate over race versus social class; the persistence of racial discrimination; and emerging disputes within the black community regarding "what it means to be black." Offered as AAST 3338 and SOCI 3338; credit will be granted in only one department.

### **AAST 3339. RACE, SPORT AND MEDIA. 3 Hours.**

The media, including television, film, print, audio, and online outlets, influence how we view the world. This course analyzes overt, subtle and subliminal messages about culture, race, ethnicity, and sport as presented to us through various forms of the media. Through examinations of media portrayals of race, both past and present, students will analyze media artifacts, identify recurring themes, and examine research focused on the societal effects of stereotypical media portrayals. Offered as AAST 3339 and SOCI 3339; credit will be granted in only one department.

**AAST 3344. SOCIOLOGY OF THE 1960S. 3 Hours.**

This course presents a sociological analysis of the sixties, stressing the connection between grassroots mobilization and large structures of power, war, race and gender. The legacy of the sixties is examined through stories told by and about activists of the period. Parallels between the sixties and the present are identified. Movements covered may include civil rights, black power, anti-war and women's rights. Offered as AAST 3344 and SOCI 3345; credit will be granted in only one department.

**AAST 3345. AFRICAN AMERICAN LITERATURE. 3 Hours.**

Offers an introduction to African American literature or focuses on a particular genre, period or topic. May be repeated for credit as course content changes. Offered as AAST 3345 and ENG 3345; credit will be granted in only one department.

**AAST 3353. SOCIAL CLIMATE OF CITIES. 3 Hours.**

A comparative study of urban communities and metropolitan areas in terms of their distinctive social life and culture. Topics touching on power and urban politics, race and ethnic relations, poverty, and leisure and lifestyles will be examined in terms of their contribution to the unique social climate of cities. Offered as AAST 3353 and SOCI 3353; credit will be granted in only one department.

**AAST 3365. AFRICAN-AMERICAN HISTORY TO 1865. 3 Hours.**

History of blacks in America from their African origins to 1865. Emphasis on early African society, American slavery, and the development of black institutions and culture in the U.S. Offered as AAST 3365 and HIST 3365; credit will be granted in only one department.

**AAST 3366. AFRICAN-AMERICAN HISTORY, 1865-PRESENT. 3 Hours.**

Emphasis on the transition from slavery to freedom, the political, social, and economic status of blacks in the late 19th century, 20th century black institutions and culture, and the evolution of the civil rights movements. Offered as AAST 3366 and HIST 3366; credit will be granted in only one department.

**AAST 3380. RACE, CRIME, AND JUSTICE. 3 Hours.**

An examination of race in the context of the criminal justice system. Emphasis is on social construction of crime; and the treatment of racial minorities as victims and offenders by law enforcement, courts, and corrections. Offered as CRCJ 3380 and MAS 3380; credit will be granted only once. Offered as AAST 3380 and CRCJ 3380; credit will be granted in only one department.

**AAST 4317. ETHNIC GROUP POLITICS IN THE UNITED STATES. 3 Hours.**

The influence of selected major ethnic groups with special attention given to organizational development, participation in political parties, leadership, ideology, immigration policy, current issues, and relations with the dominant culture and other ethnic groups. Offered as AAST 4317 and POLS 4317; credit will be granted in only one department.

**AAST 4318. POLITICS OF AFRICAN AMERICANS. 3 Hours.**

The influence of African-American politics on United States government and policies with special attention given to organizational development, participation in political parties, leadership, ideology, the Civil Rights movement, current issues, and relations with other ethnic groups. Offered as AAST 4318 and POLS 4318; credit will be granted in only one department.

**AAST 4326. DIVERSITY IN ORGANIZATIONS. 3 Hours.**

This course examines the implications of employee diversity in organizations, an issue of increasing importance. It includes study of the changing demographics of workers, including multiple demographic groups and areas of difference important to organizational treatment and outcomes. This course examines research on treatment, access, and customer discrimination. Legislation related to diversity is also reviewed. This course also provides suggestions for individuals and organizations to increase opportunities and outcomes for workers of all backgrounds. Prerequisite: Junior standing.

**AAST 4331. RACE, ETHNICITY & FAMILY FORMATION. 3 Hours.**

Investigates the ways in which cultural understandings of race and ethnicity have shaped historical and contemporary variations in family structure, familial experiences, and the legal possibilities for family formation. Junior standing (60 hours) or permission of the instructor required to enroll in this course. Offered as AAST 4331 and SOCI 4331; credit will be granted in only one department.

**AAST 4341. INEQUALITIES IN PUBLIC EDUCATION. 3 Hours.**

This course examines the manner in which race, ethnicity, and class affect the quality of education in the public schools. Topics include the resegregation of schools, class and race based achievement and funding gaps, and the role the schools play in reproducing inequality. This course has a service learning component and requires volunteering in programs designed to reduce inequality in the schools. Offered as AAST 4341 and SOCI 4341; credit will be granted in only one department.

**AAST 4350. SPECIAL TOPICS IN AFRICAN AMERICAN STUDIES. 3 Hours.**

Special topics related to African American studies. May be repeated for credit when the topic changes.

**AAST 4370. AFRICAN AMERICANS IN THE WEST. 3 Hours.**

A history of African Americans in the West, focusing on the experiences of the first Africans who accompanied the first European explorers in the West and Southwest; the post-Civil War migration and settlement of African Americans in the West in the nineteenth and twentieth centuries; and the development and impact of the "West Coast" experience on African American culture. Offered as AAST 4370 and HIST 4370; credit will be granted in only one department.

**AAST 4374. AFRICAN HISTORY I. 3 Hours.**

Examines African prehistory, ancient civilizations, religion, gender issues, slavery, and commerce in precolonial Africa. Offered as AAST 4374 and HIST 4374; credit will be granted in only one department.

**AAST 4375. AFRICAN HISTORY II. 3 Hours.**

Africa from the "Scramble for Africa" through the establishment of the various colonial systems, through the beginnings of African nationalism, to the contemporary period. The African Revolution and the development of the independent African states. Offered as AAST 4375 and HIST 4375; credit will be granted in only one department.

**AAST 4376. AFRICAN DIASPORA I. 3 Hours.**

The major developments which have shaped the history of Africans and their descendants in the Atlantic, Mediterranean, and Indian Ocean areas from the earliest times to 1800. Emphasis on the comparative history of Black Diasporic communities; linkages between Africans and their descendants in the Diaspora. Offered as AAST 4376 and HIST 4376; credit will be granted in only one department.

**AAST 4377. AFRICAN DIASPORA II. 3 Hours.**

The major developments which have shaped the history of Africans and their descendants in Latin America, the Caribbean, and North America since 1800. Emphasis on the comparative history of Black Diasporic communities; linkages between Africans and their descendants in the Atlantic Diaspora. Offered as AAST 4377 and HIST 4377; credit will be granted in only one department.

**AAST 4378. WEST AFRICA AND THE ATLANTIC DIASPORA. 3 Hours.**

This course examines the history of West Africa and how this region was integrated into the Atlantic world through the Atlantic slave trade. The course adopts an interdisciplinary approach that integrates traditional classroom instruction with field-based learning in West Africa. This learning method, combined with cultural immersion, challenges students to develop their academic and cross-cultural knowledge and skills. Offered as AAST 4378 and HIST 4378; credit will be granted in only one department.

**AAST 4391. CONFERENCE COURSE. 3 Hours.**

Directed independent study for the advanced undergraduate. A close examination of a chosen topic through research and/or reading; format designed by instructor and student. May be repeated for a maximum six credit hours when the subject matter varies. Prerequisite: Departmental permission.

**AAST 4399. CAPSTONE AFRICAN AMERICAN STUDIES. 3 Hours.**

In consultation with the course instructor, students will design a research project or an internship that will integrate their previous course work into a capstone experience in either the applied or the cultural studies stream of the African American Studies minor. Prerequisite: AAST 2300 and departmental permission.

**AAST 6391. Conference Course. 3 Hours.**

Directed independent study for a masters-level or doctoral student. A close examination of a chosen topic through research and/or reading; format designed by instructor and student. May be repeated for maximum six credit hours when the subject matter varies. Prerequisite: Permission from CAAS Director.

## Anthropology (ANTH)

### COURSES

**ANTH 1306. INTRODUCTION TO ANTHROPOLOGY. 3 Hours. (TCCN = ANTH 2346)**

This course, primarily intended for nonmajors and as a first course for students considering majoring in anthropology, provides an overview of the subdisciplines of anthropology: ethnology (cultural anthropology), archaeology, physical (biological) anthropology, and linguistic anthropology.

**ANTH 1310. GREAT DISCOVERIES IN ARCHAEOLOGY. 3 Hours.**

A survey of some of the most spectacular and otherwise significant archaeological discoveries worldwide over the past three centuries. Consideration of particular archaeological sites as case studies to illustrate cultural development from the Stone Age to Medieval times.

**ANTH 2307. BIOLOGICAL ANTHROPOLOGY. 3 Hours.**

Human variation and human evolution. Genetics, living and fossil nonhuman primates, the human skeleton, the fossil record of human evolution, modern human variation and biological adaptation. Formerly ANTH 3307; credit will not be granted for both ANTH 2307 and ANTH 3307.

**ANTH 2322. GLOBAL CULTURES. 3 Hours. (TCCN = ANTH 2351)**

Methods and theories of sociocultural anthropology. Examines systems of social organization and cultural meaning in contemporary human societies. Topics include fieldwork, cross-cultural analysis, applied anthropology, and global perspectives on political, economic, and social institutions. Formerly ANTH 3322; credit will not be granted for both ANTH 2322 and ANTH 3322.

**ANTH 2339. PRINCIPLES OF ARCHAEOLOGY. 3 Hours. (TCCN = ANTH 2302)**

The methods and theories of prehistoric archaeology. The techniques and approaches employed in recovering, dating, and interpreting prehistoric cultural materials. Formerly ANTH 3339; credit will not be granted for both ANTH 2339 and ANTH 3339.

**ANTH 2349. HONORS PRINCIPLES OF ARCHAEOLOGY. 3 Hours.**

Methods and theories of prehistoric archaeology. Techniques and approaches employed in recovering, dating and interpreting prehistoric cultural materials. Writing-intensive course including group and individual projects and oral presentations. Prerequisite: Membership in the Honors College or permission of instructor.

**ANTH 2358. ARCHAEOLOGICAL CULTURES. 3 Hours.**

Survey of a particular archaeological culture, region, or period. Can be offered on campus or as a field course or study abroad course.

**ANTH 2359. MYTHS AND MYSTERIES IN ARCHAEOLOGY. 3 Hours.**

This course will critically examine pseudoscience, cult archaeology and creationism from a scientific perspective. Through the close examination of case studies we will dispel archaeological myths and mysteries which are often depicted as fantastic or cult archaeology. This course will demonstrate that a strong adherence to scientific investigation can uncover facts about prehistory that are as interesting as the myths.

**ANTH 3300. ANTHROPOLOGICAL THEORY. 3 Hours.**

What is the history of anthropological thought? How was anthropology complicit with colonial politics? What are the core concepts in anthropology? What are the theoretical challenges posed by a feminist anthropology? How is globalization shaping current methodological and theoretical issues in anthropology? By exploring these questions and a wide range of readings this course engages students with core issues in anthropological theory and practice.

**ANTH 3311. HUMAN ADAPTATION AND THE CONCEPT OF RACE. 3 Hours.**

The study of modern human biological variation from an anthropological perspective emphasizing adaptation combined with an examination of the concept of race. Prerequisite: ANTH 1306 or ANTH 2307 and junior standing or permission of instructor. (Formerly listed at ANTH 4308; credit will be granted only once.).

**ANTH 3313. PRIMATE EVOLUTION AND BEHAVIOR. 3 Hours.**

An overview of the primate order. Primate evolution, ecology, adaptation, and behavior. Prerequisite: ANTH 2307 or permission of the instructor.

**ANTH 3325. ETHNOGRAPHY OF SOUTH AMERICA. 3 Hours.**

The indigenous groups of South America, with emphasis on the Aymara and Quechua of the Andes. Topics include culture change, environmental destruction, and preservation of cultural heritage.

**ANTH 3328. CIVILIZATIONS OF SOUTH AMERICA. 3 Hours.**

Complex agrarian civilizations in South America, concentrating on political, social, and cultural developments of the Chavin, Nazca, Moche, Tiahuanaco, Wari-Tiahuanaco, Inca, and Conquest periods. Formerly listed as ANTH 4328. Credit cannot be given for both ANTH 3328 and ANTH 4328.

**ANTH 3329. PEOPLES OF AFRICA. 3 Hours.**

Survey of peoples and cultures of Africa with emphasis on sub-Saharan Africa. Regional cultural geography and history is covered, as well as ethnography of specific communities. Role of African studies in anthropology and representation of African cultures. Problems and potential of contemporary Africa also addressed.

**ANTH 3330. CULTURAL DIVERSITY AND IDENTITY. 3 Hours.**

The ways identity is constructed in contemporary societies in an increasingly complex and multicultural world. Ethnic, racial, gender, and class identities. How and when identity is asserted and assigned, and how it can both draw boundaries and forge ties between peoples. Formerly listed as ANTH 2350. Credit cannot be given for both ANTH 2350 and ANTH 3330. Also listed as MAS 3330; credit cannot be granted for both ANTH 3330 and MAS 3330. Offered as AAST 3330 and ANTH 3330; credit will be granted in only one department.

**ANTH 3331. CULTURE AND PERSONALITY. 3 Hours.**

The interplay of culture and personality in various Western and non-Western societies. The relationship of specific practices to the development of personality and the psychological effects of colonization, modernization, and economic development of traditional societies.

**ANTH 3332. FOOD AND CULTURE. 3 Hours.**

Considers food systems from biological, ecological, and political-economic perspectives. May include food history, cuisines, food preferences, and other areas of anthropological scholarship on food and culture. May cover food and economic development, hunger and overnutrition, food and religion, and the globalization of foods and food systems.

**ANTH 3333. NORTH AMERICAN INDIANS. 3 Hours.**

North American Indian cultures and their development both before and after European contact.

**ANTH 3334. ANTHROPOLOGY OF SOUTH ASIA. 3 Hours.**

With a focus on the Indian subcontinent, this course introduces students to the culture, history and politics of South Asia. Drawing upon anthropological studies and a range of materials, including Bollywood films, music, tourist brochures, advertisements, Gandhi's writings, and South Asian literature, students will gain an increased understanding of the region's past and present.

**ANTH 3336. ANTHROPOLOGY OF RELIGION. 3 Hours.**

A crosscultural study of magic and religion. Theories of the origin and function of magic and religion in pre-industrial societies.

**ANTH 3338. COMPARATIVE KINSHIP AND FAMILY SYSTEMS. 3 Hours.**

Variation in kinship and family systems from crosscultural and evolutionary perspectives. Structure, function, and dynamics of kinship and family systems as adaptations to diverse ecological, social, and historical circumstances. Implications of this approach for understanding kinship and family in American society also addressed. Formerly listed as ANTH 4338. Credit cannot be given for both ANTH 3338 and ANTH 4338. Also offered as WOMS 3338; credit will be granted only once. Offered as AAST 3332 and ANTH 3338; credit will be granted in only one department.

**ANTH 3339. URBAN ANTHROPOLOGY. 3 Hours.**

Examines main issues, theoretical approaches and ethnographic methods used by anthropologists working in cities. Also discusses relevant contemporary topics such as growth of global cities, gentrification, poverty and inequality, and the economic, social and cultural integration of international immigrants in U.S. cities.



**ANTH 3341. RESEARCH METHODS IN CULTURAL ANTHROPOLOGY. 3 Hours.**

Observational techniques, participant-observation, hypothesis testing, research design, use of the computer in research, analysis, and report writing, and oral presentations of research reports. Satisfies oral communication and computer use competence requirements. Prerequisite ANTH 1306 or ANTH 2322 or permission of instructor.

**ANTH 3346. ANTHROPOLOGY OF TOURISM. 3 Hours.**

Examines the cultural practices of travel and the impact of tourism on both host and guest communities. Various forms of tourism are addressed including, but not limited to, ethnic, historical, regional, health and medical, and ecotourism. Themes of the "tourist gaze" authenticity, identity, consumption, ritual, borders, and pilgrimage will be explored.

**ANTH 3348. ANTHROPOLOGY OF MIGRATION. 3 Hours.**

This course focuses on the expanding field of migration studies in social and cultural anthropology. It traces the history of migration studies in anthropology, discusses the major theoretical contributions of anthropologists to the interdisciplinary field of migration, and addresses key contemporary topics in migration studies including globalization, transnational communities, gender, identity, and citizenship. The course heavily relies on ethnographic case studies of different immigrant populations in the U.S. written by anthropologists in the recent past.

**ANTH 3349. ANTHROPOLOGY OF GLOBALIZATION. 3 Hours.**

The forces of economic globalization now reach every corner of the world to the point that few societies have been untouched by their impact. This course examines the forces that drive globalization and their repercussions upon local communities around the world. It examines how economic globalization affects the lives of real people in developing and industrialized countries as well as in small-scale societies traditionally studied by anthropologists.

**ANTH 3350. NORTH AMERICAN ARCHAEOLOGY. 3 Hours.**

Prehistoric cultural adaptations in North America from human arrival to European contact. Topics treated include the question of when and where the first Native Americans arrived; the beginnings of village and farming life; and the development of Puebloan and "Mound-building" cultures.

**ANTH 3351. ARCHAEOLOGY OF THE AMERICAN SOUTHWEST. 3 Hours.**

This course investigates the peoples and places of the prehistoric North American Southwest. The focus is on the period of increasing settlement, diversity, movement, and change from 500 to 1500 C.E. Focuses on the archaeological record, ethnographies and comparative research to understand the past and present peoples of the Southwest.

**ANTH 3353. STONE AGE HUNTERS AND FARMERS. 3 Hours.**

Human adaptations and cultural evolution in the Old World from the earliest African sites over two million years ago to the domestication of plants and animals about ten thousand years ago. Formerly ANTH 2353; credit cannot be granted for both ANTH 2353 and ANTH 3353.

**ANTH 3355. THE RISE OF CIVILIZATION. 3 Hours.**

The development of complex cultures from village farming societies in various regions of the Old and New Worlds. The civilizations of Mesopotamia, Egypt, and Mesoamerica, among others, will be treated, along with general questions concerning the rise, development, and collapse of early civilizations. Formerly ANTH 2355; credit will not be granted for both ANTH 2355 and ANTH 3355.

**ANTH 3366. SEX, GENDER, AND CULTURE. 3 Hours.**

The ways gender and sexuality are culturally constructed. Readings include ethnographies, life histories, and fiction. Debates within anthropology and within specific cultures over maleness and femaleness. Offered as ANTH 3366 and WOMS 3366; credit will be granted only once.

**ANTH 3369. MEDICAL ANTHROPOLOGY. 3 Hours.**

Medical systems studied cross-culturally to understand how environmental, biological, social, and cultural factors affect disease and health. The cultural dynamics of traditional practitioners and rituals within the health care system. Methods of articulating modern medicine with traditional medicine are discussed.

**ANTH 3370. ARCHAEOLOGY OF THE PREHISTORIC AEGEAN. 3 Hours.**

Origin, evolution and decline of the first high civilizations in Europe, namely the Minoans on the island of Crete and the Mycenaeans in Greece. Stone Age background and Early Bronze Age seafaring in the Cycladic Islands; Late Bronze Age society, economy, and religion; art and architecture of the Minoan and Mycenaean palaces; Linear A and B tablets; Mycenaean collapse and the beginning of the Iron Age; Homer's Iliad, archaeology and the Trojan War.

**ANTH 3371. ARCHAEOLOGY OF GREECE. 3 Hours.**

Material evidence relevant to our understanding of classical Greek culture and society from the collapse of the Mycenaean Empire through the Hellenistic Period (ca. 1200-31 B.C.). Examination of the magnificent (temples, sculpture, athletic monuments, ships) and the mundane (domestic architecture, pottery, crafts, coinage, inscriptions, architecture and artifacts of civic life, burials). Archaeological evidence will be considered in light of contemporary historical sources.

**ANTH 3372. ARCHAEOLOGY OF THE ANCIENT NEAR EAST. 3 Hours.**

Survey of the cultures of Mesopotamia, Syria, Palestine, and Anatolia from the earliest agricultural settlements to the late first millennium B.C. based on the surviving archaeological remains. Among the topics covered: Nature of early urbanism; development of religious and economic hierarchies; origins and impact of writing; interrelationships among early states.

**ANTH 3373. ARCHAEOLOGY OF EGYPT. 3 Hours.**

The culture of ancient Egypt from its earliest occupation until the Arab invasion (7th century A.C.), with emphasis on the first 20 pharaonic dynasties (third and second millennia B.C.). Egyptian social, religious, economic and political development traced through the surviving material culture (architecture, art, industries, artifacts of daily life, funerary remains, etc.) supplemented by historical and literary evidence as pertinent. Egypt's relations with neighboring regions (Crete, Anatolia, Palestine, Nubia and Libya) considered.

**ANTH 3374. ARCHEOLOGY OF EUROPE. 3 Hours.**

Ancient Europe is a mosaic of archaeological regionalism whose complexity is arguably unparalleled elsewhere in the world. This course surveys the material remains of several prominent ancient cultures from Iberia to the Danube, from Scandinavia to Greece, dating from stone age to medieval times. Emphasis will be on understanding the various regional traditions and their interactions, and on explicating trends in technology, economy and religion in European society during this long period. Among the topics to be examined: Paleolithic hunters and artists; agricultural origins; megalithic monuments; bronze metallurgy and its ramifications; the first high civilizations in the Mediterranean; the rise of the Celts; the coming of iron; impact of Romanization; the nature of Viking exploration and expansion.

**ANTH 3409. HUMAN EVOLUTION. 4 Hours.**

Paleoanthropology; an exploration of the fossil evidence for the evolution of our taxonomic family, the Hominidae, and earlier primate ancestors. Prerequisite: ANTH 2307, or permission of the instructor.

**ANTH 4191. CONFERENCE COURSE. 1 Hour.**

Topics assigned on an individual basis covering personal research or study in the designated area. Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of the instructor.

**ANTH 4291. CONFERENCE COURSE. 2 Hours.**

Topics assigned on an individual basis covering personal research or study in the designated area. Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of the instructor.

**ANTH 4315. GROWTH, DEVELOPMENT, AND EVOLUTION. 3 Hours.**

A survey of topics at the nexus of modern human biological research in growth and development and the evolutionary record of hominid subadults. Prerequisite: ANTH 2307 or permission of the instructor.

**ANTH 4322. PROBLEMS IN ANTHROPOLOGY. 3 Hours.**

Intensive examination of an important problem in anthropological research selected by the instructor. May be repeated for credit whenever the topic varies.

**ANTH 4342. TOPICS IN CULTURAL ANTHROPOLOGY. 3 Hours.**

Selected topics, to include anthropological theory, population and cultural ecology, semiotics, and humanistic anthropology. May be repeated for credit with departmental permission.

**ANTH 4345. VISUALIZING CULTURE. 3 Hours.**

This advanced course introduces students to key concepts in Visual Anthropology. This course highlights the contribution of anthropological methods in theorizing the visual as an everyday site for the construction of nationalist, gender, ethnic, and class identities. Readings are drawn from diverse geographical regions. Visual material discussed in class will include ethnographic films, art, graphic novels, comics, illustrated magazines, virtual exhibitions and soap operas. Assignments include a writing and research component, and team-based exercises.

**ANTH 4348. POLITICAL ANTHROPOLOGY. 3 Hours.**

Relationships among power, identity, and culture in cross-cultural perspective. Traditional political systems, political symbols and rituals, gender and power, and the relationship between domination and resistance. How culture influences the ways in which men and women get power, use power, and resist power.

**ANTH 4350. MESOAMERICAN ARCHAEOLOGY. 3 Hours.**

Covers the cultural development in Mesoamerica during the past 12,000 years, from hunting and gathering lifeways, through the rise of complex societies, to the Spanish conquest. Students will examine the steps from which the early inhabitants of Mexico, Belize, Guatemala, Honduras and El Salvador developed into the great civilizations of Ancient Mesoamerica. In this course students will trace the emergence of Olmecs, Zapotecs, Maya, Toltecs, and the Aztecs and explore the factors that contributed to their appearance and decline. New approaches, theories, and recent discoveries within the field of Mesoamerican archaeology will be examined.

**ANTH 4358. TOPICS IN ARCHAEOLOGY. 3 Hours.**

Selected topics, to include examination of specific archaeological cultures of the Old World, archaeological theory, and archaeology and pseudoscience. May be taken up to four times for a total of 12 hours credit.

**ANTH 4359. BIOARCHAEOLOGY. 3 Hours.**

This course focuses on the study of human remains in archaeological contexts. Bioarchaeology attempts to reconstruct individual identity and life history in order to study past populations. This is a method-oriented class, combining lecture and lab work. There are no formal prerequisites; however, familiarity with skeletal anatomy is needed in order to avoid additional independent work studying the human skeleton.

**ANTH 4360. ZOOARCHAEOLOGY. 3 Hours.**

Zooarchaeologists study animal remains (primarily bones, teeth, and shells) from archaeological contexts to understand past human economic strategies and ecological circumstances. This course introduces the important issues and analytical techniques of zooarchaeology, and provides hands-on experience in an integrated laboratory and lecture format. Topics include skeletal and taxonomic identification, taphonomic processes, mortality profiles, biometric analyses, and the application of optimal foraging theory. ANTH 2339 or special permission of the instructor required.

**ANTH 4391. CONFERENCE COURSE. 3 Hours.**

Topics assigned on an individual basis covering personal research or study in the designated area. Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of the instructor.

**ANTH 4393. INTERNSHIP IN ANTHROPOLOGY. 3 Hours.**

Supervised internship program, in which students intern at various companies, non-profit and governmental agencies, and museums in the Metroplex. Applied use of anthropology in a non-academic setting. Students will learn skills of career development in anthropology. Requirements include several short assignments and a final report to the instructor. Prerequisite: ANTH 2307, ANTH 2322, OR ANTH 2339; permission of the instructor; and junior standing.

**ANTH 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or project of equivalent difficulty under the direction of a faculty member in the major department.

**ANTH 4398. SUMMER FIELD SCHOOL IN ANTHROPOLOGY. 3 Hours.**

(3 or 6 hours credit). Offered only during the summer session. Experience in methods of field research in ethnography or archaeology. May be repeated for credit if research topic changes.

**ANTH 4406. HUMAN OSTEOLOGY. 4 Hours.**

Detailed examination of human skeletal morphology. Topics include form and function of all skeletal elements in the human body, differentiation of each bone, left and right side identification, identification of fragmented remains, and muscle attachments and articulations. Content useful in forensic anthropology, archaeology, and hominid paleontology.

**ANTH 4407. FORENSIC ANTHROPOLOGY. 4 Hours.**

Estimating age, sex, race, stature, pathology, cause of death, and time since death from human remains. The role of skeletal biology and physical anthropology in criminal investigation. Case studies will be used to demonstrate application of the methods studied. Prerequisite: ANTH 4406 or permission of the instructor.

**ANTH 4698. SUMMER FIELD SCHOOL IN ANTHROPOLOGY. 6 Hours.**

(3 or 6 hours credit). Offered only during the summer session. Experience in methods of field research in ethnography or archaeology. May be repeated for credit if research topic changes.

**ANTH 5191. CONFERENCE COURSE. 1 Hour.****ANTH 5307. FORENSIC ANTHROPOLOGY. 3 Hours.**

Estimating age, sex, race, stature, pathology, cause of death, and time since death from human remains. The role of skeletal biology and physical anthropology in criminal investigation. Case studies will be used to demonstrate application of the methods studied. Requires enrollment in the undergraduate lab section.

**ANTH 5310. HISTORY OF ANTHROPOLOGICAL THEORY. 3 Hours.**

This course is a critical examination of major theoretical trends in ethnological theory, from mid-19th century to the present.

**ANTH 5315. ARCHAEOLOGICAL METHODS. 3 Hours.**

An examination of research methods and underlying theory in archaeology and their evolution since the era of European antiquarianism. Origins and development of archaeology as a scholarly discipline. Emphasis on the period 1960-present; consideration of recent trends in analysis and reportage.

**ANTH 5317. ARCHAEOLOGY OF EXPLORATION. 3 Hours.**

Archaeological evidence for travel in antiquity. Technology of travel (horse/camel, wheeled vehicles, boats) and related topics (navigation; development of trade and trade routes; nature of discovery, settlement and colonization in antiquity). Case studies drawn from ancient cultures of the Old World from the Stone Age through Medieval times.

**ANTH 5320. METHODS IN BIOLOGICAL ANTHROPOLOGY. 3 Hours.**

This course covers several topical areas relevant to biological anthropologists specializing in human biology, including osteology and skeletal biology, skeletal maturation (both postcranial and craniofacial), growth and development from birth to biological maturity, and selected topics in forensics, anthropometry, physiology, nutrition, genetics, epidemiology, and demography.

**ANTH 5325. QUALITATIVE METHODS. 3 Hours.**

Students do fieldwork in anthropology. Students practice participant observation, conduct an interview, collect a kinship chart, map blocks, collect life histories and participate in rituals. Course emphasizes methods of data collection, analysis/interpretation of data, and critical writing.

**ANTH 5341. POSTCOLONIAL SOUTH ASIA. 3 Hours.**

It approaches the competing and complementary claims on postcolonial theory by mapping the intersections in historical anthropology, literary theory, and cultural analysis. More broadly it brings to focus the shifts from Marxist to Poststructuralist directions. Though the regional focus is on India, the endeavor is also to assess dialogues among varying strands of cultural perspectives and its impact in other postcolonial contexts, both within and beyond the South Asian subcontinent.

**ANTH 5342. ADVANCED ETHNOLOGY. 3 Hours.**

Seminar based on student reports and critiques of assigned readings. Major emphasis on the areas of ethnology and social anthropology.

**ANTH 5344. CULTURES OF LATIN AMERICA. 3 Hours.**

An ethnological comparison of societies and cultures in Central and South America. Emphasis on gender, ethnicity, and political economy.

**ANTH 5345. RELIGION AND CULTURE. 3 Hours.**

An ethnological comparison of native religions to understand non-western belief systems. Emphasis on rituals, myths, totemic systems, taboos, and cosmology.

**ANTH 5346. MESOAMERICAN ARCHAEOLOGY. 3 Hours.**

An examination of the diversities of several prehistoric Mesoamerican cultures including the Olmec, Maya, Teotihuacan, Zapotec, and the Aztec. Current issues including the beginnings of agriculture, early village life, the rise of complexity and the institution of kingship, warfare, and Mesoamerican ideology and cosmology will be addressed.

**ANTH 5349. TOPICS IN ANTHROPOLOGY. 3 Hours.**

May be repeated for credit as the topic changes.

**ANTH 5351. EMERGENCE OF HUMANKIND. 3 Hours.**

An intensive review of the evidence for, and main outlines of, human biological and cultural evolution up to agricultural origins.

**ANTH 5353. MEDICAL ANTHROPOLOGY. 3 Hours.**

An examination of anthropological concepts for understanding curing practices and attitudes toward health programs in various cultures.

**ANTH 5355. HUNTERS AND GATHERERS. 3 Hours.**

Cross-cultural approach to the ecological, social, and historical contexts of hunters, gatherers, and foragers.

**ANTH 5363. ETHNOGRAPHY AND PERSONAL NARRATIVE. 3 Hours.**

Focus is on anthropology and autobiography, autoethnography, life history, and narrative constructions of selfhood in different cultural contexts.

Development of the life history approach in ethnographic research. Methods in the collections and analysis of life stories.

**ANTH 5365. GLOBALIZATION AND INTERNATIONAL MIGRATION. 3 Hours.**

Examines how the expansion of global capitalist economy has contributed to the growth of international migration around the world. Focuses on how transnational migration affects the economic, social, political, and cultural practices of immigrants in both their countries of origin and destination.

**ANTH 5369. FOLKLORE AND MYTHOLOGY. 3 Hours.**

Function, forms, and interpretation of folklore and myth in traditional societies; examination of oral literature as an expression of continuity and change; emphasis on a structural analysis of myth.

**ANTH 5370. APPLIED ANTHROPOLOGY. 3 Hours.**

Examines the application of anthropological knowledge to solve practical problems in today's global world. We learn how anthropological concepts, methods, and insights are applied to understand and solve important problems related to economic development, health, environmental issues, immigration, international business, and others.

**ANTH 5371. RESEARCH PRACTICUM / INTERNSHIP. 3 Hours.****ANTH 5373. ARCHAEOLOGY FIELD SCHOOL. 3 Hours.**

This course, conducted during the summer sessions, consists of on-site and classroom instruction in techniques of archaeological survey, excavation, laboratory, processing, and analysis. Students can receive either three or six hours of credit. Enrollment by permission of instructor only. Prior coursework in anthropology desirable but not necessary.

**ANTH 5389. TEACHING ANTHROPOLOGY. 3 Hours.**

To learn strategies of coping with practical problems of teaching undergraduate anthropology, students confer with one or more professors to discuss preparing syllabi and lectures, constructing and evaluating examinations, etc. Not to be counted toward the degree requirement.

**ANTH 5392. CONFERENCE COURSE IN ANTHROPOLOGY. 3 Hours.****ANTH 5398. THESIS. 3 Hours.****ANTH 5406. HUMAN OSTEOLOGY. 4 Hours.**

Detailed examination of human skeletal morphology. Topics include form and function of all skeletal elements in the human body, differentiation of each bone, left and right side identification, identification of fragmented remains, and muscle attachments and articulations. Content useful in forensic anthropology, archaeology, and hominid paleontology. If taken for undergraduate credit either as ANTH 4306 or ANTH 4406, cannot be repeated for graduate credit.

**ANTH 5673. ARCHAEOLOGY FIELD SCHOOL. 6 Hours.**

This course, conducted during the summer sessions, consists of on-site and classroom instruction in techniques of archaeological survey, excavation, laboratory, processing, and analysis. Students can receive either three or six hours of credit. Enrollment by permission of instructor only. Prior coursework in anthropology desirable but not necessary.

**ANTH 5698. THESIS. 6 Hours.**

## Arabic (ARAB)

## COURSES

### **ARAB 1441. BEGINNING ARABIC I. 4 Hours. (TCCN = ARAB 1411)**

Multimedia Immersion in the culture and language of Arabic-speaking countries. Designed to enable students to understand and communicate effectively in Arabic at the beginning level. Credit will not be granted to native speakers of Arabic. No prerequisites.

### **ARAB 1442. BEGINNING ARABIC II. 4 Hours. (TCCN = ARAB 1412)**

Continuation of beginning Arabic. Credit will not be granted to native speakers of Arabic. Prerequisite: ARAB 1441 with a grade of C or better.

### **ARAB 2301. LITERATURE IN TRANSLATION. 3 Hours.**

The works of major authors and intellectual trends of a given period or periods. May be repeated for credit as topics or periods vary. ARAB 2301 may be to fulfill the foreign language requirement. Prerequisite: ENGL 1301 and ENGL 1302.

### **ARAB 2313. INTERMEDIATE ARABIC I. 3 Hours. (TCCN = ARAB 2311)**

Continued immersion in the culture and language of Arabic-speaking countries. Application of strategies and technology in mastering listening, speaking, reading, and writing at the intermediate level. Credit will not be granted to native speakers of Arabic. Prerequisite: ARAB 1442 with a grade of C or better.

### **ARAB 2314. INTERMEDIATE ARABIC II. 3 Hours. (TCCN = ARAB 2312)**

Continuation of intermediate Arabic. Credit will not be granted to native speakers of Arabic. Prerequisite: ARAB 2313 with a grade of C or better.

### **ARAB 3303. ARABIC CONVERSATION & CULTURE. 3 Hours.**

Practice in oral expression with an emphasis on developing conversational skills and improving language proficiency in reading and writing. This course looks at the differences between classical and regional colloquialisms as well as elements of Middle Eastern culture. Prerequisite: ARAB 2314 with a grade of C or better. Credit will not be granted to native speakers of Arabic. Heritage speakers of Arabic need the consent of the instructor to register.

### **ARAB 3304. ARABIC CONVERS & CULT II. 3 Hours.**

Students continue to develop conversational skills and cultural knowledge. Emphasis on speaking, listening, building vocabulary, and providing practice in a broad range of communicative and cultural contexts. Credit will not be granted to native speakers of Arabic. Heritage speakers of Arabic need the consent of the instructor to register. Prerequisite: ARAB 3303 with a grade of C or better.

### **ARAB 3310. ARABIC LOCALIZATION AND TRANSLATION. 3 Hours.**

Introduction to cultural and linguistic issues in the translation of Arabic language texts. Students will explore current technologies used in various real-world translation contexts and how to adapt texts, products, and services to the locale for which they are intended. Prerequisite: ARAB 2314 or the equivalent with a grade of B or better. May not be repeated for credit.

### **ARAB 3311. ARABIC LOCALIZATION AND TRANSLATION II. 3 Hours.**

Continued study of cultural and linguistic issues in the translation of Arabic and English language texts. Systematic development of advanced skills in localization and computer-aided translation and in using TMX/TBX (international standards for translation memory and terminology exchange) tools. Translation practice, individually and in translation teams, with increasingly longer and more specialized texts. Prepares localization and translation specialists for real-world careers in the language-services industry. May be repeated once. Prerequisite: ARAB 3310 with a grade of B or better.

## Architecture (ARCH)

### COURSES

#### **ARCH 1101. ACADEMIC SUCCESS SKILLS IN ARCHITECTURE. 1 Hour.**

This is a required course intended to establish a solid overview of the School of Architecture and the architecture program for all first semester UTA students who intend to declare as an architecture major. Topics for the class include: critical thinking, presentation techniques, internships, attendance of exhibitions and lectures, navigating the advising process, portfolio review and techniques, and using the library and other university resource sources. Other topics may also be discussed. The course be taken only once for credit. Graded P,F.

#### **ARCH 1191. CONFERENCE COURSE. 1 Hour.**

Independent study guided by an instructor on a regular basis. May be repeated for credit. Permission of the instructor and architecture undergraduate advisor required. Restricted to architecture-intended majors.

#### **ARCH 1301. INTRODUCTION TO ARCHITECTURE AND INTERIOR DESIGN. 3 Hours.**

The interrelationships between society, culture, and the built environment. Prerequisite: Department consent.

#### **ARCH 1341. DESIGN COMMUNICATIONS I. 3 Hours.**

The essential intention is to guide beginning students to become facile with hand drawing as a means of visual investigation and graphic communication. Prerequisite: Restricted to Architecture-Intended, ARCH\_UCOL, Interior Design-Intended and INTD\_UCOL majors.

#### **ARCH 1342. DESIGN COMMUNICATION II. 3 Hours.**

A continuation of ARCH 1341 with emphasis on refined techniques and more complex drawing problems. Prerequisites: ARCH 1301, ARCH 1341. Restricted to Architecture-Intended, ARCH\_UCOL, Interior Design-Intended and INTD\_UCOL majors.

#### **ARCH 2300. MASTERWORKS OF WESTERN ARCHITECTURE. 3 Hours.**

Selected architectural complexes as representative of various periods of Western culture. Stresses cultural relevance rather than stylistic analysis. Intended as humanities elective for non-architecture majors.

**ARCH 2303. HISTORY OF ARCHITECTURE AND DESIGN I. 3 Hours.**

A global survey of architecture emphasizing the material and cultural context for design. Focused primarily on the period from prehistory through 1750. Prerequisite: ARCH 1301, ARCH 1341 and ARCH 1342. Restricted to Architecture-intended and Interior Design-intended majors.

**ARCH 2304. HISTORY OF ARCHITECTURE AND DESIGN II. 3 Hours.**

A global survey of architecture emphasizing the material and cultural context for design. Focused on the period from 1750 to the present. Prerequisites: ARCH 1301, ARCH 1341, ARCH 1342 and ARCH 2303. Restricted to Architecture-intended and Interior Design-intended majors.

**ARCH 2551. BASIC DESIGN AND DRAWING I. 5 Hours.**

An introduction to design, design drawing, and color theory utilizing lectures and studio exercises. Two- and three-dimensional studio exercises develop a sensibility to design fundamentals and vocabulary. Emphasis on form, color, texture, and spatial determinants. Prerequisite: Credit or concurrent enrollment in ARCH 2303. Restricted to Architecture-intended and Interior Design-intended majors.

**ARCH 2552. BASIC DESIGN AND DRAWING II. 5 Hours.**

An introduction to design, design drawing, and color theory utilizing lectures and studio exercises. Two- and three-dimensional studio exercises develop a sensibility to design fundamentals and vocabulary. Emphasis on form, color, texture, and spatial determinants. Prerequisite: Credit or concurrent enrollment in ARCH 2303. Restricted to Architecture-intended and Interior Design-intended majors.

**ARCH 2553. BASIC DESIGN AND DRAWING FOR ENGINEERS. 5 Hours.**

An introduction to design, design drawing, and color theory utilizing lectures and studio exercises. Two- and three-dimensional studio exercises develop a sensibility to design fundamentals and vocabulary. Emphasis on form, color, texture, and spatial determinants. Prerequisites: ARCH 1301 and ARCH 1341. Restricted to Architectural Engineering majors.

**ARCH 3312. HISTORY OF CONTEMPORARY THEORY. 3 Hours.**

This course will familiarize students with major intellectual paradigms and themes that have informed postwar architectural practice in Western tradition. Through reading primary theoretical texts that have had major impact on practice, students will hone their skills of critical thinking and be better able to position themselves in their navigation of contemporary theoretical issues. Prerequisite: ARCH 2303 and ARCH 2304 and Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 3323. CONSTRUCTION MATERIALS AND METHODS. 3 Hours.**

The nature of materials and structural concepts to be used in the construction process. Prerequisite: ARCH 2552. Junior standing in program. Restricted to Architecture majors.

**ARCH 3324. STRUCTURES I. 3 Hours.**

An introduction to architectural structures, including statics and strength of materials, with emphasis on design in timber. Prerequisite: ARCH 3323, PHYS 1441, MATH 1327, MATH 1325. Junior standing in program. Restricted to Architecture majors.

**ARCH 3331. ARCHITECTURE AND ENVIRONMENT. 3 Hours.**

An overview of sustainable design integrated with natural resource conservation. Prerequisite: ARCH 2552. Junior standing in program. Restricted to Architecture majors.

**ARCH 3337. SITE DESIGN. 3 Hours.**

The related site design process includes site planning pertaining to land use, case studies, siting of structures, codes, and topography. Prerequisite: Junior standing in program. Restricted to Architecture majors.

**ARCH 3343. ARCHITECTURE COMPUTER GRAPHICS (DESIGN COMMUNICATION III). 3 Hours.**

An advanced course to develop visual sensitivity and awareness of digital techniques to enable the student to study design ideas and present those ideas in the various design disciplines. Emphasis on the relationship of computer graphics with the design process. Prerequisite: Junior standing in program. Restricted to Architecture majors.

**ARCH 3354. INTRODUCTION TO ENVIRONMENTAL & SUSTAINABILITY STUDIES. 3 Hours.**

Introduces major topics, questions, issues and methods within interdisciplinary and cross-disciplinary environmental studies. Includes a study of some of the most significant texts, studies, practices, and creative works from at least four different fields as they pertain to questions of environment, ecology, and sustainability. Features guest lectures by faculty teaching courses within the Environmental & Sustainability Studies minor. Offered as ARCH 3354, ARCH 5354, and ESST 2300; credit will be granted only once. Prerequisites: ARCH 2303, ARCH 2304 and Junior standing in the program; restricted to Architecture and Interior Design majors. Students only seeking the minor in Environmental and Sustainability Studies must take ESST 2300.

**ARCH 3553. DESIGN STUDIO: ARCHITECTURE I. 5 Hours.**

The application of basic design principles/spatial concepts toward the synthesis of simple building types. Credit will be given for only one of ARCH 3553 or INTD 3553. Prerequisite: ARCH 2552. Credit or concurrent enrollment in ARCH 3323 and ARCH 3343. Junior standing in program. Restricted to Architecture majors.

**ARCH 3554. DESIGN STUDIO: ARCHITECTURE II. 5 Hours.**

A continuation of ARCH 3553, with an increased complexity and scale of projects, incorporating a variety of design theory and technical/site considerations. Prerequisite: ARCH 3323, ARCH 3343, ARCH 3553. Credit or concurrent enrollment in ARCH 3324 and ARCH 3337. Junior standing in program. Restricted to Architecture majors.

**ARCH 4191. CONFERENCE COURSE. 1 Hour.**

Independent study guided by an instructor on a regular basis. May be repeated for credit. Prerequisite: Permission of the instructor or the Architecture Undergraduate Advisor.

**ARCH 4305. THE CITY OF ROME. 3 Hours.**

History, topography, and monuments of the city of Rome and its environs from its legendary founding in 753 B.C. until the 20th Century. Urban form and architecture will be inspected in context of contemporaneous culture, with special emphasis on imperial and papal Rome. Prerequisite: Department consent. Restricted to Architecture and Interior Design Majors.

**ARCH 4306. URBAN DESIGN THEORY. 3 Hours.**

Design theory and its application to the urban scale, as applied to historical and contemporary examples. Prerequisite: ARCH 2552. Department consent. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4307. THE LIFE OF CITIES. 3 Hours.**

A look at a series of world cities by situating their architectural context, with a particular focus on the impact of 20th century modernism and postmodernism on city fabric. Prerequisite: ARCH 2303 and ARCH 2304 and Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4308. HISTORY OF URBAN FORM. 3 Hours.**

The history of cities as physical form, influenced by political, economic, and social forces. Prerequisite: Department consent. Restricted to Architecture and Interior Design majors.

**ARCH 4311. TOPICS IN ARCHITECTURAL THEORY. 3 Hours.**

Selected topics in concepts, philosophy, and models of architecture and allied arts of design with specific application to 20th Century problems. May be repeated for credit as specific topics vary. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4314. HISTORIC PRESERVATION AND RESTORATION. 3 Hours.**

Concepts and implementation of the restoration and preservation of historic structures and places, including archaeological, bibliographic, legislative, institutional, and physical parameters to the retention and adaptive re-use of significant architecture. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4315. TOPICS IN THE HISTORY OF ARCHITECTURE AND DESIGN. 3 Hours.**

Selected topics in architecture and the allied arts of design. Some recent topics include: Architecture of Texas, The Life of Cities, History of Architecture Theory, Developing World Slum Housing, Architecture and Politics, and Contemporary Architecture. Certain topics may be offered every second or third year. Prerequisites: ARCH 2303 and ARCH 2304, junior standing in program. Restricted to Architecture and Interior Design majors. The course may be repeated up to four times as the topics change.

**ARCH 4316. MODERN ARCHITECTURE I. 3 Hours.**

Development of 20th Century architecture from the origins of the modern movement in the 1890s until its diffusion in Europe and America in the 1930s. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4317. MODERN ARCHITECTURE II. 3 Hours.**

Development of 20th Century architecture from the diffusion of modernism in the 1930s to the present day. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4319. HOUSING DESIGN. 3 Hours.**

Evolution of housing from the end of the 19th Century to the present with particular emphasis on contemporary design methods, techniques and solutions. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4321. STRUCTURAL SYSTEMS IN BUILDINGS. 3 Hours.**

An overview of various structural systems including those used in long-span and high-rise buildings. Numerical work limited to the explanation of relevant structural concepts. Prerequisite: ARCH 3324. Junior standing in program. Restricted to Architecture majors.

**ARCH 4325. ENVIRONMENTAL CONTROL SYSTEMS I. 3 Hours.**

Acoustics and illumination and their significance in the total design. Prerequisite: PHYS 1442. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4326. ENVIRONMENTAL CONTROL SYSTEMS II. 3 Hours.**

Climate controls, mechanical and electrical systems, and their significance in the total design. Prerequisites: ARCH 4325. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4329. TOPICS IN COMPUTERS AND DESIGN. 3 Hours.**

Selected topics in the range and potential of digital computer applications in the design professions. May be repeated for credit as specific topics vary. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4330. ENERGY USE AND CONSERVATION IN ARCHITECTURE. 3 Hours.**

Basic concepts of the efficient use and conservation of energy related to architectural design principles. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4334. DIGITAL RESEARCH & PROTOTYPING. 3 Hours.**

The use of digital technology in the architectural design process focusing on the research and fabrication of full-scale production of prototypes. Prerequisites: Junior standing in program, although ARCH 4343 Digital Fabrication Methodology is highly recommended.

**ARCH 4341. NOTATIONAL DRAWING. 3 Hours.**

Seminar concerned with analytical drawing techniques and how to use the sketchbook as a tool and process for architectural production. Emphasis will be on cultivating drawing strategies that will heighten the ability to make observations through first-hand experience and record them with the correct conventions in order to enable recovery for future use in architectural design. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4343. DIGITAL FABRICATION METHODOLOGY. 3 Hours.**

The history, theory, and methodology framing the discourse for parametric design and digital fabrication with an emphasis on digital fabrication techniques and introduction to parametric modeling software. Prerequisite: Junior standing in program. Open to all majors.

**ARCH 4344. CONCEPTUAL DRAWING. 3 Hours.**

A seminar to explore the aspects of conceptual drawing for the architect and the relationship of design ideas in the drawing process. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4345. DIGITAL CONSTRUCTION. 3 Hours.**

A workshop exploring video cartography using photography, animation, motion graphics and digital video. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4346. CONSTRUCTION DRAWINGS. 3 Hours.**

The techniques of building construction, the communication of technical information, and the process of preparing contract drawings for construction. Prerequisite: ARCH 3343. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4347. CONSTRUCTION DRAWINGS II. 3 Hours.**

Advanced communication of technical information concerning building materials and methods of construction, life safety systems, barrier-free and handicapped design, and the process of preparing detailed contract documents for construction. Prerequisite: ARCH 3343. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4348. ARCHITECTURAL PHOTOGRAPHY. 3 Hours.**

Basic photography for architects. The use of photography as an investigative and presentation device in architecture. Emphasis on composition and black and white technique. Prerequisite: ARCH 2552. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4349. PORTFOLIO DESIGN. 3 Hours.**

Principles and techniques of producing an architectural/interior design portfolio and resume including graphic design, layout, typography, grid systems, model photography as well as use of layout and photographic software. Prerequisite: ARCH 3553, ARCH 3554. Restricted to Architecture and Interior Design majors.

**ARCH 4351. WILDERNESS: A CONDITION OF MIND. 3 Hours.**

Changing conceptions of wilderness in Western thought, from ancestral prejudices to recent, revolutionary appreciation. Literary and visual documentation. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4353. HISTORY OF LANDSCAPE ARCHITECTURE. 3 Hours.**

Development of landscape design from prehistory through 19th century with emphasis upon rural gardens and urban parks as representative of the social, cultural, and intellectual circumstances of the times and places in which they were created. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4356. BASIC AUTOCAD. 3 Hours.**

Preparation for professional work using AutoCAD and a professional file structure system. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4357. BUILDING INFORMATION MODELING & VISUALIZATION. 3 Hours.**

To gain a working knowledge of Building Information Modeling software and advanced 3D modeling software. Prerequisite: ARCH 4356 or INTD 3343 and Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4358. ADVANCED VISUALIZATION. 3 Hours.**

Exploring Architecture using animation, editing and compositing to produce a professional "Story & FORM" presentation. Prerequisite: ARCH 4356, INTD 3329 or INTD 3343 and Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4359. WATERCOLOURS. 3 Hours.**

Seminar with the intent to explore and experience a variety of watercolour techniques and possibilities. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4360. POLITICS AND PRACTICE OF PRESERVATION. 3 Hours.**

The history and theory of preservation and of the political context that influence these. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4391. CONFERENCE COURSE. 3 Hours.**

Independent study guided by an instructor on a regular basis. May be repeated for credit. Prerequisite: Permission of the instructor or the Architecture Undergraduate Advisor.

**ARCH 4395. SELECTED TOPICS ARCHITECTURE. 3 Hours.**

Studio and lecture courses to explore and present selected topics in architecture and design. May be repeated for credit as topics change. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.



**ARCH 4556. DESIGN STUDIO: ARCHITECTURE III. 5 Hours.**

Advanced architectural design problems in programming schematic organization, synthesis and design of buildings in their environmental context. Prerequisite: ARCH 3324, 3337, 3343 and 3554. Senior standing in program. Restricted to Architecture majors.

**ARCH 4557. DESIGN STUDIO: ARCHITECTURE IV. 5 Hours.**

Advanced architectural design problems in programming, schematic organization, synthesis and design of buildings in their environmental context. Prerequisite: ARCH 3324, 3337, 3343 and 3554. Restricted to Architecture majors.

**ARCH 4591. CONFERENCE COURSE. 5 Hours.**

Independent study guided by an instructor on a regular basis. May be repeated for credit. Prerequisite: Permission of the instructor or the Architecture Undergraduate Advisor. Senior standing in program. Restricted to Architecture majors.

**ARCH 4595. SELECTED TOPICS ARCHITECTURE. 5 Hours.**

A transitional studio course to explore and present selected topics in architecture and design. May be repeated for credit as topics change. Prerequisite: Department consent.

**ARCH 5101. DIRECTED STUDY: ANALYTICAL SOFTWARE TUTORIAL. 1 Hour.**

Introduction to software relevant to ARCH 5375, ARCH 5376 and ARCH 5377: Excell + Argus.

**ARCH 5191. CONFERENCE COURSE. 1 Hour.**

Special subjects and issues as arranged with individual students and faculty members. May be repeated for credit as topic changes.

**ARCH 5301. PRINCIPLES OF ARCHITECTURE. 3 Hours.**

A survey study of the interrelationships between society, culture, and architecture. Concurrent enrollment of ARCH 5591 and ARCH 5342 required.

**ARCH 5302. Lyricism in Architecture. 3 Hours.**

Concepts and models of architecture that express a philosophy concerning feelings, intuition, and creative spontaneity, emphasizing flowing rhythms and nature-inspired forms.

**ARCH 5303. History of Architecture I. 3 Hours.**

History of architecture from pre-history through the Middle Ages. Prerequisite: permission of the instructor.

**ARCH 5304. History of Architecture II. 3 Hours.**

History of Architecture from the Renaissance to the present. Prerequisite: ARCH 5303 and permission of the instructor.

**ARCH 5305. CITY OF ROME. 3 Hours.**

History, topography, and monuments of Rome and its environs from its legendary founding in 753 B.C. until the 20th Century, with special emphasis on imperial and papal Rome.

**ARCH 5306. URBAN DESIGN. 3 Hours.**

Urban design theory, method, and implementation using contemporary and historic examples.

**ARCH 5307. THE LIFE OF CITIES. 3 Hours.**

A look at a series of world cities by situating their architectural context, with a particular focus on the impact of 20th century modernism and postmodernism on city fabric. Prerequisites: ARCH 2303 & ARCH 2304 or ARCH 5303 & ARCH 5304.

**ARCH 5308. History of Urban Form. 3 Hours.**

The history of cities as physical form, influenced by political, economic, and social forces.

**ARCH 5311. ARCHITECTURAL THEORY. 3 Hours.**

A review and analysis of the concepts, philosophy, ideology, and models that promulgated 20th Century architectural design. May be repeated for credit as topics change. Prerequisite: permission of the department.

**ARCH 5314. Historic Preservation and Restoration. 3 Hours.**

Concepts and implementation of the restoration and preservation of historic structures and places, including archaeological, bibliographic, legislative, institutional, and physical parameters to the retention and adaptive re-use of significant architecture.

**ARCH 5315. TOPICS IN ARCHITECTURAL HISTORY. 3 Hours.**

Courses to explore and present selected topics in architecture and related fields of the Ancient Mediterranean, the Classical World, the Middle Ages, the 19th Century, and the Non-Western Traditions. May be repeated for credit as topics change. Prerequisite: ARCH 2303 and ARCH 2304.

**ARCH 5316. MODERN ARCHITECTURE I 1890 TO 1945. 3 Hours.**

Origins and development of Modern Architecture in Europe from 1890 to World War II, and its further evolution in Europe and America from 1918 to 1945. Prerequisites: ARCH 2303 and ARCH 2304.

**ARCH 5317. MODERN ARCHITECTURE II 1945 TO PRESENT. 3 Hours.**

Architectural developments in Europe, Asia, and America since World War II. Prerequisites: ARCH 2303 and ARCH 2304.

**ARCH 5319. HOUSING DESIGN. 3 Hours.**

Evolution of housing from the end of the 19th Century to the present with particular emphasis on contemporary design methods, techniques and solutions.

**ARCH 5321. ADVANCED COMPUTER APPLICATIONS. 3 Hours.**

The study and application of specialized computer programs in environmental design. Prerequisites: ARCH 4329 or ARCH 5329 or the equivalent, and permission of the instructor.

**ARCH 5323. CONSTRUCTION I. 3 Hours.**

Construction materials and structural concepts as used in buildings. Prerequisite: permission of the instructor.

**ARCH 5324. ARCHITECTURAL STRUCTURES I. 3 Hours.**

Statics, strength of materials and simple structural systems in buildings. Prerequisite: permission of the instructor.

**ARCH 5325. ENVIRONMENTAL CONTROL SYSTEMS. 3 Hours.**

Illumination, acoustics, climate controls, mechanical and electrical systems, and their significance in the total design.

**ARCH 5326. ENVIRONMENTAL CONTROL SYSTEMS. 3 Hours.**

Climate controls, mechanical and electrical systems, and their significance in the total design. Prerequisite: ARCH 5325.

**ARCH 5327. ARCHITECTURAL STRUCTURES II. 3 Hours.**

Continuation of ARCH 5324 with emphasis on structural theory and systems in wood and steel. Prerequisite: ARCH 5324.

**ARCH 5328. ARCHITECTURAL STRUCTURES III. 3 Hours.**

Continuation of ARCH 5327 with emphasis on structural theory and systems in masonry and reinforced concrete. Prerequisite: ARCH 5327.

**ARCH 5329. TOPICS IN COMPUTERS AND DESIGN. 3 Hours.**

Computer aided design, drafting and graphic techniques as applied to architecture. May be repeated for credit as topics change.

**ARCH 5330. COMPARATIVE STRUCTURES. 3 Hours.**

Comparative analysis and design of structural systems and construction techniques, including architectural and economic determinants. Prerequisite: ARCH 5328 or permission of the instructor.

**ARCH 5331. PROFESSIONAL PRACTICE. 3 Hours.**

Survey of the administrative functions, and the ethical and legal responsibilities of the architect.

**ARCH 5332. ENERGY USE AND CONSERVATION IN ARCHITECTURE. 3 Hours.**

Concepts of the efficient use and conservation of energy and their embodiment in the built environment. Prerequisite: permission of the instructor.

**ARCH 5333. CONSTRUCTION II. 3 Hours.**

Advanced construction assemblies and methods, including the principles of cost control. Prerequisites: ARCH 5670.

**ARCH 5335. ADVANCED PROFESSIONAL PRACTICE II: MARKETING DESIGN SERVICES. 3 Hours.**

A study of the strategies and methods for marketing professional services. Presented as case studies of architecture, interior design, and landscape architecture firms.

**ARCH 5336. ADVANCED PROFESSIONAL PRACTICE II: PROGRAMMING AND SITE PLANNING. 3 Hours.**

The course focuses on project programming and the technical aspects of site design.

**ARCH 5337. SOILS AND FOUNDATIONS. 3 Hours.**

Soil classifications, field and laboratory identification, physical properties and load-bearing characteristics, retaining walls and foundations. Prerequisite: ARCH 5328 or permission of the instructor.

**ARCH 5339. Digital Tectonics/Fabrication II. 3 Hours.**

The conceptualizing and making of objects lying outside the traditional scope of architectural practice, including elements of industrial and product design and the development of working prototypes. Prerequisites: None, although Digital Fabrication I is highly encouraged.

**ARCH 5340. The Everyday City. 3 Hours.**

Seminar concerned with the examination of theories and practices about creating place(s) from real existing conditions within the everyday city.

**ARCH 5341. Notational Drawing. 3 Hours.**

Seminar concerned with analytical drawing techniques and how to use the sketchbook as a tool and process for architectural production. Emphasis will be on cultivating drawing strategies that will heighten the ability to make observations through first-hand experience and record them with the correct conventions in order to enable recovery for future use in architectural design.

**ARCH 5342. ARCHITECTURAL GRAPHICS I. 3 Hours.**

Architectural drawing, perception, projections, and three-dimensional representation. Concurrent enrollment in ARCH 5591 is required.

**ARCH 5343. ARCHITECTURAL GRAPHICS II. 3 Hours.**

A continuation of ARCH 5342 with emphasis on more advanced techniques: composition, tone, shades and shadows, and color.

**ARCH 5344. CONCEPTUAL DRAWING. 3 Hours.**

Seminar to explore aspects of conceptual drawing for the architect and the relationship of design ideas in the drawing process.

**ARCH 5345. Digital Construction. 3 Hours.**

A workshop exploring video cartography using photography, animation, motion graphics and digital video.

**ARCH 5346. CONSTRUCTION DRAWINGS I. 3 Hours.**

The techniques of building construction, the communication of technical information, and the process of preparing contract drawings for construction.

**ARCH 5347. Digital Techtonics. 3 Hours.**

The focus for this seminar is the examination and exploration of full-scale digital fabrication techniques and methodologies. Completion of ARCH 4343 or ARCH 5339 recommended.

**ARCH 5348. PRINCIPLES OF ARCHITECTURAL PHOTOGRAPHY. 3 Hours.**

The use of photography as an investigative and presentation medium in architecture. Emphasis on composition in black and white technique.

**ARCH 5349. Architecture Portfolio. 3 Hours.**

Seminar concerned with goal toward the production of a personal design portfolio.

**ARCH 5350. VESSELS. 3 Hours.**

The design of objects for the post-Industrial Age, including vehicles, furniture, jewelry, household objects, and clothing.

**ARCH 5351. WILDERNESS: A CONDITION OF MIND. 3 Hours.**

Changing conceptions of wilderness in Western thought, from ancestral prejudices to recent, revolutionary appreciation. Literary and visual documentation.

**ARCH 5355. HEMISPHERES. 3 Hours.**

The study and analysis of Japanese arts and contemporary culture. The arts of ceramics, painting, calligraphy, and sculpture are examined. Prerequisite: departmental approval.

**ARCH 5356. Basic AutoCAD. 3 Hours.**

Preparation for professional work using AutoCAD and a professional file structure system.

**ARCH 5357. B. I. M. & VISUALIZATION. 3 Hours.**

To gain a working knowledge of Autodesk Revit and 3D Studio Max. Prerequisites: ARCH 4356, ARCH 5356 or INTD 3329.

**ARCH 5358. ADVANCED VISUALIZATION. 3 Hours.**

Exploring Architecture using animation, editing and compositing to produce a professional "Story & FORM" presentation. Prerequisite: ARCH 4356, ARCH 5356 or INTD 3329.

**ARCH 5359. WATERCOLOURS. 3 Hours.**

Seminar with the intent to explore and experience a variety of watercolour techniques and possibilities.

**ARCH 5361. ARCHITECTURE AND ENVIRONMENT. 3 Hours.**

An overview of sustainable design integrated with natural resource conservation.

**ARCH 5362. STRUCTURAL SYSTEMS IN BUILDING. 3 Hours.**

An overview of various structural systems including those used in long-span and high-rise buildings. Numerical work limited to the explanation of relevant structural concepts. Prerequisite: ARCH 5324.

**ARCH 5363. DESIGN RESEARCH. 3 Hours.**

Seminar directed toward the understanding of research methods and the programming of an independent design project, leading to the thesis substitute. Graded P/F/R. Prerequisite: Permission of Graduate Advisor.

**ARCH 5370. ADVANCED DESIGN STUDIO. 3 Hours.**

Studio course in the generation and development of architectural ideas in formal and environmental contexts. May be repeated for credit. Two of these courses are equivalent to ARCH 5670.

**ARCH 5375. PROPERTY AND ASSET REPOSITIONING. 3 Hours.**

The physical planning and design issues impacting project performance levels and asset appreciation.

**ARCH 5376. PROPERTY DUE DILIGENCE. 3 Hours.**

Course addresses physical project data collection techniques.

**ARCH 5377. ASSET RESTRUCTURING. 3 Hours.**

The processes of property foreclosure and restructuring.

**ARCH 5381. PRACTICUM. 3 Hours.**

Internship program including work done through an approved architect's office, designed to give practical experience leading to a broader knowledge of the profession. Placement in offices must be approved, and in some cases may also be arranged by the school. Students may enroll in ARCH 5381 for half-time employment or ARCH 5681 for full-time employment. Students enrolled in Practicum may also participate in the Intern Development Program of the American Institute of Architects. No more than six total credit hours in Practicum are allowed for degree. Graded P/F/R.

**ARCH 5391. CONFERENCE COURSE. 3 Hours.**

Special subjects and issues as arranged with individual students and faculty members. May be repeated for credit as content changes. Prerequisite: Permission of Graduate Advisor.

**ARCH 5395. TOPICS IN ARCHITECTURE. 3 Hours.**

Studio, lecture or seminar courses to explore and present special topics in architecture and environmental design. May be repeated for credit as topics change.

**ARCH 5591. DESIGN STUDIO I. 5 Hours.**

An intensive studio course in architectonic theory and operations. Emphasis on analytic, conceptual, and manipulation procedures.

**ARCH 5592. DESIGN STUDIO II. 5 Hours.**

Continuation of ARCH 5591. Studio course emphasizing the interrelationship of formal/spatial ideas, use, and the building fabric. Prerequisite: ARCH 5591.

**ARCH 5593. DESIGN STUDIO III. 5 Hours.**

Continuation of ARCH 5592. Studio course emphasizing the interrelationship of formal/spatial ideas, use, and the building fabric with special attention to the urban context. Prerequisite: ARCH 5592.

**ARCH 5594. DESIGN STUDIO IV. 5 Hours.**

Continuation of ARCH 5593. Emphasis on complex building designs in urban environments. Off campus study may be substituted.

**ARCH 5670. ADVANCED DESIGN STUDIO. 6 Hours.**

Studio course emphasizing the analysis and design of building aggregations within the urban context. May be repeated for credit.

**ARCH 5672. ADVANCED DESIGN STUDIO COMPREHENSIVE. 6 Hours.**

Comprehensive studio course emphasizing the analysis and design of building aggregations within the urban context. May be repeated for credit.

**ARCH 5681. PRACTICUM. 6 Hours.**

Internship program including work done through an approved architect's office, designed to give practical experience leading to a broader knowledge of the profession. Placement in offices must be approved, and in some cases may also be arranged by the school. Students may enroll in ARCH 5381 for half-time employment or ARCH 5681 for full-time employment. Students enrolled in Practicum may also participate in the Intern Development Program of the American Institute of Architects. No more than six total credit hours in Practicum are allowed for degree. Graded P/F/R.

**ARCH 5691. CONFERENCE COURSE. 6 Hours.**

Special subjects and issues as arranged with individual students and faculty members. May be repeated for credit. Prerequisite: Permission of Graduate Advisor.

**ARCH 5693. DESIGN THESIS. 6 Hours.**

Individual study project conducted by a supervising committee, with program and statement of intent to be filed with the Graduate Advisor during the previous semester. Graded R. Prerequisite: ARCH 5363.

**ARCH 5695. TOPICS IN ARCHITECTURE. 6 Hours.**

Studio, lecture or seminar courses to explore and present special topics in architecture and environmental design. May be repeated for credit as topics change. Prerequisite: Permission of Graduate Advisor.

**ARCH 5698. RESEARCH THESIS. 6 Hours.**

## Art & Art History (ART)

### COURSES

**ART 1300. FIRST YEAR SEMINAR IN ART. 3 Hours.**

This is a required course intended to establish a solid overview of the Art and Art History Department for all first semester UTA students who intend to declare a studio art or art history major. Topics for the class can include: visiting artist speakers, attendance of exhibitions, writing assignments, surviving the advising process and concentration portfolio review, and library resources. Other topics may be discussed. This course may only be taken once for credit.

**ART 1301. ART APPRECIATION. 3 Hours. (TCCN = ARTS 1301)**

Intended to develop an understanding, appreciation, and enjoyment of art in its many forms. Recommended as a fine arts elective for non-art majors.

**ART 1305. TWO-DIMENSIONAL DESIGN. 3 Hours. (TCCN = ARTS 1311)**

The principles and elements of two-dimensional design as expressed through concepts and problems with various media and techniques. Lab fee: \$35.

**ART 1306. THREE-DIMENSIONAL DESIGN. 3 Hours. (TCCN = ARTS 1312)**

Three-dimensional design principles will be explored to expand knowledge of various materials and develop an awareness of spatial elements as a creative expression. Formerly listed as ART 1303. Credit will not be granted for both ART 1303 and ART 1306. Lab fee: \$35.

**ART 1307. DRAWING FUNDAMENTALS. 3 Hours. (TCCN = ARTS 1316)**

Basic drawing principles and elements in varied media including such concepts and skills as hand-eye coordination, perceptual acuity, spatial organization, and interpretation of directly observed subjects.

**ART 1309. ART OF THE WESTERN WORLD I: GREECE THROUGH RENAISSANCE. 3 Hours. (TCCN = ARTS 1303)**

Major developments in art, from Archaic Greece through the European Renaissance.

**ART 1310. ART OF THE WESTERN WORLD II: BAROQUE TO MODERN. 3 Hours. (TCCN = ARTS 1304)**

The work of major figures in European and American art from the 17th century to the present.

**ART 1317. THE ART OF NONWESTERN TRADITIONS. 3 Hours.**

This course is designed to introduce students to works of art in various media developed in isolation from the European tradition, including the arts of the Near East, Asia, the Ancient Americas, Africa, and Oceania. Using visual arts as a tool, this course will introduce students to the diverse social customs, religions, and beliefs of nonwestern peoples.

**ART 2300. METHODS FOR THE STUDY OF ART HISTORY. 3 Hours.**

Sources and procedures of art historical research. Introduction to methodologies of art historical scholarship. Use of computer and data retrieval is emphasized.

**ART 2304. DIGITAL DESIGN. 3 Hours.**

This course is a continuation of ART 1305 and ART 1306 with an emphasis on digital and time-based media as applied to design concepts. Formerly listed as ART 1304. Credit will not be granted for both ART 2304 and ART 1304. Lab fee: \$40.

**ART 2308. DRAWING CONCEPTS. 3 Hours. (TCCN = ARTS 1317)**

Application of specific drawing skills with emphasis on personal expression. Course content will focus on conceptual development and media exploration as outlined by instructor. Previous drawing experience strongly recommended. Formerly listed as ART 1348. Credit will not be granted for both ART 1348 and ART 2308. Prerequisite: ART 1305 and ART 1307 or permission of instructor.

**ART 2342. GLASSBLOWING. 3 Hours.**

The manipulation, construction, and experimentation of glass as a sculptural medium. Emphasis will be on developing technical and aesthetic expertise in glassblowing and related techniques. Exploration of the conceptual application of the material will be addressed. Students who received credit for ART 3342 prior to Fall 2010 may not receive credit for ART 2342. Prerequisite: ART 1306 or permission of the academic advisor.

**ART 2353. VISUAL COMMUNICATION FOUNDATION. 3 Hours.**

Introduction to the studio practices in the area of Visual Communications. Focus is on advanced foundation design concepts and exposure to contemporary digital tools. In addition, an introduction to the purpose, industry, and broad history of visual communication will be established. Prerequisite: Art + Art History Major, Permission of Advisor, ART 1305.

**ART 2354. TYPOGRAPHY. 3 Hours.**

Creative problem solving using basic elements of visual communication with an introduction to typography, composition, and materials. Prerequisite: ART 2304 or permission of the instructor.

**ART 2355. LAYOUT. 3 Hours.**

Development and application of concept, layout, and design as related to visual communication. Prerequisite: ART 2304 or permission of advisor.

**ART 2358. INTRODUCTION TO FILM/VIDEO. 3 Hours.**

Introduction to the video and filmmaking production process, techniques, history and aesthetics through the use of digital video, basic film, and basic digital (computer) video and audio editing. Students will write, produce, and edit a number of short original works.

**ART 2359. INTRODUCTION TO PHOTOGRAPHY. 3 Hours. (TCCN = ARTS 2356)**

Basic photographic imaging intended for photo majors. Assignments emphasize an artistic approach and include 35mm camera operation, black-and-white silver materials, and darkroom procedure. Camera not required.

**ART 2360. INTRODUCTION TO PHOTOGRAPHIC CONCEPTS. 3 Hours.**

Basics of photography for art majors. Introduction to the essentials of photography, digital camera operation, utilizing the principles of photography for artistic expression and lighting techniques for documentation of 2D and 3D artwork. Digital camera required. This course is an introductory level photo class for art majors who are not in the photo concentration. Photo majors must take ART 2359, Introduction to Photography.

**ART 2371. PAINTING. 3 Hours. (TCCN = ARTS 2316)**

Fundamentals of painting, composition and techniques both traditional and contemporary. Prerequisite: ART 1305 and ART 1307 or permission of the instructor.

**ART 3111. DIRECTED SCREENINGS. 1 Hour.**

A survey of screening of significant films. The course will examine the emergence of the film form, the elements of film language, the significance of film form and style, the dynamics of new technology and the workings of motion pictures as a means of narrative expression. Significant motion pictures will be screened weekly with commentary or discussion by film faculty in class. All film/video/screenwriting majors must take at least three sections (3 credit hours) of the class. Content (films screened) will vary in a three-semester rotation.

**ART 3112. DIRECTED SCREENINGS 2. 1 Hour.**

A survey of screening of significant films. The course will examine the emergence of the film form, the elements of film language, the significance of film form and style, the dynamics of new technology and the workings of motion pictures as a means of narrative expression. Significant motion pictures will be screened weekly with commentary or discussion by film faculty in class. All film/video/screenwriting majors must take at least three sections (3 credit hours) of the class. Content (films screened) will vary in a three-semester rotation.

**ART 3113. DIRECTED SCREENINGS 3. 1 Hour.**

A survey of screening of significant films. The course will examine the emergence of the film form, the elements of film language, the significance of film form and style, the dynamics of new technology and the workings of motion pictures as a means of narrative expression. Significant motion pictures will be screened weekly with commentary or discussion by film faculty in class. All film/video/screenwriting majors must take at least three sections (3 credit hours) of the class. Content (films screened) will vary in a three-semester rotation.

**ART 3302. ART OF ANTIQUITY. 3 Hours.**

Art and architecture of Greco-Roman antiquity, beginning with the Aegean Bronze Age (ca 2500 BC) and concluding with the Late Roman Empire (4th century AD). Emphasis on the political and ritual role of art, especially in Periclean Athens and Augustan Rome.

**ART 3304. JAPANESE ART & ARCHITECTURE. 3 Hours.**

Introduces students to the art and architectural traditions of Japan from the Jomon (12,000/10,500 - 300 BCE) through the Tokugawa periods (1615 - 1868). The course will focus on the cultural, social, and political movements that informed artistic changes over time. Prerequisite: ART 1317 or permission of the instructor.

**ART 3306. BYZANTINE AND MEDIEVAL ART. 3 Hours.**

Art and architecture of the Mediterranean area and Northern Europe, beginning with Early Christian and Byzantine period (4th century AD) and concluding with the Late Middle Ages (14th century AD). Special attention is given to the religious and political context of art including Christian and Islamic influences. Prerequisite: ART 1309 and ART 1310.

**ART 3307. THE EARLY RENAISSANCE. 3 Hours.**

Developments in the art and architecture of Italy in the 13th and 14th Centuries focused on the changing status of the artist and the political and religious role of art. Includes a workshop based on 14th century recipes for the making of art. Prerequisite: ART 1309 and ART 1310.

**ART 3308. HIGH RENAISSANCE. 3 Hours.**

Developments in the art and architecture of 16th century Italy (Leonardo, Raphael, and Michelangelo) understood in historical context. Themes include the notion of creative genius in the Renaissance; Mannerism and the Counter-Reformation; the restoration of the Sistine Chapel. Prerequisite: ART 1309 and ART 1310.

**ART 3310. FILM AS ART. 3 Hours.**

The history and aesthetics of the motion picture from 1895 to the present day. Screening and analysis of film as an artistic medium, focusing on various technical innovations, filmmakers, and landmarks of film history. Prerequisite: ART 1309 and ART 1310.

**ART 3311. AMERICAN ART. 3 Hours.**

The role of art in the shaping of a national identity with emphasis on our beginnings and attention to vernacular and indigenous traditions. Prerequisite: ART 1309 and ART 1310.

**ART 3312. NEO-CLASSICISM AND ROMANTICISM. 3 Hours.**

European art from c.1760 to c.1840. Emphasis is placed on cultural and historical contexts. Prerequisite: ART 1309 and ART 1310.

**ART 3313. BACKGROUNDS OF MODERN ART. 3 Hours.**

Painting, sculpture, and photography of the period c. 1850-1900 in western Europe, focusing on Realism, Impressionism, Post-Impressionism and Symbolism (fin de siècle). Prerequisite: ART 1309 and ART 1310.

**ART 3314. MODERN ART. 3 Hours.**

The history of European and American art from the late 19th century to the mid-20th century. Emphasis on the formal and conceptual evolution of modernism in art and society, and on the rise of the avant-garde. Prerequisite: ART 1309 and ART 1310.

**ART 3315. IMPRESSIONISM. 3 Hours.**

The history, theory, and aesthetics of Impressionist painting in France, from 1860 to 1900. Prerequisite: ART 1309 and ART 1310.

**ART 3316. ANCIENT EGYPTIAN & NEAR EASTERN ART. 3 Hours.**

Introduces select aspects of the material culture of ancient Mesopotamia and Egypt, with emphasis on religion and notions of kingship. Prerequisite: ART 1317 or permission of the instructor.

**ART 3317. ISLAMIC ART AND ARCHITECTURE. 3 Hours.**

This is a survey course of Islamic art and architecture from the seventh century to present, covering arts from the Arabian peninsula, north and west Africa, southern Spain, central Asia and South Asia. Emphasis will also be given to the cultural and religious aspects that shape Islamic art, such as the forms and functions of different examples of sacred architecture; calligraphy; and the arts associated with pilgrimage. Prerequisites are two completions from ART 1309, ART 1310, or ART 1317.

**ART 3319. ART & ARCHITECTURE OF INDIA. 3 Hours.**

Explores the history of Indian art and architecture, beginning with the Harappan civilization and progressing to the present. India's religious and cultural impact on its East and Southeast Asian neighbors will also be examined. Prerequisite: ART 1317 or permission of the instructor.

**ART 3320. ART OF THE ANCIENT AMERICAS. 3 Hours.**

Art and architecture of the Olmecs, Maya, Aztecs, Inca, Anasazi and other selected cultures of Mexico, Central America, South America and North America. Prerequisite: ART 1309 and ART 1310.

**ART 3321. CHINESE ART & ARCHITECTURE. 3 Hours.**

Introduces students to the art and architectural traditions of China from Neolithic times (5th to 3rd millennium BCE) to the end of the Qing dynasty in the early 20th century. The course will focus on the cultural, social, and political movements that informed artistic changes over time. Prerequisite: ART 1317 or permission of the instructor.

**ART 3322. INTRODUCTION TO ART EDUCATION. 3 Hours.**

This course studies the theories and outlines the history of art education and provides undergraduate students with the basic knowledge, skills, and strategies for teaching art. Students will be introduced to current issues in art education including multicultural, visual culture, technological art education, creativity, museum collaborations, and arts for special needs. The course will cover TEKS and national visual arts standards, a child's artistic development, learning styles, and philosophy. Also, students will learn and understand professional development resources. Prerequisites: None.

**ART 3323. PLANNING AND CONSTRUCTING ART CURRICULA. 3 Hours.**

This course reviews and introduces the elements needed to create art education curricula including production, performance and exhibition of visual art and other performing arts practices, historical and cultural contexts as well as critical and aesthetic response. Students will focus on curriculum development for both 2D and 3D artwork for various age levels. Prerequisite: None; however students are highly encouraged to take ART 3322 before, or concurrent with, this course.

**ART 3325. STUDIES IN THE BAROQUE. 3 Hours.**

Developments in the art and architecture of Baroque Europe (Italy, Low Countries and Spain), with an emphasis on patronage and the social, religious and historical context of artistic production. May be repeated for credit. Prerequisite: Two courses from ART 1309, ART 1310, or ART 1317.

**ART 3331. BRITISH ART. 3 Hours.**

An overview of British art from prehistory to the present with an emphasis on cultural and historical contexts. Prerequisite: ART 1309 and ART 1310.

**ART 3340. KILN FORMED GLASS. 3 Hours.**

The exploration of various non-blowing techniques of glass construction and manipulation. Students will use kilns to explore fusing, slumping, pate de verre, and casting. May be repeated for credit. Prerequisite: ART 1306 or permission of the instructor.

**ART 3341. SCULPTURE. 3 Hours.**

An exploration of sculptural forms, concepts, and methods through various media. Emphasis on contemporary processes and individual expression. May be repeated for credit. Prerequisite: ART 1306. For non-art majors, permission of the instructor.

**ART 3342. INTERMEDIATE GLASSBLOWING. 3 Hours.**

Continued technical and aesthetic development, manipulation, construction, and experimentation with glass as a sculptural medium. Other techniques may be introduced in order to explore a stronger conceptual application of glass. Prerequisite: ART 2342 or permission of the academic advisor.

**ART 3343. PRINTMAKING. 3 Hours.**

Development in the technical and conceptual practice of printmaking. Emphasis placed on an understanding of the history, theory and philosophy of independently published prints. Both traditional and nontraditional processes for creating printed images will be explored, including: lithography, relief, intaglio, silk screen, monoprints, book arts, and photomechanical technologies. Prerequisite: ART 1305 and ART 1307 or permission of the instructor.

**ART 3344. NEON ART. 3 Hours.**

Basic techniques of luminous glass tube manipulation as a contemporary art form. Emphasis on hot glassbending, design, patternmaking and electrical systems. May be repeated for credit. Prerequisite: ART 1306 or permission of the instructor.

**ART 3345. WORKS ON PAPER. 3 Hours.**

The class will focus on works on paper as a finished work of art as opposed to being preliminary study for paintings, sculptures, and other disciplines. Class may work in a variety of media including watercolor, drawing, collage, painting and mixed media. Personal creativity and development is stressed along with critical thinking and analysis. May be repeated for credit. Prerequisite: ART 1306, ART 1307, and ART 2308 or permission of the instructor.

**ART 3346. PAPERMAKING. 3 Hours.**

Procedures for the understanding and development of both Eastern and Western handmade papers. Focus will be on sheet-forming, casting, and marblizing papermaking processes. Emphasis placed on personal expression, process, and innovation. May be repeated for credit. Prerequisite: ART 1305, ART 1306.

**ART 3347. ADVANCED DRAWING. 3 Hours.**

Conceptual and expressive problems to encourage independent thinking with regard to contemporary drawing issues. May be repeated for credit. Prerequisite: ART 2308.

**ART 3348. LIFE DRAWING. 3 Hours.**

Drawing of the human figure using a variety of media in the solution of figure construction problems with emphasis on perceptual and creative expression. May be repeated for credit. Prerequisite: ART 2308.

**ART 3349. WATER MEDIA PAINTING. 3 Hours.**

Transparent and opaque water color media and techniques. Emphasis on conceptual and manipulative skills. May be repeated for credit. Prerequisite: ART 1305, ART 1307, and ART 2371 or permission of the instructor.

**ART 3350. INTRODUCTION TO NARRATIVE SCREENWRITING. 3 Hours.**

Basic format styles, structures, and requisites of writing narrative film. Students will be required to study scripts, view films, conduct actor readings, produce original works, and complete other assignments. Prerequisite: ENGL 1301 and ENGL 1302.

**ART 3351. ILLUSTRATION. 3 Hours.**

Practical approach to concepts, techniques, and problem solving with illustration. May be repeated for up to 9 hours credit. Prerequisite: ART 2354. Advisor permission required to enroll in this course.

**ART 3352. DIGITAL IMAGING. 3 Hours.**

Basic course in computer imaging for art majors. Emphasis is on the introduction and use of the computer as a tool for personal expression. Fundamental principles in electronic media are explored with additional emphasis on experimental and innovative techniques. May be repeated for credit. Lab fee: \$40. Prerequisite: ART 2304.

**ART 3353. METALS. 3 Hours.**

Both contemporary and traditional metalworking techniques and concepts, including the construction of small metal forms with a sculptural approach. Emphasis on basic fabrication and manipulation methods. Exploration of integrating other media is also encouraged. Prerequisite: ART 1306. For non-art majors, permission of the instructor.

**ART 3354. SIGN AND SYMBOL. 3 Hours.**

Design and problem solving focusing on transformation of visual elements into logos, logotypes, information and environmental graphics. May only be taken once for credit. Prerequisite: ART 2354 and ART 2355, or permission of the advisor.

**ART 3355. ADVANCED TYPOGRAPHY. 3 Hours.**

Typographic theory exploring traditional and non-traditional forms, both historical and contemporary typographic achievements. Prerequisite: ART 2354, ART 2355, or permission of the advisor.

**ART 3356. WEB TYPOGRAPHY. 3 Hours.**

Instruction of typographic theories and practice for the web to facilitate connections with words, ideas, and information. Emphasis is placed on the structuring of information hierarchy, grid application, and typographic systems. May be repeated once. This course was formerly titled Electronic Design. Prerequisite: ART 2304.

**ART 3357. SUSTAINABLE DESIGN. 3 Hours.**

An overview of critical environmental issues that affect the contemporary practice of visual communication. Emphasis on ethics, environmental and society responsibility, and creative visual problem solving. Course may include, but is not limited to, lecture, discussion, reading, and creative design exploration. Prerequisite: ART 2354 or permission of the advisor.

**ART 3358. INTERMEDIATE FILM/VIDEO. 3 Hours.**

Continuation of ART 2358 with emphasis on more advanced concepts, production techniques, film/video history, aesthetics, basic 16mm film production, digital video post-production and studio editing. Students will propose, write, produce and edit a number of short, original works.

**ART 3359. APPLYING AND TEACHING ART CURRICULA. 3 Hours.**

This course provides art education students with an overview of teaching in the K-12 art classroom through further exploration in curriculum and instructional methods as well as observation in the DFW area public schools. Students are provided opportunities to observe various work situations, to reflect on their own education, and to examine teaching practices within the arts. Emphasis is placed on both 2D and 3D studio issues. Students are expected to develop professional skills in observation and written and oral communication. The material in this course serves to establish a foundation for building professional awareness and a normative philosophy of art education. Prerequisite: ART 3323.

**ART 3360. INTERMEDIATE PHOTOGRAPHY. 3 Hours.**

Students use the tools of digital technology to enhance their image-making skills. Topics may include digital film and reflective scanning, fine printing, alternative cameras and formats; to the development of a deeper understanding of the student's place in photo history and criticism. Prerequisite: ART 2304, ART 2359 (or equivalent).

**ART 3363. CLAY. 3 Hours.**

The various methods of construction, manipulation, and decoration of clay. The integration of form, design, and concept, emphasizing clay as an expressive medium. Prerequisite: ART 1306. For non-art majors, permission of the instructor.

**ART 3371. INTERMEDIATE PAINTING. 3 Hours.**

Continued development of painting techniques, composition and exploration of traditional and contemporary media. Specific problem solving assignments, creative thinking, and idea development will be emphasized. Prerequisite: ART 2308, ART 2371 or permission of the instructor.

**ART 3383. MOLDMAKING & CASTING IN CLAY. 3 Hours.**

Continuation of ceramic media techniques and forming processes. The introduction of moldmaking, mold forming, slipcasting, tile design, kiln firing, and glaze techniques. Prerequisite: ART 3363 or permission of the instructor.

**ART 3384. CINEMATOGRAPHY. 3 Hours.**

An intense study of the visual language/style of film imagery through cinematography, lighting, gaffing, gripping, and extensive camerawork. Students will use digital equipment to shoot exercises, light sets and locations, and learn to accurately expose, color correct, and manipulate motion picture film. Students will also learn the proper use of advanced lighting equipment, professional production standards, camera crew responsibilities, and how to interpret a scene through visuals. Students will work in digital video, Super 16mm, or standard 16 mm film, and in 35 mm stills. Prerequisite: ART 2358, ART 2359.

**ART 3385. SOUND & POST PRODUCTION. 3 Hours.**

A basic introduction to the critical role editing and sound play in the filmmaking process. It will include audio recording, recorder operations, microphones and booms, how to capture good sound on the stage, sound reports, importance of proper labeling of all film/video elements, amplitude, frequency, filtering and equalization, what the ear perceives. In postproduction it will focus on the aesthetics of film editing and how the ability to think as a filmmaker comes from personal imagination and a passionate grasp of theory and aesthetics. Prerequisite: ART 2358.

**ART 3386. DIRECTING WORKSHOP. 3 Hours.**

A survey workshop exploring the visualization of script material through the directing of scenes and exercises. Critique and analysis of the exercises. A special focus will be working with the actor along with interpreting the screenplay through the camera and performance, directing the camera and the actor, and running the set. Prerequisite: ART 2358.



**ART 3387. DIRECTED SCREENINGS. 3 Hours.**

This course will screen significant films. It will examine the emergence of the film form, the elements of film language and the significance of film form and style. Motion pictures will be screened weekly with commentary or discussion by film faculty in class. This course may be taken only once for credit.

**ART 3389. CONTEMPORARY ART. 3 Hours.**

A focus on the period from the mid-20th century to the present emphasizing the aesthetics of late modernism and the beginnings of the postmodern period including Abstract Expressionism, Pop, Minimal, Conceptual, and multicultural approaches. Prerequisite: ART 1309 and ART 1310.

**ART 3390. HISTORY OF GRAPHIC DESIGN. 3 Hours.**

A broad overview of the history and evolution of design from prehistory to the present day. Course emphasis is on the cultural and technological contexts that influenced the practice of graphic design in Europe and the United States. Prerequisite: Any two of ART 1309, ART 1310, or ART 1317.

**ART 3391. HISTORY OF PHOTOGRAPHY. 3 Hours.**

The history of still photography from its inception to the present. Emphasis on the conceptual and technical evolution of photography as an artistic medium. Prerequisite: ART 1309 and ART 1310.

**ART 3392. HISTORY AND AESTHETICS OF THE VIDEO IMAGE. 3 Hours.**

History, theory, and analysis of video/film/computer in relation to visualization and new genres. Study of symbolic rhetoric, composition, sound/music, editing, movement, and style. Prerequisite: ART 1309 and ART 1310.

**ART 4100. SENIOR EXHIBITION. 1 Hour.**

Application of professional practices for graduating BFA art majors. Primary concentration is preparation for BFA exhibition/presentation. Prerequisite: ART 4200 or, for graphics students, ART 4356.

**ART 4191. INDEPENDENT STUDY. 1 Hour.**

Mature, capable students may be permitted to pursue individual art problems. Problems must be stated in writing, a definite conference schedule arranged, and the paperwork must be approved by both the supervising faculty member and the department chair prior to registration. May be repeated for credit for varied subject matter. Prerequisite: B average in art concentration.

**ART 4200. PROFESSIONAL PRACTICES. 2 Hours.**

Professional practices for upcoming graduating BFA art majors in studio and media concentration, excluding graphics. Exploration of professional capabilities applied to media and studio areas. Emphasis on complex professional skills, knowledge and presentation. May be repeated for credit with a different emphasis and permission of the instructor. Lab fee: \$8.

**ART 4201. PORTFOLIO PRESENTATION. 2 Hours.**

This course is the capstone of the Bachelor of Arts track. Working with their advisor, students will prepare an artist's talk about their work and deliver this presentation at an advertised public lecture. This course is to be taken in the student's last semester before graduation.

**ART 4291. INDEPENDENT STUDY. 2 Hours.**

Mature, capable students may be permitted to pursue individual art problems. Problems must be stated in writing, a definite conference schedule arranged, and the paperwork must be approved by both the supervising faculty member and the department chair prior to registration. May be repeated for credit for varied subject matter. Prerequisite: B average in art concentration.

**ART 4301. ART AND GENDER. 3 Hours.**

Approaches to the interpretation of art from the stance of gender and feminism. Emphasis is placed on the work of significant female artists and on the gendered representations of art. Offered as ART 4301 and WOMS 4301; credit will be granted only once. Fulfills the Social/Cultural Studies requirement. Prerequisite: ART 1309 and ART 1310.

**ART 4306. MID-RENAISSANCE. 3 Hours.**

Art and architecture in 15th century Italy, beginning with developments in Renaissance Florence. The relation of humanism and science to the visual arts, patronage, and the social and historical contexts of artistic production. Prerequisite: ART 1309 and ART 1310.

**ART 4307. SPECIAL TOPICS IN ASIAN ART. 3 Hours.**

Special studies seminar dealing with various aspects of the history and development of Asian art, architecture, and archeology. May be repeated for credit. Prerequisite: ART 1317 or permission of the instructor.

**ART 4308. MUSEUM PRACTICE. 3 Hours.**

A continuation of ART 3300 with emphasis on current issues and developments in museum practice. The seminar concentrates on the University's Art Gallery, art exhibitions, and guest essayist programs, supplemented by lectures and readings. Prerequisite: ART 1309 and ART 1310.

**ART 4310. TOPICS IN FILM STUDY. 3 Hours.**

Historical surveys of nonfiction film, experimental cinema, and genres (e.g., the western, the gangster film, science-fiction films), as well as geographical or national movements (e.g., German expressionism, Italian neo-realism, French new wave) and film theory and criticism. The particular subject will change from year to year. Prerequisite: ART 1309 and ART 1310.

**ART 4311. SCRIPT TO SCREEN. 3 Hours.**

A screenwriting course for Film/Video area majors. This course is a high energy merger of a production class and a short film writing class to both write and produce a film per week during the Summer sessions. The students in this class will have a realistic view of the production consequences of writing for the screen. Prerequisite: ART 3350 and permission of instructor.

**ART 4312. TOPICS IN NINETEENTH CENTURY ART.. 3 Hours.**

An in-depth study of topics in European and American art c. 1780 to 1900, such as the art and revolutions (the French Revolution, the American Revolution, 1830, 1848, the Commune); Romanticism; Symbolism. May be repeated for credit as course content changes. Prerequisite: ART 1309 and ART 1310.

**ART 4314. TOPICS IN 20TH CENTURY ART. 3 Hours.**

Topics from c. 1900 to c. 2000, such as analysis of an individual movement, medium, or theme. May be repeated for credit as course content changes. Prerequisite: Any two courses from ART 1309, ART 1310 or ART 1317.

**ART 4315. ASPECTS OF CONTEMPORARY ART. 3 Hours.**

Topics from c. 1970 to the present, such as performance and conceptual art, art in and about the natural environment, post-modernism and critical perspectives, art in the social context, and the genres of the 1980s. May be repeated for credit. Prerequisite: Any two of the following three courses from ART 1309, ART 1310, or ART 1317.

**ART 4317. ART AND ISLAM. 3 Hours.**

This upper level art history course studies Islamic art and architecture from the seventh century to the present, covering arts from the Arabian peninsula, north and west Africa, southern Europe, central Asia, and south Asia. Emphasis may also be given to the cultural and religious aspects that shape Islamic art including sacred architecture, calligraphy, and pilgrimage. Prerequisites: any two of ART 1309, ART 1310, or ART 1317.

**ART 4318. ADVANCED DIGITAL IMAGING. 3 Hours.**

Advanced level course in computer imaging for art majors. Conceptual as well as expressive problems are introduced to encourage independent and creative problem solving in digital imaging. Emphasis is placed on both manipulation of photo-based media and creation of two-dimensional animation. May be repeated for credit. Prerequisite: ART 3352.

**ART 4320. BEYOND PHOTOGRAPHY: WORKING OUTSIDE THE IMAGE. 3 Hours.**

This course will examine different approaches to art that are not medium-specific but assumes the student has knowledge of photography as art. Projects will be structured as responses to lectures on topics in modern and contemporary art with emphasis on installation and conceptual work. Prerequisite: 3 hours to be selected from ART 4318, ART 4344, ART 4359, ART 4360, ART 4363, ART 4372.

**ART 4330. 18TH CENTURY ART. 3 Hours.**

A history of European art from the end of the Baroque era through the Rococo and Neoclassical styles to the beginning of Romanticism. Emphasis will be on cultural and global contexts in which paintings, prints, sculptures, and architecture were produced. Prerequisite: ART 1309 and ART 1310.

**ART 4340. ADVANCED KILN FORMED GLASS. 3 Hours.**

Continuation of ART 3340. This class focuses on glass kiln forming techniques and concepts including kiln casting, fusing, slumping, and various cold working processes. Emphasis is on using glass as an expressive and creative art media. Prerequisite: ART 3340 or permission of instructor.

**ART 4341. ADVANCED SCULPTURE. 3 Hours.**

Advanced work in continuation of ART 3341. Students are encouraged to develop a creative style in their own personal direction. A variety of materials and techniques is explored. May be repeated for credit. Prerequisite: ART 3341 or permission of the instructor.

**ART 4342. ADVANCED GLASS. 3 Hours.**

Continued development of ART 3342 with emphasis on advanced technique, manipulation and form development. Course assignments will emphasize personal creativity and exploration. May be repeated for credit. Prerequisite: ART 3342 or permission of instructor.

**ART 4343. ADVANCED CLAY. 3 Hours.**

Further development and focus on techniques and personal expression in sculptural, hand-built, and wheel thrown clay forms. Continuation of kiln firing, moldmaking, slipcasting, and glazemaking. May be repeated for credit. Prerequisite: ART 3363 or permission of the instructor.

**ART 4344. ALTERNATIVE PHOTOGRAPHIC PROCESSES. 3 Hours.**

Methods of manipulating the photographic image. Techniques may include manipulative printing, computer imaging, blueprint, brownprint, platinum/palladium, transfers, silkscreen, intaglio, and lithography. May be repeated for up to six hours credit. Lab fee: \$60. Prerequisite: ART 3360 or permission of the instructor.

**ART 4345. ADVANCED PRINTMAKING. 3 Hours.**

Continued study and development of both conceptual and technical practice of printmaking. Emphasis placed on personal expression of ideas as well as the broader implications of printed images. Explorations and innovations will be encouraged. May be repeated for credit. Prerequisite: ART 1305, ART 1307, and ART 3343 or permission of the instructor.

**ART 4346. GRAPHICS: PORTFOLIO PREPARATION. 3 Hours.**

This course concentrates on the creation, development, and evaluation of the graphic design portfolio. Course work will include advanced level conceptual assignments and various methods of presentation. May be repeated for credit. Lab fee: \$50. Prerequisite: ART 3355 and ART 4355 with grades of B or better, or permission of the instructor.

**ART 4347. PUBLICATION DESIGN. 3 Hours.**

Philosophy, concepts, and structures of magazine and book design. May be repeated for up to six hours credit. Prerequisite: ART 2354 and ART 2355.

**ART 4348. INFORMATION VISUALIZATION. 3 Hours.**

This course is an exploration of the graphic visualization and representation of data driven information sets to achieve insights into the cognitive and perceptive complexities of the world around us. Course may be repeated for credit. The previous title of this course was Interactive Design. Prerequisite: ART 2304.

**ART 4349. VIDEO ART & NEW GENRES. 3 Hours.**

Advanced work involving production, postproduction, and distribution with a special emphasis on experimental and innovative applications. Instruction may include video integrated with performance, installation, audio/sound art, and computer graphics appropriate to the medium. Lectures, readings, and screenings will frame video art within an historical and critical survey of new genres. May be repeated for up to six hours credit. Prerequisite: permission of the instructor.

**ART 4350. DOCUMENTARY FILM/VIDEO. 3 Hours.**

Using film and video as a tool for creative research, students will produce, write, direct and edit original documentaries or nonfiction films/videos under supervision of the instructor. May be repeated for credit. Prerequisite: ART 3385, ART 3386, and ART 3384 or permission of the instructor.

**ART 4351. COMMERCIAL FILM/VIDEO. 3 Hours.**

Commercial and corporate applications of video. Students produce original individual projects integrating concepts and technical skills under supervision of the instructor. May be repeated for credit. Prerequisite: ART 4362 or permission of the instructor.

**ART 4352. NARRATIVE FILM/VIDEO. 3 Hours.**

Narrative storytelling film/video techniques. Students write, produce, direct and edit original, short narrative film/video projects under supervision of the instructor. May be repeated for up to six hours credit. Prerequisite: ART 2358 or ART 3350 or permission of the instructor.

**ART 4353. ADVANCED METALS. 3 Hours.**

Continued development of ART 3353 with emphasis on advanced techniques, the integration of other materials, manipulation, form design and concept. Course assignments will emphasize personal creativity and exploration. May be repeated for credit. Prerequisite: ART 3353 or permission of the instructor.

**ART 4354. ADVANCED NARRATIVE SCREENWRITING. 3 Hours.**

A continuation of ART 2350 focusing on writing an original (no adaptations), narrative, full-length screenplay through all stages to final draft status primarily focusing on the development of a polished first act. Students study screenplays, view films, conduct actor readings, and complete various other assignments. May be repeated up to two times for credit. Prerequisite: ART 3350 and permission of the instructor.

**ART 4355. VISUAL IDENTITY SYSTEMS. 3 Hours.**

Creative exploration and application of complex visual communication skills to the development of a visual identity system. Prerequisite: ART 3354, or permission of the advisor.

**ART 4356. PROFESSIONAL PREPARATION. 3 Hours.**

Exploration and development of the visual communication portfolio. Course work includes advanced level conceptual assignments. Emphasis on complex professional skills. May be repeated for up to six hours credit. Prerequisite: ART 3354, or permission of the advisor.

**ART 4357. ADVERTISING DESIGN. 3 Hours.**

Typography, layout, visualization, and conceptual problem solving as applied to advertising. Prerequisite: ART 3354, or permission of the advisor.

**ART 4358. ADVANCED NON-LINEAR EDITING. 3 Hours.**

An advanced workshop in video editing and post production. Emphasis will be placed on long form editing, the aesthetics of editing, and editing work flow. May be repeated for credit. Prerequisite: ART 3358 Intermediate Film/Video.

**ART 4359. ADVANCED PHOTOGRAPHY. 3 Hours.**

This course encourages students to use a variety of photographic processes (black & white, color, non-silver, computer imaging, etc.) with an emphasis on the development of a personal stance. Students will work on individual projects and present work in an environment of critical discussion. May be repeated for up to 12 hours credit. Lab fee: \$60. Prerequisite: three hours to be selected from ART 4344, ART 4360, ART 4363, or permission of the instructor.

**ART 4360. COLOR PHOTOGRAPHY. 3 Hours.**

The development of an aesthetic and critical response toward photographic color. Techniques include exposure and printing of color negatives as well as the use of digital technology. May be repeated for up to six hours credit. Lab fee: \$60. Prerequisite: ART 3360 or permission of the instructor.

**ART 4361. 3-D ANIMATION. 3 Hours.**

Intensive study of digital computer animation and 3-D digital animation tools and techniques. Students will produce a number of short, original works under the supervision of the instructor. May be repeated for credit. Prerequisite: ART 2304 and ART 2358.

**ART 4362. ADVANCED FILM/VIDEO. 3 Hours.**

Advanced production techniques in an all-digital environment including AVID and Final Cut post-production with special emphasis in technical aesthetics, history and presentation. Students may elect to work in a variety of media (including 16mm, S16mm, digital animation, installation, etc.) and in a variety of genres (narrative, documentary, commercial, animation) to produce original works under the supervision of the instructor. May be repeated for credit. Prerequisite: ART 2350 or ART 3350 and permission of the instructor.

**ART 4363. STUDIO PHOTOGRAPHY. 3 Hours.**

The theory and practice of situational photography. Studio lighting, large format and digital camera techniques. May be repeated for up to six hours credit. Lab fee: \$60. Prerequisite: ART 3360 or permission from the instructor.

**ART 4365. TECHNOLOGY IN ART EDUCATION. 3 Hours.**

This course provides digital media presentation strategies to enhance teacher effectiveness and explores how to incorporate the use of digital media in curriculum development. It also enables students to develop an electronic teaching portfolio to prepare students for job interviews and to showcase both personal and student artwork. Reading assignments, research, hands-on experiences, and in-class discussion provide students with an understanding of technology and its application to an art education classroom. Students will gain a working knowledge of current best practice digital technology, including the internet and video software. Prerequisite: None; however students are highly encouraged to take ART 3323 before, or concurrent with, this course.

**ART 4366. WEB DESIGN. 3 Hours.**

Concentrated study in the use of design, creation, and strategic planning of websites. Emphasis is placed on creative concepts, information architecture, user experience, and site development. Course work will explore issues of differing perspectives of technology as a tool, a medium, and/or an environment. May be repeated for credit with grade of B or better. Prerequisite: ART 3356.

**ART 4367. TWO DIMENSIONAL ANIMATION. 3 Hours.**

This course introduces techniques for two-dimensional animation presented in an historical and aesthetic context. Students will produce short animated films utilizing basic animation principles and developing the conceptual skills necessary for creating motion designs. May be repeated for credit. Prerequisite: ART 2358, ART 2304.

**ART 4368. ADVANCED SILVER PHOTOGRAPHY. 3 Hours.**

This advanced level course explores the use of medium and large format film cameras, film development, gelatin silver printing techniques, and archival presentation. May be repeated for up to 6 hours credit. Prerequisite: ART 3360.

**ART 4369. CONCEPT TO EXHIBITION. 3 Hours.**

This course takes the student from the concept for a body of work to installation of the work in a group exhibition. Students choose from a wide range of photographic techniques and demonstrations of selected processes. May be repeated for up to six hours credit. Lab fee: \$60. Prerequisite: ART 2359 and ART 3360 or permission of the instructor.

**ART 4370. STAGED ENVIRONMENTS. 3 Hours.**

This course concentrates on the conceptualization, development and execution of tableaus designed exclusively for the camera. Lectures, readings and presentations will cover view cameras, studio lighting, set design, scouting locations, using props, and working with models. Lab fee: \$60. Prerequisite: ART 3360 or permission of the instructor.

**ART 4371. ADVANCED PAINTING. 3 Hours.**

Students will be encouraged to develop a personal direction which complements their development as visual thinkers. The student will be required to plan a course outline of conceptual development with the instructor at the beginning of each semester. May be repeated for credit. Student must earn a grade of "B" or above in the course to repeat it. Prerequisite: ART 2308, ART 2371 and a grade of B or above in ART 3371 or permission of the instructor. Transfer students will be required to schedule a portfolio review with the painting instructor to gain permission to enroll in the class.

**ART 4372. BODY AS RESOURCE. 3 Hours.**

An advanced level course that investigates making imagery using portrait, self portrait, or the figure as subject. The course incorporates contemporary practices in digital imaging, digital studio, and Photoshop. This course requires expertise in digital imaging and studio photography. May be repeated for up to 9 hours of credit. Prerequisites: ART 3352 and ART 4363 or permission of instructor.

**ART 4373. ADVANCED THREE-DIMENSIONAL STUDIES. 3 Hours.**

Class is designed for students to continue the development of advanced three-dimensional work and engage in a cross section of various media. May be repeated for credit. Prerequisite: 12 hours to be selected from ART 3341, ART 3342, ART 3363, ART 4341, ART 4342, ART 4343, ART 4353, or permission of the instructor. Formerly ART 4366. Credit will be granted for both.

**ART 4375. DESIGN TEXAS. 3 Hours.**

Visual Communication outreach and problem solving. Individual and group projects for clients selected by the instructor. Provides advanced undergraduate students an opportunity to interact with clients on the development and completion of complex communication design problems. May be taken up to three times for credit. Prerequisite: permission of instructor.

**ART 4383. INDEPENDENT FILM PRODUCTION. 3 Hours.**

Students will produce a major film or video in the genre of their choosing (narrative, documentary, commercial, or animation). Students may elect to work in a variety of media (including 16 mm film, digital video or installation) to produce original works. Students will be individually mentored as their productions move through preparation, shooting and post-production. Prerequisite: ART 4362.

**ART 4390. CONFERENCE COURSE: ART HISTORY. 3 Hours.**

Independent study or research in an area of art history agreed upon in advance with the instructor. Written permission and the determination of obligations and objectives are required before registration. May be repeated for credit. Prerequisite: ART 1309 and ART 1310.

**ART 4391. INDEPENDENT STUDY. 3 Hours.**

Mature, capable students may be permitted to pursue individual art problems. Problems must be stated in writing, a definite conference schedule arranged, and the paperwork must be approved by both the supervising faculty member and the department chair prior to registration. May be repeated for credit for varied subject matter. Prerequisite: B average in art concentration.

**ART 4392. SPECIAL STUDIES. 3 Hours.**

Special course work in new or experimental offerings for which there is immediate need and for which special resources are available. May be repeated for credit. Primarily for art majors.

**ART 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department.

**ART 4395. ART INTERNSHIP. 3 Hours.**

An opportunity to apply academic training as participant/observer in a professional organization relevant to a major area of concentration. With permission of advisor, internships may be repeated for up to a maximum of nine hours credit. Internships must be arranged with the internship supervisor in the semester prior to enrolling for this course. Prerequisite: permission of the instructor.

**ART 4396. SPECIAL STUDIES IN ART HISTORY. 3 Hours.**

Subjects of immediate interest in various fields of art history; to complement temporary museum exhibitions and/or faculty research specializations. May be repeated for credit as course content changes. Prerequisite: ART 1309 and ART 1310 and permission of the instructor. Prerequisite: ART 1309 and ART 1310.

**ART 4397. SPECIAL STUDIES IN FILM/VIDEO. 3 Hours.**

Special studies in film/video that respond to emerging technologies, immediate needs, and specialized topics. May be repeated for credit. Prerequisite: permission of the instructor.

**ART 4695. ART INTERNSHIP. 6 Hours.**

An opportunity to apply academic training as participant/observer in a professional organization relevant to a major area of concentration. With permission of advisor, internships may be repeated for up to a maximum of nine hours credit. Internships must be arranged with the internship supervisor in the semester prior to enrolling for this course. Prerequisite: permission of the instructor.

**ART 5000. SUPERVISED TEACHINGSTUDIO ART. 0 Hours.**

Training in teaching methods and procedures for studio art classes, including weekly group meetings with the instructor and individual consultations. Prerequisite: graduate standing in studio art, or graduate standing and appointment as a teaching assistant. May be repeated.

**ART 5320. ART CRITICISM & THEORY. 3 Hours.**

A discussion of placing art within the context of the history of ideas.

**ART 5330. CRITICAL PERSPECTIVE IN THE VISUAL ARTS & VISUAL COMMUNICATION. 3 Hours.**

Seminar course that focuses on graduate student interaction with visiting artists, scholars, curators, critic, designers, and filmmakers.

**ART 5340. RESEARCH IN INTERMEDIA. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and graduate advisor.

**ART 5341. RESEARCH IN SCULPTURE. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5342. RESEARCH IN GLASS. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5343. RESEARCH IN PRINTMAKING. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and graduate advisor.

**ART 5347. RESEARCH IN DRAWING. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and graduate advisor.

**ART 5353. RESEARCH IN METALS. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of the instructor and the graduate advisor.

**ART 5355. RESEARCH IN VISUAL COMMUNICATION. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and graduate advisor.

**ART 5359. RESEARCH IN PHOTOGRAPHY DIGITAL IMAGING. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and graduate advisor.

**ART 5360. TOPICS IN THE HISTORY OF ART & DESIGN. 3 Hours.**

Special seminar/topics course focusing on enhancing the art and design knowledge base of MFA candidates in the areas of film/video, visual communication, intermedia-expanded studio, and glass as art.

**ART 5363. RESEARCH IN CLAY. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5371. RESEARCH IN PAINTING. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5383. RESEARCH IN FILM/VIDEO & SCREENWRITING. 3 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5391. INDEPENDENT STUDY. 3 Hours.**

Independent and directed research in the area of Studio Intermedia. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5392. Independent Study in Visual Communication. 3 Hours.**

Independent and directed research in the study of Visual Communication.

**ART 5393. INDEPENDENT AND DIRECTED RESEARCH IN FILM AND VIDEO. 3 Hours.**

Independent and directed research in Film and Video.

**ART 5394. Independent Study in Glass. 3 Hours.**

Independent and directed research in the study of glass.

**ART 5395. INDEPENDENT STUDY IN ART HISTORY AND CRITICISM. 3 Hours.**

Independent and directed research in art history and criticism.

**ART 5396. SPECIAL TOPICS IN ART HISTORY. 3 Hours.**

Subjects of immediate interest in various fields of art history; to compliment faculty research specializations. May be repeated for credit as course content changes. Permission of the instructor required.

**ART 5397. MASTER OF FINE ARTS EXHIBITION. 3 Hours.**

This course is intended to be the final course in the Master of Fine Arts (M.F.A.) students program of study. Here, students will concentrate their studio activity towards the completion of a body of work to be exhibited, complete the written component of the degree as well as oral examinations. Students must have 30 hours of coursework in the concentration completed in their program of study prior to enrolling for this course.

**ART 5640. RESEARCH IN INTERMEDIA. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5641. RESEARCH IN SCULPTURE. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5642. RESEARCH IN GLASS. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5643. RESEARCH IN PRINTMAKING. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5647. RESEARCH IN DRAWING. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5653. RESEARCH IN METALS. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5655. RESEARCH IN VISUAL COMMUNICATION. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5659. RESEARCH IN PHOTOGRAPHY DIGITAL IMAGING. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5663. RESEARCH IN CLAY. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5671. RESEARCH IN PAINTING. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5683. RESEARCH IN FILM/VIDEO & SCREENWRITING. 6 Hours.**

Independent and directed research in the student's area of concentration. Studio hours to be arranged. May be repeated for credit. Prerequisite: graduate standing in studio art and consent of instructor and the graduate advisor.

**ART 5697. MASTER OF FINE ARTS EXHIBITION. 6 Hours.**

This course is intended to be the final course in the Master of Fine Arts (M.F.A.) student's program of study. Here, students will concentrate their studio activity towards the completion a body of work to be exhibited, complete the written component of the degree as well as oral examinations. Students must have 30 hours of coursework in the concentration completed in their program of study prior to enrolling for this course.

## Astronomy (ASTR)

### COURSES

**ASTR 1345. INTRODUCTORY ASTRONOMY I. 3 Hours.**

ASTR 1345 and ASTR 1346 constitute a one-year sequence for any student who is interested in learning his/her place within the astronomical universe. The first semester consists of an essentially descriptive treatment of the apparent motions and properties of members of the Solar System including the Sun, the planets and their moons, comets and rockets, and satellites as well as the mechanics and evolution of the Solar System. The laboratory work includes the use of astronomical telescopes for observation.

**ASTR 1346. INTRODUCTORY ASTRONOMY II. 3 Hours.**

Follows ASTR 1345 and focuses on the science of stars and galaxies. Properties of light are applied to the understanding and classification of stars and to determining their distances. Topics include nuclear reactions, binary stars, variable stars, exploding stars, black holes, and star clusters. The course concludes with the structure of the Milky Way and the role galaxies play in modern cosmological theories. The laboratory work includes telescopic observations.

## Bilingual ESL Early Child Prog (BEEP)

### COURSES

**BEEP 3381. LANGUAGE MINORITY STUDENTS: DEVELOPMENT AND ASSESSMENT. 3 Hours.**

This course addresses issues of child development with emphasis on the psychological, cultural and social background of language minority children. Assessment of language minority children will also be addressed including factors such as cultural bias in assessment, procedures for assessing eligibility for special language programs, and general literacy assessment with language minority students.

**BEEP 3382. INTRODUCTION TO SPECIAL LANGUAGE PROGRAMS. 3 Hours.**

Legal foundations and historical development of bilingual education, dual language, and special language programs will be introduced. Various models of bilingual education and English as a Second Language will be examined. An overview of special education, gifted and talented, and compensatory education legislation and its impact on the implementation of special language programs will be examined.

**BEEP 4302. IMPLEMENTATION OF EC-6 DUAL LANGUAGE CURRICULUM MODELS. 3 Hours.**

This course addresses programmatic, cultural, academic and linguistic considerations for the creation, implementation and maintenance of dual language curriculum models in EC-6 settings. In the course students will explore and implement various research-based teaching methods and strategies used in effective programs. It will also cover key components of dual language teaching and learning, including curriculum alignment (e.g., horizontal, vertical, spiral), language separation, and parent collaboration.

**BEEP 4305. BILITERACY DEVELOPMENT IN DUAL LANGUAGE PROGRAMS. 3 Hours.**

Analysis of the structure of English and Spanish including phonology, morphology, syntax, semantics, lexicon, and pragmatics. Topics also include language interference and cross-linguistic transfer to promote biliteracy.

**BEEP 4306. FAMILY LITERACY AND SECOND LANGUAGE ACQUISITION. 3 Hours.**

Examines the relationships among family literacy, second-language acquisition, and literacy development in children. The course provides opportunities for students to explore a variety of home-school literacy programs designed to facilitate the development of literacy skills in parents and support reading and writing at home. Specific focus on theories regarding the relationship between first and second language acquisition and early education. Prerequisite: ECED 4317, ECED 4318.

**BEEP 4311. MATH IN DUAL LANGUAGE SETTINGS. 3 Hours.**

Integration of mathematic concepts in relation to the cognitive and linguistic development of English language learners. Analysis of the State curriculum for mathematics in K-6. Design and implementation of instruction in dual language settings. Field experience required. Prerequisite: BEEP 3381.

**BEEP 4312. SCIENCE AND HEALTH EDUCATION IN DUAL LANGUAGE SETTINGS. 3 Hours.**

Integration of science and health concepts in relation to the cognitive and linguistic development of English language learners. Analysis of the State curriculum for health and science in K-6. Design and implementation of instruction in dual language settings. Field experience required.

**BEEP 4314. CREATIVE ARTS AND SOCIAL STUDIES IN DUAL LANGUAGE SETTINGS. 3 Hours.**

Integration of visual arts, music, and social studies with a focus on instructional processes and skills for increasing children's understanding and appreciation of aesthetics. Implementation of the Texas Curriculum in Social Studies and Art Education in EC-6 dual-language classrooms.

**BEEP 4319. ASSESSMENT OF CULTURALLY AND LINGUISTICALLY DIVERSE STUDENTS IN EC-6 SETTINGS. 3 Hours.**

Study of formal and informal assessment instruments and techniques for assessing the language development and literacy of English Language Learners (ELL) in EC-6 classrooms. Also, focus on diagnosing literacy learning strengths and needs.

**BEEP 4366. SPANISH FOR TEACHERS IN DUAL LANGUAGE PROGRAMS: AN IMMERSION APPROACH. 3 Hours.**

Development of Spanish proficiency for bilingual education teacher candidates through an immersion approach. Emphasis on concepts, functions and the scenarios used in the Spanish proficiency examination required for bilingual education teacher candidates.

**BEEP 4382. LITERACY INSTRUCTION IN SPANISH FOR THE BILINGUAL CLASSROOM. 3 Hours.**

Focuses on the development of literacy for bilingual children. Specific emphasis will be placed on the rationale, methods, and materials for literacy instruction in Spanish. The successful transition from first-language literacy instruction to literacy instruction in English will also be addressed. The course will be delivered in Spanish and students will be exposed to content and techniques to master the oral and written components of the Spanish language proficiency test required to become certified in bilingual education. Prerequisite: BEEP 3381, ECED 4317, ECED 4318.

**BEEP 4384. LITERACY METHODS FOR ESL/BILINGUAL CLASSROOMS. 3 Hours.**

The rationale and implementation of various instructional methods for English language learners will be discussed. Examination of language instruction for students at different stages of development. Sheltered English instruction for the teaching of content areas will also be presented. Students will be assigned to a special language program to examine methods of instruction and modifications for language minority children.

**BEEP 4385. SHELTERED ENGLISH INSTRUCTION. 3 Hours.**

Analysis of the linguistic, cognitive, academic and cultural considerations required to provide meaningful and developmentally appropriate content area instruction to English language learners (ELLs) in PK-6. Prerequisite: BEEP 3381.

**BEEP 4687. STUDENT TEACHING IN EC-6 BILINGUAL/ESL CLASSROOMS. 6 Hours.**

Full-time supervised and directed student teaching in EC-6 bilingual or ESL classrooms. Student teaching must immediately follow the field experience semester. Student teaching assumes that candidates will follow the school district's calendar and report to the classroom all day and each day of the semester. Prerequisites: BEEP 4311, BEEP 4312, and BEEP 4314.

**BEEP 5315. PRACTICUM. 3 Hours.**

Practicum in student's teaching area(s). This semester-long experience will help students apply theory and research to practice.

**BEEP 5318. FOUNDATIONS IN BILINGUAL EDUCATION. 3 Hours.**

Analyzes the development of bilingual education in the United States. Introduces bilingual education program models and discusses research findings on their effectiveness.

**BEEP 5321. ESL METHODS FOR EC-6 LEARNERS. 3 Hours.**

Compares first and second-language acquisition processes. Identifies effective teaching practices to meet the needs of English language learners. Analyzes elements from Spanish that can affect the acquisition of literacy in English.

**BEEP 5361. LANGUAGE LEARNING: EDUCATIONAL PERSPECTIVES. 3 Hours.**

Deals with the relationship between first and second language acquisition and literacy, dialect, linguistics, culture; nature and definition of language; overview of linguistic science and language with pedagogical applications.

**BEEP 5362. LITERACY INSTRUCTION IN ESL/BILINGUAL SETTINGS. 3 Hours.**

Translation of theory into practice stressing various methods and techniques for teaching ESL/bilingual students with emphasis on techniques for oral language development, reading and writing. A comparison/contrast of the various methods, their specifics, and when and how to use them for various instructional objectives as well as the relationship of language development, culture, and conceptual processes to language teaching.

**BEEP 5363. LITERACY DEVELOPMENT IN ENGLISH AND SPANISH. 3 Hours.**

Focuses on the development of literacy in bilingual students with specific emphasis on the rationale, methods, and materials for literacy instruction in the student's home language. Attention to evaluating and supplementing first-language literacy materials and supporting the successful transition from first-language literacy instruction to literacy instruction in English.

**BEEP 5364. LITERACY INSTRUCTION IN SPANISH IN THE CONTENT AREAS. 3 Hours.**

Focuses on methods and materials for teaching content-area subjects in the student's home language. Additional focus on supporting the transition from home-language instruction to English-language instruction.

**BEEP 5365. ORGANIZATION & ADMINISTRATION OF DUAL LANGUAGE PROGRAMS. 3 Hours.**

Analysis of the research background and implementation of various models of dual language instruction. Insight of the process, data collection, and reporting requirements of the state and federal special populations legislation. This course requires an internship with the office of Federal Programs and/or the office of Bilingual/ESL Education in local school districts. Prerequisite: BEEP 5318.

**BEEP 5366. SPANISH FOR SCHOOL ADMINISTRATORS & TEACHERS. 3 Hours.**

Development of Spanish proficiency for teachers and administrators through an immersion approach. Emphasis on concepts and terminology related to education, program administration, community involvement, and communication with Spanish-speaking parents. This course can be repeated.

**BEEP 5391. INDEPENDENT RESEARCH. 3 Hours.**

Research for course substitution or a topic agreed upon between the student and instructor. May be repeated for credit with permission.

## Bioengineering (BE)



## COURSES

### **BE 1000. UNDERGRADUATE RESEARCH. 0 Hours.**

Freshman level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

### **BE 1104. INTRODUCTION TO ENGINEERING. 1 Hour.**

Introduction to basic engineering concepts. Students will become familiar with engineering and its many sub-fields, ethical responsibilities, creativity and design.

### **BE 1225. INTRODUCTION TO BIOENGINEERING. 2 Hours.**

Topics include introduction to basic engineering principles and quantitative methods, their applications in analyzing and solving problems in biology and medicine. Also includes new trends in the development of bioengineering and biotechnology. Course includes visits to the area hospitals and bioengineering industry.

### **BE 2000. UNDERGRADUATE RESEARCH. 0 Hours.**

Sophomore level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

### **BE 3000. UNDERGRADUATE RESEARCH. 0 Hours.**

Junior level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum 3 times.

### **BE 3301. CELL PHYSIOLOGY FOR BIOENGINEERS. 3 Hours.**

This course will cover principles of molecular omics (i.e., genomics, transcriptomics, proteomics and synthetic biology); the field of molecular bioengineering and processes involving inducible transcription and chimeric proteins; the composition of cell membranes, ion transport and the application of optogenetics in cell physiology regulation; the way cells communicate and integrate signals and translate them in intracellular metabolic cascades through the understanding of phosphoproteomics, energy metabolism, metabolomics, cellular motility, and molecular motors; the processes involved in cell proliferation, abnormal cell division dysregulation in cancer, and nanotechnology techniques for tumor treatment. Prerequisite: BIOL 1442, PHYS 1444, CHEM 2322, and CHEM 2182.

### **BE 3310. FLUID FLOW, CELLULAR MECHANICS WITH LABORATORY. 3 Hours.**

This course provides an introduction to the fundamentals of fluid mechanics with an emphasis on biological systems. Topics of boundary layers, fluid properties, and laminar and turbulent flows will be covered. Cell motility and mechanics of cell movements in blood and cellular circuits will be covered. The course will have lecture and laboratory sessions. Prerequisite: Junior Standing, BIOL 1442, PHYS 1444, CHEM 2322, CHEM 2182, and MATH 3319.

### **BE 3320. MEASUREMENT LABORATORY. 3 Hours.**

Hands-on experiments with use of transducers used for chemical, mechanical, electrical, and thermal biomedical measurements. Computer-based means of converting analog transducer output into digital form. Analysis of experimentally collected data including error analysis, repeatability, resolution, and functional specifications. Prerequisite: BIOL 1442, CHEM 2322, CHEM 2182, MATH 3319, and PHYS 1444.

### **BE 3323. INTRODUCTION TO BIOPHOTONICS. 3 Hours.**

Introduction to properties of light, light-cell/tissue interactions, optical techniques, and optical instrumentation in the context of biophotonic medical applications. Topics that will be covered include fundamental properties of optical wave fields, basic properties and characterization of laser sources and detectors used in modern biomedicine, interferometry, linear and nonlinear light-tissue interactions exploited for biomedical imaging and sensing applications, and spectroscopy. Prerequisite: BIOL 1442, MATH 3319, PHYS 1444 and BE 4325.

### **BE 3325. FLUORESCENCE MICROSCOPY. 3 Hours.**

Introduction to the anatomy of fluorescence microscopy and the physical principles of its operation; confocal and multi-photon microscopy; molecular imaging applications based on Forster Resonance Energy Transfer (FRET), Fluorescence Lifetime Imaging (FLIM), Fluorescence Correlation Spectroscopy (FCS), Fluorescence Recovery After Photobleaching (FRAP) and Total Internal Reflection Fluorescence (TIRF) Microscopy. Prerequisite: BIOL 1442, MATH 3319, PHYS 1444 and BE 4325.

### **BE 3327. TISSUE OPTICS. 3 Hours.**

Introduction to the science and technology behind tissue optical imaging systems and their design requirements for different clinical applications; diffuse optical tomography; fluorescence tomography; bioluminescence tomography; multi-modality imaging. Prerequisite: BIOL 1442, MATH 3319, PHYS 1444 and BE 4325.

### **BE 3344. BIOINSTRUMENTATION. 3 Hours.**

Fundamental principles of bioinstrumentation, including operational amplifiers and instrumentation amplifiers; measurements of biopotentials; signals and noise in biological systems; mechanical transducers; resistive, inductive, capacitive transducers; measurement of temperature, blood pressure and flow; electrical safety. Prerequisite: MATH 3319, PHYS 1444 and BE 4325.

### **BE 3346. MEDICAL IMAGING. 3 Hours.**

This course introduces basic medical imaging modalities, including X-ray Computed Tomography (CT), Nuclear Medicine Imaging (PET and SPECT), Magnetic Resonance Imaging (MRI), and image-guided interventions. Through this course, the students will learn fundamental knowledge on how medical images are obtained and how they can be used for diagnosis, therapy, and surgery. Prerequisite: MATH 3319, PHYS 1444 and BE 4325.

**BE 3352. DIGITAL PROCESSING OF BIOLOGICAL SIGNALS. 3 Hours.**

Fundamental techniques for extraction of useful information from signals acquired from biological systems. Topics include time and frequency domain analysis, cross correlation, spectrum analysis, and convolution. Design of finite impulse response (FIR) and infinite impulse response (IIR) filters for processing biological signals are described. Examples include cardiac, respiratory, and biomechanical movements. Prerequisite: MATH 3319, PHYS 1444 and BE 4325.

**BE 3367. CELL CULTURE AND DRUG DELIVERY LABORATORY. 3 Hours.**

This course will cover techniques commonly used in tissue engineering and biomaterial research, including culture media preparation, cell culture/ subculture, degradable scaffold, their modification, histological staining, and imaging analyses. The course will also include development of systems for delivery of pharmaceutical agents used for treating different diseases; an understanding of the underlying pharmacokinetics principles is emphasized. Prerequisite: MATH 3319, PHYS 1444, BIOL 1442, CHEM 2322, CHEM 2182, CHEM 4311 (concurrent or completed).

**BE 3372. DRUG DELIVERY. 3 Hours.**

This class focuses on the development, design, and application of controlled and targeted drug delivery systems including transdermal, inhalation, drug eluting stents, stimulated-drug, as well as microparticles and nanoparticles for controlled drug delivery. Principles of drug delivery, targeting, modification, distribution and diffusion will be discussed. Prerequisite: BE 3380, BIOL 1442, CHEM 4311 (or concurrent enrollment), and MATH 3319.

**BE 3380. HUMAN PHYSIOLOGY IN BE. 3 Hours.**

An introduction to human physiology emphasizing biomedical engineering related topics. The course focuses on understanding basic function with the relationships on the cellular as well as organ level in both healthy and diseased states. Prerequisite: BIOL 1442, CHEM 2322, CHEM 2182, MATH 3319, and PHYS 1444.

**BE 4000. UNDERGRADUATE RESEARCH. 0 Hours.**

Senior level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**BE 4191. DIRECTED RESEARCH IN BIOENGINEERING. 1 Hour.**

Student participates in a research project under the individual instruction of a faculty supervisor.

**BE 4291. DIRECTED RESEARCH IN BIOENGINEERING. 2 Hours.**

Student participates in a research project under the individual instruction of a faculty supervisor.

**BE 4300. SPECIAL TOPICS IN BIOENGINEERING. 3 Hours.**

A study of selected topics in Bioengineering. May be repeated when topics vary. Prerequisite: Consent of instructor and undergraduate advisor.

**BE 4324. BIOMEDICAL OPTICS LABORATORY. 3 Hours.**

The primary objective of this course is to provide students hands-on experience with fundamental optical techniques and instrumentation used in modern biomedical research and applications. The skills learned will be valuable to anyone who intends to work in an experimental setting that requires working knowledge of optical instrumentation and techniques. The course is divided into ten core lab modules that cover topics ranging from basic optical techniques to advanced imaging and spectroscopy techniques. Prerequisite: MATH 3319, PHYS 1444, BIOL 1442, CHEM 2322, CHEM 2182, CHEM 4311 (concurrent or completed), BE 3320, BE 3344, BE 3346 (concurrent or completed).

**BE 4325. FUNDAMENTALS OF BIOENGINEERING. 3 Hours.**

Topics cover fundamentals of biosensors, bio-signal processing, and bioinstrumentation. An introduction to various imaging modalities such as ultrasound, magnetic resonance, optical tomography, and x-ray radiography is also presented. Other bioengineering topics may be included as time allows or as is appropriate. Prerequisite: BIOL 1442, CHEM 2322, CHEM 2182, MATH 3319, AND PHYS 1444.

**BE 4326. TISSUE ULTRASOUND-OPTICAL IMAGING. 3 Hours.**

This course will introduce the fundamental principles of ultrasound and optical related imaging techniques, such as ultrasonic, tissue optical, and photoacoustic imaging techniques. Some topics related to the new progresses and applications in the related fields will be introduced. Students are expected to know the principles of these imaging techniques, and use mathematical, numerical simulation and experimental methods to understand these technologies and their biomedical applications. Prerequisite: MATH 3319, PHYS 1444, BIOL 1442, CHEM 2322, CHEM 2182, CHEM 4311 (concurrent or completed), BE3320, BE 3344, BE 3346 (completed or concurrent).

**BE 4329. NEURAL ENGINEERING. 3 Hours.**

This course consists of both lecture/discussion and laboratory. Lecture topics include central and peripheral nervous system injury and regeneration, brain/machine interfacing, primary culture of neural cells, neuroinflammatory and neurodegenerative disease. Laboratories include embryonic and neonatal rat derived neuronal culturing, immunostaining and quantitative analysis. Prerequisites: BE 3301, CHEM 2322, CHEM 2182, MATH 3319 or consent of the instructor.

**BE 4330. MEDICAL IMAGE PROCESSING. 3 Hours.**

Principles and computational methods in digitally processing medical images are presented. Topics include image reconstruction, two and three dimensional visualization, image registration, quantitative image analysis, image enhancement, and statistical processing methods including Monte Carlo methods. Prerequisite: BE 3352, BE 3380, EE 3317 (or MAE 3319), MATH 3319, and PHYS 1444.

**BE 4331. POLYMERS IN BIOMEDICAL ENGINEERING. 3 Hours.**

This is a foundation course in polymeric biomaterial design, synthesis, characterization, and processing. The topics include design, surface-engineering, functionalization, characterization, as well as micro- and nano-fabrication of polymeric biomaterials. The biomedical applications of the polymeric biomaterials and their interaction with cell/tissue is discussed. Prerequisite: BIOL 1442, CHEM 2322, CHEM 2182, CHEM 4311 (or concurrent enrollment), MATH 3319, and PHYS 1444.

**BE 4333. NANOBOMATERIALS. 3 Hours.**

Synthesis, fabrication, characterization, and biomedical applications of nanobiomaterials. Topics include synthetic nanobiomaterials, biological nanobiomaterials (DNA nanomaterials, protein and peptide nanomaterials, etc.), biofunctionalization of nanobiomaterials, and use of nanobiomaterials in tissue engineering, drug delivery, gene delivery. Prerequisite: BIOL 1442, CHEM 2322, CHEM 2182, CHEM 4311 (or concurrent enrollment), MATH 3319, and PHYS 1444.

**BE 4334. INTRODUCTORY NANO AND BIOPOLYMER MATERIALS. 3 Hours.**

Topics include design, fabrication, characterization, surface-engineering, functionalization of polymeric materials and their interactions with biological systems at cellular and tissue levels. Topics also include both synthetic and biological materials at nano scale for biomedical applications, including DNA, protein and peptides used in tissue engineering, drug delivery, gene therapy. Prerequisite: MATH 3319, PHYS 1444, BIOL 1442, CHEM 2322, CHEM 2182, CHEM 4311 (concurrent or completed).

**BE 4337. TRANSPORT PHENOMENA IN BIOMEDICAL ENGINEERING. 3 Hours.**

Principles of momentum, mass and heat transfer; description of blood flow, trans-capillary, interstitial, lymphatic fluid transport and pulmonary gas exchange. Applications in the design of blood oxygenator, dialysis devices, and strategies in drug delivery, hyperthermia treatment. Prerequisite: BE 3310, BE 3320, completed or concurrent BE 3380, BIOL 1442, MATH 3319, PHYS 1444, AND BE 4325.

**BE 4345. BIOIMAGING LABORATORY. 3 Hours.**

This laboratory course focuses on the use of microscopy in the life sciences, ranging from the principles of optics to the use of specialized microscopic techniques to investigate the structure and behavior of various types of cells. Students learn to use both phase and fluorescence microscopy and capture digital stills and movies with both. Students will learn how to fix and stain cells for greater exposure to the cell details. Course will include taking and analyzing images using transmission electron microscopes and scanning electron microscopes. Prerequisite: BIOL 1442, BE 3301, MATH 3319, PHYS 1444 and BE 4325.

**BE 4350. SENIOR DESIGN PROJECT I. 3 Hours.**

First of two courses in design of biomedical systems and processes. Major design project in biomedical engineering, incorporating engineering standards and realistic design constraints. This course prepares students through a major design experience incorporating engineering principles and realistic constraints that include most of the following considerations: economic, environmental, sustainability, manufacturability, ethical, health and safety, and social consideration. Prerequisite: Instructor permission required.

**BE 4355. SENIOR DESIGN PROJECT II. 3 Hours.**

Second of two courses in design of biomedical systems and processes. Major design project in biomedical engineering, incorporating engineering standards and realistic design constraints. This course prepares students through a major design experience incorporating engineering principles and realistic constraints that include most of the following considerations: economic, environmental, sustainability, manufacturability, ethical, health and safety, and social considerations. Prerequisite: BE 4350.

**BE 4360. FUNDAMENTALS OF ULTRASOUND IN BIOENGINEERING. 3 Hours.**

This course instructs the students in the physics of ultrasound transducers, their operation, and their biomedical applications. The material includes modeling of the interaction of acoustic waves with various types of tissue and cells. Mathematical methods for analyzing the reflected and refracted waves as well as constructing images from the waves will be covered. Prerequisite: BE 3380, MAE 3319 (or EE 3317), MATH 3319, PHYS 1444.

**BE 4364. TISSUE ENGINEERING LECTURE. 3 Hours.**

Fundamentals of cell/extracellular matrix interactions in terms of cell spreading, migration, proliferation and function; soft and hard tissue wound healing and nerve regeneration; polymer scaffolding materials and fabrication methods; cell-polymer interactions; in vitro and in vivo tissue culture and organ replacement. Prerequisite: CHEM 2181, CHEM 2321, MATH 3319, PHYS 1444.

**BE 4365. TISSUE ENGINEERING LABORATORY. 3 Hours.**

Each student will be given the opportunity to perform the techniques commonly used in tissue engineering and biomaterial research. These techniques are culture media preparation, cell culture/subculture, degradable scaffold preparation, scaffold modification, histological sections and staining, and cell imaging analyses. Prerequisite: BE 3380, BE 4364.

**BE 4366. PROCESS CONTROL IN BIOTECHNOLOGY. 3 Hours.**

Principles and methods and measurement, data acquisition, and analysis. Application of control theory in biological systems and in biotechnology processes; control of pressure, flow, temperature, and pH. Prerequisite: BE 3380, MATH 3319, PHYS 1444, BE 3352 AND BE 4325.

**BE 4368. AN INTRODUCTION TO TISSUE ENGINEERING AND DRUG DELIVERY. 3 Hours.**

Topics include fundamentals of cell-ECM interactions, cell spreading, migration, proliferation and function; soft and hard tissue wound healing and nerve regeneration; polymer scaffolding materials and fabrication methods; cell-polymer interactions; in vitro and in vivo tissue culture and organ replacement. Students will be introduced to basic principles of pharmacokinetics and pharmacodynamics. Topics also include design and development of targeted and controlled drug delivery systems, including transdermal, inhalation, drug-eluting stents, stimulated-drug, as well as encapsulated nano and micro-particles for controlled release. Underlying principles of drug delivery, targeting, modification, distribution and diffusive transport will be discussed. Prerequisite: MATH 3319, PHYS 1444, BIOL 1442, CHEM 2322, CHEM 2182, CHEM 4311 (concurrent or completed).

**BE 4373. DRUG DELIVERY LABORATORY. 3 Hours.**

This class will provide students with hands-on experience for developing drug delivery systems such as microparticles and nanoparticles that deliver pharmaceutical agents to treat various diseases. The emphasis is on understanding the principles of pharmacokinetics and drug delivery systems to improve the clinical efficacy and reduce side effects. Prerequisite: BE 3380, CHEM 2182, CHEM 2321, concurrent or completed CHEM 4311, MATH 3319, PHYS 1444.

**BE 4382. LABORATORY PRINCIPLES. 3 Hours.**

Introduction to fundamental biomedical engineering laboratory procedures including human studies and animal surgery; includes clinical laboratory projects, data collection, analysis, and interpretation. Prerequisite: BE 3320, MATH 3319, and PHYS 1444.

**BE 4391. DIRECTED RESEARCH IN BIOENGINEERING. 3 Hours.**

Student participates in a research project under the individual instruction of a faculty supervisor.

**BE 5101. SEMINAR IN BIOENGINEERING. 1 Hour.**

University and guest lecturers speak on topics of current interest in the field of bioengineering.

**BE 5191. DIRECTED RESEARCH IN BIOENGINEERING. 1 Hour.**

Student participates in a research project under the individual instruction of a faculty supervisor.

**BE 5193. MS COMPREHENSIVE EXAMINATION. 1 Hour.**

Individual instruction, directed study, consultation, and comprehensive examination over coursework leading to the Thesis-Substitute Master of Science degree in bioengineering. Graded P/F/R. Required of all Thesis-Substitute MS students.

**BE 5281. Best Practices in Teaching and Learning. 2 Hours.**

Introduction to approaches and activities that can facilitate learning. Students gain insight into specific challenges of teaching, basics of designing a course, role of assessments and evaluations, good presentation skills and comparisons of various engagement levels. Students teach mock lessons and are given feedback.

**BE 5291. DIRECTED RESEARCH IN BIOENGINEERING. 2 Hours.**

Student participates in a research project under the individual instruction of a faculty supervisor.

**BE 5293. MASTERS COMPREHENSIVE EXAMINATION. 2 Hours.**

Individual instruction, directed study, consultation, and comprehensive examination over coursework leading to the Master of Science degree in bioengineering. Required of all MS students.

**BE 5300. SELECTED TOPICS IN BIOENGINEERING. 3 Hours.**

Material may vary from semester to semester. May be repeated for credit if different topics are covered for each registration. Prerequisite: permission of the instructor.

**BE 5301. CELL PHYSIOLOGY. 3 Hours.**

This course will cover principles of molecular omics (i.e., genomics, transcriptomics, proteomics and synthetic biology). The field of Molecular bioengineering and processes involving inducible transcription and chimeric proteins. The composition of cell membranes, ion transport and the application of optogenetics in cell physiology regulation. The way cells communicate and integrate signals and translated them in intracellular metabolic cascades through the understanding of phosphoproteomics, energy metabolism, metabolomics, cellular motility, and molecular motors. The processes involved in cell proliferation, abnormal cell division dysregulation in cancer, and nanotechnology techniques for tumor treatment. Prerequisite: Graduate Level or Instructor Permission.

**BE 5309. HUMAN PHYSIOLOGY IN BIOENGINEERING. 3 Hours.**

An introduction to human physiology emphasizing biomedical engineering related topics. The course focuses on understanding basic function with the relationships on the cellular as well as organ level both in healthy and diseased states.

**BE 5316. FUNDAMENTAL MATH AND PHYSICS FOR BIOENGINEERING. 3 Hours.**

This course introduces the basic physics concepts such as introduction to electromagnetism, Maxwell's equations, computation of Fresnel coefficients, interference and diffraction of light, waveguides and optical fibers, photon counting statistics, and Beer-Lambert law. It also covers basic mathematical concepts such as curvilinear coordinates, vector calculus, Stokes theorem and solving differential equations with initial conditions and the diffusion equation.

**BE 5323. INTRODUCTION TO BIOPHOTONICS. 3 Hours.**

Introduction to properties of light, light-cell/tissue interactions, optical techniques, and optical instrumentation, in the context of biophotonic medical applications. Topics that will be covered include fundamental properties of optical wave fields, basic properties and characterization of laser sources and detectors used in modern biomedicine, interferometry, linear and nonlinear light-tissue interactions exploited for biomedical imaging and sensing applications, and spectroscopy.

**BE 5324. Biomedical Optics Laboratory. 3 Hours.**

The primary objective of the Biomedical Optics Laboratory course is to provide students hands-on experience with fundamental optical techniques and instrumentation used in modern biomedical research and applications. The skills learned will be valuable to anyone who intends to work in an experimental setting that requires working knowledge of optical instrumentation and techniques. The course is divided into ten core lab modules that cover topics ranging from basic optical techniques to advanced imaging and spectroscopy techniques.

**BE 5325. FLUORESCENCE MICROSCOPY. 3 Hours.**

Introduction to the anatomy of a fluorescence microscope and the physical principles of its operation. Confocal and multi-photon microscopy. Molecular imaging applications based on Forster Resonance Energy Transfer (FRET), Fluorescence Lifetime Imaging (FLIM), Fluorescence Correlation Spectroscopy (FCS), Fluorescence Recovery After Photobleaching (FRAP) and Total Internal Reflection Fluorescence (TIRF) Microscopy.

**BE 5326. TISSUE ULTRASOUND OPTICAL IMAGING. 3 Hours.**

This course will cover principles of molecular omics (i.e., genomics, transcriptomics, proteomics and synthetic biology). The field of Molecular bioengineering and processes involving inducible transcription and chimeric proteins. The composition of cell membranes, ion transport and the application of optogenetics in cell physiology regulation. The way cells communicate and integrate signals and translated them in intracellular metabolic cascades through the understanding of phosphoproteomics, energy metabolism, metabolomics, cellular motility, and molecular motors. The processes involved in cell proliferation, abnormal cell division dysregulation in cancer, and nanotechnology techniques for tumor treatment. Prerequisite: Graduate level or instructor permission.

**BE 5327. TISSUE OPTICS. 3 Hours.**

Introduction to the science and technology behind tissue optical imaging systems and their design requirements for different clinical applications. Diffuse optical tomography, fluorescence tomography, bioluminescence tomography, multi-modality imaging.

**BE 5329. NEURAL ENGINEERING. 3 Hours.**

This course consists of both lecture/discussion and laboratory. Lecture topics include central and peripheral nervous system injury and regeneration, brain/machine interfacing, primary culture of neural cells, neuroinflammatory and neurodegenerative disease. Laboratories include embryonic and neonatal rat derived neuronal culturing, immunostaining and quantitative analysis.

**BE 5331. POLYMERS IN BIOMEDICAL ENGINEERING. 3 Hours.**

This is a foundation course in polymeric biomaterial design, synthesis, characterization, and processing. The topics include design, surface-engineering, functionalization, characterization, as well as micro- and nano-fabrication of polymeric biomaterials. The biomedical applications of the polymeric biomaterials and their interaction with cell/tissue is discussed.

**BE 5333. NANOBOMATERIALS. 3 Hours.**

Synthesis, fabrication, characterization, and biomedical applications of nanobiomaterials. Topics include synthetic nanobiomaterials, biological nanobiomaterials (DNA nanomaterials, protein and peptide nanomaterials, etc.), biofunctionalization of nanobiomaterials, use of nanobiomaterials in tissue engineering, drug delivery, gene delivery.

**BE 5335. BIOLOGICAL MATERIALS, MECHANICS, & PROCESSES. 3 Hours.**

Typical functional behavior of various biological materials, flow properties of blood, bioviscoelastic fluids and solids, mass transfer in cardiovascular and pulmonary systems.

**BE 5337. TRANSPORT PHENOMENA IN BIOMEDICAL ENGINEERING. 3 Hours.**

Principles of momentum, mass and heat transfer; description of blood flow, trans-capillary, interstitial, lymphatic fluid transport and pulmonary gas exchange. Applications in the design of blood oxygenator, dialysis devices, and strategies in drug delivery, hyperthermia treatment. Prerequisite: undergraduate courses in CE 2312 Statics/Dynamics, MAE 2314 Fluid Mechanics I or CE 3305 and MAE 3310 Thermodynamics I or CHEM 3321.

**BE 5340. FINITE ELEMENT APPLICATIONS IN BIOENGINEERING. 3 Hours.**

The course describes the fundamental principles of the finite element method and various numerical modeling techniques. Topics include variational and Galerkin formulations, linear and Hermitian elements, accuracy and convergence. Applications in biological systems and to the design of prosthetic devices are emphasized. Topic areas include linear elasticity, fluid dynamics, heat transfer, and mass transport processes.

**BE 5344. BIOINSTRUMENTATION I. 3 Hours.**

Fundamental principles of bioinstrumentation, including operational amplifiers and instrumentation amplifiers; measurements of biopotentials; signals and noise in biological systems; mechanical transducers; resistive, inductive, capacitive transducers; measurement of temperature, blood pressure and flow; electrical safety.

**BE 5346. MEDICAL IMAGING. 3 Hours.**

This course introduces basic medical imaging modalities, including X-ray Computed Tomography (CT), Nuclear Medicine Imaging (PET and SPECT), Magnetic Resonance Imaging (MRI), and image-guided interventions. Through this course, the students will learn fundamental knowledge on how medical images are obtained and how they can be used for diagnosis, therapy, and surgery.

**BE 5347. PRINCIPLES OF FUNCTIONAL MAGNETIC RESONANCE IMAGING. 3 Hours.**

This course introduces basic principles of Magnetic Resonance Imaging (MRI) and functional MRI (fMRI) for brain functional imaging. After taking this course, the students will gain basic knowledge on how functional brain images are obtained from MRI and fMRI as well as how they can be used for diagnosis, therapy, and surgery. The emphasis in this course is on fMRI. This course will include lecture and some laboratory exercises involving actual fMRI measurement data.

**BE 5350. MODELING AND CONTROL OF BIOLOGICAL SYSTEMS. 3 Hours.**

Introduction to fundamental methods of modeling, analysis and control of biological systems. Linear system modeling, state space modeling, stability analysis, basic identification techniques. Examples from cardiopulmonary, visual, and motor control systems. Prerequisite: an undergraduate course in linear systems, control theory, or consent of the instructor.

**BE 5352. DIGITAL PROCESSING OF BIOLOGICAL SIGNALS. 3 Hours.**

Fundamental techniques for extraction of useful information from signals acquired from biological systems. Topics include time and frequency domain analysis, cross correlation, spectrum analysis, and convolution. Design of FIR and IIR filters for processing biological signals are described. Examples include cardiac, respiratory, and biomechanical movements. Prerequisite: an undergraduate engineering course in signals and systems analysis or consent of the instructor.

**BE 5360. DESIGN AND APPLICATION OF ARTIFICIAL ORGANS. 3 Hours.**

Fundamental principles of fluid mechanics, mass transfer and chemical reaction in engineered biological systems. Simple solutions are developed for the design of artificial ventricular assist devices, total artificial hearts, lungs and kidneys.

**BE 5361. BIOMATERIALS AND BLOOD COMPATIBILITY. 3 Hours.**

This course is an introduction to polymer structure and fabrication methods. Blood and tissue interactions with materials, and methods to improve the biocompatibility of materials are discussed.

**BE 5364. TISSUE ENGINEERING LECTURE. 3 Hours.**

Fundamentals of cell/extracellular matrix interactions in terms of cell spreading, migration, proliferation and function. Soft and hard tissue wound healing and nerve regeneration. Polymer scaffolding materials and fabrication methods. Cell-polymer interactions. In vitro and in vivo tissue culture and organ replacement.

**BE 5365. TISSUE ENGINEERING LAB. 3 Hours.**

Each student will be given the opportunity to perform the techniques commonly used in tissue engineering and biomaterial research. These techniques are culture media preparation, cell culture/subculture, degradable scaffold preparation, scaffold modification, histological sections and staining, and cell imaging analyses.

**BE 5366. PROCESS CONTROL IN BIOTECHNOLOGY. 3 Hours.**

Principles and methods of measurement, data acquisition and analysis. Application of control theory in biological systems and in biotechnology processes; control of pressure, flow, temperature, and pH. Prerequisite: an undergraduate course in control theory or consent of the instructor.

**BE 5370. BIOMATERIAL - LIVING SYSTEMS INTERACTION. 3 Hours.**

This course describes current developments in molecular structure and organization at synthetic material interfaces with tissues and the subsequent influences on cells and cell membranes. It is designed to lay the groundwork for an improved understanding of events at the biomaterial-living system interface.

**BE 5372. DRUG DELIVERY. 3 Hours.**

This class focuses on the development, design and application of controlled and targeted drug delivery systems including transdermal, inhalation, drug eluting stents, stimulated-drug as well as microparticles and nanoparticles for controlled drug delivery. Principles of drug delivery, targeting, modification, distribution and diffusion will be discussed.

**BE 5373. DRUG DELIVERY LAB. 3 Hours.**

This class will provide the students with hands-on experience for developing drug delivery systems such as microparticles and nanoparticles that deliver pharmaceutical agents to treat various diseases. The emphasis is on understanding the principles of pharmacokinetics and drug delivery systems to improve the clinical efficacy and reduce side effects.

**BE 5382. LABORATORY PRINCIPLES. 3 Hours.**

Introduction to fundamental biomedical engineering laboratory procedures including human studies and animal surgery; includes clinical laboratory projects; data collection, analysis, and interpretation. Prerequisite: permission of the instructor.

**BE 5390. RESEARCH PROJECT. 3 Hours.**

Taken by students enrolled in the non-thesis option for the MS degree. Individual instruction in research and/or instrumentation development and evaluation conducted under supervision of the instructor. A final report required. Graded P/F/R. Prerequisite: permission of the instructor.

**BE 5391. DIRECTED RESEARCH IN BIOENGINEERING. 3 Hours.**

Student participates in a research project under the individual instruction of a faculty supervisor.

**BE 5398. THESIS. 3 Hours.**

Prerequisite: graduate standing in biomedical engineering.

**BE 5691. DIRECTED RESEARCH IN BIOENGINEERING. 6 Hours.**

Student participates in a research project under the individual instruction of a faculty supervisor.

**BE 5698. THESIS. 6 Hours.**

Graded P/F/R. Prerequisite: graduate standing in biomedical engineering.

**BE 6103. PhD SEMINAR IN BIOENGINEERING. 1 Hour.**

Students will be assigned to participate in the journal clubs and medical grand rounds relevant to their areas of research in Bioengineering. Graded P/F only. Prerequisite: Ph.D. student status.

**BE 6194. DOCTORAL DIAGNOSTIC EXAMINATION. 1 Hour.**

Individual instruction, directed study, consultation, and diagnostic examination. Required of all doctoral students in the semester when they take any portion of the diagnostic examination.

**BE 6195. DOCTORAL COMPREHENSIVE EXAMINATION. 1 Hour.**

Individual instruction, directed study, consultation, and comprehensive examination on a detailed prospectus of proposed dissertation research as well as an oral examination. Required of all doctoral students in the semester when they take the comprehensive examination. Prerequisite: BE 6194.

**BE 6197. RESEARCH IN BIOENGINEERING. 1 Hour.**

Individually approved research projects leading to a doctoral dissertation in the area of biomedical engineering.

**BE 6297. RESEARCH IN BIOENGINEERING. 2 Hours.**

Individually approved research projects leading to a doctoral dissertation in the area of biomedical engineering.

**BE 6395. INTERNSHIP IN BIOENGINEERING. 3 Hours.**

Students are placed with a bioengineering company or a hospital to gain firsthand industrial or clinical engineering experience. The company or hospital assigns projects, and a faculty member monitors the student's progress. Students register for 3 (BE 6395), 6 (BE 6695), or 9 (BE 6995) credit hours during each semester. Prerequisite: completion of at least 9 graduate credit hours in BE and good standing in the graduate program.

**BE 6397. RESEARCH IN BIOENGINEERING. 3 Hours.**

Individually approved research projects leading to a doctoral dissertation in the area of bioengineering.

**BE 6399. DISSERTATION. 3 Hours.**

Preparation and submission of a doctoral dissertation in an area of bioengineering. Graded R/F only. Prerequisite: admission to candidacy for the Ph.D. in Biomedical Engineering.

**BE 6499. DISSERTATION. 4 Hours.**

Preparation and submission of a doctoral dissertation in an area of bioengineering. This course is only to be taken by students preparing a dissertation for submission that is supervised primarily by a University of Texas Southwestern Medical School faculty member and must be taken concurrently with a 5-hour dissertation course at that institution. To satisfy requirement that a P be awarded in a 9-hour dissertation course in their final semester of enrollment, a student must be concurrently enrolled in this course and the 5-hour dissertation course at the University of Texas Southwestern Medical School and receive a P in both courses at the end of that semester. If a P is not awarded in both classes, the two classes must be repeated until P grades are concurrently awarded.

**BE 6695. INTERNSHIP IN BIOENGINEERING. 6 Hours.**

Students are placed with a bioengineering company or a hospital to gain firsthand industrial or clinical engineering experience. The company or hospital assigns projects, and a faculty member monitors the student's progress. Students register for 3 (BE 6395), 6 (BE 6695), or 9 (BE 6995) credit hours during each semester. Prerequisite: completion of at least 9 graduate credit hours in BE and good standing in the graduate program.

**BE 6697. RESEARCH IN BIOENGINEERING. 6 Hours.**

Individually approved research projects leading to a doctoral dissertation in the area of bioengineering.

**BE 6699. DISSERTATION. 6 Hours.**

Preparation and submission of a doctoral dissertation in an area of bioengineering. Graded R/F only. Prerequisite: admission to candidacy for the Ph.D. in Biomedical Engineering.

**BE 6995. INTERNSHIP IN BIOENGINEERING. 9 Hours.**

Students are placed with a bioengineering company or a hospital to gain firsthand industrial or clinical engineering experience. The company or hospital assigns projects, and a faculty member monitors the student's progress. Students register for 3 (BME 6395), 6 (BME 6695), or 9 (BME 6995) credit hours during each semester. Prerequisite: completion of at least 9 graduate credit hours in BE and good standing in the graduate program.

**BE 6997. RESEARCH IN BIOENGINEERING. 9 Hours.**

Individually approved research projects leading to a doctoral dissertation in the area of bioengineering.

**BE 6999. DISSERTATION. 9 Hours.**

Preparation and submission of a doctoral dissertation in an area of bioengineering. Graded P/R/F. Prerequisite: admission to candidacy for the Ph.D. in Biomedical Engineering.

**BE 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Biology (BIOL)

### COURSES

**BIOL 1301. NUTRITION. 3 Hours. (TCCN = BIOL 1322)**

Nutrients essential to an adequate diet and good health and the nutritive values of common foods are reviewed. Offered as BIOL 1301 and HEED 1301: credit will be granted for only one of these courses. Students seeking certification in Health Education must enroll in HEED 1301. Students seeking credit toward their science requirement must enroll in BIOL 1301. May not be used for biology grade point calculation or biology credit toward a BS degree in biology, microbiology, or medical technology.

**BIOL 1302. RESEARCH METHODS IN SCIENCE. 3 Hours.**

This course has four main objectives: (1) provide quantitative, critical thinking, and communication skills as well as basic concepts in science; (2) kindle a passion and facility for scientific inquiry; (3) develop skills for experimental design, execution, analysis, and presentation; and (4) expose the student to what it means to be a scientist and what it feels like to conduct research. The course will involve lecture, discussion, and laboratory time. Students will develop independent research inquiries using the scientific method, create an original research proposal and corresponding experiments, analyze results, and present their conclusions to their peers through formal oral, written, and other communication methods such as posters and demonstrations. Offered as BIOL 1302 and CHEM 1302; credit will be granted only once.

**BIOL 1333. INTRODUCTION TO BIOLOGY I. 3 Hours. (TCCN = BIOL 1306)**

Emphasis is on fundamental principles and concepts in the areas of cell and molecular biology, energy, cell division, and inheritance. In lecture and lab, students are encouraged to apply pertinent biological concepts to biologically-based problems in today's society. This course is for non-science majors and with BIOL 1334 will satisfy the laboratory science requirements for students in the Colleges of Liberal Arts and Business Administration, and in the School of Social Work. Formerly listed as BIOL 1433, credit will not be given for both.

**BIOL 1334. INTRODUCTION TO BIOLOGY II. 3 Hours. (TCCN = BIOL 1307)**

A continuation of BIOL 1333. Emphasis is on fundamental principles and concepts in the areas of diversity, evolution, and ecology. In lecture and lab, students are encouraged to apply pertinent biological concepts to biologically-based problems in today's society. This course is for non-science majors and with BIOL 1333 will satisfy the laboratory science requirements for students in the Colleges of Liberal Arts and Business Administration and in the School of Social Work. Prerequisite: BIOL 1333 or BIOL 1433 or BIOLTRAN. Formerly listed as BIOL 1434, credit will not be given for both.

**BIOL 1341. CELL AND MOLECULAR BIOLOGY. 3 Hours.**

The first of a three-part introductory Biology sequence, this course focuses on the chemical and molecular basis of life, including metabolism, cell structure and function, and genetics. This course may only be taken by students in the ASSURE program, and when combined with BIOL 1343 will satisfy the introductory lab requirement for Biology majors. It may satisfy the introductory lab requirement for other College of Science majors--please check with your academic advisors and/or the COS Assistant Dean for Undergraduate Research and Student Advancement.

**BIOL 1342. STRUCTURE AND FUNCTION OF ORGANISMS. 3 Hours.**

The study of structure and function in plants and animals. Topics to be covered include structure at the level of the cell, tissue, organ and individual growth, transport/circulation/gas exchange, nutrition, reproduction, development, endocrinology, and animal neural regulation. This course may only be taken by students in the ASSURE program, and is a co-requisite of BIOL 1343 to satisfy the introductory lab requirement for Biology majors. It may satisfy the introductory lab requirement for other College of Science majors--please check with your academic advisors and/or the COS Assistant Dean for Undergraduate Research and Student Advancement. Prerequisite: BIOL 1341 with a C or better or BIOL 1441 with a C or better.

**BIOL 1343. RESEARCH STREAM LABORATORY I. 3 Hours.**

In this laboratory course, students will learn core concepts in Biology through an intense research experience that complements material taught in BIOL 1341 and 1342. Students will master skills including quantitative data analysis, oral and written communication, and critical thinking. This course may only be taken by students in the ASSURE program. Prerequisite: BIOL 1341 or BIOL 1441. Co-requisite: BIOL 1342. Offered as CHEM 1343; credit will be granted only once.

**BIOL 1441. CELL AND MOLECULAR BIOLOGY. 4 Hours. (TCCN = BIOL 1406)**

(BIOL 1406) The first of a three-part introductory biology sequence, this course focuses on the chemical and molecular basis of life, including metabolism, cell structure and function, and genetics. Laboratory experiments are designed to complement theory presented in lecture. Formerly listed as BIOL 1449; credit will not be given for both.

**BIOL 1442. STRUCTURE AND FUNCTION OF ORGANISMS. 4 Hours. (TCCN = BIOL 1407)**

The study of structure and function in plants and animals. Topics to be covered include structure at the level of the cell, tissue, organ and individual growth, transport/circulation/gas exchange, nutrition, reproduction, development, endocrinology, and animal neural regulation. The laboratory will examine plant and animal structure and function with observational and experimental approaches. Prerequisite: BIOL 1441.

**BIOL 2300. INTRODUCTION TO BIOSTATISTICS. 3 Hours.**

Introduction to the collection, description, and analysis of data with statistical methods appropriate for biological sciences. Prerequisite: BIOL 1441 and BIOL 1442, or permission of the instructor.

**BIOL 2317. BASIC CONCEPTS IN HUMAN SEXUALITY. 3 Hours.**

The physiological, psychological, and sociological aspects of human sexuality. Offered as BIOL 2317, HEED 2317, PSYC 2317, and WOMS 2317. Credit will be granted for one of these courses only. Students seeking certification in Health Education must enroll in HEED 2317. Students seeking credit toward their science requirement must enroll in BIOL 2317. May not be used for biology grade point calculation or biology credit toward a BS degree in biology, microbiology, medical technology, psychology, or sociology.

**BIOL 2343. EVOLUTION & ECOLOGY. 3 Hours.**

Reviews significant aspects of organismal biology and presents current hypotheses concerning the origin and diversification of life on earth. The ecological and behavioral interactions between organisms and their biotic/abiotic environments are considered from an evolutionary perspective. Prerequisite: BIOL 1441.



**BIOL 2350. MATHEMATICAL MODELING IN ECOLOGY. 3 Hours.**

An introductory course in modeling techniques in biology with emphasis on construction and interpretation of models in ecology and epidemiology. Computational tools will allow students to work with mathematical models based on difference and differential equations. The goals of this course will include teaching programming skills and illustrating how biological knowledge is used in this computational approach. Offered as BIOL 2350 and MATH 2350. Credit will be granted only once. Prerequisite: C or better in BIOL 1441 and MATH 1426 or HONR-SC 1426.

**BIOL 2457. HUMAN ANATOMY AND PHYSIOLOGY I. 4 Hours. (TCCN = BIOL 2401)**

Functional morphology of humans, cellular function, principles of support and movement, and neural and endocrine control systems. Laboratory exercises involve both anatomical and experimental aspects of principles introduced in the lecture. This class is designed for students in sport activities (EXSA), medical technology and pre-nursing. Prerequisite: BIOL 1441 or equivalent, or approval of the department. May not be used for biology grade point calculation or biology credit toward a B.S. degree in biology or microbiology.

**BIOL 2458. HUMAN ANATOMY AND PHYSIOLOGY II. 4 Hours. (TCCN = BIOL 2402)**

Functional morphology of humans, maintenance of the human body, and continuity of life. Topics will include the cardiovascular, respiratory, digestive, urinary, immune, and reproductive systems. Laboratory exercises explore both anatomical and experimental aspects of principles introduced in the lecture. This class is designed for students in sport activities (EXSA), medical technology, and pre-nursing. Prerequisite: BIOL 2457 or equivalent. May not be used for biology grade point calculation or biology credit toward a B.S. degree in biology or microbiology.

**BIOL 2460. NURSING MICROBIOLOGY. 4 Hours.**

The intention of this course is to present basic information, relevant to nursing practice, with the principles of microbiology and the nature of microbial disease. This course will give the nursing student a fundamental background of knowledge that will be applicable to the care of infectious patients, to the control of microbial diseases, and an understanding of microorganisms. The laboratory will provide practice in aseptic techniques, the use of disinfectants and antimicrobial agents, and microscopic study of bacteria. This course cannot be applied for credit toward a degree in Biology. Prerequisite: BIOL 1441 or equivalent.

**BIOL 3101. CURRENT TOPICS IN BIOLOGY. 1 Hour.**

Seminar on significant topics and issues in modern biology. Students will present seminars on selected topics and participate in discussions of those topics. Topics will vary depending on instructor. This course will satisfy the oral communication competency required in Biology. May be repeated once for biology credit.

**BIOL 3131. SERVICE LEARNING. 1 Hour.**

Service learning is a credit-bearing learning experience; therefore, credit is awarded for academic learning and not for service hours. Students engage in classroom activities, assignments, and discussions and in addition, integrate course content and learning outcomes with genuine community needs or issues. Collaborations with the community result in relationship-building and partnerships through intentional, structured service experiences. Students are required to analyze and evaluate these experiences by engaging in reflective activities, such as discussion and journaling. This process of structured service and learning in the community promote a sense of civic responsibility and commitment to others. Students commit to serve weekly time resulting in at least fifteen hours during one semester. This time is agreed upon by student, faculty, and community agency. Prerequisite: Permission of the Instructor.

**BIOL 3149. COOPERATIVE PROGRAM IN BIOLOGY. 1 Hour.**

The purpose of this course is to allow students to earn college credit for relevant field work in the areas of biology and microbiology. Students must apply for the program and be cleared for registration during the semester prior to enrollment. These courses are offered on a pass/fail basis.

**BIOL 3170. LIMNOLOGY LABORATORY. 1 Hour.**

A laboratory and field-based course designed to acquaint the student with common laboratory practices in the study of inland waters. Prerequisite: BIOL 3318 or concurrent enrollment.

**BIOL 3231. SERVICE LEARNING. 2 Hours.**

Service learning is a credit-bearing learning experience; therefore, credit is awarded for academic learning and not for service hours. Students engage in classroom activities, assignments, and discussions and in addition, integrate course content and learning outcomes with genuine community needs or issues. Collaborations with the community result in relationship-building and partnerships through intentional, structured service experiences. Students are required to analyze and evaluate these experiences by engaging in reflective activities, such as discussion and journaling. This process of structured service and learning in the community promote a sense of civic responsibility and commitment to others. Students commit to serve weekly time resulting in at least fifteen hours during one semester. This time is agreed upon by student, faculty, and community agency. Prerequisite: Permission of the Instructor.

**BIOL 3249. COOPERATIVE PROGRAM IN BIOLOGY. 2 Hours.**

The purpose of this course is to allow students to earn college credit for relevant field work in the areas of biology and microbiology. Students must apply for the program and be cleared for registration during the semester prior to enrollment. These courses are offered on a pass/fail basis.

**BIOL 3301. CELL PHYSIOLOGY. 3 Hours.**

An introduction to the basic physical, chemical, and biological principles which govern function in eukaryotic cells, and the relationships between cells and their environments. Prerequisite: BIOL 1441. CHEM 2181 and CHEM 2321 are recommended.

**BIOL 3303. DRUGS AND BEHAVIOR. 3 Hours.**

A survey of the psychoactive agents, their therapeutic uses, and social abuses. Alcohol, nicotine, caffeine, narcotics, hallucinogens, stimulants, and tranquilizers. Offered as BIOL 3303, HEED 3303, and PSYC 3303; credit will be granted only once. May not be used for biology grade point calculation or biology credit toward a B.S. degree in biology, microbiology, or medical technology. Students seeking certification in health education must enroll in HEED 3303.

**BIOL 3305. SCIENTIFIC AND TECHNICAL WRITING. 3 Hours.**

Study and application of the written and verbal communication skills involved in gathering, analyzing, and distributing scientific and technical information efficiently and accurately for specific scientific audiences. Can be used to satisfy the Technical Writing portion of English, Technical Writing and Speech requirement. Prerequisite: BIOL 1441 and BIOL 1442, or permission of the instructor.

**BIOL 3309. NON-MAJORS SELECTED TOPICS. 3 Hours.**

Topics in biology not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for credit as different topics are offered. May not be used for biology grade point calculation or biology credit toward a B.A. or B.S. degree in biology or a B.S. degree in microbiology.

**BIOL 3310. SELECTED TOPICS IN BIOLOGY. 3 Hours.**

Topics in biology not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for biology elective credit as different topics are offered. Prerequisite: BIOL 1441, BIOL 1442.

**BIOL 3311. SELECTED TOPICS IN MICROBIOLOGY. 3 Hours.**

Topics in microbiology not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for microbiology elective credit as different topics are offered. Prerequisite: BIOL 1441, BIOL 3444.

**BIOL 3312. IMMUNOBIOLOGY. 3 Hours.**

An introduction to the components, properties, and manifestations of the adaptive immune response that occurs in vertebrates. Prerequisite: BIOL 1441, BIOL 3444. CHEM 2181, CHEM 2321 are recommended.

**BIOL 3315. GENETICS. 3 Hours.**

Principles of molecular and classical genetics. The function and transmission of hereditary material in microorganisms, plants, and animals, including humans. Prerequisite: BIOL 1441.

**BIOL 3316. ASTROBIOLOGY. 3 Hours.**

This is an interdisciplinary course between astrophysics, biology and geology. Topics include properties of life, origin and evolution of life on Earth, mass extinctions, extremophiles, search for life in the Solar System, space missions, stellar habitable zones, SETI, Fermi paradox, Drake equation. Offered as BIOL 3316, GEOL 3316 and PHYS 3316; credit will be granted only once. Prerequisites: PHYS 1441 & PHYS 1442 or equivalent and PHYS 2315 or PHYS 3315, or permission from instructor. Prerequisites for Biology majors: PHYS 1441 and PHYS 1442 or equivalent and BIOL 3315. Offered as BIOL 3316, GEOL 3316, and PHYS 3316; credit will be granted only once.

**BIOL 3317. GENOMICS. 3 Hours.**

This course presents an integrative approach to genome science, combining elements of genetics, state of the art technologies in genomic analysis. A basic knowledge of genetics and probability concepts is required. Use of the World Wide Web will be an essential part of the course. Prerequisite: BIOL 3315 or permission of instructor.

**BIOL 3318. LIMNOLOGY. 3 Hours.**

The living and nonliving components of inland waters. An introduction to the geological, physical, and chemical background, and to the major organisms and ecological processes. Prerequisite: BIOL 1441, BIOL 1442 or equivalent.

**BIOL 3319. HUMAN GENETICS. 3 Hours.**

This course will enable students to comprehend the basic principles of genetics applied to human inheritance and disease, to interpret the research strategies aimed to identify and study the genes responsible for diverse functions and traits, as well as to assess the consequences of the genetic technologies in our society. Prerequisites: BIOL 1441 and BIOL 3315.

**BIOL 3322. BRAIN AND BEHAVIOR. 3 Hours.**

An introduction to the anatomical structures and physiological processes that determine behavior. Topics include the acquisition and processing of sensory information, the neural control of movement, and the biological bases of complex behaviors (such as learning, memory, sex, language, and addiction), as well as the basic functioning of the nervous system. Offered as BIOL 3322 and PSYC 3322. Credit will be granted only once. BIOL 3322 prerequisite: BIOL 1441, BIOL 1442. PSYC 3322 prerequisite: BIOL 1441 or PSYC 1315.

**BIOL 3325. PLANT ECOLOGY. 3 Hours.**

Introduction to the field of plant ecology including physiological, population, community, and ecosystem ecology. Prerequisite: BIOL 1442, BIOL 2343.

**BIOL 3326. ANIMAL BEHAVIOR. 3 Hours.**

A survey of research and theory comparing behavior at various phyletic levels. Offered as BIOL 3326 and PSYC 3326. Credit will be granted for only one of these courses. Prerequisite: BIOL 1441, BIOL 1442.

**BIOL 3327. MICROBIAL DIVERSITY. 3 Hours.**

This course is an introduction to the great diversity of microbial life. The topic material explores this diversity by considering the great age of bacteria, their evolution, biochemistry, habitat and form. The course of study focuses attention on organisms not commonly encountered in General Microbiology laboratories. Prerequisite: BIOL 3444 Microbiology.

**BIOL 3328. ENVIRONMENTAL MICROBIOLOGY. 3 Hours.**

An introduction to the principles, methodology, and practical applications and implications of environmental microbiology. Lecture topics include habitat and community approaches to environmental microbiology, measures of microbial populations and activities, interactions among microbial communities, the role of microorganisms in the origin of mineral resources, microorganisms and pollution, and current developments on energy flow through microbial communities. Prerequisite: BIOL 3444.

**BIOL 3331. SERVICE LEARNING. 3 Hours.**

Service learning is a credit-bearing learning experience; therefore, credit is awarded for academic learning and not for service hours. Students engage in classroom activities, assignments, and discussions and in addition, integrate course content and learning outcomes with genuine community needs or issues. Collaborations with the community result in relationship-building and partnerships through intentional, structured service experiences. Students are required to analyze and evaluate these experiences by engaging in reflective activities, such as discussion and journaling. This process of structured service and learning in the community promote a sense of civic responsibility and commitment to others. Students commit to serve weekly time resulting in at least fifteen hours during one semester. This time is agreed upon by student, faculty, and community agency. Prerequisite: Permission of the Instructor.

**BIOL 3339. INTRODUCTION TO EVOLUTION. 3 Hours.**

The goals of this course are: to introduce students to the process of evolution, the patterns that result, and the way that evolutionary history has shaped the diversity of organisms on Earth; to explore how evolutionary biologists formulate and test hypotheses; to investigate applications of evolutionary biology to mainstream medical research; and to investigate current controversies in evolutionary biology. Prerequisites: BIOL 1441 and BIOL 3315 (or equivalent), or permission of instructor.

**BIOL 3343. RESEARCH STREAM LABORATORY II. 3 Hours.**

In this laboratory course, students will continue their research experience from BIOL 1343. This course may only be taken by students in the ASSURE program. Offered as CHEM 2343; credit will be granted only once. Prerequisites: BIOL 1341 or BIOL 1441, BIOL 1342 or BIOL 1442, BIOL 1343, BIOL 1302.

**BIOL 3345. HUMAN PHYSIOLOGY. 3 Hours.**

Study of human function from the cellular through organismal levels. Attention will be paid to the interrelationships between physiological research and medicine. Will give students a knowledge of the basic principles of structure, function and functional integration of human tissues and organs. Prerequisite: BIOL 1441 and BIOL 1442.

**BIOL 3349. COOPERATIVE PROGRAM IN BIOLOGY. 3 Hours.**

The purpose of this course is to allow students to earn college credit for relevant field work in the areas of biology and microbiology. Students must apply for the program and be cleared for registration during the semester prior to enrollment. These courses are offered on a pass/fail basis.

**BIOL 3350. DYNAMICAL SYSTEMS IN BIOLOGY. 3 Hours.**

An introductory course in the existence and properties of solutions of differential and difference equations, qualitative analysis methods, and numerical solutions of differential equations using finite-difference methods. Offered as BIOL 3350 and MATH 3350; credit will be granted only once. Prerequisite: C or better in BIOL/MATH 2350 or consent of the instructor.

**BIOL 3351. PROBABILITY AND RANDOM PROCESSES IN BIOLOGY. 3 Hours.**

Introduction to random processes arising in biological modeling. Topics include introduction to probability, Poisson processes, birth-death processes, Markov chains, and Markov processes. Course taught as BIOL 3351 and MATH 3351; credit will be granted only once. Prerequisite: C or better in BIOL 3350 or MATH 3350 or consent of the instructor.

**BIOL 3352. INTRODUCTION TO FORENSIC LAB SCIENCE. 3 Hours.**

An introduction to the various disciplines of Forensic Science including DNA analysis, drug analysis, and firearms basics. Laboratory consists of hands-on investigation of mock crime scenes, fingerprint enhancement methods, and biological analysis of fluids. Prerequisite: BIOL 1441, BIOL 1442, CHEM 1441.

**BIOL 3355. TOXICOLOGY. 3 Hours.**

An introduction to the general principles of toxicology with an emphasis on certain classes of toxic agents, their sources and toxic effects, as well as their environmental fates. Pollution of various media (air, water and soil) and the differences between them will be discussed. Prerequisite: BIOL 1441 or 4 hours of BIOLTRAN; CHEM 1441 and CHEM 1442.

**BIOL 3356. ENVIRONMENTAL SYSTEMS, BIOLOGICAL ASPECTS. 3 Hours.**

Biological components of environmental systems. Population dynamics, species interactions, community structure, biodiversity, bioenergetics, nutrient cycling and human impacts are reviewed. Prerequisite: BIOL 1441, BIOL 1442, BIOL 2343.

**BIOL 3357. MARINE BIOLOGY. 3 Hours.**

Principles of oceanographic and ocean circulation, adaptations of marine organisms to their environment, ecological principles of marine biology and human impacts on the sea. Prerequisites: BIOL 1441, BIOL 1442.

**BIOL 3420. GENETICS METHODS LAB. 4 Hours.**

Computational and experimental approach to genomics research. The course theme will be transposable elements. Prerequisite: BIOL 3315.

**BIOL 3427. PLANT SCIENCE. 4 Hours.**

A survey of plant science including the importance of plants to people and the human side of botany: the structure, reproduction, physiology, and classification of plants. The laboratory includes the study of structure, function, reproduction, and classification of plants. Replaces BIOL 3327 and BIOL 3183. Credit cannot be given for BIOL 3427 and BIOL 3327 and 3183. Prerequisite: BIOL 1441, BIOL 1442 or equivalent.

**BIOL 3442. PRINCIPLES OF ANIMAL PHYSIOLOGY. 4 Hours.**

A comparative study of animal function. Evidence from different groups of animals, particularly the vertebrates, to identify the general principles of physiological mechanisms operating at the cellular, tissue, organ, and organismal levels. Laboratory studies will complement lecture material and will stress experimental design, data analysis, and the understanding of critical research in physiology. Prerequisite: BIOL 1441, BIOL 1442. BIOL 3301 recommended.

**BIOL 3444. GENERAL MICROBIOLOGY. 4 Hours.**

Fundamental principals of microbiology including the structure and function of microbial cells and their activities in nature. Bacteria will be used in the laboratory to provide training and experimental methodology. Formerly listed as BIOL 2451; credit will not be granted for both. Prerequisite: BIOL 1441 and one year of Chemistry.

**BIOL 3445. METHODS IN MOLECULAR MICROBIOLOGY. 4 Hours.**

An overview of different techniques used during manipulation of microorganisms. It will allow students to gain an historical perspective of techniques used in microbiology as well as learn state of the art molecular characterization of microorganisms and their genetic manipulation. Introduces biochemical, physiological, and molecular biology methods to assess community diversity and microbial activity in a variety of ecosystems. Bacterial growth and survival, population biology, and microbial interactions will also be discussed. Prerequisite: BIOL 1441 and BIOL 3444.

**BIOL 3446. HUMAN ANATOMY. 4 Hours.**

Study of the gross functional anatomy of the human body. Students will participate in laboratory exercises designed to familiarize them with human anatomical structures and their functions. Use of eponyms for anatomical terms will be minimized. Prerequisite: BIOL 1441, BIOL 1442 or 8 hours of Bioltran.

**BIOL 3452. COMPARATIVE VERTEBRATE ANATOMY. 4 Hours.**

A comparative study of the anatomy of the protochordates and the vertebrates. The laboratory includes a detailed study of the shark and the cat. Prerequisite: BIOL 1441, BIOL 1442, BIOL 2343. BIOL 3454 recommended, but not required.

**BIOL 3454. GENERAL ZOOLOGY. 4 Hours.**

An overview of animal life including the diversity and evolution of major animal phyla, reproduction, development and aspects of physiological function. The laboratory examines form, function and phyletic relationships in a wide variety of animal types. Prerequisite: BIOL 1441, BIOL 1442, or equivalent, or permission of instructor.

**BIOL 3457. GENERAL ECOLOGY. 4 Hours.**

An examination of the theoretical and experimental aspects of the relationship between the biological and physical environments (organisms, food, space, and time) at the individual, population, community, and ecosystem levels. Prerequisite: BIOL 1441, BIOL 1442, BIOL 2343.

**BIOL 4150. SEMINAR IN MATHEMATICAL BIOLOGY. 1 Hour.**

Formulation and definition of interdisciplinary research problems in Mathematical Biology, the formulation and execution of strategies of solution, and the presentation of results. Research under faculty supervision and mentorship involving collaboration within a small group. Prerequisite: Consent of instructor.

**BIOL 4179. DIRECTED STUDY. 1 Hour.**

Independent study by individual students in biology under the supervision of a biology faculty member. Topics must be approved by the supervising faculty member. Prerequisite: BIOL 1441, BIOL 1442, and permission of instructor.

**BIOL 4189. RESEARCH IN BIOLOGY. 1 Hour.**

Research problems on an individual basis, conducted under the direction of a member of the biology faculty. A limit of two hours per semester is imposed and only a total of three hours may be counted toward degree requirements. These courses are offered only on a pass/fail basis. Prerequisite: written permission of the supervising instructor prior to registration.

**BIOL 4279. DIRECTED STUDY. 2 Hours.**

Independent study by individual students in biology under the supervision of a biology faculty member. Topics must be approved by the supervising faculty member. Prerequisite: BIOL 1441, BIOL 1442, and permission of instructor.

**BIOL 4289. RESEARCH IN BIOLOGY. 2 Hours.**

Research problems on an individual basis, conducted under the direction of a member of the biology faculty. A limit of two hours per semester is imposed and only a total of three hours may be counted toward degree requirements. These courses are offered only on a pass/fail basis. Prerequisite: written permission of the supervising instructor prior to registration.

**BIOL 4302. MICROBIAL GENETICS. 3 Hours.**

Consideration of the physical, chemical, and functional nature of genetic processes in micro-organisms. Prerequisite: BIOL 3444, or permission of instructor.

**BIOL 4307. MOLECULAR EVOLUTION. 3 Hours.**

This course focuses on understanding how genes and genomes evolve at the molecular level. Molecular biology provides the data while population genetics provides the theoretical framework. Prerequisite: BIOL 3315, BIOL 3339.

**BIOL 4308. GENOME ANALYSIS. 3 Hours.**

This course will provide students with hands-on experience in genome analysis. Topics covered include population genomics, phylogenomics, genome assembly, genome annotation, and the analysis of repetitive elements and genome structure. Students will learn the computational tools to analyze genomes, including Unix/Linux, Perl programming, and database management. Prerequisite: BIOL 3315 or consent of the instructor.

**BIOL 4309. NEUROPHARMACOLOGY. 3 Hours.**

A survey of how drugs affect the nervous system. General topics will include cellular and molecular foundations of neuropharmacology, receptors and modulation of neural signaling. The specific role of neurotransmitter systems (i.e. acetylcholine, dopamine, norepinephrine, serotonin, and opiate) will be explored. Offered as BIOL 4309 and PSYC 4309; credit will be granted only once. Prerequisites: BIOL 1441 or BIOL 3322 or PSYC 3322 or BIOL 3301.

**BIOL 4312. INTRODUCTION TO VIROLOGY. 3 Hours.**

The nature, reproduction, and host cell interactions of viruses and virus-like agents of bacteria, animals, and plants. Prerequisite: BIOL 3444.

**BIOL 4315. GENERAL ENDOCRINOLOGY. 3 Hours.**

The vertebrate endocrine system. The cellular origin of hormones, their role in physiological regulation, and the mechanism of hormone action. Prerequisite: BIOL 1441, BIOL 1442, BIOL 3301, BIOL 3315; at least one physiology course, and senior standing.

**BIOL 4317. BACTERIAL PATHOGENESIS. 3 Hours.**

Host-pathogen relationships in microbial diseases. Topics include bacterium-host interactions; pathogens and pathogenic factors; techniques in pathogenesis research; molecular mechanisms of pathogenesis by major bacterial pathogens; antimicrobial compounds and resistance to antibiotics; and discussion of human genomics and susceptibility to infections. Prerequisites: BIOL 3312, BIOL 3444.

**BIOL 4327. BEHAVIORAL GENETICS. 3 Hours.**

Genetic influences on behavioral phenotypes. Research strategies, quantitative methods, and pharmacogenetic approaches to the brain; sociality and altruism; the personality, emotionality and intelligence; psychopathology; chromosomal abnormalities; forensic implications of genetic counseling. Also offered as BIOL 4327; credit will be granted only once. Students seeking credit toward the science requirement must enroll in BIOL 4327. Prerequisite: BIOL 3315 or PSYC 2444.

**BIOL 4329. NEURAL ENGINEERING. 3 Hours.**

This course consists of both lecture/discussion and laboratory. Lecture topics include central and peripheral nervous system injury and regeneration, brain/machine interfacing, primary culture of neural cells, neuroinflammatory and neurodegenerative disease. Laboratories include embryonic and neonatal rat derived neuronal culturing, immunostaining and quantitative analysis. Prerequisites: BIOL 3301, CSE 1310, CHEM 2322, and MATH 3319.

**BIOL 4331. ADVANCED MOLECULAR BIOLOGY. 3 Hours.**

Molecular biology, protein-nucleic acid interactions, nucleic acid biochemistry, and the RNA World. Prerequisite: BIOL 1441, BIOL 1442, BIOL 3315, General Chemistry (CHEM 1441 & CHEM 1442). Recommended, but not required: CHEM 2321.

**BIOL 4332. POLYMERS IN BIOMEDICAL ENGINEERING. 3 Hours.**

This is a foundation course in polymeric biomaterial design, synthesis, characterization, and processing. The topics include design, surface-engineering, functionalization, characterization, as well as micro- and nano-fabrication of polymeric biomaterials. The biomedical applications of the polymeric biomaterials and their interaction with cell/tissue is discussed. Prerequisite: BIOL 3301, CSE 1310, CHEM 2322 and MATH 3319.

**BIOL 4333. NANOBOMATERIALS. 3 Hours.**

Synthesis, fabrication, characterization, and biomedical applications of nanobiomaterials. Topics include synthetic nanobiomaterials, biological nanobiomaterials (DNA nanomaterials, protein and peptide nanomaterials, etc.), biofunctionalization of nanobiomaterials, use of nanobiomaterials in tissue engineering, drug delivery, gene delivery. Prerequisites: BIOL 3301, CSE 1310, CHEM 2322, and MATH 3319.

**BIOL 4338. COMMUNITY ECOLOGY. 3 Hours.**

The effects interspecific interactions have on the distribution and abundance of organisms. Prerequisite: BIOL 1441, BIOL 1442, BIOL 2343, and three semester hours of ecology.

**BIOL 4345. MICROBIAL PHYSIOLOGY. 3 Hours.**

This course considers the anatomy and physiology of the bacterial cell in detail. Lecture topics consider the molecular architecture of cell walls, membranes and organelles, synthesis of wall material and membranes, insertion of proteins into membranes and regulation of biosynthetic systems at the whole cell level. Prerequisite: BIOL 1441 and BIOL 3444. CHEM 4311 recommended.

**BIOL 4350. CONSERVATION BIOLOGY. 3 Hours.**

Introduction to theory and practice of conservation biology, with emphasis on applications of modern quantitative and genetic techniques to preservation of organisms and habitats. Topics include identification and prioritization of units for protection; conservation genetics; preserve design; public policy issues; and case studies. Prerequisite: BIOL 3315 or equivalent (Genetics), or permission of the instructor.

**BIOL 4352. FORENSIC BIOLOGY. 3 Hours.**

A comprehensive review of biological principles, applied to forensic science, including sample recovery and handling, analytical techniques, profile matching/exclusion, reporting, and testimony. Prerequisite: BIOL 3315; statistics course recommended; or permission of instructor.

**BIOL 4355. METHODS IN FORENSIC BIOLOGY. 3 Hours.**

Analysis of typical biological evidentiary samples including extraction of DNA, quantitation, amplification and electrophoresis of examples. Instrumentation utilized includes thermal cyclers and ABI 377 genetic analyzer. Prerequisite: BIOL 4352 or concurrent enrollment.

**BIOL 4357. HEALTH PSYCHOLOGY. 3 Hours.**

This course provides a broad introduction to health psychology and its interface with the medical world. The course provides a balanced presentation of the important issues in the field, as well as specific content topics that are especially relevant today to better understand health and illness. Offered as BIOL 4357, HEED 4357, and PSYC 4357. Students seeking science requirement credit must enroll in BIOL 4357; students seeking Certification in Health must enroll in HEED 4357. Prerequisite: PSYC 1315 or BIOL 1333 or BIOL 1441 or BIOL 2457; junior standing recommended.

**BIOL 4365. TISSUE ENGINEERING LAB. 3 Hours.**

Each student will be given the opportunity to perform the techniques commonly used in tissue engineering and biomaterial research. These techniques are culture media preparation, cell culture/subculture, degradable scaffold preparation, scaffold modification, histological sections and staining, and cell imaging analyses. Prerequisites: BIOL 3301, CSE 1310, CHEM 2322, and MATH 3319.

**BIOL 4379. DIRECTED STUDY. 3 Hours.**

Independent study by individual students in biology under the supervision of a biology faculty member. Topics must be approved by the supervising faculty member. Prerequisite: BIOL 1441, BIOL 1442, and permission of instructor.

**BIOL 4388. INSTRUCTIONAL TECHNIQUES IN BIOLOGY. 3 Hours.**

Students will participate in laboratory instruction and student recitation sessions under the supervision of a faculty member. A maximum of 3 hours can be applied to the major for biology or microbiology credit. Enrollment by departmental permission only. A maximum of 6 hours credit from this class will be used to calculate a student's grade point average. Students on probation or who have not qualified for major status may not enroll in this course.

**BIOL 4391. RESEARCH WORKSHOP IN MATHEMATICAL BIOLOGY. 3 Hours.**

Special topics in mathematics are assigned to individuals or small groups. Faculty members closely supervise the projects and assign library reference material. Small groups will hold seminars at suitable intervals. May be repeated for credit.

**BIOL 4393. HONORS SENIOR PROJECT IN BIOLOGY. 3 Hours.**

A topic will be selected after consultation with a supervising professor and will involve both original research and writing a formal report. The work will be evaluated by a faculty honors committee. Completion of this course will satisfy the thesis requirement for the Honors College described elsewhere in this catalog.

**BIOL 4395. FORENSICS-EL PA. 3 Hours.****BIOL 4440. LABORATORY METHODS IN BACTERIAL PATHOGENESIS. 4 Hours.**

This course is intended to expose students to research techniques for studying bacterial pathogens. Students will use molecular and classical techniques to isolate, identify, and characterize bacteria and their response to stimuli. Techniques will range from polymerase chain reaction (PCR), gene sequencing, sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) and Immunofluorescence Microscopy. Prerequisites: BIOL 3312, BIOL 3444, BIOL 4317, or permission of instructor.

**BIOL 4444. VERTEBRATE NATURAL HISTORY. 4 Hours.**

Lecture will cover the systematics, life histories, morphology, ethology and distribution of world vertebrates, with emphasis on tetrapods. The laboratory will provide the opportunity to examine and identify a taxonomically comprehensive collection of amphibians, reptiles, birds and mammals. Prerequisite: BIOL 1441, BIOL 1442, BIOL 2343.

**BIOL 5101. SPECIAL TOPICS IN BIOLOGY. 1 Hour.**

Seminar on significant biological research. May be repeated for credit. Prerequisite: consent of the instructor.

**BIOL 5102. PROFESSIONAL DEVELOPMENT. 1 Hour.**

This course will provide senior graduate students with important information regarding various aspects of their professional development including job searching, interviewing, stress and time management, and professional ethics.

**BIOL 5193. RESEARCH IN BIOLOGY. 1 Hour.**

Conference course in which the student undertakes intensive investigation of topics under the supervision of a staff member. Prerequisite: consent of the instructor. Graded P/F/R.

**BIOL 5291. INDIVIDUAL PROBLEMS IN BIOLOGY. 2 Hours.**

Individual research projects supervised by a faculty member. Prerequisite: consent of the instructor.

**BIOL 5293. RESEARCH. 2 Hours.****BIOL 5301. LABORATORY ROTATION. 3 Hours.**

This course is an elective designed to enable students to choose a major advisor and laboratory. Rotations among two or three faculty laboratories will familiarize students with faculty research interests, sharpen individual research skills, and expose students to different study systems, instruments, and research methods. May only be taken once for credit by MS students; may be repeated for credit once by Ph.D. students.

**BIOL 5302. MICROBIAL GENETICS. 3 Hours.**

Consideration of the nature, expression and regulation of the genetic processes in micro-organisms. Prerequisites: BIOL 2451 and BIOL 3315 or consent of the instructor.

**BIOL 5304. VIROLOGY. 3 Hours.**

The nature, reproduction and host-cell interactions of viruses and animals. Emphasizes molecular aspects of viral replication and the molecular basis of pathogenesis. Prerequisite: consent of the instructor.

**BIOL 5308. GENOME ANALYSIS. 3 Hours.**

This course will provide students with hands-on experience in genome analysis. Topics covered include population genomics, phylogenomics, genome assembly, genome annotation, and the analysis of repetitive elements and genome structure. Students will learn the computational tools to analyze genomes, including Unix/Linux, Perl programming, and database management. Prerequisite: BIOL 3315.

**BIOL 5309. IMMUNOBIOLOGY. 3 Hours.**

This course is designed to acquaint students with the cellular processes involved in the generation of an immune response. It will provide students with detailed knowledge of the cells and organs of the immune system, their organization and diversity and their specialized functions at different anatomical locations. The importance of immune cell receptors and cytokines in cellular interactions and co-ordination of immunological mechanisms is also emphasized.

**BIOL 5310. SELECTED TOPICS IN BIOLOGY. 3 Hours.**

Topics may vary depending on the needs and interests of the students. May be repeated for credit. Prerequisite: consent of the student's thesis committee and the current course instructor.

**BIOL 5311. EVOLUTION. 3 Hours.**

Study of the origin of living systems and the mechanism of their evolution. Prerequisite: BIOL 3315 or equivalent or consent of the instructor.

**BIOL 5312. ADVANCED GENETICS. 3 Hours.**

Mechanisms of transmission and function of genetic material. Covers fundamental concepts in transmission genetics including: genotype/phenotype relationships; inheritance; linkage; genome organization; and gene expression. Experimental and quantitative approaches to genetic analyses are emphasized. Prerequisite: consent of the instructor.

**BIOL 5314. BIOMETRY. 3 Hours.**

An examination of statistical methods and procedures in relation to the design of biological experiments and the analysis of their results. Prerequisite: consent of the instructor.

**BIOL 5315. COMMUNITY ECOLOGY. 3 Hours.**

An investigation of the effects of interspecific interactions on the distribution and abundance of organisms. Prerequisite: consent of the instructor.

**BIOL 5317. BACTERIAL PATHOGENESIS. 3 Hours.**

Host-pathogen relationships in microbial diseases. Topics include bacterium-host interactions, pathogens and pathogenic factors: techniques in pathogenesis research: molecular mechanisms of pathogenesis by major bacterial pathogens; antimicrobial compounds and resistance to antibiotics; and discussion of human genomics and susceptibility to infections. Prerequisites: BIOL 3312 and BIOL 3444 must have a B or better in these courses.

**BIOL 5319. HUMAN GENETICS. 3 Hours.**

This course will enable students to comprehend the basic principles of genetics applied to human inheritance and disease, to interpret the research strategies aimed to identify and study the genes responsible for diverse functions and traits, as well as to assess the consequences of the genetic technologies in our society.

**BIOL 5320. BIOGEOGRAPHY. 3 Hours.**

The role of natural and artificial transport, population pressure and limiting agencies are examined in the light of the patterns of distribution of living organisms. Prerequisite: consent of the instructor.

**BIOL 5325. PLANT ECOLOGY. 3 Hours.**

An introduction to plant ecology including physiological, population, community and ecosystem ecology.

**BIOL 5326. WETLANDS ECOLOGY. 3 Hours.**

An introduction to wetland ecology including the formation of wetlands, biogeochemistry of wetland soils, hydrology and biotic adaptations to wetland environments.

**BIOL 5328. LANDSCAPE ECOLOGY. 3 Hours.**

Landscape ecology focuses on the spatial organization of the landscape mosaic and the flows of energy, nutrients, and species among landscape elements and ecosystems.

**BIOL 5331. ADVANCED MOLECULAR BIOLOGY. 3 Hours.**

Molecular biology, protein-nucleic acid interactions, nucleic acid biochemistry, and the RNA World.

**BIOL 5333. BIOLOGICAL MODELING. 3 Hours.**

Computational and mathematical techniques for representing biological processes, including dynamical systems, simulation, and stochastic processes, using examples from ecology, evolution, and other areas of biology. Prerequisite: consent of the instructor.

**BIOL 5334. MOBILE DNA MECHANISMS & REGULATION. 3 Hours.**

This is a graduate course that covers the classification of transposable elements, and the mechanisms and regulation of transposition in a broad range of organisms. In addition to traditional lectures given by the instructor, students will present and discuss papers among the classic and recent literature on the topic.

**BIOL 5335. ESSENTIALS OF GENOMICS. 3 Hours.**

An integrative approach to genome science, combining elements of genetics, statistics and bioinformatics. Current technologies used in genomics analysis will be presented.

**BIOL 5336. MOLECULAR EVOLUTION. 3 Hours.**

An exploration of how genes and genomes evolve at the molecular level. The presentation uses the theoretical framework provided by population genetics to analyze molecular biology data.

**BIOL 5340. BIOINFORMATICS. 3 Hours.**

This course is an applied introduction to bioinformatics and computational genomics. The course is geared toward the student with a biology background and limited programming experience. The course provides an entrance to commonly used programming/scripting languages and an introduction to numerous aspects of modern genomic data analyses (e.g. identification of coding and regulatory features in novel sequences, expression analysis, and comparative/phylogenetic analyses).

**BIOL 5343. REPTILE BIOLOGY. 3 Hours.**

Diversity, systematics, distribution and behavior of major groups of reptiles. Laboratory includes museum techniques, identification and anatomical study. Prerequisite: consent of the instructor.

**BIOL 5344. AMPHIBIAN BIOLOGY. 3 Hours.**

Diversity, systematics and behavior of major groups of amphibians. Laboratory includes museum techniques, identification and anatomical study. Prerequisite: consent of the instructor.

**BIOL 5346. MICROBIAL PHYSIOLOGY. 3 Hours.**

This course considers the anatomy and physiology of the bacterial cell in detail. Lecture topics consider the molecular architecture of cell walls, membranes and organelles, synthesis of wall material and membranes, insertion of proteins into membranes and regulation of biosynthetic systems at the whole cell level.

**BIOL 5350. CONSERVATION BIOLOGY. 3 Hours.**

Theory and practice of conservation biology, with emphasis on applications of modern quantitative and molecular genetic techniques to preservation of organisms and habitats. Includes: identification and prioritization of units for protection; conservation genetics; preserve design; public policy; and current case studies. Prerequisites: BIOL 3315 or equivalent or consent of the instructor.

**BIOL 5351. ENVIRONMENTAL MICROBIOLOGY. 3 Hours.**

Principles, methodology, and practical applications of environmental microbiology. Topics include: habitat and community approaches to environmental microbiology; measures of microbial populations and activities; interactions among microbial communities; role of microorganisms in the origin of mineral resources and pollution and energy flow through microbial communities. Prerequisite: BIOL 3444 or equivalent or consent of the instructor.

**BIOL 5354. LIMNOLOGY. 3 Hours.**

The study of biotic and abiotic components of inland waters. Prerequisite: consent of the instructor.

**BIOL 5357. MARINE BIOLOGY. 3 Hours.**

Principles of oceanography and ocean circulation, adaptations of marine organisms to their environment, ecological principles of marine biology and human impacts on the sea.

**BIOL 5361. ADVANCED BIOMETRY. 3 Hours.**

Topics include introduction to matrix algebra, regression, correlation, residual analysis, and multivariate statistics. Several computerized statistical packages are introduced. Prerequisite: BIOL 5314 or consent of the instructor.

**BIOL 5362. EXPERIMENTAL DESIGN. 3 Hours.**

Various analysis of variance models will be explored including hierarchic models, multiway factorial models, Latin square designs, split plots designs, and incomplete block designs. Nonparametric methodologies and analysis of covariance techniques will also be presented. Prerequisite: BIOL 5314 or consent of the instructor.

**BIOL 5364. POPULATION GENETICS. 3 Hours.**

The genetics of evolution with emphasis on measuring, predicting, and modeling genetic change in populations. Prerequisite: consent of the instructor.

**BIOL 5367. THEORETICAL SYSTEMATICS. 3 Hours.**

Introduction to the study of organismal diversity and evolutionary relationships. Emphasizes quantitative methods for phylogeny reconstruction, and interpretation and application of molecular data. Prerequisite: BIOL 3315 and BIOL 3339 or equivalents, or consent of the instructor.

**BIOL 5391. INDIVIDUAL PROBLEMS IN BIOLOGY. 3 Hours.**

Individual research projects supervised by a faculty member. Prerequisite: consent of the instructor.

**BIOL 5393. RESEARCH IN BIOLOGY. 3 Hours.**

Conference course in which the student undertakes intensive investigation of topics under the supervision of a staff member. Prerequisite: consent of the instructor. Graded P/F/R.

**BIOL 5398. THESIS. 3 Hours.**

Graded R/F only. Prerequisite: consent of faculty.

**BIOL 5420. GENETICS METHODS LAB. 4 Hours.**

Computational and experimental approach to genomics research. The course theme will be transposable elements.

**BIOL 5421. Methods in Molecular Microbiology. 4 Hours.**

This course will provide an overview of different techniques used during manipulation of microorganisms. It will allow students to gain a historical perspective of techniques used in microbiology (Winogradsky column, Koch solid agar plating) as well as learn state of the art molecular characterization of microorganisms and their genetic manipulation. This course introduces current biochemical, physiological and molecular biology methods to assess community diversity and microbial activity in a variety of ecosystems. Other topics discussed include bacterial growth and survival, population biology, and microbial interactions.



**BIOL 5440. LABORATORY METHODS IN BACTERIAL PATHOGENESIS. 4 Hours.**

This course is intended to expose students to research techniques for studying bacterial pathogens. Students will use molecular and classical techniques to isolate, identify and characterize bacteria and their response to stimuli. Techniques will range from PCR, Gene Sequencing, SDS-PAGE and Immunofluorescence Microscopy. Prerequisites BIOL 3312, BIOL 3444, BIOL 4317.

**BIOL 5493. RESEARCH. 4 Hours.****BIOL 5593. RESEARCH. 5 Hours.****BIOL 5693. RESEARCH IN BIOLOGY. 6 Hours.**

Conference course in which the student undertakes intensive investigation of topics under the supervision of a staff member. Prerequisite: consent of the instructor. Graded P/F/R.

**BIOL 5698. THESIS. 6 Hours.**

Graded P/F/R. Prerequisite: consent of faculty.

**BIOL 5998. THESIS. 9 Hours.**

Graded P/F/R. Prerequisite: consent of faculty.

**BIOL 6191. ADVANCED RESEARCH. 1 Hour.**

Faculty supervised individual research. May be repeated for credit. Graded P/F/R.

**BIOL 6291. ADVANCED RESEARCH. 2 Hours.**

Faculty supervised individual research. May be repeated for credit. Graded P/F/R.

**BIOL 6391. ADVANCED RESEARCH. 3 Hours.**

Faculty supervised individual research. May be repeated for credit. Graded P/F/R.

**BIOL 6399. DISSERTATION. 3 Hours.**

BIOL 6399 and BIOL 6699 graded R/F only; BIOL 6999 graded P/F/R. Prerequisite: admission to candidacy for the degree Doctor of Philosophy in Quantitative Biology.

**BIOL 6491. ADVANCED RESEARCH. 4 Hours.**

Faculty supervised individual research. May be repeated for credit. Graded P/F/R.

**BIOL 6591. ADVANCED RESEARCH. 5 Hours.**

Faculty supervised individual research. May be repeated for credit. Graded P/F/R.

**BIOL 6691. ADVANCED RESEARCH. 6 Hours.**

Faculty supervised individual research. May be repeated for credit. Graded P/F/R.

**BIOL 6699. DISSERTATION. 6 Hours.**

BIOL 6399 and BIOL 6699 graded R/F only; BIOL 6999 graded P/F/R. Prerequisite: admission to candidacy for the degree Doctor of Philosophy in Quantitative Biology.

**BIOL 6999. DISSERTATION. 9 Hours.**

BIOL 6399 and BIOL 6699 graded R/F only; BIOL 6999 graded P/F/R. Prerequisite: admission to candidacy for the degree Doctor of Philosophy in Quantitative Biology.

**BIOL 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Broadcast Communication (BCMN)

### COURSES

**BCMN 2347. BROADCAST WRITING AND REPORTING. 3 Hours.**

Writing non-dramatic scripts for radio and television. Emphasis is on writing for time and under deadline pressure as well as writing in active voice.

**BCMN 2357. RADIO PRODUCTION I. 3 Hours. (TCCN = COMM 2303)**

The fundamentals of radio broadcasting. The techniques of announcing, interviewing, script writing, programming, types of radio production, audience analysis, and vocational opportunities. Students participate in typical broadcasting activities.

**BCMNM 2358. TELEVISION PRODUCTION I. 3 Hours. (TCCN = COMM 1336)**

Fundamentals of television broadcasting, including programming concepts, writing, lighting, and switching practices.

**BCMNM 2360. INTRODUCTION TO BROADCASTING. 3 Hours. (TCCN = COMM 1335)**

A survey of historical and contemporary operations and functions of broadcasting. How broadcasting and the electronic media operate, including understanding of stations, distribution methods and facilities, regulation and the FCC, networks, advertising agencies, audience ratings, and new technologies.

**BCMNM 2370. MULTIMEDIA PRODUCTION. 3 Hours.**

Audio and video production for non-broadcast majors in the Department of Communication. May not be substituted for BCMNM 2357 or BCMNM 2358.

**BCMNM 3319. BROADCAST MANAGEMENT. 3 Hours.**

Management procedures, policies, and responsibilities in the successful operation of telecommunication industries. Areas covered are planning, problem-solving, personnel, facilities, government, financial resources, and public service. Prerequisite: BCMNM 3340.

**BCMNM 3340. ELECTRONIC NEWS. 3 Hours.**

News writing and gathering for the electronic media; use of basic audio and video electronic equipment; editing of news stories for analysis and criticism. Prerequisite: Three hours of Math, JOUR 1345 ( or concurrent enrollment), and a minimum grade of C (2.0/4.0 scale) or higher in BCMNM 2347, BCMNM 2357, BCMNM 2358, BCMNM 2360, and COMM 2315.

**BCMNM 3350. TELEVISION REPORTING I. 3 Hours.**

Producing and reporting of news information for the television media. Students will participate in news gathering, writing, and shoot packages for television. Prerequisite: BCMNM 3340.

**BCMNM 3355. BROADCAST ANNOUNCING. 3 Hours.**

Concentrated study of phrasing, timing, voice modulation, pronunciation and articulation. Analysis and interpretation of all types of broadcast copy. Integration of announcing and performance into broadcast production. Prerequisite: JOUR 1345, and a minimum grade of C (2.0/4.0 scale) or higher in BCMNM 2347, BCMNM 2357, BCMNM 2358, BCMNM 2360.

**BCMNM 4191. MEDIA WORKSHOP. 1 Hour.**

Contemporary activities in broadcasting. Topics will vary. May be repeated up to three times. Prerequisite: Permission of the instructor.

**BCMNM 4320. CURRENT ISSUES IN TELECOMMUNICATIONS. 3 Hours.**

Recent and current literature in radio and television broadcasting, cablecasting, industrial video, satellite distribution, and national and international telecommunications policies. Current problems and possible solutions. Prerequisite: BCMNM 3319, BCMNM 3340.

**BCMNM 4350. TELEVISION REPORTING II. 3 Hours.**

Production and evaluation of news programs for transmission on electronic media. Students will participate in production of newscasts for airing via broadcast and cable systems. Prerequisite: BCMNM 3350.

**BCMNM 4391. CONFERENCE COURSE. 3 Hours.**

Topic assigned on an individual basis, covering individual research or study in the designated areas. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: BCMNM 3340, COMM 2315, and 60 or more hours earned and permission.

**BCMNM 4393. SPECIAL TOPICS. 3 Hours.**

Special studies in broadcasting. Topic varies from semester to semester. May be repeated when topics change, for a maximum of six credit hours. Prerequisite: BCMNM 3340, COMM 2315, and 60 or more hours earned, and permission of department.

**BCMNM 4395. PROFESSIONAL INTERNSHIP. 3 Hours.**

Individual research while working with business and industry. Individual conference to be arranged. Prerequisite: appropriate junior level course completed in student's option and permission of supervising professor and department. Prerequisite: BCMNM 3340, COMM 2315, and 60 or more hours earned and permission of department. Graded Pass/Fail.

## Business Administration (BSAD)

### COURSES

**BSAD 6310. FOUNDATIONS OF SCIENTIFIC INQUIRY. 3 Hours.**

The evolution of the modern corporation is briefly addressed. The core topics include the structure of explanation, the structure of scientific laws, theory building, philosophy of science and relativistic/post-relativistic philosophies of science.

**BSAD 6311. EXPERIMENTAL DESIGN. 3 Hours.**

In-depth coverage of selected topics in the design of research and analysis of data; topics include philosophy of science, theory of measurement, complex experimental and quasi-experimental designs.

**BSAD 6312. REGRESSION. 3 Hours.**

The theoretical and practical aspects of regression analysis. Topics include simple and multiple linear regression, the matrix formulation of regression models, regression diagnostics and remedial measures, collinearity and ridge regression, normal correlation models, and non-linear least squares, time series including ARIMA models are covered. Practical applications of statistical software packages are emphasized.

**BSAD 6313. ANOVA. 3 Hours.**

Experimental design and data analysis, especially as related to business and economic research. Topics include completely randomized designs, complete and incomplete blocks, nested designs, estimation and testing of fixed, random and mixed effects, sampling, nonparametric statistics and analysis of variance.

**BSAD 6314. MULTIVARIATE STATISTICS. 3 Hours.**

Focuses on methods of analyzing mean and covariance structures. Topics include commonly applied multivariate methods such as multiple analysis of variance, repeated measures, discriminant analysis, profile analysis, canonical correlations and factor analytic methods. The use of matrix algebra and available computer packages will be stressed.

**BSAD 6315. TIME SERIES. 3 Hours.**

Univariate and multivariate time series; analysis of economic and financial data; out-of-sample forecasting using computer software. Autoregressive-moving average models, vector autoregression, unit roots, co-integration, ARCH and GARCH.

**BSAD 6316. FINANCIAL ECONOMETRICS. 3 Hours.**

In-depth study of the econometric tools and techniques used in empirical finance research. Course emphasizes data extraction and analysis of common finance databases, as well as the theoretical basis for current empirical finance techniques and methods.

**BSAD 6317. APPLIED BUSINESS & ECONOMICS DATA ANALYSIS I. 3 Hours.**

Statistical methods applied to business and economic problems; topics include multiple regression, generalized linear regression, systems estimation.

**BSAD 6318. APPLIED BUSINESS AND ECONOMICS DATA ANALYSIS II. 3 Hours.**

This course covers cross section, panel data, and limited dependent variables methods. There is a dual focus on the conceptual framework and the application of the techniques on real data sets. Topics include regression analysis of natural experiments, differences-in-differences, panel data methods, instrumental variable estimation, structural equation modeling, sample selection corrections, limited dependent variable models (such as Probit, Logit, Tobit, Poisson, Negative Binomial, Ordered Probit), multilevel/hierarchical models, and quantile regression. Participants use statistical packages such as EXCEL, SAS, R and STATA to apply techniques to data sets. The course uses articles from the business and economics literature and shows how models or variables (such as diversification index, market value, Q, CAPM, market concentration, elasticity, industrial performance, labor productivity, total factor productivity, CSR index, entry barrier measures, hedonic models, analysis of natural experiments, gravity model) that are used are calculated and employed. Participants build an understanding of appropriate methods for different research design or analyses of data for providing solutions to assist in decision-making. Students are expected to complete an empirical research project and present their findings. Prerequisite: ECON 5336.

**BSAD 6330. Nonparametric Statistics. 3 Hours.**

A survey of statistical tools which may be used when the normal assumptions of parametric statistics cannot be made; including procedures for categorical data, methods involving ranks, bootstrapping, and Kolmogorov-Smirnov type techniques. Cross listed with BSTAT 5330. Prerequisite: BSTAT 5325 or equivalent.

**BSAD 6392. DOCTORAL RESEARCH AND TEACHING COLLOQUIUM. 3 Hours.**

Review of the research process and contemporary developments in the methodology and design of empirical research in the major fields of study represented in the doctoral program. Review of teaching methods for effective classroom instruction. May be repeated for credit.

**BSAD 6399. DISSERTATION. 3 Hours.****BSAD 6699. DISSERTATION. 6 Hours.****BSAD 6999. DISSERTATION. 9 Hours.****BSAD 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Business Administration (BUSA)

### COURSES

**BUSA 2304. INTRODUCTION TO BUSINESS. 3 Hours. (TCCN = BUSI 1301)**

Nature and functions of business: business economy, entrepreneurship and small business, the management process, human resource management, marketing, management information tools, finance, legal and tax environment, and risk and insurance. Will not serve to meet the degree requirements for College of Business Administration majors.

## Business Communication (BCOM)

### COURSES

#### **BCOM 3360. EFFECTIVE BUSINESS COMMUNICATION. 3 Hours.**

Principles and practice of effective communication with business organizations. Students will be exposed to theories of persuasion, argumentation and advocacy. Techniques to achieve group compromise and conflict resolution are also emphasized. Prerequisite: 60 credit hours.

#### **BCOM 5375. ADVANCED BUSINESS COMMUNICATION THEORY & PRACTICE. 3 Hours.**

Examines theory of effective oral and written communication. Discusses techniques for improved research, report writing and presentation. Also stresses presentation media and computer graphics for reports and presentations.

## Business Decisions (BDEC)

### COURSES

#### **BDEC 3311. BUSINESS DECISION MAKING - PLANNING, ETHICS, SUSTAINABILITY, & AGILITY. 3 Hours.**

Students are exposed to broad and integrative business knowledge as they learn to lead and manage teams while creating a business plan. The business decisions they make focus on value added offerings and are crafted in a culture of ethical, sustainable, and agile business activity. Ethics are discussed as a critical staple of decision making during times of fundamental and less predictable change. Sustainability is discussed as a touchstone for innovative decision making. Agility is discussed as a decision making trait needed in times of evolving marketplace needs. Written business plans are evaluated by business professionals. Student teams also compete for various awards by presenting their business plans to those business professionals in a business exhibition format called the Sustainable Business Challenge. Prerequisite: Junior standing, 60 completed hours.

## Business Honors (BHNR)

### COURSES

#### **BHNR 4330. RESEARCH METHODOLOGY AND PRACTICE. 3 Hours.**

Designed for undergraduate students from a variety of disciplines. Goals: to understand the commonalities of research across disciplinary boundaries, to develop research skills. Topics: framing a research question, literature review, introductory statistical skills, organization and presentation of results. Using a computer for bibliographic searches, word processing, and statistical analysis.

#### **BHNR 4393. BUSINESS HONORS INTERNSHIP. 3 Hours.**

Supervised practical training in the student's major or concentration in business. May be used as an advanced business elective only and is letter graded. No credit will be given for previous experience or activities. Prerequisites: Honors College student, declared business major with junior standing, and approval of their respective department internship coordinator and Honors College advisor.

#### **BHNR 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all undergraduate Business Administration students in the University Honors College. During the senior year, the student must complete a thesis or project of equivalent difficulty under the direction of a faculty member in the major department.

## Business Law (BLAW)

### COURSES

#### **BLAW 3310. LEGAL AND ETHICAL ENVIRONMENT OF BUSINESS. 3 Hours.**

The basic structure and processes of the legal system are reviewed followed by coverage of key common law areas and major regulatory rules that impact business. The focus is on a working knowledge of the law that has the greatest impact on business today and the social and ethical issues that may be related to legal issues. Prerequisite: 60 credit hours.

#### **BLAW 3311. LAW I. 3 Hours.**

The law relevant to business transactions of large and small business firms and individuals. The history and development of our legal system, (e.g. increased government regulation of business) reviewed to help the student understand political and social influences on law. Topics covered include common law and Uniform Commercial Code, and contractual relationships (contracts, assignments, commercial papers, sales, and bailments). Prerequisite: 60 credit hours.

#### **BLAW 3312. LAW II. 3 Hours.**

The law of property (real and personal), business associations (agency, partnership, corporation, bankruptcy), wills and trusts. Prerequisite: 60 credit hours.

#### **BLAW 3314. REAL ESTATE LAW. 3 Hours.**

Development of real estate law and the legal constraints within which real estate decisions are made. Prerequisite: 60 credit hours.

#### **BLAW 4310. BASIC INTERNATIONAL LAW FOR BUSINESS. 3 Hours.**

The basic principles of law related to international transactions and relations as may be applicable to business dealings. Laws related to persons and property in the foreign environment. Prerequisite: 60 credit hours.

**BLAW 5330. LEGAL ENVIRONMENT OF BUSINESS. 3 Hours.**

The basic structure and processes of the legal system are reviewed followed by coverage of key common law areas and major regulatory rules that impact business. The focus is on a working knowledge of the law that has the greatest impact on business today and the social and ethical issues that may be related to legal issues.

**BLAW 5331. LAW OF INTERNATIONAL BUSINESS. 3 Hours.**

General principles of law applicable to international business including case law, statutory law, treaties, administrative law, and international agreements.

**BLAW 5332. Business Law. 3 Hours.**

This course provides the basic legal principles of business organizations and operations, with coverage including the law of contracts (both common law and the law of sales of goods), commercial paper, property (including bailments, documents of title, patents and copyrights), employment law, agency, business organizations, selected topics of government regulation of business (securities regulation, antitrust, and bankruptcy), money laundering, suretyship and creditors' rights, the Dodd-Frank Act of 2010, the Sarbanes-Oxley Act of 2002, and CPA professional responsibility and liability.

Prerequisite: BLAW 5330 with a grade of C or higher.

## Business Statistics (BSTAT)

### COURSES

**BSTAT 3321. BUSINESS STATISTICS I. 3 Hours.**

Application of statistical techniques to business and economic data. Descriptive statistics, probability distributions, estimation, inference, regression, correlation, and time series. Prerequisite: MATH 1316 or other calculus course.

**BSTAT 3322. BUSINESS STATISTICS II. 3 Hours.**

Application of statistical inference to problems in business and economics. Sampling theory, nonparametric methods, and forecasting. Special attention to statistical research. Prerequisite: BSTAT 3321.

**BSTAT 5301. INTRODUCTION TO STATISTICS. 3 Hours.**

Introduction to statistics, designed to prepare graduate students to become competent consumers of statistical information that they will encounter in their professional and personal lives. Students should be able to perform basic statistical analyses and to think critically when interpreting statistical results. Topics include probability, random variables, sampling distributions, confidence intervals, tests of hypotheses, and simple regression. May not be counted as an MBA foundation course or elective. Prerequisite: MATH 1315.

**BSTAT 5303. QUANTITATIVE ANALYSIS. 3 Hours.**

Study of the methods of quantitative analysis used in business administration. Topics include matrix algebra, systems of linear equations, differential and integral calculus, linear programming, classical optimization, and a survey of management science models. Prerequisite: MATH 1315.

**BSTAT 5315. STATISTICAL METHODS FOR HEALTH CARE ADMINISTRATORS. 3 Hours.**

Statistical methods designed to prepare graduate students to become competent producers and consumers of data analyses and to use statistical thinking to approach managerial decision making. Students should be familiar with the effectiveness and limitations of various applicable techniques and should be able to recognize when additional statistical expertise is required. Topics include an introduction to evidenced based medicine, probability with an emphasis on the poor predictive value of imperfect diagnostics for rare conditions, standardizing and trending data, graphic and numeric descriptions of data, concepts of inference such as margins of error and significance of results, concepts of quality control including time series analysis and forecasting, and health care applications of discrete random variables with Poisson or binomial probability mass functions. It is recommended that students who have no recent courses in statistics take BSTAT 5301 prior to BSTAT 5315.

**BSTAT 5325. ADVANCED STATISTICAL METHODS. 3 Hours.**

Advanced statistical methods designed to prepare graduate students to become competent producers and consumers of statistical methods and to use statistical thinking to approach managerial decision making in their careers. They should be able to recognize the strengths and weaknesses of applicable techniques and when additional statistical expertise is required. Topics include multiple regression, correlation, experimental design and analysis, time series and other statistical methods with emphasis on their application to managerial decision making. It is strongly recommended that students who have no recent courses in statistics take BSTAT 5301 prior to BSTAT 5325.

**BSTAT 5330. Nonparametric Statistics. 3 Hours.**

A survey of statistical tools which may be used when the normal assumptions of parametric statistics cannot be made; including procedures for categorical data, methods involving ranks, bootstrapping, and Kolmogorov-Smirnov type techniques. Cross-listed with BSAD 6330. Prerequisite: BSTAT 5325 or equivalent.

**BSTAT 5331. DATA VISUALIZATION. 3 Hours.**

Investigation of recent advances in data graphics to support business analytics. Concepts include graphical depiction, analysis of data structure and graphical software. Visualization topics would include exploratory analysis of univariate and multivariate data using graphical software, e.g., Lowess Smoothing and Sunflower Plots. Cross-listed with INSY 5331. Prerequisite: BSTAT 5325 or equivalent.

**BSTAT 5360. COMPUTATIONAL TECHNIQUES FOR BUSINESS ANALYTICS. 3 Hours.**

Computer software is the primary analytical tool for business analytics and modern research methods. Data analysts, statisticians, and researchers need technologies and skills using the computer as a tool for structuring and cleaning data sets, creating validation samples, conducting analyses, fitting models, simulating stochastic systems, model validation, and model presentation. Emphasis is placed on the use of data analytic software. Cross-listed with INSY 5360. Prerequisite: BSTAT 5325 or equivalent.

**BSTAT 5392. Selected Topics in Business Statistics. 3 Hours.**

In-depth study of selected topics in business statistics. May be repeated when topics vary.

**BSTAT 5399. GRADUATE BUSINESS ANALYTICS INTERNSHIP. 3 Hours.**

Practical training in business statistics. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

## Chemistry & Biochemistry (CHEM)

### COURSES

**CHEM 1188. GENERAL CHEMISTRY I LABORATORY. 1 Hour.**

This course is intended to provide laboratory credit in freshman chemistry for students who transfer into UT-Arlington with credit in General Chemistry I lecture only. Experiments include: measurement and scientific equipment use, physical properties, separations, synthesis, qualitative analysis, spectroscopy. Students may register for this course only with specific approval of a Chemistry advisor. Prerequisite: 3 hours of General Chemistry I lecture. Credit cannot be earned for both CHEM 1441 and CHEM 1188.

**CHEM 1189. GENERAL CHEMISTRY II LABORATORY. 1 Hour.**

This course is intended to provide laboratory credit in freshman chemistry for students who transfer into UT-Arlington with credit for General Chemistry lecture only. Experiments include: thermodynamics, electrochemistry, synthesis, quantitative analysis, spectroscopy, stoichiometry, and acid-base chemistry. Students may register for this course only with specific approval of a Chemistry advisor. Prerequisite: CHEM 1188 and 6 hours of General Chemistry II lecture. Credit cannot be earned for both CHEM 1442 and CHEM 1189.

**CHEM 1300. INTRODUCTORY CHEMICAL PRINCIPLES. 3 Hours.**

Provides a background in fundamental chemical mathematics, in writing and understanding chemical formulas and equations, and in the application of scientific laws to the behavior of matter. This course is designed for the student with little or no previous chemical training who intends to take the CHEM 1441/CHEM 1442 sequence at a later date. CHEM 1300 cannot replace CHEM 1441/CHEM 1442 for major credit toward a degree in chemistry. Prerequisite: MATH 1302 or equivalent.

**CHEM 1302. RESEARCH METHODS IN SCIENCE. 3 Hours.**

This course has four main objectives: (1) provide quantitative, critical thinking, and communication skills as well as basic concepts in science; (2) kindle a passion and facility for scientific inquiry; (3) develop skills for experimental design, execution, analysis, and presentation; and (4) expose the student to what it means to be a scientist and what it feels like to conduct research. The course will involve lecture, discussion, and laboratory time. Students will develop independent research inquiries using the scientific method, create an original research proposal and corresponding experiments, analyze results, and present their conclusions to their peers through formal oral, written, and other communication methods such as posters and demonstrations. Offered as BIOL 1302 and CHEM 1302; credit will be granted only once.

**CHEM 1341. GENERAL CHEMISTRY I. 3 Hours.**

The lecture covers the fundamentals of atomic structure, chemical bonding, the periodic table, nomenclature, kinetic theory, gas laws, chemical equations, and solutions. This course may only be taken by students in the ASSURE program, and when combined with CHEM 1343 and CHEM 1342 will satisfy the introductory lab requirement for Chemistry, Biochemistry, and Biological Chemistry majors. It may satisfy the introductory lab requirement for other College of Science majors--please check with your academic advisor and/or the COS Assistant Dean for Undergraduate Research and Student Advancement. Prerequisite: MATH 1302 or MATH 1303 or MATH 1322 or MATH 1323 or MATH 1426 or MAT Algebra score  $\geq$  17 or SAT Math score  $\geq$  600 or ACT Math score  $\geq$  26.

**CHEM 1342. GENERAL CHEMISTRY II. 3 Hours.**

The lecture covers study of advanced atomic structure and bonding concepts, acid-base theory, kinetics and equilibria, thermodynamics, electrochemistry, and the chemistry of some elements. This course may only be taken by students in the ASSURE program, and is a co-requisite of CHEM 1343 to satisfy the introductory lab requirement for Chemistry, Biochemistry, and Biological Chemistry majors. It may satisfy the introductory lab requirement for other College of Science majors--please check with your academic advisors and/or the COS Assistant Dean for Undergraduate Research and Student Advancement. Prerequisite: CHEM 1341 with a grade of C or better or CHEM 1441 with a grade of C or better.

**CHEM 1343. RESEARCH STREAM LABORATORY I. 3 Hours.**

In this laboratory course, students will learn core concepts in Chemistry through an intense research experience that complements material taught in CHEM 1341 and CHEM 1342. Students will master skills including quantitative data analysis, oral and written communication, and critical thinking. This course may only be taken by students in the ASSURE program. Prerequisite: CHEM 1341 or CHEM 1441. Co-requisite: CHEM 1342. Offered as BIOL 1343; credit will be granted only once.

**CHEM 1345. CHEMISTRY IN THE WORLD AROUND US. 3 Hours.**

This course looks at current issues in society and uses chemical principles to understand them. Topics include sustainability, air pollution, the ozone layer, global climate change, fuels, and water. CHEM 1345/1346 cannot be used to fulfill the CHEM 1441/1442/1451/1465 requirement in any degree program.

**CHEM 1346. CHEMISTRY IN THE WORLD AROUND US II. 3 Hours.**

This course is a continuation of the study of current issues in society using chemical principles to understand them. Topics include polymers, drug design, nutrition, and genetic engineering. CHEM 1345/1346 cannot be used to fulfill the CHEM 1441/1442/1451/1465 requirement in any degree program. Prerequisite: CHEM 1345 or equivalent with a grade of C or better.

**CHEM 1441. GENERAL CHEMISTRY I. 4 Hours. (TCCN = CHEM 1411)**

The lecture covers the fundamentals of atomic structure, chemical bonding, the periodic table, nomenclature, kinetic theory, gas laws, chemical equations, and solutions. The laboratory introduces the scientific method, experiment design, data collection and analysis, as well as illustrates fundamental principles presented in the lecture. Students who have not had high school chemistry are advised to take an introductory chemistry course first. Prerequisite: MATH 1302 or MATH 1303 or MATH 1322 or MATH 1323 or MATH 1426 or MAT Algebra score = / > 17 or SAT Math score = / > 600 or ACT Math score = / > 26.

**CHEM 1442. GENERAL CHEMISTRY II. 4 Hours. (TCCN = CHEM 1412)**

Study of advanced atomic structure and bonding concepts, acid-base theory, kinetics and equilibria, thermodynamics, electrochemistry, the chemistry of some elements. The laboratory focuses on experimental design, data collection and analyses as well as chemical syntheses to illustrate fundamental principles presented in the lecture. Prerequisite: CHEM 1441 or equivalent with a grade of C or better.

**CHEM 1445. CHEMISTRY FOR NON-SCIENCE MAJORS. 4 Hours. (TCCN = CHEM 1405)**

Chemistry of things of everyday life: energy, radioactivity, petroleum products, pollution, the nature of matter, and the applications of chemistry to things we use. CHEM 1445, 1446 cannot be used to fulfill the 1441/1442 requirement in any degree program.

**CHEM 1446. CHEMISTRY II FOR NON-SCIENCE MAJORS. 4 Hours. (TCCN = CHEM 1408)**

Continuation of the chemistry of things of everyday life. Vitamins, minerals, chemical additives, plastics, cosmetics, proteins, carbohydrates, poisons, fats, and oils. Prerequisite: CHEM 1445 or equivalent with a grade of C or better. CHEM 1445, CHEM 1446 cannot be used to fulfill the CHEM 1441/ CHEM 1442 requirement in any degree program.

**CHEM 1451. CHEMISTRY FOR HEALTH SCIENCES. 4 Hours.**

Survey of general, organic, and biochemistry with emphasis on applications to the human body. Measurement, atomic theory and structure, bonding, quantitative relationships in chemical reactions, gases, solutions, electrolytes, organic functional groups and nomenclature, organic reactions, carbohydrates, lipids, proteins, enzymes, metabolism, and nucleic acids. CHEM 1451 cannot count for major credit toward a degree in chemistry. Prerequisite: MATH 1301 or MATH 1302 or equivalent.

**CHEM 1465. CHEMISTRY FOR ENGINEERS. 4 Hours.**

An introduction to important concepts and principles of chemistry with emphasis on areas considered most relevant in an engineering context. Topics include chemical stoichiometry, bonding, chemical thermodynamics, equilibria, electrochemistry, and kinetics. Engineering students may substitute the eight hour sequence CHEM 1441 and CHEM 1442 for this class, but not either CHEM 1441 or CHEM 1442 alone. Students who complete CHEM 1465 and subsequently change majors to curricula that require both CHEM 1441 and CHEM 1442 may substitute CHEM 1465 for CHEM 1441. Prerequisite: high school chemistry and MATH 1323 or concurrent enrollment.

**CHEM 2180. RESEARCH IN CHEMISTRY. 1 Hour.**

Research for undergraduate students supervised by faculty of the department. May be repeated. Graded pass/fail only. Prerequisite: written permission of the instructor. Students may take a maximum of 12 hours credit on a pass/fail basis.

**CHEM 2181. ORGANIC CHEMISTRY I LABORATORY. 1 Hour. (TCCN = CHEM 2123)**

Experiments which illustrate laboratory techniques, theoretical concepts, and synthesis. Prerequisite: CHEM 1442 with a grade of C or better. Corequisite: CHEM 2321. If student withdraws from CHEM 2321 prior to midsemester date, student must also withdraw from CHEM 2181.

**CHEM 2182. ORGANIC CHEMISTRY II LABORATORY. 1 Hour. (TCCN = CHEM 2125)**

Experiments which will include syntheses, characterization of unknown substances, and use of the chemical literature. Prerequisite: CHEM 2181 with a grade of C or better. Corequisite: CHEM 2322. If student withdraws from CHEM 2322 prior to the midsemester date, student must also withdraw from CHEM 2182.

**CHEM 2285. QUANTITATIVE CHEMISTRY LABORATORY. 2 Hours.**

An introduction to computers for the acquisition and statistical analysis of data. Laboratory exercises involving basic titrimetric, spectrophotometric and chromatographic methods. Prerequisite: CHEM 1442 or equivalent with a grade of C or better, and concurrent enrollment/previous credit in CHEM 2335.

**CHEM 2321. ORGANIC CHEMISTRY. 3 Hours. (TCCN = CHEM 2323)**

The fundamentals of molecular structure, stereochemistry, and the reactions of aliphatic hydrocarbons. Electronic theory, synthetic methods, and mechanisms. Prerequisite: CHEM 1442 with a grade of C or better.

**CHEM 2322. ORGANIC CHEMISTRY. 3 Hours. (TCCN = CHEM 2325)**

Organic spectroscopic analysis. The chemistry of aromatic hydrocarbons, alcohols and ethers, aldehydes, ketones, carboxylic acids and derivatives, amines, amino acid, carbohydrates, and other functional groups. Mechanisms and synthesis. Prerequisite: CHEM 2321 with a grade of C or better.

**CHEM 2335. QUANTITATIVE CHEMISTRY. 3 Hours.**

Basic methods of error analysis, simple and advanced methods for the solution of complex equilibria, fundamentals of titrimetric, spectrophotometric and chromatographic instrumental analysis. Prerequisite: CHEM 1442 or equivalent, three hours of College Algebra or equivalent, CHEM 2285 concurrent enrollment or previous credit.

**CHEM 2343. RESEARCH STREAM LABORATORY II. 3 Hours.**

In this laboratory course, students will continue their research experience from CHEM 1343. This course may only be taken by students in the ASSURE program and will satisfy the Quantitative Analysis lab requirement (substitute for CHEM 2285 for Chemistry, Biochemistry, and Biological Chemistry majors). Offered as BIOL 3343; credit will be granted only once. Prerequisites: CHEM 1341 or CHEM 1441, CHEM 1342 or CHEM 1442, CHEM 1343, CHEM 1302.

**CHEM 2380. UNDERGRADUATE RESEARCH. 3 Hours.**

Research in chemistry supervised by a faculty member of the department. May be repeated. Graded pass/fail only. Prerequisite: written permission of the instructor. Students may take a maximum of 12 hours credit on a pass/fail basis.

**CHEM 3131. CHEMISTRY COMMUNITY SERVICE LEARNING. 1 Hour.**

Service learning is a credit-bearing learning experience; therefore, credit is awarded for academic learning and not for service hours. Students engage in classroom activities, assignments, and discussions and in addition, integrate course content and learning outcomes with genuine community needs or issues. Collaborations with the community result in relationship-building and partnerships through intentional, structured service experiences. Students are required to analyze and evaluate these experiences by engaging in reflective activities, such as discussion and journaling. This process of structured service and learning in the community promote a sense of civic responsibility and commitment to others. Students commit to serve weekly time resulting in at least fifteen hours during one semester. This time is agreed upon by student, faculty, and community agency. Prerequisites: Permission of the Instructor.

**CHEM 3175. BIOPHYSICAL CHEMISTRY LABORATORY. 1 Hour.**

Introduction to the physical experimental techniques used in quantitative biochemical practice.

**CHEM 3181. PHYSICAL CHEMISTRY I LABORATORY. 1 Hour.**

The physical and thermodynamic properties of substances, experimentally determined. Prerequisite: Grade of C or better in CHEM 2285, CHEM 2335, and CHEM 3321 or concurrent enrollment.

**CHEM 3182. PHYSICAL CHEMISTRY II LABORATORY. 1 Hour.**

Experiments in kinetics, equilibria, spectroscopy, and electrochemistry. Modern instrumental techniques. Prerequisite: Grade C or better in CHEM 2285, CHEM 2335, and CHEM 3322 or concurrent enrollment.

**CHEM 3231. CHEMISTRY/BIOCHEMISTRY COMMUNITY SERVICE LEARNING. 2 Hours.**

Service learning is a credit-bearing learning experience; therefore, credit is awarded for academic learning and not for service hours. Students engage in classroom activities, assignments, and discussions and in addition, integrate course content and learning outcomes with genuine community needs or issues. Collaborations with the community result in relationship-building and partnerships through intentional, structured service experiences. Students are required to analyze and evaluate these experiences by engaging in reflective activities, such as discussion and journaling. This process of structured service and learning in the community promote a sense of civic responsibility and commitment to others. Students commit to serve weekly time resulting in at least fifteen hours during one semester. This time is agreed upon by student, faculty, and community agency. Prerequisites: Permission of the Instructor.

**CHEM 3307. INTRODUCTION TO POLYMER CHEMISTRY. 3 Hours.**

The chemistry and technology of polymeric systems. The chemistry of natural systems such as proteins as well as the synthesis of fibers, films, plastics, and elastomers. Discussion of the characterization of polymers by modern techniques using instrumental analysis is followed by a summary of end-use and processing techniques. Prerequisite: CHEM 2322 with a grade of C or better or permission of instructor.

**CHEM 3315. INTRODUCTION TO BIOPHYSICAL CHEMISTRY. 3 Hours.**

A basic course introducing the physical principles that govern biological systems and processes, and the methods used for their investigation. Topics include solution thermodynamics, biomolecular interactions, enzyme kinetics, transport processes (diffusion, sedimentation, electrophoresis, viscous flow), and the applications of spectroscopic methods (absorption, emission and scattering of radiation, and the utilization of polarized light). Prerequisites, a grade of C or better in each of the following: CHEM 2335, MATH 2425, and 8 hours of college level physics.

**CHEM 3317. INORGANIC CHEMISTRY. 3 Hours.**

An overview of descriptive main group chemistry, solid state structures and the energetics of ionic, metallic, and covalent solids, acid-base chemistry and the coordination chemistry of the transition metals. The course is intended to explore and describe the role of inorganic chemistry in other natural sciences with an emphasis on the biological and geological sciences. Important compounds and reactions in industrial chemistry are also covered. Intended for both chemistry and non-chemistry majors. Prerequisite: Grade of C or better in CHEM 2322 or concurrent enrollment.

**CHEM 3321. PHYSICAL CHEMISTRY I. 3 Hours.**

Solids, liquids, and gases, thermochemistry, thermodynamics, solutions, equilibria, and electrochemistry. Prerequisites: CHEM 2335, MATH 2326, both with a grade of C or better and PHYS 1443 and PHYS 1444. MATH 3318 concurrent enrollment recommended.

**CHEM 3322. PHYSICAL CHEMISTRY II. 3 Hours.**

Kinetics, quantum theory, molecular structure, and statistical thermodynamics. Prerequisite: CHEM 2335, MATH 2326, both with a grade of C or better and PHYS 1443 and PHYS 1444. MATH 3318 concurrent enrollment recommended.

**CHEM 3331. CHEMISTRY/BIOCHEMISTRY COMMUNITY SERVICE LEARNING. 3 Hours.**

Service learning is a credit-bearing learning experience; therefore, credit is awarded for academic learning and not for service hours. Students engage in classroom activities, assignments, and discussions and in addition, integrate course content and learning outcomes with genuine community needs or issues. Collaborations with the community result in relationship-building and partnerships through intentional, structured service experiences. Students are required to analyze and evaluate these experiences by engaging in reflective activities, such as discussion and journaling. This process of structured service and learning in the community promote a sense of civic responsibility and commitment to others. Students commit to serve weekly time resulting in at least fifteen hours during one semester. This time is agreed upon by student, faculty, and community agency. Prerequisites: Permission of the Instructor.



**CHEM 4101. SEMINAR IN CHEMISTRY. 1 Hour.**

Oral and written communication of chemical information. Seminars will be presented by students on topics from the current chemical literature. A term paper is required. The use of the library for researching the chemical literature will be emphasized. May be repeated for a total of two semester hours of credit. Prerequisite: senior standing in chemistry.

**CHEM 4180. QUANTUM CHEMISTRY LABORATORY. 1 Hour.**

Molecular modeling. Application of various computational techniques to chemical problems, including determination of molecular geometry, conformational analysis, and molecular energetics. Corequisite: CHEM 4303.

**CHEM 4191. READINGS IN CHEMISTRY. 1 Hour.**

May be repeated for a maximum of six hours credit. Topics arranged on an individual basis. Performance may be assessed by oral exam, written test, or review paper. Prerequisite: permission of department chair. Graded pass/fail only.

**CHEM 4203. QUANTUM CHEMISTRY. 2 Hours.**

A course emphasizing molecular quantum mechanics. Topics include the basic postulates of quantum mechanics, many electron wave functions, the variation method, and molecular orbital theory at various levels of approximation (Hueckel, Extended Hueckel, semi-empirical, ab initio, etc.). Related methods, such as force-field approaches and molecular dynamics, will be discussed. Prerequisite: CHEM 3322, with a grade of "C" or better.

**CHEM 4242. LABORATORY TECHNIQUES IN BIOCHEMISTRY. 2 Hours.**

Designed to introduce the student to biochemical laboratory methods; a practical approach to the properties of carbohydrates, proteins, enzymes, and nucleotides. Prerequisite CHEM 4311, with a grade of "C" or better.

**CHEM 4291. READINGS IN CHEMISTRY. 2 Hours.**

May be repeated for a maximum of six hours credit. Topics arranged on an individual basis. Performance may be assessed by oral exam, written test, or review paper. Prerequisite: permission of department chair. Graded pass/fail only.

**CHEM 4311. BIOCHEMISTRY I. 3 Hours.**

The chemistry of the sugars, amino acids, proteins, and nucleic acids, followed by an introduction to enzyme chemistry. The major metabolic pathways of the cell, glycolysis, TCA cycle, and pentose phosphate pathway. Auditing of this class is NOT permitted. Prerequisite: CHEM 2322, with a grade of "C" or better.

**CHEM 4312. BIOCHEMISTRY II. 3 Hours.**

A continuation of CHEM 4311. The breakdown and biosynthesis of fats and the synthesis of carbohydrates, including photosynthesis. Metabolic utilization of proteins and amino acids together with an introduction to protein synthesis. Prerequisite: CHEM 4311, with a grade of "C" or better, or equivalent.

**CHEM 4313. METABOLISM AND REGULATION. 3 Hours.**

Selected topics in advanced metabolism including biosynthesis of phospholipids, steroids, porphyrins and related molecules, and prostaglandins. Membranes and transport phenomena, regulation of glycogen and glucose metabolism in muscle and lipid metabolism in adipose tissue. Prerequisite: CHEM 4312 with a grade of C or better.

**CHEM 4314. ENZYMOLOGY. 3 Hours.**

A comprehensive study of enzymes including structures, reaction mechanisms, regulation, and kinetics. Prerequisite: CHEM 4311 with a grade of C or better.

**CHEM 4316. BIOCHEMICAL GENETICS. 3 Hours.**

Aspects of the biochemistry of gene expression in prokaryotic and eukaryotic organisms and its regulation, together with genetic manipulations and the methodology of recombinant DNA technology. Prerequisite: CHEM 4312 with a grade of C or better.

**CHEM 4318. INORGANIC CHEMISTRY. 3 Hours.**

An overview of the chemistry of the transition metals. Topics include symmetry and applications, bonding models, magnetism, synthesis of metal complexes, modern characterization techniques including IR, NMR, and electronic spectroscopy, organometallic compounds, reaction mechanisms, catalysis, and bioinorganic chemistry. Prerequisite: CHEM 2322 with a grade of C or better.

**CHEM 4346. ADVANCED SYNTHETIC METHODS. 3 Hours.**

Methods and techniques for the synthesis and characterization of organic, inorganic, and organometallic compounds. Prerequisite: Grade of C or better in CHEM 2182, CHEM 2322, and CHEM 3317 or CHEM 4318.

**CHEM 4380. UNDERGRADUATE RESEARCH. 3 Hours.**

Research under the direction of a member of the department. No more than six hours of CHEM 4380 and CHEM 4381 may be taken for a letter grade. Prerequisite: written permission of the instructor and a minimum grade point average of 2.5.

**CHEM 4381. HONORS RESEARCH. 3 Hours.**

Research in chemistry under the direction of a member of the department, resulting in a written honors thesis. No more than 6 hours of CHEM 4380 and CHEM 4381 may be taken for a letter grade. Prerequisite: CHEM 2322, CHEM 2182, and admission to the University Honors College.

**CHEM 4385. INSTRUCTIONAL TECHNIQUES IN CHEMISTRY. 3 Hours.**

Students participate in undergraduate laboratory instruction or recitation sessions under the supervision of a faculty member. No more than 6 hours of CHEM 4385 may be taken for a letter grade. Enrollment by departmental permission only.

**CHEM 4387. UNIVERSITY-INDUSTRY CHEMISTRY COOPERATIVE. 3 Hours.**

By special arrangement only. Cooperative study assignment doing chemical research in a local industrial chemical laboratory. Enrollment by departmental permission only. Graded pass/fail only.

**CHEM 4391. READINGS IN CHEMISTRY. 3 Hours.**

May be repeated for a maximum of six hours credit. Topics arranged on an individual basis. Performance may be assessed by oral exam, written test, or review paper. Prerequisite: permission of department chair. Graded pass/fail only.

**CHEM 4392. ADVANCED TOPICS IN CHEMISTRY. 3 Hours.**

Topics arranged on an individual basis. May be repeated for credit as the topic varies. Prerequisite: permission of instructor.

**CHEM 4461. INSTRUMENTAL ANALYSIS. 4 Hours.**

The principles involved in the operation of modern analytical instruments and the laboratory use of such instruments. Prerequisite: Grades of C or better in CHEM 2285 and CHEM 2335.

**CHEM 5101. SEMINAR IN CHEMISTRY. 1 Hour.**

Two semesters of registration are required for all graduate students pursuing a thesis degree (PhD or MSTH). Students will present a talk, prepare a poster, and engage in scientific writing and communication. Includes learning how to prepare, present, and defend an oral presentation. May not be counted for credit toward the degree requirements.

**CHEM 5180. QUANTUM CHEMISTRY LABORATORY. 1 Hour.**

Molecular modeling. Application of various computational techniques to chemical problems, including determination of molecular geometry, conformational analysis, and molecular energetics. Prerequisite: concurrent enrollment in CHEM 5203.

**CHEM 5191. READINGS IN CHEMISTRY. 1 Hour.**

Conference course which may be repeated for credit, with credit granted according to work performed. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5192. RESEARCH IN CHEMISTRY. 1 Hour.**

Conference course with laboratory with credit granted according to work performed. May be repeated for credit. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5203. COMPUTATIONAL CHEMISTRY. 2 Hours.**

Molecular quantum mechanics. Fundamental principles of quantum mechanics, with a special emphasis on molecular electronic structure theory. Topics covered include molecular mechanics, semi-empirical and ab initio molecular orbital theory, density functional theory, calculation of thermodynamic properties and molecular dynamics. Prerequisite: CHEM 3322 or equivalent.

**CHEM 5291. READINGS IN CHEMISTRY. 2 Hours.**

Conference course which may be repeated for credit, with credit granted according to work performed. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5292. RESEARCH IN CHEMISTRY. 2 Hours.**

Conference course with laboratory with credit granted according to work performed. May be repeated for credit. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5300. SELECTED TOPICS IN ADVANCED CHEMISTRY. 3 Hours.**

The area may vary (typically analytical, applied, biological, colloid, environmental, inorganic, organic, physical, polymer, materials, theoretical, etc.) and will be announced in advance. More than one area may be covered simultaneously, in parallel courses offered under different section numbers. May be repeated for credit when area or topics vary. Prerequisite: permission of instructor.

**CHEM 5301. Introduction to Graduate Physical Chemistry. 3 Hours.**

Classical thermodynamics and statistical thermodynamics. Equilibrium and kinetic processes. Reaction dynamics. Principles of quantum chemistry and its application to spectroscopy. Introduction to bonding in molecules and solids.

**CHEM 5302. ADVANCED GRADUATE PHYSICAL CHEMISTRY. 3 Hours.**

Statistical thermodynamics and its application to kinetics and spectroscopy. Quantum theory, ab initio methods and density functional theory. Advanced spectroscopic methods to investigate bonding in molecules and solids. Prerequisite: CHEM 5301 or permission of the instructor.

**CHEM 5304. ANALYTICAL MASS SPECTROMETRY AND SPECTROSCOPY. 3 Hours.**

This course covers modern aspects of atomic and molecular mass spectrometry, as well as spectrochemical analysis. Upon completion of this course, the student will be able to: describe the basic setup and operation of mass spectrometric and spectroscopic instrumentation; interpret spectra from various instruments as a means for qualitative and quantitative analysis; apply basic knowledge of mass spectrometry and spectroscopy for practical problem solving; relate the use of mass spectrometry and spectroscopy to his or her own research interests; and compile, present, and explain modern techniques for analytical research. Written and oral presentations, as well as traditional classroom examinations, homework, and quizzes will be used to assess student performance. Prerequisite includes CHEM 4461 or equivalent; or permission of instructor.

**CHEM 5305. SEPARATION SCIENCE. 3 Hours.**

A comprehensive examination of most areas involving the separation of molecules and ions. Theoretical, practical and historical aspects of: distillation, sublimation, liquid-liquid extraction, solid phase extraction, chromatography, electrophoresis, field flow fractionation, membrane/barrier processes, and crystallization will be considered. Students taking this course must have a good basic background in organic chemistry and physical chemistry.

**CHEM 5306. ANALYTICAL SPECTROSCOPY. 3 Hours.**

This course covers many of the methods of spectrochemical analysis used in the analytical laboratory. At the end of this course, students should be able to: explain the fundamental theory of many spectroscopy methods, including atomic spectroscopy, molecular spectroscopy, UV/Vis spectroscopy, molecular luminescence, and infrared spectrometry, among others; describe basic instrumental components; apply basic statistics (e.g., measurement errors, and calibration methods) for data analysis; and understand the fundamental use and applications of spectroscopy methods for basic research and laboratory measurements. Student performance will be evaluated based on homework assignments, exams, quizzes, and presentations. Prerequisite includes CHEM 4461 or equivalent, or permission of instructor.

**CHEM 5307. ANALYTICAL ELECTROCHEMISTRY. 3 Hours.**

This course covers modern aspects of electroanalytical chemistry. Upon completion of this course, the student will be able to: understand the concepts of redox potentials and their role in electron transfer, the thermodynamic aspects of electrochemical cells, mass transport in electrochemical systems, and the principles underlying various electroanalytical techniques such as potentiometry, amperometry, coulometry and voltammetry. The instrumental aspects of these techniques will also be addressed, including specialized approaches such as spectroelectrochemistry. The student will be able to relate the use of these analytical techniques to his or her own research needs and interests. Written and oral examinations, as well as traditional classroom examinations, will be used to assess student performance. Prerequisite includes CHEM 4461 or equivalent; or permission of instructor.

**CHEM 5308. DETERMINATION OF MOLECULAR STRUCTURE BY PHYSICAL METHODS. 3 Hours.**

The use of modern instrumental techniques to determine structure: infrared, ultraviolet, and magnetic resonance spectroscopy, mass spectrometry, optical rotatory dispersion. Emphasis on interpretation of spectra. Prerequisite: CHEM 2322 or equivalent.

**CHEM 5309. ORGANIC CHEMISTRY I. 3 Hours.**

Bonding, structure, stereochemistry, substituent effects, isotope effects, solvent effects, kinetics, and linear free-energy relationships in determining reaction mechanisms. Acids and bases, orbital symmetry, pericyclic reactions, photochemistry, and nucleophilic substitution reactions. Prerequisites: CHEM 2322 and CHEM 3322 or equivalent.

**CHEM 5310. ORGANIC CHEMISTRY II. 3 Hours.**

A survey of organic reaction mechanisms including addition and elimination reactions, nucleophilic carbon species, carbonyl reactions, electrophilic substitution reactions, rearrangement reactions, electron deficient species, and free radical reactions. Prerequisite: CHEM 5309 or permission.

**CHEM 5311. ANALYTICAL CHEMISTRY - CONCEPTS AND IMPLEMENTATION. 3 Hours.**

This course familiarizes students with basic electronic design in analytical instrumentation. Familiarization with active and passive components, operational amplifiers, timers, logic gates, and designing analytical instrumentation based on such components, especially in Wet Chemistry. The course covers ionic equilibria and acid-base equilibria and solving complex problems by iterative numerical methods and nonlinear curve fitting using programming in BASIC and MS Excel Solver™. The course covers present day applications of wet chemical analysis, specific methods and instrumentation, practical aspects of automated liquid phase analytical methods including component availability and cost. A design problem, chosen by lottery, will be given to each student early in the semester. The newly acquired knowledge of chemistry and electronics will be used to design a new instrument and present it. Prerequisite: CHEM 4461 or equivalent undergraduate instrumental analysis course.

**CHEM 5312. ADVANCED ORGANIC SYNTHESIS. 3 Hours.**

Synthetically important reactions, strategy in organic synthesis using retrosynthetic analysis and mechanistic understanding of reactions, synthons, asymmetric synthesis. Prerequisite: CHEM 5310 or permission of instructor.

**CHEM 5315. INORGANIC CHEMISTRY. 3 Hours.**

Structures, bonding, and properties of main group and transition element compounds including: symmetry, coordination chemistry, reaction mechanisms, organometallic chemistry, and modern characterization techniques. Prerequisite: CHEM 4318 or permission of instructor.

**CHEM 5318. PRINCIPLES OF BIOCHEMISTRY. 3 Hours.**

Protein and nucleic acids structure, enzyme kinetics, and metabolism related to the human body. The course is intended for students who require biochemistry to support research efforts, or need to satisfy a deficiency before proceeding in the biochemistry graduate program. If CHEM 5318 is used for credit toward a degree, then any of CHEM 5319, CHEM 5320, or CHEM 4311, CHEM 4312 cannot also be used for credit. Prerequisite: CHEM 2322 or equivalent. A knowledge of physical chemistry is helpful.

**CHEM 5319. GENERAL BIOCHEMISTRY I. 3 Hours.**

Amino acids, carbohydrates, nucleic acids, enzymes. Obtaining of energy and cellular material from glucose including glycolysis, the TCA cycle, electron transport and oxidative phosphorylation and the pentose phosphate pathway. Either CHEM 5318 or CHEM 5319, but not both, may be counted for credit toward degree requirements. Prerequisite: CHEM 2322 or equivalent. A knowledge of physical chemistry is helpful.

**CHEM 5320. GENERAL BIOCHEMISTRY II. 3 Hours.**

Modes of breakdown and synthesis of fats, oxidative degradation of amino acids and proteins and biosynthesis of carbohydrate, nucleic acids, and protein. Chemical significance of the genetic code. Either CHEM 5318 or CHEM 5320, but not both, may be counted for credit toward degree requirements. Prerequisite: one semester of approved biochemistry (CHEM 5319 or equivalent).

**CHEM 5321. METABOLISM AND REGULATION. 3 Hours.**

Biosynthesis of amino acids, purines, pyrimidines, and complex lipids, including terpenes and steroids, with emphasis on regulation of these pathways. Aspects of more complex metabolic regulation by hormones, second messengers and receptor-mediated endocytosis with emphasis on chemical and structural modifications of proteins involved. Prerequisite: CHEM 5320.

**CHEM 5325. ENZYMOLOGY. 3 Hours.**

A study of enzymes including structures, reaction mechanisms, regulation, and kinetics. Prerequisite: CHEM 5320.

**CHEM 5327. BIOCHEMICAL GENETICS. 3 Hours.**

Aspects of the biochemistry of gene expression in prokaryotic and eukaryotic organisms, its regulation and control, together with genetic manipulations, and the methodology of recombinant DNA technology. Prerequisite: CHEM 5320.

**CHEM 5328. ADVANCED BIOCHEMISTRY. 3 Hours.**

The course will cover various aspects of advanced studies in Biochemistry, Metabolism, and Cell Signaling. Selected topics may include gene expression regulation in prokaryotes and eukaryotes, epigenetics, cancer biology, lipid metabolism, cofactors, enzyme kinetics, cell signaling, redox signaling, nitric oxide signaling, metallo-enzyme mechanism and function, unnatural amino acids, protein engineering, and proteomics. Prerequisite: CHEM 5318 (Principles of Biochemistry or equivalent) or Biochemistry I and II (CHEM 5319 and CHEM 5320).

**CHEM 5330. SOLID STATE CHEMISTRY. 3 Hours.**

Chemical synthesis and characterization methods of extended structures. Principles of solid-state synthesis, classical equilibrium approaches, diffusion and chemical transport, non-equilibrium and deposition methods; high temperature and high pressure synthesis; basic characterization techniques using X-rays, electrons, and neutrons; basic structure types and symmetry; optical, electrical and magnetic properties; examples will relate to materials used for energy harvesting, sensors, and catalysis. Prerequisite: CHEM 5315.

**CHEM 5333. THERMODYNAMICS OF MATERIALS. 3 Hours.**

Applications of thermodynamics to the study of materials, thermodynamic properties of liquid and solid solutions and their relationship to surface and crystalline defects. Also offered as MSE 5320. Prerequisite: permission of instructor.

**CHEM 5340. CHEMICAL KINETICS. 3 Hours.**

Experimental and theoretical aspects of chemical reaction kinetics. Classical and modern techniques for mechanistic characterization, methods for approximation, analysis and interpretation. Simple and complex reaction matrices are considered (gas, liquid, solid state). Specific topics include microscopic reversibility, transition state theory, homo/heterogeneous catalysis, and quantum/statistical mechanical estimation of rate constants and chemical activation. Relevant examples relating to atmospheric and environmental, biological, organic, and inorganic reactions will be discussed.

**CHEM 5350. ADVANCED POLYMER CHEMISTRY. 3 Hours.**

Polymer synthesis and reactions including condensation, free-radical, ionic, and coordination polymerizations; principles of polymerization including thermodynamics and kinetic considerations; physical characterizations including determinations of absolute molecular weights, relative molecular weights, morphology, glass transitions, and polymer crystallinity; relationships between macromolecular structure, properties, and uses of polymeric materials. Also offered as MSE 5346. Prerequisite: CHEM 2321 and CHEM 2322 or permission of instructor.

**CHEM 5360. X-RAY DIFFRACTION, SCATTERING AND ABSORPTION. 3 Hours.**

The class will focus on modern applications of X-ray diffraction and absorption techniques in crystal and molecular structure determination. A practical component will address aspects of state of the art methods, including how to solve structures using data collected on powder and single-crystal diffractometers, X-ray photoelectron spectroscopy (XPS), etc.

**CHEM 5391. READINGS IN CHEMISTRY. 3 Hours.**

Conference course which may be repeated for credit, with credit granted according to work performed. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5392. RESEARCH IN CHEMISTRY. 3 Hours.**

Conference course with laboratory with credit granted according to work performed. May be repeated for credit. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5398. THESIS. 3 Hours.**

Graded R/F only. Prerequisite: permission of instructor.

**CHEM 5461. ANALYTICAL INSTRUMENTATION. 4 Hours.**

Theory of instrumentation and chemical signal source. Practical experiments utilizing atomic and molecular absorption and emission spectroscopy, chromatographic analysis, and electrochemical techniques. Prerequisite: CHEM 3322 or equivalent.

**CHEM 5491. READINGS IN CHEMISTRY. 4 Hours.**

Conference course which may be repeated for credit, with credit granted according to work performed. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5492. RESEARCH IN CHEMISTRY. 4 Hours.**

Conference course with laboratory with credit granted according to work performed. May be repeated for credit. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5591. READINGS IN CHEMISTRY. 5 Hours.**

Conference course which may be repeated for credit, with credit granted according to work performed. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5592. RESEARCH IN CHEMISTRY. 5 Hours.**

Conference course with laboratory with credit granted according to work performed. May be repeated for credit. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5691. READINGS IN CHEMISTRY. 6 Hours.**

Conference course which may be repeated for credit, with credit granted according to work performed. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5692. RESEARCH IN CHEMISTRY. 6 Hours.**

Conference course with laboratory with credit granted according to work performed. May be repeated for credit. Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5698. THESIS. 6 Hours.**

Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 5998. THESIS. 9 Hours.**

Graded P/F/R only. Prerequisite: permission of instructor.

**CHEM 6100. TOPICS IN GRADUATE RESEARCH. 1 Hour.**

Lectures by departmental and university faculty on current chemical research at U.T. Arlington. All graduate students are required to take this course once. May not be counted toward degree requirements. Graded P/F only.

**CHEM 6102. ISSUES IN MODERN CHEMICAL RESEARCH. 1 Hour.**

Topics to be discussed include the use of the library, maintenance of a research notebook, ethics in research, aspects of technical writing and presentations, and how research is funded. May not be counted toward degree requirements. Graded P/F only.

**CHEM 6104. CHEMISTRY CAREER DEVELOPMENT. 1 Hour.**

Every PhD-bound student is required to spend time for professional development outside his UTA laboratory. Possible opportunities include traditional internships in an industrial setting, working at a national laboratory, international exchange programs, extended collaborative visits, teaching engagements and other educational projects outside UTA. The career advancement may consist of one or multiple portions, in total time no less than three and not more than six months. Prerequisite: Permission of research supervisor and graduate advisor.

**CHEM 6202. PRINCIPLES OF INDUSTRIAL CHEMISTRY. 2 Hours.**

Survey of industrial inorganic and organic chemical processes. Prerequisite: permission of instructor.

**CHEM 6203. REGULATORY ASPECTS OF THE CHEMICAL INDUSTRY. 2 Hours.**

Survey of chemical toxicology, regulatory aspects involved in the chemical industry, industrial safety, patents and patent law.

**CHEM 6304. CHEMISTRY CAREER DEVELOPMENT. 3 Hours.**

Every PhD-bound student is required to spend time for professional development outside his UTA laboratory. Possible opportunities include traditional internships in an industrial setting, working at a national laboratory, international exchange programs, extended collaborative visits, teaching engagements and other educational projects outside UTA. The career advancement may consist of one or multiple portions, in total time no less than three and not more than six months. Prerequisite: Permission of the research supervisor and Graduate Advisor.

**CHEM 6399. DISSERTATION. 3 Hours.**

Graded R/F only. Prerequisite: admission to candidacy for the degree of Ph.D. in Applied Chemistry.

**CHEM 6699. DISSERTATION. 6 Hours.**

Graded R/F/P/W. Prerequisite: admission to candidacy for the degree of Ph.D. in Applied Chemistry.

**CHEM 6904. CHEMISTRY CAREER DEVELOPMENT. 9 Hours.**

Every PhD-bound student is required to spend time for professional development outside his UTA laboratory. Possible opportunities include traditional internships in an industrial setting, working at a national laboratory, international exchange programs, extended collaborative visits, teaching engagements and other educational projects outside UTA. The career advancement may consist of one or multiple portions, in total time no less than three and not more than six months. Prerequisite: Permission of Graduate Advisor and research supervisor.

**CHEM 6999. DISSERTATION. 9 Hours.**

Graded P/F/R only. Prerequisite: admission to candidacy for the degree of Ph.D. in Applied Chemistry.

**CHEM 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Chinese (CHIN)

### COURSES

**CHIN 1441. BEGINNING CHINESE I. 4 Hours. (TCCN = CHIN 1411)**

Multimedia immersion in the culture and language of China. Designed to enable students to understand and communicate effectively in Chinese at the beginning level. No prerequisites.

**CHIN 1442. BEGINNING CHINESE II. 4 Hours. (TCCN = CHIN 1412)**

Continuation of beginning Chinese. Prerequisite: CHIN 1441 with a grade of C or better.

**CHIN 2301. LITERATURE IN TRANSLATION. 3 Hours.**

The works of major authors and intellectual trends of a given period or periods. May be repeated for credit as topics or periods vary. CHIN 2301 may be taken to fulfill the foreign language requirement. Prerequisite: ENGL 1301 and ENGL 1302.

**CHIN 2313. INTERMEDIATE CHINESE I. 3 Hours. (TCCN = CHIN 2311)**

Continued immersion in the culture and language of China. Application of strategies and technology in mastering listening, speaking, reading, and writing at the intermediate level. Prerequisite: CHIN 1442 with a grade of C or better.

**CHIN 2314. INTERMEDIATE CHINESE II. 3 Hours. (TCCN = CHIN 2312)**

Continuation of intermediate Chinese. Prerequisite: CHIN 2313 with a grade of C or better.

**CHIN 3303. CHINESE CONVERSATION. 3 Hours.**

Practice in oral expression with an emphasis on vocabulary building, listening comprehension, and speaking skills. Of special interest to students who wish to improve their skills in pronunciation, comprehension, and oral expression. Credit will not be granted to native speakers of Mandarin Chinese. However, heritage students may register for this course when they pass the Chinese CLEP test administered by the instructor. Prerequisite: CHIN 2314 with a grade of C or better.

**CHIN 3304. CHINESE CONVERSATION II. 3 Hours.**

Students continue to develop conversational skills through the use of print, film, and other media. Extensive conversation practice allows students to develop upper-intermediate level oral skills. They learn to express abstract ideas through description, comparison, and narration. Credit will not be granted to native speakers of Mandarin Chinese. Heritage students may register for this course with consent of the department. Prerequisite: CHIN 3303 with a grade of C or better.

**CHIN 3310. CHINESE LOCALIZATION AND TRANSLATION. 3 Hours.**

Introduction to cultural and linguistic issues in the translation of Chinese language texts. Students will explore current technologies used in various real-world translation contexts and how to adapt texts, products, and services to the locale for which they are intended. Prerequisite: CHIN 2314 or the equivalent with a grade of B or better. May not be repeated for credit.

**CHIN 3311. CHINESE LOCALIZATION AND TRANSLATION II. 3 Hours.**

Continued study of cultural and linguistic issues in the translation of Chinese and English language texts. Systematic development of advanced skills in localization and computer-aided translation and in using TMX/TBX (international standards for translation memory and terminology exchange) tools. Translation practice, individually and in translation teams, with increasingly longer and more specialized texts. Prepares localization and translation specialists for real-world careers in the language-services industry. May be repeated once. Prerequisite: CHIN 3310 with a grade of B or better.

**CHIN 4334. CONTEMPORARY CHINESE CULTURE. 3 Hours.**

Study of the social, political, and economic structures in China and Taiwan. The focus is on current events relevant to the Chinese-speaking world. Prerequisite: CHIN 2314 and one CHIN 3000-level course or equivalent with a grade of C or better, or a knowledge of the language and consent of the instructor. May be taught in English.

**CHIN 4335. BUSINESS CHINESE. 3 Hours.**

Students learn to function in the Chinese language in business environments. Emphasis is on writing business letters, conducting telephone conversations and business meetings, using terminology for transactions in places such as banks, post offices, airports, and hotels. Video segments and interactive computer packages are used extensively to reinforce vocabulary and cultural knowledge acquired through lectures, translations, discussions, and readings. Prerequisite: CHIN 2314 and one CHIN 3000-level course or equivalent with a grade of C or better, or a knowledge of the language and consent of the instructor. May be taught in English. May not be repeated for credit.

## City and Regional Planning (CIRP)

### COURSES

**CIRP 4310. PLANNING THE AMERICAN CITY. 3 Hours.**

Students in this course will develop an understanding of the role of the private and public sectors in the development and management of the American city. It will consider such topics as the organization of city government, demographic, economic, and physical conditions analysis, land use planning, the quality of the urban environment, urban redevelopment, urban design, and regional planning. An off-campus service learning component is a key required element of this course.

**CIRP 4320. SUSTAINABLE COMMUNITIES. 3 Hours.**

This course course explores broad environmental and social issues in sustainable communities. Potential topics include urban water management, food and resources, wildlife conservation, native landscaping, waste management, green building, housing diversity, public transportation and community participation. The course serves as a laboratory for working with governmental and non-governmental organizations in the DFW area and developing issue-based, action research projects to solve real-world problems in our communities. This hands-on course combines lecture, student-led discussion, site visits and collaborative team work for service learning projects.

**CIRP 4391. STUDIES CIRP. 3 Hours.**

Advanced studies in various subjects of city and regional planning. May be repeated for credit. Prerequisite: consent of the instructor.

**CIRP 5160. URBAN MANAGEMENT/PLANNING INTERNSHIP. 1 Hour.**

Intended to enhance readiness for professional work through exposure to planning practice in a one semester log internship (100 hrs in the spring or fall semester or 75 hrs in the summer). Integrates work experience and coursework through journaling and reflective practice. Requirements: (1) student secures an internship from a planning related employer and approval from the student's major professor prior to enrolling in the course; (2) the intern must provide performance evaluation by the job supervisor and the intern's evaluation of the internship experience. Enrollment open to students with no previous formal planning experience. Credit not available for previous internship or planning experience. P/F grade.

**CIRP 5191. CONFERENCE COURSE. 1 Hour.**

Special subjects and issues as arranged by individual students and faculty members. May be repeated for credit.

**CIRP 5193. MASTER'S COMPREHENSIVE EXAMINATION. 1 Hour.**

Directed study, consultation and comprehensive examination over coursework leading to thesis substitute for MCRP degree. Required of all thesis substitute students who were admitted to the MCRP program prior to Fall 2009 and who are not enrolled in thesis or other thesis substitute courses during semester in which they plan to graduate. Students beginning the MCRP program in Fall 2009 or after may not choose the Master's Comprehensive Examination as a thesis substitute option and may not enroll in this course.

**CIRP 5197. PROFESSIONAL REPORT. 1 Hour.**

Preparation of final professional report as a thesis substitute for MCRP degree. Required of all thesis substitute students not enrolled in CIRP 5193.

**CIRP 5297. PROFESSIONAL REPORT. 2 Hours.**

Preparation of final professional report as a thesis substitute for MCRP degree. Required of all thesis substitute students not enrolled in CIRP 5193.

**CIRP 5300. FOUNDATIONS OF URBAN THEORY. 3 Hours.**

Spatial development of human settlements, their life cycles, expansion, and decay. Covers key theories of social, spatial, and economic structures of cities, nineteenth century to present. Considers influences of urban form and development on class, race, gender, and community.

**CIRP 5303. PLANNING HISTORY, THEORY AND ETHICS. 3 Hours.**

Various theories of planning including rational comprehensive, communicative action, social learning, and radical planning. Sets theories within their historical contexts, and examines the social and political details of each era to show the development of diverse planning practices and theories of planning. Evaluates the values embodied in different theories and their relationship to practice and social justice, including planning ethics as contained in the AICP Code of Ethics and Professional Conduct.

**CIRP 5304. PLAN IMPLEMENTATION, ZONING, AND REGULATIONS. 3 Hours.**

Introduction to plan preparation and implementation. Topics include zoning, subdivision regulations, form-based codes, site planning, strategic planning, and comprehensive planning.

**CIRP 5305. LAND USE, MANAGEMENT AND DEVELOPMENT. 3 Hours.**

Assesses land use, management and development and considers new directions. Relates comprehensive planning, environmental management, and land use.

**CIRP 5306. URBAN REVITALIZATION. 3 Hours.**

Examines various urban revitalization projects from coordinated, large-scale ventures to grassroots and informal neighborhood initiatives. Emphasis on the history, logic, politics, and implementation of these projects as well as their physical, social, and economic outcomes.

**CIRP 5307. URBANIZATION IN THE DEVELOPING WORLD. 3 Hours.**

Explores the social, political and spatial dimensions of urbanization processes in developing countries. Covers urban, social, and cultural movements as well as development, processes of urban-rural migration, and globalization. The course will cover all developing regions of the world with an emphasis on Latin American countries.

**CIRP 5308. METROPOLITAN SUSTAINABILITY AND PLAN MAKING. 3 Hours.**

Provides the background for sustainability planning at the city and metropolitan levels including plan making (e.g., comprehensive plans, small area plans, functional plans, etc.). Explores the relationship of environmental sustainability to economic vitality and social equity including planning ethics.

**CIRP 5309. TRANSPORTATION/LAND USE MODELING AND POLICY ANALYSIS. 3 Hours.**

Overview of transportation/land use with specific transportation models and simulation methods; topics include economic theory of travel demand, land use models, UTPS framework for travel demand estimation, disaggregated travel demand models and abstract mode models.

**CIRP 5310. PLANNING, URBAN DEVELOPMENT AND STRUCTURE. 3 Hours.**

Overview of functional areas of planning (e.g., urban design, housing, transportation, etc.); fundamentals of urban structure and development of cities and regions including environmental, social, economic, and political factors and issues affecting urban settlements; global dimensions of planning.

**CIRP 5311. ELEMENTS OF URBAN DESIGN. 3 Hours.**

Study of contemporary urban form and environmental design, emphasizing visual-spatial qualities, social needs and economic linkages. Examination of processes, methods and techniques for solving urban design problems.

**CIRP 5312. STRATEGIC MGT AND PLANNING IN PUBLIC AND NON-PROFIT SERVICES. 3 Hours.**

Readings and case studies of strategic planning and management in the public and non-profit sectors; application of principles to an actual situation, involving stakeholder identification, environmental scanning, and formulation of mission statements, goals, and strategies. Offered as CIRP 5312 and URPA 5357. Credit will be granted only once.

**CIRP 5313. URBAN GROWTH POLICIES. 3 Hours.**

Study of the political, societal and physical policies involved in urban growth management.

**CIRP 5315. TRANSPORTATION POLICIES, PROGRAMS AND HISTORY. 3 Hours.**

Transportation and related programs and policies in relation to city development and housing patterns. Interdependencies of land use, building development, and social change are explained as transportation-related.

**CIRP 5316. LAND USE PLANNING AND THE LAW. 3 Hours.**

Explores the law of land use in the context of the American legal, economic, and political systems. Examines leading court decisions and precedents for their background, content, and applicability to contemporary land use. Offered as CIRP 5316 and URPA 5331. Credit will be granted only once.

**CIRP 5317. INTERMEDIATE DATA ANALYSIS. 3 Hours.**

An intermediate level examination of statistical and research techniques appropriate to urban and social analysis. Presuming a basic understanding of descriptive and inferential statistics, the course covers multivariate regression, including error analysis and non-linear models, path analysis, Analysis Of Variance (ANOVA), logit and probit models, and techniques for data reduction (e.g., factor analysis). Prerequisite: URPA 5302. Offered as URPA 5342 and CIRP 5317; credit will be granted only once.

**CIRP 5318. TECHNIQUES OF PLANNING ANALYSIS I. 3 Hours.**

Introduction to analytical techniques used in urban and regional planning. Topics include: census data and geography and introduction to GIS, demographic analysis, cost-benefit analysis, economic base analysis, gravity models, and displaying and communicating data analysis and results in graphic, written, and oral forms.

**CIRP 5319. AGENCIES OF PLANNING AND ADMINISTRATION. 3 Hours.**

Contemporary managerial functions involved in running public, private, or non-profit organizations: goal setting, planning, organizing, delegating and motivating others, personal productivity and motivation, time and stress management, controlling, and project management.

**CIRP 5320. DATABASE MANAGEMENT FOR URBAN PLANNING AND ADMINISTRATION. 3 Hours.**

Concepts and computer applications of data management. Topics include data sources, data models, database design, data query, data analysis, and database management techniques for urban planning, management and administration. Credit will be given only once.

**CIRP 5321. VISUAL BASIC AND GIS. 3 Hours.**

Provides an introduction to the techniques and applications of computer graphics and mapping for presenting socioeconomic information in graphic and spatial form.

**CIRP 5322. ECONOMIC DEVELOPMENT PLANNING AND POLICY. 3 Hours.**

Introductory seminar in subnational economic development programs in the U.S. Covers basics of location theory, economic planning, budgeting, incentives, public and private revenue sources, analysis methods such as central place and economic base, intergovernmental efforts, redevelopment, high tech, trade and/or tourism.

**CIRP 5323. HISTORIC PRESERVATION. 3 Hours.**

Covers elements of historic designation, rehabilitation, financial incentives, district regulations, and preservation impacts.

**CIRP 5324. COMMUNITY DEVELOPMENT. 3 Hours.**

Focuses on current problems of community development and neighborhood revitalization. Housing, community assets, the roles of community development corporations and social capital in cities, and community economic development will be analyzed. Federal, state, and local policies, with grassroots initiatives evaluated for effectiveness on promoting alternatives for community building and organizing. Also offered as URPA 5313; credit will be granted only once.

**CIRP 5325. PHYSICAL PLANNING AND URBAN DESIGN. 3 Hours.**

Introduction to basic concepts in urban design and physical planning. Provides an understanding of how built environments evolve, and how they can be creatively planned and designed so as to meet social and ecological goals. Special attention to principles and analyses related to the physical planning of neighborhoods and streets, as well as patterns of urban form and public places.

**CIRP 5326. CULTURAL PLANNING AND URBAN DEVELOPMENT. 3 Hours.**

This course examines 1) the composition of the creative economy in cities around the world, 2) arts, culture, and creative economy planning and policy efforts at the neighborhood, city, and regional levels, and 3) the social, spatial and political ramifications of these efforts and of the creative economy broadly.

**CIRP 5327. INTRODUCTION TO GREEN CITIES AND TRANSPORTATION. 3 Hours.**

Introduction to concepts of green cities and transportation, environmental and transportation challenges, and school of thoughts on causes of environmental and transportation problems, with emphasis on planning practices and policies in relation to environmental and transportation issues and roles of planners in shaping urban landscape and infrastructure.

**CIRP 5328. PUBLIC BUDGETING. 3 Hours.**

This course introduces students to the principles and practices used by federal, state, and local governments to acquire and spend revenues within the context of American democracy, capitalism, federalism, and economics. The primary objective of this course is to provide students with the practical skills and theoretical knowledge to enable them to be effective participants in the budgeting process and critical consumers and producers of research relevant to public budgeting. Offered as CIRP 5328 and URPA 5326. Credit will be granted only once.



**CIRP 5329. PUBLIC CAPITAL BUDGETING. 3 Hours.**

Examines governmental capital budgeting processes with a focus on understanding the significance of capital improvement planning, public facility investment, and project evaluation to sound infrastructure financing and regional economic growth. Governments purchase or construct long-lasting physical assets or facilities financed mostly through borrowing. This course aims to understand the rationale for public capital budgeting and debt instruments used to finance capital investment in the political context of public budgeting in America. Offered as URPA 5332 and CIRP 5329; credit will be granted only once.

**CIRP 5330. TECHNIQUES OF PLANNING ANALYSIS II. 3 Hours.**

Introduction to research methods, both quantitative and qualitative and mixed methods. Relating planning problem identification and definition with appropriate method of data gathering and analysis. Analysis and interpretation of qualitative and quantitative data including interview and small group techniques, and basic statistical analysis. Communication of analysis results in graphic, written, and oral forms.

**CIRP 5331. GIS WORKSHOP. 3 Hours.**

Skills, practical experience, problem-solving methods and techniques in geographic information systems. Capstone course for GIS Certificate Program; substitutes for one Project Planning Course.

**CIRP 5332. PROJECT STUDIO. 3 Hours.**

Studio course working on applied city and regional planning projects within the Dallas-Fort Worth area or elsewhere. Provides students with practical experience in collaborative teamwork and the application of skills, methods, and techniques in city and regional planning, including citizen participation, problem analysis, mapping, design, presentation, working with clients, and applied planning process. Should be taken in the second half of the student's program of study, with exceptions for those with applied planning experience. May be repeated as topic changes.

**CIRP 5340. GIS AND SUITABILITY ANALYSIS. 3 Hours.**

Acquaints students with theoretical and practical aspects of suitability analysis process or activity allocation on land use/environmental policies. Uses Geographic Information System (GIS) and computer models for overlaying map analysis, buffering, market demand and activity locations, etc. to incorporate environmental and ecological factors into the determination of land development potential including soils, slope, drainage, vegetation, and related factors.

**CIRP 5341. ENVIRONMENTAL REGULATIONS: LAWS AND PLANNING. 3 Hours.**

Federal, state, and local environmental regulations which have effect on the practice of city and regional planning. Specific articles, laws, and directives contrasted and compared to local city design and development controls. Subjects include CERCLA, RCRA, SARA, TSCA, OSH Act, among others.

**CIRP 5342. ENVIRONMENTAL POLICY. 3 Hours.**

Focuses on the physical environmental dimensions of urbanization including such factors as pollution, waste disposal, and land use; stresses the role of economic, social, and political institutions as these affect environmental quality of the city. Offered as CIRP 5342 and URPA 5317; credit will be granted only once.

**CIRP 5343. FOUNDATIONS OF ENVIRONMENTAL POLICY. 3 Hours.**

Explores how environmental controversy is rooted in conflict between a number of schools of environmental policy thought with divergent perspectives on issues such as how to define progress, how to balance the needs of economy and ecosystem, how to cope with environmental complexity, and what role science should play in environment affairs. Also offered as URPA 5365; credit will be granted only once.

**CIRP 5344. HUMAN SERVICES PLANNING. 3 Hours.**

Social welfare institutions: private and public; needs assessment, resource allocation, procedures, city/state/federal/private policy review; highlights of current system demands and changes. Also offered as URPA 5316.

**CIRP 5345. PLANNING AND REAL ESTATE DEVELOPMENT. 3 Hours.**

The goals, strategies, methods, and achievements of major participants in the urban land and building markets are examined. Land owners, speculators, real estate brokers, developers, bankers, lawyers, non-profit builders, and government agencies are studied, as well as such business tools as: market and feasibility analysis, appraisal techniques, proforma analysis, and others.

**CIRP 5346. QUALITATIVE METHODS. 3 Hours.**

The study of qualitative research and analysis methods. Offered as CIRP 5346 and URPA 5344; credit will be given only once.

**CIRP 5347. URBAN PROBLEMS. 3 Hours.**

Specific urban problems examined in depth, traced to their historical origins to see how they or similar problems have been dealt with in other times and places. Students will then propose possible solutions to the problems in their contemporary form. Offered as CIRP 5347 and URPA 5319.

**CIRP 5350. ENVIRONMENTAL PLANNING. 3 Hours.**

Overview of environmental planning issues and problems, including basic ecological principles; development and effects of the chemical industry; policies on international issues; environmental justice and ethics; environmental economics, including externalities and public goods; sustainable development; overviews of planning for air quality, water quality, solid waste, pollution prevention, habitat conservation, etc.; and plan implementation, including enforcement, regulation and funding.

**CIRP 5351. TECHNIQUES OF ENVIRONMENTAL ASSESSMENT. 3 Hours.**

Analysis of impact assessment documents from a variety of projects; study of federal laws and regulations governing the process; state impact assessment laws and regulations; and procedures used in other nations. Students will prepare an environmental assessment for a real-world project. Overviews of environmental site assessment, MIS documents, and environmental auditing will also be given.

**CIRP 5352. ENVIRONMENT ASSESSMENT POLICY & PRACTICE. 3 Hours.**

Review and analysis of the development of the environmental assessment process with focus on expectations of how environmental assessment will be transformed in the era of climate change. Students evaluate the effects of new laws and regulations and the accelerated growth of environmental policy development at all levels of government, especially among urban areas. The course includes review of selected environmental assessment documents and project case studies.

**CIRP 5353. ENVIRONMENTAL LAW. 3 Hours.**

This seminar examines the role of environmental law within the political-institutional framework of the American system. Emphasis is on the legal-judicial aspects of environmental regulation. Analyzes the decision of U.S. courts as these affect and interpret environmental laws and regulations for their legality and constitutionality.

**CIRP 5354. HOUSING PLANNING, POLICY AND FINANCE. 3 Hours.**

Evaluation of the effect of state, local, and federal housing policy on the urban arena. Topics will be selected from federal subsidy programs, tax subsidies, operations of financial intermediaries, and related areas.

**CIRP 5356. INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS. 3 Hours.**

Introduction to GIS and the application of computer graphics systems in the storage, processing, and retrieval of geographic urban and regional information; case examples and related projects and issues of system management.

**CIRP 5357. INTERMEDIATE GEOGRAPHIC INFORMATION SYSTEMS. 3 Hours.**

Applications of GIS to typical urban and regional geographic information problems and projects.

**CIRP 5358. INTELLIGENT TRANSPORTATION SYSTEMS (ITS) AND PLANNING. 3 Hours.**

Concepts, components, deployments, and implementations of ITS; methods for ITS evaluations; linkage between ITS and traditional transportation planning; and issues related to ITS planning and deployment.

**CIRP 5360. COMPUTER METHODS FOR TRANSPORTATION PLANNING. 3 Hours.**

Applications of computer software (for example, TransCad, Tranplan) in transportation planning modeling. Theories of residential location choice and travel behavior. Topics may include land-use and travel demand models, trip distribution models, mode choice models, and network equilibrium.

**CIRP 5361. PLANNING INTERNSHIP. 3 Hours.**

Intended to enhance readiness for professional work through exposure to planning practice in a one semester log internship (300 hrs in the spring or fall semester or 275 hrs in the summer). Integrates work experience and coursework through journaling and reflective practice. Requirements: (1) student secures an internship from a planning related employer and approval from the student's major professor prior to enrolling in the course; (2) the intern must provide performance evaluation by the job supervisor and the intern's evaluation of the internship experience. Enrollment open to students with no previous formal planning experience. Credit not available for previous internship or planning experience. P/F grade.

**CIRP 5362. URBAN DIVERSITY. 3 Hours.**

Examines the growing spatial and social diversity of cities; how physical as well as socioeconomic urban structures have fostered race, class, and gender inequalities; how urban policies have addressed and can address these issues. Offered as CIRP 5362 and URPA 5362.

**CIRP 5363. LEADERSHIP AND COMMUNICATION SKILLS IN THE PLANNING PROCESS. 3 Hours.**

Governance and participation, comprehensive planning and the community planning process, participatory planning, and practical communication skills for planners and administrators: leadership and public meetings, participative decision making, interpersonal communications and conflict management, effective writing and presentations.

**CIRP 5364. ECONOMIC BASE AND INDUSTRIAL DEVELOPMENT POLICY. 3 Hours.**

Theories and methods of local and regional economic base analyses; techniques for inventorying strengths, weaknesses, opportunities and threats of local capital, labor and land resources; alternative policy responses to industrial development issues arising from economic base analysis.

**CIRP 5380. RESEARCH QUESTIONS IN PLANNING. 3 Hours.**

Application of research issues, writing, and communication skills in planning. Designed to assist students in preparing their research for master's thesis or professional report.

**CIRP 5391. CONFERENCE COURSE. 3 Hours.**

Special subjects and issues as arranged by individual students and faculty members. May be repeated for credit.

**CIRP 5395. SPECIAL TOPICS IN PLANNING. 3 Hours.**

Selected topics in City and Regional Planning. May be repeated for credit.

**CIRP 5397. PROFESSIONAL REPORT. 3 Hours.**

Preparation of final professional report as a thesis substitute for MCRP degree. Required of all thesis substitute students not enrolled in CIRP 5193.

**CIRP 5398. PLANNING THESIS. 3 Hours.**

Graded F/R.

**CIRP 5698. PLANNING THESIS. 6 Hours.**

Graded F/R.

**CIRP 5998. PLANNING THESIS. 9 Hours.**

Graded P/F/R.

**CIRP 6301. THEORETICAL FOUNDATIONS AND Ph.D. WORKSHOP. 3 Hours.**

Explores the development and function of theoretical models and frameworks. Examines the major theories from the social sciences designed for framing issues in urban planning, administration, and public policy. Designed to assist doctoral students in preparing their research for dissertation. Opportunities to present work in progress, share ideas, and interact with faculty. Prerequisite: CIRP 5317/URPA 5342, and CIRP 5346/URPA 5344. Offered as CIRP 6301 and URPA 6301; credit will be granted only once.

**CIRP 6305. SEMINAR IN URBAN PLANNING PROCESSES. 3 Hours.**

Final course in urban planning field. Focus on the various political, economic, and social institutions and theoretical approaches in the planning process, and application of these multidisciplinary perspectives in the analysis of specific planning issues.

**CIRP 6346. ADVANCED DATA ANALYSIS IN URBAN AND PUBLIC AFFAIRS. 3 Hours.**

An introduction to selected advanced techniques related to planning analysis. Subjects include advanced applied regression analysis, multivariate logit analysis, and multinomial logistic regression. Applications of projection techniques, land use and transportation models, and methods of regional analysis. Offered as CIRP 6346 and URPA 6346. Credit will be given only once.

## Civil Engineering (CE)

### COURSES

**CE 1000. FRESHMAN UNDERGRADUATE RESEARCH. 0 Hours.**

Freshman level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**CE 1104. INTRODUCTION TO ENGINEERING. 1 Hour.**

Introduction to basic engineering concepts. Students will become familiar with engineering and its many sub-fields, ethical responsibilities, creativity and design.

**CE 1105. INTRODUCTION TO CIVIL ENGINEERING. 1 Hour.**

Introduction to basic civil engineering practice. There are several writing assignments and an oral presentation. Use of spreadsheet and word processor software in solving civil engineering problems and presenting solutions. Professional engineering licensure and the various specializations within civil engineering are covered.

**CE 1252. COMPUTER TOOLS - AUTOCAD. 2 Hours.**

Introduction to computer aided design, using AutoCAD. Creation of precise two-dimensional engineering drawings and solid models. Prerequisite: Grade of C or better in MATH 1323.

**CE 2000. SOPHOMORE UNDERGRADUATE RESEARCH. 0 Hours.**

Sophomore level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**CE 2152. COMPUTER TOOLS - MATHCAD. 1 Hour.**

Introduction to computer aided mathematics, using Mathcad. Solution of engineering problems involving systems of simultaneous linear and nonlinear equations and elementary calculus, use of the tools for visualization. Prerequisite: Grade of C or better in PHYS 1443.

**CE 2191. PROBLEMS IN CIVIL ENGINEERING. 1 Hour.**

Selected problems in civil engineering on an individual or group basis. Reference material is assigned and progress conferences are held frequently, by arrangement, with a faculty supervisor. Prerequisite: permission of the chair of the department and sophomore classification in civil engineering.

**CE 2221. DYNAMICS. 2 Hours.**

Planar and spatial kinematics and kinetics of particles and rigid bodies utilizing Newton's Laws of Motion, the principle of work and energy, and the principle of impulse and momentum; introduction to single degree of freedom vibration. Prerequisite: Grade of C or better in CE 2311; grade of C or better in MATH 2425.

**CE 2291. PROBLEMS IN CIVIL ENGINEERING. 2 Hours.**

Selected problems in civil engineering on an individual or group basis. Reference material is assigned and progress conferences are held frequently, by arrangement, with a faculty supervisor. Prerequisite: permission of the chair of the department and sophomore classification in civil engineering.

**CE 2311. STATICS. 3 Hours.**

Vector algebra; composition and resolution of forces; equivalence of force couple systems; equilibrium of force systems acting on particles, and force - couple systems acting on rigid bodies, and systems of rigid bodies; internal forces in rigid bodies; shear and moment diagrams; centroids and moments of inertia; frictional forces. Prerequisite: Grade of C or better in PHYS 1443.

**CE 2312. STATICS AND DYNAMICS FOR NON-CE MAJORS. 3 Hours.**

The lecture covers principles of forces and force systems, resultants and components of force systems, forces due to friction, condition of equilibrium, forces acting on members of trusses and frame structures, centroids and moments of inertia, review of kinematics and kinetics of particle motion, and two-dimensional motion of rigid bodies. The lab period is used for reinforcement of the course principles through problem solving as well as computer simulation demonstrations. CE 2312 cannot be substituted for CE 2210 and CE 2311. Prerequisite: PHYS 1443 and MATH 2425 or concurrent enrollment.

**CE 2313. MECHANICS OF MATERIALS I. 3 Hours.**

Concepts of stress and strain; stress-strain relationships. Behavior of members subjected to tension, compression, shear, bending, torsion, and combined loading. Deflections and elastic curves, shear and bending moment diagrams for beams, and column theory. Prerequisite: Grade of C or better in CE 2311; Grade of C or better in MATH 2425.

**CE 2331. ENGINEERING MEASUREMENT AND COMPUTER MODELING. 3 Hours.**

Principles and theories of physical measurements of spatial quantities; the use of surveying instruments; introduction to engineering using computer modeling programs; and organization and programming for computer solutions. Prerequisite: Grade of C or better in CE 1252.

**CE 2391. PROBLEMS IN CIVIL ENGINEERING. 3 Hours.**

Selected problems in civil engineering on an individual or group basis. Reference material is assigned and progress conferences are held frequently, by arrangement, with a faculty supervisor. Prerequisite: permission of the chair of the department and sophomore classification in civil engineering.

**CE 3000. JUNIOR UNDERGRADUATE RESEARCH. 0 Hours.**

Junior level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**CE 3110. CIVIL ENGINEERING COMMUNICATIONS. 1 Hour.**

Technical writing, oral communication, professional presentations, and other related topics. Prerequisite: Grade of C or better in COMS 2302.

**CE 3131. ENVIRONMENTAL ANALYSIS. 1 Hour.**

Laboratory examinations of water, wastewater, and air. Water and air quality parameters and their significance. Sources and types of pollutants and their effects. Prerequisite: Concurrent enrollment in CE 3334.

**CE 3142. APPLIED FLUID MECHANICS LAB. 1 Hour.**

Fluid flow measurements studied by means of performed laboratory experiments and/or digital computer programming of relevant equations. Prerequisite: Grade of C or better in CE 3305.

**CE 3143. PROPERTIES AND BEHAVIOR OF SOILS. 1 Hour.**

An introduction to determination of civil engineering properties of soil and their behavior, identification, grain size analysis, Atterberg limits, compaction, permeability, consolidation, and shear strength. Also an introduction to sampling of soil materials. Prerequisite: Concurrent enrollment in CE 3343.

**CE 3161. CIVIL ENGINEERING MATERIALS LABORATORY. 1 Hour.**

Various properties and behavior of civil engineering materials are investigated by laboratory experimentation. Prerequisite: Concurrent enrollment in CE 3261.

**CE 3261. PROPERTIES AND BEHAVIOR OF CIVIL ENGINEERING MATERIALS. 2 Hours.**

The nature and properties of materials used in civil engineering such as structural metals, concrete, timber, and bituminous materials. The engineering application and performance of materials are emphasized. Prerequisite: Grade of C or better in either CHEM 1465 or CHEM 1442; Grade of C or better in CE 2313; concurrent enrollment in CE 3161.

**CE 3301. STOCHASTIC MODELS FOR CIVIL ENGINEERING. 3 Hours.**

Basic theory of probability and statistics with practical applications to civil and environmental engineering problems. Emphasis on sampling, distribution functions, tests of significance, and regression modeling. Prerequisite: Grade of C or better in MATH 2425.

**CE 3302. TRANSPORTATION ENGINEERING. 3 Hours.**

Planning, design, and operation of transportation facilities. Characteristics of vehicle movement; basic geometric design of highways; traffic flow relations in traffic streams; highway capacity; traffic engineering; and procedures for transportation planning. Prerequisite: Grade of C or better in CE 2331; and Grade of C or better in either CE 3301 or IE 3301.

**CE 3305. BASIC FLUID MECHANICS. 3 Hours.**

Fundamentals of fluid statics, kinematics of fluid flow, fluid energy, fluid forces, similitude, and dimensional analysis. Related to steady flow of incompressible fluids in confined and free surface systems. Prerequisite: Grade of C or better in CE 2311; Grade of C or better in MATH 3319 or concurrent enrollment.

**CE 3309. INTRODUCTION TO HYDROLOGY. 3 Hours.**

Engineering topics pertaining to the hydrological cycle. Computational techniques and use of application software for analysis of rainfall and runoff. Design skills for stormwater mitigation will be applied to course project. Prerequisite: Grade of C or better in CE 3301 or IE 3301; Grade of C or better in CE 3305; Grade of C or better or concurrent enrollment in CE 3142.

**CE 3310. CONSTRUCTION AND VALUE ENGINEERING. 3 Hours.**

Principles of construction engineering and engineering decision making process, including U.S. construction industry, quantity takeoff, cost estimating, scheduling and project control, simple and compound interest calculations, equivalence, present worth, uniform annual cost, rate of return, depreciation, equipment replacement, and competing projects. Prerequisite: Grade of C or better in CE 3301.

**CE 3311. CONSTRUCTION ENGINEERING. 3 Hours.**

Principles of construction engineering and the project management process, value engineering, specifications, different construction contracts and delivery methods, estimating and scheduling fundamentals and project control, and management of construction process. Prerequisite: Grade of C or better in IE 2308.

**CE 3334. PRINCIPLES OF ENVIRONMENTAL ENGINEERING. 3 Hours.**

Physical, chemical, and biological unit operations and processes in an air, water, and land environment. Prerequisites: Grade of C or better in CHEM 1465 or CHEM 1442; Grade of C or better in CE 3305; concurrent enrollment in CE 3131.

**CE 3341. STRUCTURAL ANALYSIS. 3 Hours.**

Structural analysis/design process, structural forms, and basic structural elements. Analysis of statically determinate structures including beams, trusses, frames, and composite structures, shear and moment diagrams, influence lines, and moving loads. Methods to compute deflections including double integration, moment area, and virtual work. Methods of analysis for statically indeterminate structures including consistent deformation, slope deflection and moment distribution. Use of structural analysis programs. Prerequisite: Grade of C or better in CE 2313.

**CE 3343. SOIL MECHANICS. 3 Hours.**

An introduction to the significant geophysical and soil science properties and behavior of materials making up the earth's crust as they apply to civil engineering, sources of materials, classification, plasticity, permeability, stress distribution, consolidation, shear strength, and settlement. Also an introduction to basic foundation engineering concepts. Prerequisite: Grade of C or better in CE 2313; concurrent enrollment in CE 3143.

**CE 4000. SENIOR UNDERGRADUATE RESEARCH. 0 Hours.**

Senior level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**CE 4191. PROBLEMS IN CIVIL ENGINEERING. 1 Hour.**

Selected problems in civil engineering on an individual or group basis. Reference material is assigned and progress conferences are held frequently, by arrangement, with a faculty supervisor. Prerequisite: permission of the chair of the department and sophomore standing in civil engineering.

**CE 4291. PROBLEMS IN CIVIL ENGINEERING. 2 Hours.**

Selected problems in civil engineering on an individual or group basis. Reference material is assigned and progress conferences are held frequently, by arrangement, with a faculty supervisor. Prerequisite: permission of the department chairperson and sophomore standing in civil engineering.

**CE 4300. ADVANCED TOPICS IN CIVIL ENGINEERING. 3 Hours.**

Advanced topics of current interest in any one of the various fields of civil engineering. The subject title to be listed in the class schedule. May be repeated for credit when topic changes. Prerequisite: changes with topic; consent of instructor required.

**CE 4305. TRENCHLESS TECHNOLOGY METHODS. 3 Hours.**

Pipeline and utility design, construction and renewal. Topics include pipeline infrastructure structural considerations, planning and construction considerations, pipe materials, and trenchless technologies. Prerequisite: Grade of C or better in either CE 3310 or IE 3312.

**CE 4306. INFRASTRUCTURE ASSET MANAGEMENT. 3 Hours.**

Infrastructure inventory, inspection, and life cycle costs. Topics include pipeline deterioration parameters, asset management technologies, risk assessment, government regulations and case studies. Prerequisite: Grade of C or better in either CE 3310 or IE 3312.

**CE 4311. URBAN TRANSPORTATION INFRASTRUCTURE PLANNING. 3 Hours.**

Urban transportation system design, planning, transportation modeling, economic theory, travel demand and travel estimation techniques. Prerequisite: Grade of C or better in CE 3302.

**CE 4312. STREET AND HIGHWAY DESIGN. 3 Hours.**

The geometric design concepts for urban and rural roadways. Consideration of vehicle and road user characteristics in roadway design, including horizontal and vertical alignments, intersections, interchanges, and roadway cross-section and right-of-way considerations. Prerequisite: Grade of C or better in CE 3302.

**CE 4313. TRAFFIC ENGINEERING. 3 Hours.**

Design and control of fixed-time, actuated, and computer-controlled traffic signals; optimization of traffic flow at intersections; capacity analysis of intersections, legal requirements and traffic studies for installation of traffic control devices; characteristics of signs, signals, and markings; traffic laws. Prerequisite: Grade of C or better in CE 3302.

**CE 4314. INTRODUCTION TO RAILROAD ENGINEERING. 3 Hours.**

Overview of the railroad industry in the United States; structure of track, base, and foundation; drainage, railroad structures (bridges and retaining walls); geometric design; communications and signalling; maintenance. Prerequisite: Grade of C or better in CE 3302.

**CE 4320. EARTH STRUCTURES DESIGN. 3 Hours.**

Study of the states of stress and analysis/design techniques associated with cuts, fills, and retaining structures. Includes slope stability, conventional and reinforced earth retaining walls, excavation bracing, and sheet pile wharf structures. Prerequisite: Grade of C or better in CE 3343.

**CE 4321. FOUNDATION ENGINEERING. 3 Hours.**

Aspects of design and construction considerations for all types of foundation systems in most soil/rock support conditions, interactions between soils and structures, bearing capacity theories, consolidation, shrink-swell, and settlement. Numerical analyses of design are applied to most of the situations. Prerequisite: Grade of C or better in both CE 3341 and CE 3343.

**CE 4322. APPLICATIONS WITH GEOSYNTHETICS. 3 Hours.**

Definitions and properties of geotextiles, geogrids, geonets, geocomposites and geomembranes; reinforcement design applications in rigid and flexible pavements, foundations, embankments, slopes and retaining walls; drainage and filtration application designs, AASHTO design criteria; construction methods. Prerequisite: Grade of C or better in CE 3343.

**CE 4323. LANDFILL DESIGN. 3 Hours.**

Introduction and types of landfills, landfill site selection, siting and configuration, compacted and geosynthetic clay liners, final cover design, landfill settlement and slope stability, post closure uses of landfills, leachate and gas generation, collection and removal system, bioreactor landfills and future trends. Prerequisite: Grade of C or better in CE 3343.

**CE 4324. MECHANICS OF MATERIALS II. 3 Hours.**

Theories of stress and deformation, stress-strain tensors, stress and strain relationships, stresses due to various loading conditions, theories of failure, energy methods, shear-center, unsymmetrical bending, curved beams, torsion in closed and open cell cross-sections and buckling analysis. Prerequisite: Grade of C or better in CE 2313.

**CE 4325. FUNDAMENTALS OF FINITE ELEMENT METHOD. 3 Hours.**

Stiffness method using basic equations and virtual work; element equations using shape functions for axial, beam, frame, two dimensional elements; stiffness methods for three dimensional structures. Flexibility method; finite elements modeling and optimization of idealized structures. Prerequisite: Grade of C or better in CE 3341.

**CE 4326. GIS/HYDROLOGIC AND HYDRAULIC MODELING. 3 Hours.**

Use of Geographic Information Systems (GIS) and design of GIS-developed hydrologic/hydraulic models commonly applied in the water resources field. The course will have three main areas of emphasis including: principles and operations of ArcGIS, design and implementation of standard hydrologic and hydraulic models, and the linkage of these models to engineering analysis of current water resources problems including flooding, water quality and water supply. Prerequisite: Grade of C or better in CE 3309.

**CE 4328. WATER SYSTEM DESIGN. 3 Hours.**

Hydraulic/hydrologic analysis and design of municipal water distribution, stormwater collection, and wastewater collection systems. Prerequisite: Grade of C or better in CE 3309.

**CE 4330. HYDRAULIC DESIGN. 3 Hours.**

Design methods for appurtenances of water conveyance systems under open channel and pressure flow conditions. Prerequisite: Grade of C or better in CE 3309.

**CE 4332. CONSTRUCTION EQUIPMENT, METHODS, & MANAGEMENT. 3 Hours.**

Introduction to the construction industry and the methods, equipment, and management techniques used. Topics include equipment operating characteristics, underground construction, job site safety, and field management. Prerequisite: Grade of C or better in CE 3343.

**CE 4336. HOT MIX ASPHALT DESIGN & CONSTRUCTION. 3 Hours.**

An in-depth study of the properties of constituent materials for asphalt concrete mixtures. Design methods for Hot-Mixes Asphalt (HMA) and Stone Matrix Asphalt (SMA). Theory and practice of asphalt concrete mix for pavements, including specifications and construction methods for hot-mix asphalt and surface treatments. Maintenance and rehabilitation of flexible pavements. Relationships of material engineering properties to pavement design and performance. Prerequisites: Grade of C or better in CE 3261.

**CE 4337. PORTLAND CEMENT CONCRETE PAVEMENTS. 3 Hours.**

Portland cement concrete mix design and production. Paving operations. Saw and seal operations. Subgrade preparation. Base selection. Drainage selection, design and construction. Bonded and unbonded concrete overlays. Whitetopping and Ultra-Thin Whitetopping. Concrete pavement restoration; Quality Assurance and Quality Control in Concrete Pavement Construction. Prerequisite: Grade of C or better in CE 3261.

**CE 4347. REINFORCED CONCRETE DESIGN. 3 Hours.**

An analysis, design and synthesis course for concrete structures, emphasizing elastic analysis and strength design. Topics include strength and serviceability requirements. Design of one way slabs, rectangular beams, flanged sections and columns, and footings for strength, shear, bond, bearing, and serviceability. Building codes, American Concrete Institute (ACI) specifications, material specifications, test methods, and recommended practice documents. Prerequisite: Grade of C or better in CE 3341.

**CE 4348. STRUCTURAL DESIGN IN STEEL. 3 Hours.**

A design synthesis course for structural steel structures using Allowable Strength Design and Load Resistance Factor Design. Topics include tension members, compression members, flexural members and simple connections. Building codes, American Institute of Steel Construction (AISC) specs, material specs, test methods, and recommended practice documents. Prerequisite: Grade of C or better in CE 3341.

**CE 4350. INTRODUCTION TO AIR POLLUTION. 3 Hours.**

An introduction to the air pollution field which encompasses a wide range of topics, including: atmosphere and ideal gas law; pollutant types, sources, effects; Clean Air Act; gas flow measurement; air pollutant measurement; air pollution meteorology and dispersion modeling; air pollution control. Prerequisite: Grade of C or better in both CE 3131 and CE 3334.

**CE 4351. PHYSICAL UNIT PROCESSES. 3 Hours.**

Principles of unit process modeling using reactor and kinetic theory, and theory and design of mixing, mass transfer, flocculation, sedimentation, filtration, and gas transfer. Prerequisite: Grade of C or better in both CE 3131 and CE 3334.

**CE 4352. PROFESSIONAL PRACTICE. 3 Hours.**

Professional practice issues in the private and public sector are addressed by visiting practitioners. Topics include project management, teamwork, obtaining work, regulatory requirements, specifications, issues in design/build, design alternatives, cost estimation, design and construction drawings, contract and construction law, legal issues, ethics and professionalism, design reports, licensure, lifelong learning, ethical and engineering practice organizations. Learning principles of engineering practice by working as a team is emphasized. Oral and written presentations are required. Prerequisite: Grade of C or better in CE 3110; Grade of C or better in either CE 3310 or IE 3312; Admission to the Professional Program.

**CE 4353. WATER CHEMISTRY. 3 Hours.**

Principles of water chemistry applied to the theory and design of unit processes including coagulation, precipitation, corrosion, oxidation-reduction, and membrane processes. Prerequisites: Grade of C or better in both CE 3334 and CE 3131.

**CE 4354. INTRODUCTION TO SOLID AND HAZARDOUS WASTE MANAGEMENT. 3 Hours.**

Sources, chemistry, monitoring, and classifications of solid and hazardous wastes. Discussions of environmental hazards, legal aspects, transportation, detoxification, storage, and disposal and incineration. Prerequisite: Grade of C or better in both CE 3334 and CE 3131.

**CE 4355. DESIGN OF WATER AND WASTEWATER TREATMENT FACILITIES. 3 Hours.**

Design of facilities commonly used in water and wastewater treatment plants including pumps, pipelines, channels, flow measurement and control devices, screens, grit removal, mixing, sludge removal, aeration equipment, and chemical feed and storage. Materials of construction, process control interface, and operation and maintenance factors are also discussed. Prerequisite: Grade of C or better in both CE 3334 and CE 3142.

**CE 4358. OPEN CONDUIT SYSTEM. 3 Hours.**

Non-pressure conduit and channel flow, surface profiles, steady and gradually varied flow, hydraulic jumps, and specific energy. Prerequisite: Grade of C or better in CE 3309.

**CE 4360. DESIGN OF STRUCTURAL MASONRY. 3 Hours.**

Covers masonry unit types and mortar types, reinforcing and connections. Design of beams, columns, pilasters, and walls. Structural behavior and construction practices. Includes plain and reinforced masonry. Building Codes, Masonry Standards Joint Committee (MSJC) specifications, material specifications, test methods, and recommended practice documents. Prerequisite: Grade of C or better in CE 3341.

**CE 4361. ADVANCED REINFORCED CONCRETE DESIGN. 3 Hours.**

Includes structural design of slender columns, truss model for shear and torsion; structural systems such as continuous beams, two-way slabs, yield-line theory and shear friction. Approximate methods for design and analysis of concrete elements and frames. Building code, American Concrete Institute (ACI) specifications, material specifications, test methods, and recommended practice documents. Prerequisite: Grade of C or better in CE 4347.

**CE 4363. FUNDAMENTALS OF PRESTRESSED CONCRETE. 3 Hours.**

Introduction to pre-tensioned and post-tensioned concrete structures, bonded and unbonded constructions, hardware, stress calculations, section proportioning, flexural design, shear design, prestress losses, deflections, allowable stress, load-balancing, and ultimate strength, design/analysis methods, including: partially prestressed systems shear design, analysis and design of composite beams, design of prestressed concrete bridges. Both American Concrete Institute (ACI-318) and American Association of State Highway and Transportation Officials (AASHTO-LRFD) provisions will be discussed. Prerequisite: Grade of C or better in CE 4347.

**CE 4365. STRUCTURAL WOOD DESIGN. 3 Hours.**

Covers material grade and properties of wood, design criteria using structural lumber, glue laminated lumber and structural panels. Design of bending and compression members, trusses and diaphragms. Building codes, National Design Specification for Wood Construction (NDS) specifications, material specifications, test methods, and recommended practice documents. Prerequisite: Grade of C or better in CE 3341.

**CE 4366. FUNDAMENTALS OF FIBER REINFORCED COMPOSITES. 3 Hours.**

Introduction to basic analysis, design and manufacture of composite materials for engineered structures. Fiber materials, tapes, cloths, resin system, elastic constants, matrix formulation, theory of failure. The course will also cover an introduction to design with composites, preliminary design, optimization, processing variables, product design. Prerequisite: Grade of C or better in CE 3341.

**CE 4368. ADVANCED STRUCTURAL ANALYSIS. 3 Hours.**

Advanced analysis of indeterminate beams, frames, trusses, arches, and cables. Credit will not be granted for both CE 5351 and CE 4368. Prerequisite: Grade of C or better in CE 3341.

**CE 4369. LOADS ON STRUCTURES. 3 Hours.**

Structural analysis of structures under gravity and lateral loads, emphasizing the logical reasoning process of analysis, synthesis and design. Use of recommended practice documents and commercial structural and mathematical software will assist in providing insight and understanding of load requirements, structural behavior and analysis tools. Prerequisite: Grade of C or better in CE 3341.

**CE 4383. SENIOR PROJECT. 3 Hours.**

Planning, analysis of alternatives, and designs of selected projects that cross various civil engineering disciplines, and include engineering standards and multiple realistic constraints. Application of computer-aided engineering in analysis and design. A final oral presentation and written report that presents pros and cons of alternative solutions, application of engineering standards and multiple realistic constraints are required. A team approach is emphasized. Prerequisite: Grade of C or better in CE 4352, completion of all required 3000 level CE courses; and a minimum of one CE design course with a grade of C or better.

**CE 4391. PROBLEMS IN CIVIL ENGINEERING. 3 Hours.**

Selected problems in civil engineering on an individual or group basis. Reference material is assigned and progress conferences are held frequently, by arrangement, with a faculty supervisor. Prerequisite: permission of the chair of the department and sophomore standing in civil engineering.

**CE 5191. ADVANCED STUDIES IN CIVIL ENGINEERING. 1 Hour.**

Individual studies of advanced topics under the supervision of a professor or professors. Prerequisite: consent of instructor.

**CE 5193. MASTER'S COMPREHENSIVE EXAMINATION. 1 Hour.**

Directed study, consultation, and comprehensive examination over coursework leading to the Master of Engineering degree in civil engineering. Required of all Master of Engineering students in the semester they plan to graduate.

**CE 5300. TOPICS IN CIVIL ENGINEERING. 3 Hours.**

Topics of current interest in the field of civil engineering. The subject title is listed in the class schedule and in the student's record. Topics vary. May be repeated for credit when topic changes. Prerequisite: consent of instructor.

**CE 5302. PLAIN CONCRETE. 3 Hours.**

Basic properties and interactions of hydraulic cements and mineral aggregates in concrete. Topics associated with the properties of plastic and hardened concrete and modifications through the use of admixtures. Also addressed are handling, and placement problems. Other topics will include quality control and acceptance testing; lightweight, heavyweight, and other special concretes. Prerequisite: Grade of C or better in CE 3261.

**CE 5303. INTRODUCTION TO FINITE ELEMENT. 3 Hours.**

Stiffness method using basic equations and virtual work; element equations using shape functions for axial, beam, frame, two dimensional elements; stiffness method for three dimensional structures. Flexibility method; finite element modeling and optimization of idealized structures. Credit not granted for both CE 4325 and CE 5303. Prerequisite: Grade of C or better in CE 3341.

**CE 5304. LIGHT GAGE STEEL DESIGN. 3 Hours.**

Covers structural design issues for cold formed steel structures. Includes initial buckling and post buckling, stiffened and unstiffened plate behavior, braced and unbraced beams, columns, connectors and shear diaphragms. Building codes, American Iron and Steel Institute (AISI) specifications, material specifications, test methods, and recommended practice documents. Prerequisite: Grade of C or better in CE 4348 or CE 5306.

**CE 5305. FIBER REINFORCED COMPOSITE DESIGN. 3 Hours.**

Introduction to basic analysis, design and manufacture of composite materials for engineered structures. Fiber materials, tapes, cloths, resin systems, elastic constants, matrix formulation, theory of failure. The course will also cover an introduction to design with composites, preliminary design, optimization, processing variables, product design. Credit not granted for both CE 4366 and CE 5305. Prerequisite: Grade of C or better in CE 3341.

**CE 5306. STRUCTURAL STEEL DESIGN. 3 Hours.**

The basic design course for steel structures emphasizing Load Resistant Factor Design Method. Topics include tension members, compression members, flexural members, and simple connections. Building codes, American Institute of Steel Construction (AISC) specifications, material specifications, test methods, and recommended practice documents. Credit not granted for both CE 4348 and CE 5306. Prerequisite: Grade of C or better in CE 3341.

**CE 5307. STRUCTURAL TIMBER DESIGN. 3 Hours.**

Covers material grade, properties of wood, design criteria using structural lumber, glue laminated lumber and structural panels. Design of bending and compression members, trusses and shear diaphragms. Building codes, National Design Specifications (NDS), material specifications, test methods, and recommended practice documents. Credit not granted for both CE 4365 and CE 5307. Prerequisite: Grade of C or better in CE 3341.

**CE 5308. STRUCTURAL MASONRY DESIGN. 3 Hours.**

Covers masonry unit type and grades of mortar types, reinforcing and connectors. Design of beams, columns, pilasters, and walls. Structural behavior and construction practices. Includes plain and reinforced masonry. Building codes, Masonry Standard Joint Committee (MSJC) specifications, material specifications, test methods, and recommended practice documents. Credit not granted for both CE 4360 and CE 5308. Prerequisite: Grade of C or better in CE 3341.

**CE 5309. PRESTRESSED CONCRETE. 3 Hours.**

Introduction to pre-tensioned and post-tensioned concrete structures, bonded and unbonded construction, hardware, stress calculations, section proportioning, flexural design, shear design, prestress losses, deflections, allowable stress, load-balancing, and ultimate strength design/analysis methods, including: partially prestressed systems shear design, analysis and design of composite beams, design of prestressed concrete bridges. Both American Concrete Institute (ACI 318-318) and American Association of State Highway and Transportation Officials Load and Resistance Factor Design (AASHTO LRFD) provisions will be discussed. Credit not granted for both CE 4363 and CE 5309. Prerequisite: Grade of C or better in CE 4347.

**CE 5310. PLASTIC ANALYSIS AND DESIGN OF STRUCTURES. 3 Hours.**

Behavior of structural members beyond elastic range; plastic analysis of steel and concrete members and framed structures; stepwise incremental load and mechanism methods; yield/failure mechanisms for various types of frames. Use of nonlinear structural analysis programs and design code provisions. Application to earthquake resistant design. Prerequisite: CE 4347 and CE 4348; or equivalent.

**CE 5311. ADVANCED STEEL DESIGN I. 3 Hours.**

Covers torsional design of beams, beams with web holes, composite design of beams, lateral-torsional buckling of beams, plate buckling, column design and behavior, frame stability, bracing requirements for compression members. Prerequisite: CE 4348 or CE 5306.

**CE 5312. ADVANCED CONCRETE DESIGN I. 3 Hours.**

Includes structural design of slender columns, walls, truss model for shear and torsion; structural systems such as continuous beams, two-way slabs, yield-line theory and shear friction. Behavior of reinforced concrete structures, with emphasis on ductility and detailing of frames, slabs, and detailing for seismic loads will be covered. Building codes, American Concrete Institute (ACI) specifications, material specifications, test methods, and recommended practice documents. Credit not granted for both CE 4361 and CE 5312. Prerequisite: CE 4347.

**CE 5314. ADVANCED STEEL DESIGN II. 3 Hours.**

Covers structural design of beam columns and building connections. Rigid frame and multi-story building design issues. Building codes, American Institute of Steel Construction (AISC) specifications, and recommended practice documents. Prerequisite: CE 4348 or CE 5306.

**CE 5315. ADVANCED MECHANICS OF MATERIALS. 3 Hours.**

Analysis of stresses and strains at a point, stress-strain relationships, stresses due to various loading conditions, theories of failure, energy methods, shear center, unsymmetrical bending, curved beams, torsion in closed and open cell cross-sections, principles of plastic analysis, and buckling analysis. Credit not granted for both CE 4324 and CE 5315. Prerequisite: CE 2313.



**CE 5316. CURRENT TOPICS IN ENVIRONMENTAL ENGINEERING. 3 Hours.**

The course provides graduate students with background, knowledge, technology, theory, and application on some "emerging topics" in environmental engineering fields, including water pollution, water and wastewater treatment, post-treatment issues, remediation of contaminated groundwater, soil and sediment, anaerobic processes for waste treatment and energy generation life cycle analysis and environmental impacts of energy.

**CE 5317. ENVIRONMENTAL ENGINEERING PROCESS AND ANALYSIS LAB. 3 Hours.**

The course meets for 2 hours of lecture and 3 hours of lab each week. Lectures will cover advanced analytical procedures for the analyses of air, liquid, and other wastes, including optical, Chromatographic, electrical, and other instrumental methods of analysis. Lectures will also review the basics of physical/chemical processes. In the laboratory, students will demonstrate and analyze basic reactor types (CSTR, plug flow, and reactors in series) and treatment of contaminants, including gas transfer, adsorption, advanced oxidation processes, and membrane separation.

**CE 5318. PHYSICAL-CHEMICAL PROCESSES I. 3 Hours.**

Principles of unit process modeling using reactor and kinetic theory, theory and design of mixing, mass transfer, flocculation, sedimentation, filtration and gas transfer. Credit not granted for both CE 4351 and CE 5318. Prerequisite: CE 3131 and CE 3334; or consent of instructor.

**CE 5319. PHYSICAL-CHEMICAL PROCESSES II. 3 Hours.**

Principles of water chemistry applied to the theory and design of unit processes including coagulation, precipitation, corrosion, oxidation-reduction, and membrane processes. Credit not granted for both CE 4353 and CE 5319 Prerequisite: CE 3131 and CE 3334; or consent of instructor.

**CE 5321. ENGINEERING FOR ENVIRONMENTAL SCIENTISTS. 3 Hours.**

Fundamental principles of engineering science applicable to the comprehension and design of engineered environmental systems. Includes water and air quality indices; kinetic and reactor theory; mass and energy balances; fluid system theory; and applications of physical, chemical and biological processes in the design of engineered environmental systems. May not be used to satisfy any of the requirements for a graduate degree in Civil Engineering. Prerequisite: PHYS 1441, CHEM 1442, and MATH 2425.

**CE 5325. BIOLOGICAL PROCESSES. 3 Hours.**

Biological processes used in water quality control. Includes principles from microbiology and biochemistry applied to suspended and attached growth systems. Prerequisite: CE 5318.

**CE 5326. WATER AND WASTEWATER TREATMENT FACILITIES DESIGN. 3 Hours.**

Design of facilities commonly used in water and wastewater treatment plants including pumps, pipelines, channels, flow measurement and control devices, screens, grit removal, mixing, sludge removal, aeration equipment, and chemical feed and storage. Materials of construction, process control interface, and operation and maintenance factors are also discussed. Credit not granted for both CE 4355 and CE 5326. Prerequisite: CE 3131, CE 3142, and CE 3334.

**CE 5328. FUNDAMENTALS OF AIR POLLUTION. 3 Hours.**

An introduction to the air pollution field including: atmosphere and ideal gas law; pollutant types, sources, effects; Clean Air Act; air pollution measurement; overviews of air pollution meteorology, dispersion modeling, air pollution control, and mobile sources; international air pollution; and indoor air quality. Credit not granted for both CE 4350 and CE 5328. Prerequisite: concurrent enrollment in CE 3334 or CE 5321 or consent of instructor.

**CE 5329. ENVIRONMENTAL RISK BASED CORRECTIVE ACTION. 3 Hours.**

Process for the assessment and response to contamination; integrating risk and exposure practices to ensure protection of human health and environment. Includes characterization, EPA tier approach, general aspects of toxicology, dose exposure, pathways, receptors, migration and risk assessment. Prerequisite: consent of instructor.

**CE 5330. CHARACTERISTICS OF TRAFFIC. 3 Hours.**

The fundamental elements of traffic - the driver, the vehicle, and the roadway - are considered and then extended into studies of streams of traffic flow. Techniques of conducting traffic engineering studies, including methods of measuring speed, volume, and density, are covered along with methods for the determination of capacity on freeways and rural highways (uninterrupted flow facilities). Parking and accident studies are also included. Prerequisite: CE 3302; and CE 3301 or concurrent registration therein.

**CE 5331. TRAFFIC ENGINEERING OPERATIONS. 3 Hours.**

Methods of traffic regulation and control optimization. Traffic laws, motorist communication by means of traffic control devices, and the design and operation of both fixed time and actuated traffic signals at intersections. Analysis and design techniques for intersections using capacity and level of service concepts. Credit will not be granted for both CE 4313 and CE 5331. Prerequisite: CE 3302; and CE 3301 or concurrent registration therein.

**CE 5332. HIGHWAY DESIGN. 3 Hours.**

Geometric considerations necessary for the design of city streets, highways, and freeways such as the cross sections, vertical and horizontal alignment, sight distances and stopping distances. Includes the design of maneuver areas, channelization, ramps, intersections, and interchanges. Credit will not be granted for both CE 4312 and CE 5332. Prerequisite: CE 3302.

**CE 5333. TRAFFIC CONTROL SYSTEMS. 3 Hours.**

Control algorithms and optimization of splits, offsets, and cycle lengths for arterial progression and traffic signals in networks; computer simulation techniques; problem solving with computer simulation and optimization packages; freeway control using ramp meters and dynamic motorist communications. Prerequisite: CE 4313 or CE 5331.

**CE 5335. AIRPORT ENGINEERING. 3 Hours.**

Airport master planning, for forecasting air travel demand, airside capacity, passenger terminal design, air traffic control, land access planning and design, landside operations, air cargo facility design. Prerequisite: CE 3302.

**CE 5336. PAVEMENT DESIGN. 3 Hours.**

Principles and theoretical concepts of rigid and flexible pavements for highways and airfields; effects of traffic loads, natural forces, and material quality; current design practices; and life cycle cost analysis. Prerequisite: CE 3302, CE 3261, and CE 3343.

**CE 5337. URBAN TRANSPORTATION PLANNING. 3 Hours.**

Theory and application of a comprehensive urban transportation planning methodology. Basic studies of population dynamics, urban growth, land use, forecasting trip generation and distribution, traffic assignment, mode split, evaluation, simulation models, characteristics of mass transit and other non-auto modes, and system design and evaluation. Credit will not be granted for both CE 4311 and CE 5337. Prerequisite: CE 3301 and CE 3302; or consent of instructor.

**CE 5338. SYSTEM EVALUATION. 3 Hours.**

Techniques necessary to perform economic and multi-criteria evaluations of civil engineering projects. These will be used to assess the strengths and weaknesses of different decision-making strategies and analyze contemporary topics and case studies in making civil engineering decisions. Prerequisite: CE 3310 or IE 3312 or equivalent or consent of instructor.

**CE 5341. PAVEMENT EVALUATION, REHABILITATION AND MANAGEMENT SYSTEMS. 3 Hours.**

Pavement inventory; condition and structural evaluation techniques; serviceability concepts; deterioration modeling; maintenance vs. rehabilitation vs. reconstruction; economic considerations, selection of project alternatives and life cycle cost analysis. Prerequisite: CE 5336 or equivalent.

**CE 5344. CONSTRUCTION METHODS: FIELD OPERATIONS. 3 Hours.**

Introduction to the methods, equipment, and management techniques used in the construction industry. Topics include equipment operating characteristics, job site safety, and field management. Credit not granted for both CE 4332 and CE 5344. Prerequisite: CE 3343.

**CE 5345. INFRASTRUCTURE EVALUATION, MAINTENANCE, AND RENEWAL. 3 Hours.**

This course is designed for engineers and managers involved in infrastructure development, sustainability, and replacement. Topics include asset management, inspection, evaluation, maintenance, and renewal alternatives for waste collection and water distribution systems, surface and subsurface drainage, pavements, bridges, culverts, buildings, and other structures. Credit not granted for both CE 4302 and CE 5345. Prerequisite: consent of instructor.

**CE 5346. OPEN CHANNEL FLOW. 3 Hours.**

Open channel hydraulic principles, flow classification, backwater curves, transitions, obstructions, bends, flood flow computations, and urban watershed applications. Credit not granted for both CE 4358 and CE 5346. Prerequisite: CE 3305 and CE 4328; or consent of instructor.

**CE 5347. ADVANCED HYDROLOGY. 3 Hours.**

Elements of hydrometeorology, infiltration, soil moisture, hydrographs, rainfall runoff relationships, and effects of these factors with regard to water resources, urban watersheds, flood control, and environmental issues. Prerequisite: CE 3309 and CE 4328.

**CE 5348. GROUNDWATER HYDROLOGY. 3 Hours.**

Hydrology and hydrogeology of groundwater to include aquifer and vadose properties and measurements, basic flow systems and solutions, well systems, elementary contaminate transport, water quality, recharge, subsidence, flow system analysis, flow nets, and leaky aquifers. Prerequisite: CE 3309 or consent of instructor.

**CE 5349. ADVANCED GIS AND HYDROLOGIC AND HYDRAULIC MODELING. 3 Hours.**

Use of Geographic Information Systems (GIS) and design of GIS developed hydrologic/hydraulic models commonly applied in the water resources field. The course will have three main areas of emphasis including: principles and operations of ArcGIS, design and implementation of standard hydrologic and hydraulic models, the linkage of these models to engineering analysis of current water resources problems including flooding, water quality and water supply.

**CE 5351. ADVANCED STRUCTURAL ANALYSIS I. 3 Hours.**

Advanced analysis of indeterminate beams, frames, trusses, arches, and cables. Credit will not be given for both CE 5351 and CE 4348. Prerequisite: CE 3341.

**CE 5353. ADVANCED HYDRAULICS. 3 Hours.**

Flow resistance, St. Venant equations, solution of St. Venant by finite difference methods, dam break problem, water hammer intro to finite elements to open channel flow. Credit will not be granted for both CE 4330 and CE 5353. Prerequisite: CE 5346 and CE 5347; or consent of instructor.

**CE 5354. WATER RESOURCES PLANNING. 3 Hours.**

Historical and current water development concepts. Administrative and allocation concerns. General principles and procedures of water resource planning includes regional, multipurpose, economic and systems considerations. Prerequisite: CE 3301, CE 3309, and IE 3312; or consent of instructor.

**CE 5356. SURFACE WATER QUALITY MODELING. 3 Hours.**

Contaminant transport and fate in surface water. Engineering methods assessing surface water and transport for water and sediment quality. Modeling dissolved oxygen, chemicals and waterborne substances. Prerequisite: CE 5346.

**CE 5357. HYDROLOGIC TECHNIQUES. 3 Hours.**

A study of current hydrologic techniques and methods for the analysis of hydrologic variables necessary in the design of projects such as bridges, culverts, reservoirs. Techniques involve extreme value statistics, model hydrographs, deterministic and stochastic methods for data analysis. Prerequisite: CE 5347 or consent of instructor.

**CE 5358. SOLID AND HAZARDOUS WASTE MANAGEMENT. 3 Hours.**

Sources, chemistry, monitoring, and classifications of hazardous wastes. Discussions of environmental hazards, legal aspects, transportation, detoxification, storage, and disposal and incineration. Credit not granted for both CE 4354 and CE 5358. Prerequisite: CE 3334 or CE 5321 or consent of instructor.

**CE 5359. GROUNDWATER CONTAMINANT MODELING. 3 Hours.**

Study of sources and fates of contamination in groundwater. Mathematical modeling of reactive and nonreactive pollutant movement. Aquifer restoration strategies. Prerequisite: CE 5348.

**CE 5361. DESIGN AND CONSTRUCTION OF ASPHALT CONCRETE. 3 Hours.**

An in-depth study of the properties of constituent materials for asphalt concrete mixtures. Design methods for Hot-Mixes Asphalt (HMA) and Stone Matrix Asphalt (SMA). Theory and practice of asphalt concrete mix for pavements, including specifications and construction methods for hot-mix asphalt and surface treatments. Maintenance and rehabilitation of flexible pavements. Relationships of material engineering properties to pavement design and performance. Credit not granted for both CE 4336 and CE 5361. Prerequisite: CE 3261 or equivalent.

**CE 5362. RIGID PAVEMENTS. 3 Hours.**

Portland cement concrete mix design and production. Paving operations. Saw and seal operations. Subgrade preparation. Base selection. Drainage selection, design and construction. Bonded and unbonded concrete overlays. Whitetopping and ultra-thin whitetopping. Concrete pavement restoration; quality assurance and quality control in concrete pavement construction. Credit not granted for both CE 4337 and CE 5362. Prerequisite: CE 3261 or equivalent.

**CE 5363. CONSTITUTIVE MODELING OF SOILS. 3 Hours.**

Fundamental aspects of elasto-plastic behavior of soils along axisymmetric stress paths, shear strength of soils in light of critical state soil mechanics, and constitutive models to predict soil response under saturated conditions, including Cam Clay and modified Cam Clay models. Prerequisite: CE 3343 or consent of instructor.

**CE 5364. FOUNDATION ANALYSIS AND DESIGN. 3 Hours.**

The design, construction, and performance of footings, rafts, and piles founded on or in sands, clays, silts, stratified soils, and weak rock. Includes the influence of various geologic terrain on selecting foundation type and constructability, in-situ investigations to determine material design parameters, bearing capacity, and settlement of foundations. Credit not granted for both CE 4321 and CE 5364. Prerequisite: CE 3343.

**CE 5365. THEORETICAL SOIL MECHANICS. 3 Hours.**

Theory of consolidation, magnitude, time rate, pore pressure dissipation with variable construction rate and layered soils. Secondary compression, preconsolidation, and preloading. Shear strength of soil. Critical state soil mechanics, dilation and strain-softening in drained shear, pore pressure response in undrained shear, including static liquefaction. Prerequisite: CE 3343 or consent of instructor.

**CE 5366. SOIL DYNAMICS. 3 Hours.**

Fundamental aspects of mechanical behavior and characterization of soils and earth structures subjected to dynamic loads, including wave propagation in soils, dynamic soil properties, liquefaction of soils, dynamic bearing capacity of shallow foundations, seismic design of retaining walls, and seismic slope stability. Prerequisite: CE 2210 and CE 3343; or consent of instructor.

**CE 5367. DESIGN OF EARTH STRUCTURES. 3 Hours.**

Study of the states of stress and analysis techniques associated with cuts, fills, and retaining structures. Includes slope stability, embankment reinforcement, conventional and reinforced earth retaining walls, excavation bracing, and sheet pile wharf structures. Credit not granted for both CE 4320 and CE 5367. Prerequisite: CE 3343 or consent of instructor.

**CE 5368. UNSATURATED SOIL MECHANICS. 3 Hours.**

Fundamental aspects of the mechanical behavior of unsaturated soils, including stress and volumetric state variables, matrix suction measurements and soil-water characteristic curves, shear-strain-strength and volume change responses, suction-controlled laboratory testing techniques and constitutive modeling. Prerequisite: CE 3343 and CE 5363; or consent of instructor.

**CE 5369. COMPUTATIONAL GEOTECHNICS. 3 Hours.**

Introduction to analytical, finite differences, and finite element modeling, analyses of embankments, earth dams, slopes, excavation support systems including soldier pile and diaphragm walls, shallow and deep foundation systems, and other geostructures using different geotechnical software. Prerequisite: CE 3343 or consent of instructor.

**CE 5370. EXPERIMENTAL SOIL MECHANICS. 3 Hours.**

Fundamentals of experimental studies of soil behavior, soil properties and their laboratory test methods which include consolidation, direct shear, static triaxial, cyclic triaxial, resonant column, bender elements and other advanced geotechnical laboratory tests, instrumentation and measurement techniques. Prerequisite: CE 3343 or consent of instructor.

**CE 5371. SOIL BEHAVIOR. 3 Hours.**

Fundamental aspects of soil behavior, bonding, crystal structure, surface characteristics, clay mineralogy, soil-water movement, fabric, effective stress concepts, conduction phenomena, consolidation, and shear strength. Prerequisite: CE 3343 or consent of instructor.

**CE 5372. GEOSYNTHETICS. 3 Hours.**

Geosynthetics properties and testing, design of geotextiles, geogrids, geonets, and geomembranes for applications in separation, pavement, embankment and retaining wall reinforcement, soil stabilization, filtration, drainage and liquid barrier, construction guidelines and case histories. Credit not granted for both CE 4322 and CE 5372. Prerequisite: CE 3343 or consent of instructor.

**CE 5373. ENVIRONMENTAL GEOTECHNOLOGY. 3 Hours.**

Physical and chemical principles of clays, clay mineralogy, coupled flow, hydraulic conductivity, in situ and laboratory tests, chemical transport, adsorption of chemicals, risk assessment and soil remediation technologies, bioremediation, phytoremediation, electrokinetics and soil washing, waste containment. Prerequisite: CE 5371 or consent of instructor.

**CE 5374. GROUND IMPROVEMENT. 3 Hours.**

Introduction and types of ground improvement for different problem soils including soft and expansive soils, shallow and deep soil densification, sand drains and wick drains, chemical modification, chemical binders and mechanisms of ground improvement, different types of grouting, deep mixing, stone columns, soil nailing, ground anchors, geosynthetics, MSE walls, reinforced slopes. Prerequisite: CE 3343 or consent of instructor.

**CE 5375. GEOTECHNICAL ASPECTS OF LANDFILLS. 3 Hours.**

Introduction and types of landfills, landfill site selection, siting and configuration, compacted and geosynthetic clay liners, final cover design, landfill settlement and slope stability, post closure uses of landfills, leachate and gas generation, collection and removal system, bioreactor landfills and future trends. Credit not granted for both CE 4323 and CE 5375. Prerequisite: CE 3343 or consent of instructor.

**CE 5376. GIS IN GEOTECHNICS. 3 Hours.**

Introduction to GIS, Geographical Information Systems, (ArcInfo/ArcView) based applications in geotechnical engineering, including bore-log database management and profiling, spatial analyses and assessment of liquefaction, ground motion amplification, landslide, and groundwater contamination hazard potentials. Prerequisite: CE 3343 or consent of instructor.

**CE 5377. CONSTRUCTION PROJECT MANAGEMENT & JOB COSTING. 3 Hours.**

Financial aspects and job costing of a construction project. Includes project management principles, budgets, cost codes, cost-to-complete, and financial reports specific to the management of a construction company and project control. Credit not granted for both CE 4301 and CE 5377. Prerequisite: consent of instructor.

**CE 5378. CONSTRUCTION CONTRACTS, SPECIFICATIONS, & ADMINISTRATION. 3 Hours.**

Types of construction contracts, contractual relationship between general contractor and owner, contractual relationship between general contractor and subcontractors, legal issues in construction administration, insurance, and concepts in value engineering. Reading and evaluating specifications, CSI Master Format. Credit not granted for both CE 4334 and CE 5378. Prerequisite: consent of instructor.

**CE 5379. CONSTRUCTION COST ESTIMATING. 3 Hours.**

Types of estimates, development of unit costs, quantity takeoff, cost estimating using manual methods and computerized cost estimating, budgets, and costs. Prerequisite: concurrent enrollment in CE 5386.

**CE 5383. EXPERIMENTAL STRESS ANALYSIS. 3 Hours.**

Introduction to experimental stress-analysis techniques. Theory and application of mechanical strain gages, electrical strain gages, introduction to photoelastic and thermal techniques, and brittle coatings. Prerequisite: CE 2313.

**CE 5384. CONCRETE BRIDGE DESIGN. 3 Hours.**

Analysis and design of concrete bridges for vehicles using American Association of State Highway and Transportation Officials Load and Resistance Factor Design (AASHTO LRFD) specifications. Covers bridge type selection, preliminary design, bridge design loads, bridge deck design, shear design including strut-and-tie model, AASHTO limit states, torsion design, substructure design, and construction practices maintenance issues. Prerequisite: Grade of C or better in CE 4363 or CE 5309.

**CE 5385. STRUCTURAL DYNAMICS. 3 Hours.**

Equation of motion for single degree of freedom systems including: free vibration; harmonic and periodic excitations; arbitrary, step and pulse excitations. Dynamic response of multi degree of freedom systems including: free vibration; computation of vibration properties of structures; damping in structures; modal analysis; and response history analysis. Dynamic analysis of systems with distributed mass. Prerequisite: CE 5303 or concurrent registration.

**CE 5386. CONSTRUCTION PLANNING & SCHEDULING. 3 Hours.**

Construction productivity, planning, & scheduling of operations, flow charts, linear programming, critical path method (CPM), program evaluation review techniques (PERT), precedence networks. Computer methods. Prerequisite: concurrent enrollment in CE 5379.

**CE 5387. CONSTRUCTION PRODUCTIVITY. 3 Hours.**

Evaluation of construction project management's effectiveness. An investigation of the advanced techniques required for improvement of construction projects including time, cost, quality management, preplanning, field evaluation techniques, time-lapse photograph, safety, human factors, and communications. Prerequisite: CE 5379 and CE 5386; or consent of instructor.

**CE 5388. PIPELINE CONSTRUCTION AND TRENCHLESS TECHNOLOGY. 3 Hours.**

Pipeline and utility design, construction and renewal. Topics include pipeline infrastructure structural considerations, planning and construction considerations, pipe materials, and trenchless technologies. Credit not granted for both CE 4305 and CE 5388. Prerequisite: graduate standing and consent of instructor.

**CE 5389. PIPELINE INFRASTRUCTURE ASSET MANAGEMENT AND SUSTAINABILITY. 3 Hours.**

Pipeline infrastructure inventory, inspection, and life cycle costs. Topics include pipeline deterioration parameters, asset management technologies, risk assessment, government regulations and case studies. Credit not granted for both CE 4306 and CE 5389. Prerequisite: graduate standing and consent of instructor.

**CE 5390. UNSATURATED SOIL MECHANICS II. 3 Hours.**

Advanced principles of unsaturated soil behavior in light of critical state based soil mechanics. Topics: Cam-Clay model for saturated soils, Cam-Clay model for unsaturated soils, and calibration/programming of Barcelona Basic Model for unsaturated soils.

**CE 5391. ADVANCED STUDIES IN CIVIL ENGINEERING. 3 Hours.**

Individual studies of advanced topics under the supervision of a professor or professors. Graded F, P, R. Prerequisite: consent of instructor.

**CE 5392. SPECIAL TOPICS IN AIR POLLUTION. 3 Hours.**

Sources, transport, fate, characteristics, and control of air contaminants. May be repeated for credit when topics vary. Prerequisite: Graduate standing and consent of instructor  
Topic 1 - Air Pollution Chemistry and Meteorology Designed to give students an understanding of how pollutants react and travel in the atmosphere. Topics include: chemistry of ground-level ozone formation, ozone layer depletion, acid deposition, fine particle formation, and climate change; meteorological variables impacting pollutant transport in the atmosphere, such as atmospheric stability, turbulence and wind speed.  
Topic 2 - Air Quality Modeling Mathematical models for predicting air pollutant transport and transformation in the atmosphere, to evaluate health impacts and potential control strategies. The course covers 4 types of air quality models: box models, photochemical grid models, Gaussian dispersion models (major emphasis), and receptor models.  
Topic 3 - Transportation and Air Quality Generation of pollutants in gasoline and diesel engines. Emission estimation via measurement and modeling (MOBILE 6). Prediction of pollutant concentrations near roadways. Vehicle emission control using alternative engine design, alternate fuels, add-on technology. Travel demand management and transportation control measures for emission reduction.  
Topic 4 - Air Pollution Control System Design Design of air pollution control systems for stationary sources, including particle control technologies (cyclones, electrostatic precipitators, fabric filters and wet scrubbers) and gaseous control technologies (incinerators, adsorption systems, absorption systems, biofilters, nitrogen oxide controls, mercury controls, and carbon dioxide controls).

**CE 5395. MASTER'S PROJECT. 3 Hours.**

Non-thesis master's degree candidates with approval to include a project in their program. Graded F, P, R. Prerequisite: consent of instructor and approval of Civil Engineering Graduate Advisor.

**CE 5398. THESIS. 3 Hours.**

Research and preparation pertaining to the master's thesis. Graded F, R.

**CE 5695. MASTER'S PROJECT. 6 Hours.**

Non-thesis master's degree candidates with approval to include a project in their program. Graded F, P, R. Prerequisite: consent of instructor and approval of Civil Engineering Graduate Advisor.

**CE 5698. THESIS. 6 Hours.**

Research and preparation pertaining to the master's thesis. Graded F, P, R.

**CE 6197. RESEARCH IN CIVIL ENGINEERING. 1 Hour.**

Individual supervised research projects. May be repeated for credit. Graded F, P, R. Prerequisite: consent of instructor and approval of Supervising Committee Chair.

**CE 6297. RESEARCH IN CIVIL ENGINEERING. 2 Hours.**

Individual supervised research projects. May be repeated for credit. Graded F, P, R. Prerequisite: consent of instructor and approval of Supervising Committee Chair.

**CE 6300. ADVANCED TOPICS IN CIVIL ENGINEERING. 3 Hours.**

Topics of current interest in the field of civil engineering. The subject title is listed in the class schedule and in the student's record. Topics vary. May be repeated for credit when topic changes. Prerequisite: consent of instructor.

**CE 6306. PUBLIC TRANSIT PLANNING & OPERATIONS. 3 Hours.**

Theory and application of technologies used for transit demand analysis, routing, scheduling, evaluation, crew assignment, maintenance strategies, and management. Land-use impact on public transit policy and operation is also introduced. Prerequisite: CE 4311 or CE 5337 or equivalent.

**CE 6308. ANALYTICAL MODELS IN TRANSPORTATION. 3 Hours.**

Development and analysis of mathematical models in transportation. Topics include travel demand, trip generation, distribution, mode choice, assignment, plan evaluation, spatial distribution, traffic control and flow models; principles of behavioral, econometric, deterministic, probabilistic, and chaotic simulation models, and their applications. Prerequisite: CE 4311 or CE 5337.

**CE 6309. TRAFFIC FLOW THEORY. 3 Hours.**

Speed, density relationships of vehicular traffic flow; statistical aspects of traffic events and queuing processes; deterministic models and simulation models of traffic flow behavior; applications of flow theory to traffic problem solutions. Prerequisite: CE 5330 or equivalent.

**CE 6311. ADVANCED FOUNDATION DESIGN. 3 Hours.**

Subsurface investigations; advanced design of mat foundations, retaining walls, reinforced retaining walls, anchor tiebacks, driven piles, and piers; destructive and nondestructive tests on deep foundations; group piles, laterally loaded piles, and design of foundations in expansive soils. Prerequisite: CE 4321 or CE 5364.

**CE 6312. IN-SITU TESTING. 3 Hours.**

Site characterization, in-situ testing procedures, and soil property interpretation methods for standard penetration tests, cone penetration tests utilizing friction cone, piezocone, and seismic cone, dilatometer, vane shear, pressure meter, and bore hole shear tests, non-destructive tests for pavement subgrade characterization. Prerequisite: CE 3143 or CE 5370 or consent of instructor.

**CE 6313. DESIGN OF EARTH DAMS. 3 Hours.**

Introduction to dams and levees, failure and damage analysis, erosion, seepage, filter, drainage design, foundation preparation for problematic subsoil conditions, seepage induced slope stability issues, desiccation crack and erosion control, numerical modeling and case studies, seismic issues.

Prerequisite: CE 5367 or consent of instructor.

**CE 6314. STORMWATER MODELING. 3 Hours.**

Hydrologic modeling methods and issues, urban watershed modeling, methods of system analysis; analysis of hydrologic components as linear and nonlinear systems, watershed response, kinematic wave; and model parameters optimization. Prerequisite: CE 5346 and CE 5347; or consent of instructor.

**CE 6315. ADVANCED GEOTECHNICAL MODELING. 3 Hours.**

This course covers two numerical simulation methods: discrete element method (DEM) and finite element method (FEM). The four basic elements in DEM: initialization, search, contact models, velocity and displacement calculations will be introduced. This course will use FORTRAN as the coding language. A basic Fortran code will be provided. Students will learn how to make modifications to the basic code for their own applications. A term project will be required that consists of a numerical experiment. Fundamentals of FEM will be introduced including: basic elements, formulation methods, coordinate transformation, and boundary conditions. CAM clay model will be introduced and implemented in ABAQUS as a class exercise. Usage of ABAQUS will be introduced. Applications of FEM including pile soil interaction and simple beam simulation. Prerequisites: a programming language (FORTRAN, C, or MATLAB), constitutive modeling (CE 5363), computational geomechanics (CE 5363), and Numerical analyses as requisites; or consent of the instructor.

**CE 6316. SEDIMENT TRANSPORT. 3 Hours.**

Sourcing the sediment influx, the settling velocity, Shields critical shear stress, design with critical shear, bedload transport equations, suspended load transport, total transport equation, regime theory as index of stability. Prerequisite: CE 4358 or CE 5346; and CE 5347.

**CE 6325. ADVANCED PHYSICAL-CHEMICAL PROCESSES. 3 Hours.**

The course represents the fundamentals and applications of various advanced physical and chemical unit operations and processes for controlling drinking water quality. The course will cover 1) general overview on the standard, regulations, and goals of drinking water quality, 2) detailed discussion of the theory, design, and operation of advanced physical and chemical unit processes, including but not limited to, sorption, centrifugation, osmotic pressure, membrane separation, chemical oxidation and advanced oxidation, UV technology, and disinfection, and 3) post treatment issues.

Prerequisite: CE 5318 and CE 5319.

**CE 6350. ADVANCED CONCRETE DESIGN II. 3 Hours.**

Detailing of connections for ductility demands, modified compression field theory, strut and tie modeling of systems and areas, and design of shear walls and hybrid construction. Behavior of reinforced concrete structures, with emphasis on ductility and detailing. Prerequisite: CE 5312.

**CE 6352. ADVANCED FINITE ELEMENT METHOD. 3 Hours.**

Weak and mixed formulations; Eulerian and Lagrangian mesh formulations; plane stress and plane strain, axisymmetric element equations; two dimensional elasticity equations; 2-D and 3-D isoparametric formulations; error analysis and convergence criteria for linear/nonlinear problems; nonlinear-geometric, materials, and contact formulation; cyclic plasticity formulation. Prerequisite: CE 5303.

**CE 6354. REPAIR AND REHABILITATION OF STRUCTURES. 3 Hours.**

Causes of distress, evaluation methods for condition, strength, serviceability; repair materials, repair techniques, and quality control methods for repair of concrete. Criteria for rehabilitation; retrofit techniques for change in function, loading, and seismic forces. Prerequisite: CE 5311 and CE 5312.

**CE 6355. EARTHQUAKE ENGINEERING. 3 Hours.**

Earthquake characteristics; design of structures to resist earthquakes. Characterization of earthquakes for design. Development of design criteria for elastic and inelastic structural response. Seismic performance of various structural systems. Prediction of nonlinear seismic behavior. Basis for code design procedures. Preliminary design of steel and reinforced concrete structures. Evaluation of earthquake vulnerability of existing structures and rehabilitation of seismic deficiencies. Prerequisite: CE 5385.

**CE 6356. ENERGY METHODS. 3 Hours.**

Principles of mechanics; elastic beams and frames; variational method: curved cantilever beams; Rayleigh Ritz method; special form of Euler equation; differential equation for beam; variation of double integral; first variation of triple integral. Deformable bodies using indicial notation; buckling using energy method; Lagrange and Hamilton Principles; theory and analysis of plates; theory and buckling; and theory of vibration. Prerequisite: CE 5315.

**CE 6357. STRUCTURAL STABILITY. 3 Hours.**

Buckling of columns; approximate method of analysis for buckling problems; beam columns; structural system stability (buckling of frames); lateral torsional buckling; buckling of plates; and buckling of axially compressed cylindrical shells. Prerequisite: CE 5303 or concurrent registration therein.

**CE 6358. ADVANCED ENGINEERING ANALYSIS. 3 Hours.**

Introduction to matrices; vector spaces; tensors, Eigenvalue problems. Solution to discrete systems: steady state problems and propagation problems. Solution of continuous systems: differential formulation; variational method; and weighted residual methods. Solution of linear and nonlinear static equilibrium equations. Prerequisite: CE 5315 and MATH 3319.

**CE 6359. PLATES AND SHELLS. 3 Hours.**

Introduction to differential geometry; equilibrium of plate and shell elements; equilibrium equations for shell revolutions; compound shells; nonsymmetrical loaded shell; anti-symmetrical loaded shell; membrane theory; constitutive law; analysis of plates and shells using energy method; and bending and stability of plates and shells. Prerequisite: CE 5315.

**CE 6360. THEORY OF ELASTICITY. 3 Hours.**

Introductory mathematical concepts: vector calculus; tensor algebra. Theory of deformation; strain displacement relations in orthogonal curvilinear coordinate systems. Theory of stress; differential equation of equilibrium in curvilinear spatial coordinates; three dimensional equations of elasticity; nonlinear constitutive relationship; plane theory of elasticity; and plane elasticity in polar coordinates. Prerequisite: CE 5315.

**CE 6391. ADVANCED PROJECTS IN CIVIL ENGINEERING. 3 Hours.**

Projects related to advanced topics in graduate area. Graded F, P, R. Prerequisite: consent of instructor and approval of Civil Engineering Graduate Advisor.

**CE 6397. RESEARCH IN CIVIL ENGINEERING. 3 Hours.**

Individual supervised research projects. May be repeated for credit. Graded F, P, R. Prerequisite: consent of instructor and approval of Supervising Committee Chair.

**CE 6399. DISSERTATION. 3 Hours.**

Preparation of a doctoral dissertation in civil engineering. Graded F, R. Prerequisite: admission to candidacy for the Doctor of Philosophy degree.

**CE 6697. RESEARCH IN CIVIL ENGINEERING. 6 Hours.**

Individual supervised research projects. May be repeated for credit. Graded F, P, R. Prerequisite: consent of instructor and approval of Supervising Committee Chair.

**CE 6699. DISSERTATION. 6 Hours.**

Preparation of a doctoral dissertation in civil engineering. Graded F, R. Prerequisite: admission to candidacy for the Doctor of Philosophy degree.

**CE 6997. RESEARCH IN CIVIL ENGINEERING. 9 Hours.**

Individual supervised research projects. May be repeated for credit. Graded F, P, R. Prerequisite: consent of instructor and approval of Supervising Committee Chair.

**CE 6999. DISSERTATION. 9 Hours.**

Preparation of a doctoral dissertation in civil engineering. Graded F, P, R. Prerequisite: admission to candidacy for the Doctor of Philosophy degree.

**CE 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Classics (CLAS)

### COURSES

**CLAS 1300. INTRODUCTION TO CLASSICAL MYTHOLOGY. 3 Hours.**

Major Greek and Roman myths and their influence, with emphasis on the visual arts from antiquity to the present, including popular films.

**CLAS 2300. HOLLYWOOD CLASSICS: THE ANCIENT WORLD IN FILM. 3 Hours.**

Comparative study of contemporary films set in the ancient world and the literary sources on which they are based, with emphasis on the reception and reshaping of the Classical heritage by filmmakers to reflect the cultural values and interests of contemporary audiences.

**CLAS 2303. THE CLASSICAL ROOTS OF ENGLISH VOCABULARY. 3 Hours.**

The study of etymology (word origins) focusing on the large stock of English words derived from ancient Greek and Latin prefixes, roots and suffixes. Recommended for students seeking to improve their general vocabulary and reading comprehension, and as preparation for graduate and professional school entrance exams.

**CLAS 2307. WOMEN IN THE ANCIENT WORLD. 3 Hours.**

Exploration of roles and images of women in ancient Greece and Rome, using a variety of primary (ancient) sources: literature, legal and medical texts, visual art, and inscriptions. Offered as CLAS 2307 and WOMS 2307. Credit will be granted only once.

**CLAS 3310. INTRODUCTION TO GREEK CIVILIZATION. 3 Hours.**

Ancient Greek culture through the death of Alexander the Great (323 B.C.). Topics covered include politics and society, literature, art, philosophy, and religion. Credit may not be received for both CLAS 2310 (as the course was previously numbered) and CLAS 3310.

**CLAS 3320. INTRODUCTION TO ROMAN CIVILIZATION. 3 Hours.**

Roman life and thought through the second century A.D. A broad cultural survey including politics and society, literature, art, philosophy, religion and law. Credit may not be received for both CLAS 2320 (as the course was previously numbered) and CLAS 3320.

**CLAS 3323. TOPICS IN CLASSICAL MYTHOLOGY. 3 Hours.**

Advanced study of Greek and/or Roman myths, with emphasis on the cultural context and methods of myth interpretation (anthropological, psychoanalytical, structuralist, etc.). May be repeated for credit with departmental permission.

**CLAS 3335. TOPICS IN CLASSICAL STUDIES. 3 Hours.**

Studies in the social, political, and cultural development of the ancient Greeks and Romans, including their influence on subsequent societies. May be repeated for credit with departmental permission.

**CLAS 4391. CONFERENCE COURSE. 3 Hours.**

Independent study in the preparation of a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: consent of the department and completion of or concurrent enrollment in a 3000 level course.

**CLAS 4394. SENIOR THESIS/HONORS THESIS. 3 Hours.**

A thesis or project completed during the senior year under the direction of a faculty member. Required of all students in the University Honors College.

**CLAS 5392. TOPICS IN CLASSICAL STUDIES. 3 Hours.**

Studies in the social, political and cultural systems of the ancient Greeks and Romans, including their influence upon subsequent societies. May be repeated for credit as the topic changes.

## Communication (COMM)

### COURSES

**COMM 1300. INTRODUCTION TO COMMUNICATION. 3 Hours. (TCCN = COMM 1307)**

Application of communication theories and principles to human communication; from the oral tradition to the printing press, photography, electronic media, and information technology.

**COMM 2195. COMMUNICATION CAREER PRACTICUM. 1 Hour.**

Individual experience with direct supervision of a communication professional while working with approved profit and non-profit professional organizations. Individual conference should be arranged with supervising professor. See department for course qualifications. May be repeated up to a total of three times. Prerequisite: Department of Communication Majors only and permission of the department. Graded Pass/Fail.

**COMM 2315. COMMUNICATION THEORY. 3 Hours.**

Study of communication theories; interpersonal, organizational, mass media, and intercultural.

**COMM 3300. COMMUNICATION TECHNOLOGY. 3 Hours.**

Grounded on theories of mediated communication, this course examines the adoption and effects of current and emerging communication technologies. The course also examines the implications of technology convergence as well as social, economic, organizational factors that shape the design and use of communication technology. Prerequisite: COMM 2315 and 60 hours earned.

**COMM 3303. COMMUNICATION GRAPHICS. 3 Hours.**

History, current practice, principles and trends in typography, imaging, pre-press and production, sheet finishing, bindery, paper and ink, logo design, advertising layout, publication design, and computer layout, design, and publishing. Prerequisite: COMM 2315 and 60 hours earned.

**COMM 3310. COMMUNICATION LAW & ETHICS. 3 Hours.**

Study of constitutional, statutory, administrative, and ethical governance of communication and the mass media, including journalism, the Internet, advertising, and film. Rights and responsibilities of citizens, professional communicators, and corporations are addressed. Prerequisite: COMM 2315 and 60 or more hours earned.

**COMM 4191. READINGS IN COMMUNICATION. 1 Hour.**

Readings addressing contemporary issues in communication. Proficiency in writing and research skills emphasized. Primarily for Communications majors. Prerequisite: 90 or more hours earned; 12 hours of 3000/4000 level in the department.

**COMM 4300. COMMUNICATION RESEARCH. 3 Hours.**

Introduction to communication research, design, and methodology. Readings and criticism in interpersonal, public address, and mass communication research; project required. Prerequisite: COMM 2315 and 60 hours earned.

**COMM 4305. COMMUNICATION & SOCIETY. 3 Hours.**

Readings and analysis of the role of communication in modern society; its impact on contemporary social, cultural, political, and intellectual trends. Prerequisite: COMM 2315 and 60 hours earned.

**COMM 4318. MEDIA SALES AND PROMOTION. 3 Hours.**

Study of broadcast rating services and terminology used to determine the audience of a particular radio or television operation. Demonstrates the importance of sales skills needed in the media, and the importance of account executives to radio and television stations. Emphasizes positioning media among competitors with respect to promotional and marketing plans designed to build and maintain an audience. Relationship of media ratings to programming and sales. Credit will not be granted for both BCMN 3318 and COMM 4318. Prerequisite: COMM 2315 and 60 hours earned.

**COMM 4325. COMMUNICATION HISTORY. 3 Hours.**

Evolution and trends in forms of human communication; development of symbols and media technology with attention to their effects on society. Prerequisite: COMM 2315 and 60 hours earned.



**COMM 4330. POLITICAL COMMUNICATION. 3 Hours.**

Communication theories, principles, and strategies in modern political campaigns and events. Prerequisite: COMM 2315 and 60 hours earned.

**COMM 4335. INTERCULTURAL COMMUNICATION. 3 Hours.**

Examination of verbal and nonverbal barriers to effective intercultural communication such as ethnocentrism, stereotyping, prejudice, racism, proxemics, kinesics, haptics, and chronemics. Developing effective communication in intercultural contexts. Prerequisite: COMM 2315 and 60 hours earned.

**COMM 4340. CORPORATE COMMUNICATION. 3 Hours.**

Examines organizational communication strategies with special emphasis on how communication affects corporate constituencies. Corporate image and identity are linked to corporate advertising, press releases, financial communication, internal communication and crisis communication. Prerequisite: COMM 2315 and 60 hours earned.

**COMM 4360. EMERGING MEDIA STRATEGY. 3 Hours.**

Branding strategy for creating an effective professional presence across multiple communication platforms. Prerequisites: BCMN 2370, PREL 3320, COMM 3303, CTEC 2350, or permission of the Department.

**COMM 4391. CONFERENCE COURSE. 3 Hours.**

Topic assigned on an individual basis, covering individual research or study in the designated areas. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: COMM 2315 and 60 or more hours earned, and permission.

**COMM 4392. ADVOCACY IN APPLIED SETTINGS. 3 Hours.**

An introduction to challenges individuals face when advocating for an issue, an idea, or even themselves. The goal of the course is to help students grasp concepts relevant to their internship experiences as Archer Fellows in Washington D.C. Enrollment is restricted to designated Archer Fellows. Prerequisite: POLS 2311 and POLS 2312.

**COMM 4393. COMMUNICATION TOPICS. 3 Hours.**

Seminar in interdisciplinary topics. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: COMM 2315 and 60 or more hours earned.

**COMM 4394. HON THESIS / SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department.

**COMM 5300. ADVANCED THEORIES IN COMMUNICATION. 3 Hours.**

Advanced study of communication theories: interpersonal, organizational, mass media and intercultural.

**COMM 5301. SUPERVISED TEACHING. 3 Hours.**

Application of theory to the practices of teaching college courses in communication. Students will handle all aspects of the classroom including lecturing, conducting class discussions, issuing assignments, grading and assigning grades under the supervision of the course director. No unit credit will be allowed toward advanced degree.

**COMM 5305. COMMUNICATION RESEARCH METHODS. 3 Hours.**

Study and application of communication research, design and methodology. Students will apply statistics in communication research and complete a research project/paper.

**COMM 5306. QUALITATIVE RESEARCH METHODS. 3 Hours.**

Advanced study and application of qualitative communication research, design and methodology. Prerequisite: COMM 5300 and COMM 5305.

**COMM 5310. THEORIES IN PERSUASION. 3 Hours.**

A comparison of traditional with contemporary behavioral science theories of persuasive discourse and their supporting research.

**COMM 5316. CORPORATION COMMUNICATION STRATEGIES. 3 Hours.**

Examines organizational communication strategies with special emphasis on how communication affects corporate constituencies. Corporate image and identity are linked to corporate advertising, press releases, financial communication, internal communication and crisis communication.

**COMM 5320. ADVANCED VISUAL COMMUNICATION. 3 Hours.**

Theory of visual communication in technical communication. Practice includes conceptualization, development and production.

**COMM 5321. ADVANCED INTERNET MARKETING COMMUNICATION. 3 Hours.**

Study of the use of information technology to optimize advertising, promotion, public relations and sales functions. Examines an infrastructure of the Internet and how it affects information retrieval, Web design, Web site management and Web site security. Discusses research strategies, usage trends and social implications.

**COMM 5323. COMPUTER-MEDIATED COMMUNICATION. 3 Hours.**

Study of theoretical and practical issues associated with modern communication technology and computer-mediated communication in interpersonal and organizational communication contexts.

**COMM 5332. ADVANCED PROFESSIONAL COMMUNICATION. 3 Hours.**

Advanced study of the theory and practice in written and oral presentations with emphasis on the application of communication theory in organizational and technical professions. Development of strategic communication plans to influence audience perceptions and evaluate changes.

**COMM 5335. GLOBAL COMMUNICATION. 3 Hours.**

Examination of verbal and nonverbal barriers to effective intercultural and international communication. Developing effective communication in advanced study of communication theories: interpersonal, organizational, mass media and intercultural contexts and exploring the definition and impact of global communication.

**COMM 5341. MEDIA MANAGEMENT. 3 Hours.**

Study of media policy and regulation; media, cultural, and management theories; media economics; accounting and finance; business strategy, management and marketing.

**COMM 5345. COMMUNICATION CAMPAIGNS. 3 Hours.**

Advanced study of communication theories and research with the goal of developing strategic communication plans, including the selection of the appropriate vehicles and creative tactics. Team project required.

**COMM 5346. MEDIA AND PUBLIC POLICY. 3 Hours.**

Advanced study of communication theories and research related to understanding the linkage between media, public opinion and public policy. Individual and/or team project required.

**COMM 5347. CRISIS COMMUNICATION. 3 Hours.**

Advanced study of communication theories related to crisis communication and strategies used to communicate with stakeholders before, during and after crisis situations.

**COMM 5391. CONFERENCE COURSE. 3 Hours.**

Topic assigned on an individual basis, covering individual research or study in the designated areas. Can be taken no more than two times for credit. Prerequisite: permission of the department.

**COMM 5392. SEMINAR. 3 Hours.**

Special topics. Topic varies from semester to semester. May be repeated when topic changes.

**COMM 5398. THESIS. 3 Hours.**

Student completion of a research project on a subject of primarily theoretical interest, intended for an academic audience. Prerequisite: satisfactory completion of coursework and consent of thesis advisor.

**COMM 5399. GRADUATE COMMUNICATION INTERNSHIP. 3 Hours.**

Practical training and experience in the field of communication. Applied communication research project is required. Course counts as an elective and has a pass/fail grade. No credit will be given for current employment, previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed. Subject to departmental approval.

**COMM 5698. THESIS. 6 Hours.**

Student completion of a research study on a subject of primarily theoretical interest, intended for an academic audience. Prerequisite: satisfactory completion of thesis proposal defense and consent of thesis advisor.

## Communication Studies (COMS)

### COURSES

**COMS 0185. FORENSICS. 1 Hour. (TCCN = SPCH 1144)**

Preparation for and participation in intercollegiate and intersquad forensic activities. Students engage in supervised research, development of debate skills and individual speaking activities. Prerequisite: permission.

**COMS 1301. FUNDAMENTALS OF PUBLIC SPEAKING. 3 Hours. (TCCN = SPCH 1311)**

Stress on development of the individual's speaking abilities and confidence in a variety of speaking situations.

**COMS 1302. VOICE AND DICTION. 3 Hours. (TCCN = SPCH 1342)**

Designed to improve the quality of the individual's speech. Enunciation, articulation, pronunciation, and the fundamentals of voice production. The phonetic alphabet as a visual means of teaching auditory differences.

**COMS 2302. PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING. 3 Hours.**

Theory and practice in written and oral presentations with an emphasis on professional and technical communication for science and engineering. Prerequisites: 30 or more hours earned; ENGL 1302.

**COMS 2304. GROUP COMMUNICATION PRINCIPLES. 3 Hours. (TCCN = SPCH 2333)**

Principles and practice of effective interaction within small groups including meeting planning, agenda setting, conflict management, and decision making.

**COMS 2305. BUSINESS AND PROFESSIONAL COMMUNICATION. 3 Hours. (TCCN = SPCH 1321)**

Insight into communication skills. Designed to give the student experience in interviewing, business presentations, organizational reports, and the relationship of visual and oral presentations to business.

**COMS 3309. ORGANIZATIONAL COMMUNICATION. 3 Hours.**

Communication functions within formally structured social systems such as business, government, and education. Emphasis on conceptual schemes for conducting analysis of training programs in organizational communication. Prerequisite: COMM 2315, COMS 1301, COMS 2304 and 3 hours of Math.

**COMS 3310. GROUP COMMUNICATION THEORY. 3 Hours.**

Characteristics of group communication including group function and formation, norms, cohesion, problem solving, leadership, and ethics. Prerequisite: COMM 2315, COMS 2304, 3 hours of Math.

**COMS 3312. BACKGROUNDS OF PUBLIC ADDRESS. 3 Hours.**

Traditional works pertinent to theories of communication. Emphasis on discovering the traditional bases shared by empirical and critical studies of rhetorical communication. Prerequisite: COMM 2315, COMS 1301, COMS 2304 or permission of the department.

**COMS 3315. COMMUNICATION FOR EDUCATORS. 3 Hours.**

Basic concepts, theories, research and processes relevant to formal and informal instructional situations. Units of study will focus on intrapersonal, interpersonal, small group, and presentational communication. Prerequisite: COMS 1301, COMS 2304, COMM 2315 or permission of the department.

**COMS 3316. COMMUNICATION IN HUMAN RELATIONS. 3 Hours.**

The human communication process within the social, business, and family context. Theories and principles of interpersonal communication and perception of self and others. Prerequisites: COMM 2315, COMS 1301, COMS 2304.

**COMS 3320. INTERVIEW PRINCIPLES. 3 Hours.**

Theory and practice in interviewing as it relates to information-gathering, questioning, and response analysis in probing, persuasive, employment, and survey interviews; practical and legal application in employment interviews; preparation of resume and cover letter. Prerequisite: COMM 2315, COMS 1301, COMS 2304.

**COMS 3321. ORAL INTERPRETATION OF LITERATURE. 3 Hours.**

The fundamental principles of oral interpretation and techniques of interpretation. Stresses background research concerning author and type of material. Prerequisite: COMM 2315, COMS 1301, COMS 2304.

**COMS 3323. ORAL INTERPRETATION OF CHILDREN'S LITERATURE. 3 Hours.**

Traditional oral interpretation principles and performance techniques as applied to various genres of children's literature. Prerequisite: COMS 1301, COMS 2304, COMM 2315.

**COMS 4300. PERSUASIVE COMMUNICATION. 3 Hours.**

Analysis of the means by which persuasive communication affects individuals and society. Extensive reading of theories of techniques of persuasion. Study of the adaptation of motivational appeals, structural strategies, and other persuasive techniques in interpersonal and public contexts. Prerequisite: COMM 2315, COMS 1301, COMS 2304.

**COMS 4302. MODERN PUBLIC ADDRESS. 3 Hours.**

Analysis of major 20th-century forms of public address and speakers. Application of various models for criticism and public address. Prerequisite: COMM 2315, COMS 1301, COMS 2304 or permission of the department.

**COMS 4315. BUSINESS PRESENTATIONS. 3 Hours.**

The role of internal and external informative and persuasive presentations in business organizations. Extensive readings and practice with an emphasis on research, development, organization, and critical evaluation of oral and visual presentations. Prerequisite: COMM 2315, COMS 1301, COMS 2302 or COMS 2305.

**COMS 4320. MANAGERIAL COMMUNICATION. 3 Hours.**

Analysis of the role of the business manager; readings in research and theory with emphasis on problem-solving and motivation. Prerequisite: COMS 3309 or permission of the department.

**COMS 4321. READERS THEATRE. 3 Hours.**

Readers interpret various kinds of literature for an audience. Analysis and criticism of literature are stressed. Prerequisite: COMS 3321 or COMS 3323 or permission of the department.

**COMS 4322. COMMUNICATION TRAINING AND DEVELOPMENT. 3 Hours.**

The process of analyzing communication problems and providing training skills for businesses and organizations. Emphasizes practical knowledge of facilitating skill improvement in verbal and nonverbal communication. Prerequisite: COMM 2315, COMS 1301 and COMS 2305.

**COMS 4391. COMMUNICATION TOPICS. 3 Hours.**

Topics assigned on an individual basis, covering research or study in the designated areas. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: COMM 2315 and 60 or more hours earned and permission.

**COMS 4393. COMMUNICATION TOPICS. 3 Hours.**

Special studies in speech. Topics will vary from semester to semester. May be repeated once when topics vary. Prerequisite: COMM 2315, 60 hours earned, and permission.

**COMS 4395. PROFESSIONAL INTERNSHIP. 3 Hours.**

Individual research while working with business and industry. Individual conference to be arranged. Prerequisite: COMM 2315, 60 or more hours earned, and permission. Graded Pass/Fail.

## Communications Technology (CTEC)

## COURSES

### **CTEC 2300. INTERNET COMMUNICATION. 3 Hours.**

Introduction to the Internet including communication context and theory, advanced search strategies, virtual community, online security, legal and ethical issues, social implications, basics of Web design and publishing, basic technology literacy concepts.

### **CTEC 2350. WEB COMMUNICATION DESIGN AND DEVELOPMENT 1. 3 Hours.**

Overview of theoretical principles of communication, organization, human-computer interaction, and user experience research for effective communication over the Internet. This course provides an introduction to essential elements of Web design and development, including using markup and style sheet languages, developing information architecture, and assessing usability.

### **CTEC 3320. MULTIMODAL COMMUNICATION AND DESIGN. 3 Hours.**

Application of contemporary communication theories to examine how meaning is constructed, interpreted and produced through multiple communication modalities. Students are expected to complete a theoretically informed, personal portfolio and accumulate skills in digital workflows, graphic creation and manipulation, audio-video editing, storyboarding, and compositing. Prerequisite: COMM 2315, and COMM 3303.

### **CTEC 3350. WEB COMMUNICATION DESIGN AND DEVELOPMENT 2. 3 Hours.**

A continuation of CTEC 2350. This course provides in-depth examination of usability, accessibility, online rhetoric, and branding. Content also includes current Web communication technology including markup language, scripting and style sheet, for effective communication on the Web across multiple technological platforms. Prerequisite: COMM 2315, CTEC 2350, and 3 hours of Math.

### **CTEC 4309. INTERNET MARKETING COMMUNICATION. 3 Hours.**

Develop best practices of marketing communication and electronic commerce conducted via current communication and information technology. Discuss theories, research strategies, usage trends, and current development. Prerequisite: A grade of C or better in JOUR 1345, COMM 3300, and one of the following: ADVT 4300, CTEC 3350, PREL 3355, or COMM 4318.

### **CTEC 4321. DIGITAL COMMUNICATION MANAGEMENT. 3 Hours.**

Corporate and organizational communication theories through a user-centered approach to design, analyze, and evaluate the organization and structure of digital communication via the development of Web-based, database-supported interactive applications. Prerequisite: JOUR 1345, CTEC 2350, CTEC 3350.

### **CTEC 4323. USER EXPERIENCE RESEARCH AND DESIGN. 3 Hours.**

Study of contemporary theories of user experience research including human-computer interaction, interaction design, multimodal communication, and industrial design. Prerequisites: JOUR 1345, CTEC 2350, CTEC 3320, CTEC 3350 or non-CTEC majors permission of the department.

### **CTEC 4350. WEB COMMUNICATION DESIGN AND DEVELOPMENT 3. 3 Hours.**

This capstone course of the CTEC sequence reviews and applies theoretical principles of communication, human-computer interaction, user experience research, and information architecture for effective communication over the Internet. The course includes web design, implementation, development and project management. Prerequisites: CTEC 2350, CTEC 3320, CTEC 3350, CTEC 4309, and one of the following: CTEC 4321 or CTEC 4323.

### **CTEC 4391. CONFERENCE COURSE. 3 Hours.**

Topic assigned on an individual basis, covering individual research or study in the designated areas. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: COMM 2315 and 60 or more hours earned and permission of the department.

### **CTEC 4393. SPECIAL TOPICS. 3 Hours.**

Special studies in communication technology. Topic varies from semester to semester. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: COMM 2315 and 60 or more hours earned and permission.

### **CTEC 4395. PROFESSIONAL INTERNSHIP. 3 Hours.**

Individual research while working with business and industry. Individual conference to be arranged. Prerequisite: COMM 2315, 60 or more hours earned and permission. Graded P/F.

## Computer Science (CS)

### COURSES

#### **CS 6352. PERF OF COMPUTE. 3 Hours.**

#### **CS 6359. OBJ ORIENT DESI. 3 Hours.**

#### **CS 6378. ADV OPER SYS. 3 Hours.**

## Computer Science and Engineering (CSE)

### COURSES

#### **CSE 1000. FRESHMAN UNDERGRADUATE RESEARCH. 0 Hours.**

Freshman level undergraduate research course. Prerequisites: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**CSE 1104. INTRODUCTION TO ENGINEERING. 1 Hour.**

Introduction to basic engineering concepts. Students will become familiar with engineering and its many sub-fields, ethical responsibilities, creativity and design. Corequisite: CSE 1105.

**CSE 1105. INTRODUCTION TO COMPUTER SCIENCE AND ENGINEERING. 1 Hour.**

Introduction to engineering concepts, the computer science and engineering disciplines, skills for written communication, and departmental orientation. Corequisite: CSE 1104.

**CSE 1301. COMPUTER LITERACY. 3 Hours. (TCCN = COSC 1301)**

For those persons having an interest in finding out what a computer is (and is not), the types of problems suited for computers, and how to utilize a computer to solve problems. The organization and characteristics of computers; application of commercial software such as word processors, spreadsheets, database packages, and communications packages.

**CSE 1310. INTRODUCTION TO COMPUTERS & PROGRAMMING. 3 Hours. (TCCN = COSC 1320)**

An introduction to the computer, to the algorithmic process, and to programming using basic control and data structures, using a procedural language. Prerequisite: MATH 1302.

**CSE 1311. INTRODUCTORY PROGRAMMING FOR ENGINEERS & SCIENTISTS. 3 Hours.**

An introduction to the computer, to the algorithmic process, and to programming using basic control and data structures. Prerequisite: MATH 1323 (or concurrently).

**CSE 1312. MATHEMATICAL INTRODUCTION TO COMPUTERS & PROGRAMMING. 3 Hours.**

Substitute for CSE 1310, but with broader connections to mathematical problem-solving, basic code quality issues, and evaluation of program execution properties. Credit will not be given for both CSE 1310 and CSE 1312. Prerequisite: MATH 1323 and CSE undergraduate advisor approval.

**CSE 1320. INTERMEDIATE PROGRAMMING. 3 Hours.**

Programming concepts beyond basic control and data structures. Emphasis is given to data structures including linked-lists and trees as well as modular design consistent with software engineering principles. Prerequisite: CSE 1104, CSE 1105, CSE 1310 or CSE 1312, and MATH 1323 (or concurrently).

**CSE 1325. OBJECT-ORIENTED PROGRAMMING. 3 Hours.**

Program design and implementation using Java. Object-oriented concepts, basic Unified Modeling Language (UML) modeling, collection classes, generics, reflection, reusability, and introduction to design patterns. Projects involve extensive programming and may include user interfaces and multithreading. Prerequisite: CSE 1320.

**CSE 1392. SPECIAL TOPICS. 3 Hours.**

New developments in the field of computer science and engineering. Topic may vary from semester to semester. May be repeated for credit when topic changes. Departmental approval required in advance to use for degree credit. Prerequisite: consent of advisor.

**CSE 2000. SOPHOMORE UNDERGRADUATE RESEARCH. 0 Hours.**

Sophomore level undergraduate research course. Prerequisites: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**CSE 2312. COMPUTER ORGANIZATION & ASSEMBLY LANGUAGE PROGRAMMING. 3 Hours.**

Computer organization from the viewpoint of software, including: the memory hierarchy, instruction set architectures, memory addressing, input-output, integer and floating-point representation and arithmetic. The relationship of higher-level programming languages to the operating system and to instruction set architecture are explored. Some programming in an assembly language. Prerequisite: CSE 1320.

**CSE 2315. DISCRETE STRUCTURES. 3 Hours.**

Propositional and predicate logic, mathematical proof techniques, sets, combinatorics, functions and relations, graphs, and graph algorithms. Prerequisites: CSE 1310 and MATH 1426.

**CSE 2320. ALGORITHMS & DATA STRUCTURES. 3 Hours.**

Design and analysis of algorithms with an emphasis on data structures. Approaches to analyzing lower bounds on problems and upper bounds on algorithms. Classical algorithm design techniques including algorithms for sorting, searching, and other operations on data structures such as hash tables, trees, graphs, strings, and advanced data structures, dynamic programming and greedy approaches. Prerequisite: CSE 1320 and CSE 2315.

**CSE 2392. SPECIAL TOPICS. 3 Hours.**

New developments in the field of computer science and engineering. Topic may vary from semester to semester. May be repeated for credit when topic changes. Departmental approval required in advance to use for degree credit. Prerequisite: consent of advisor.

**CSE 2441. INTRODUCTION TO DIGITAL LOGIC. 4 Hours.**

Analysis, design and testing of combinational and sequential logic circuits. Topics include Boolean algebra, logic circuit minimization techniques, synchronous sequential circuit design, algorithmic state machine design, design of arithmetic/logic and control units. Computer aided design tools and utilized throughout the course. Prerequisites: CSE 1320 and CSE 2315; Corequisite: EE 2440.

**CSE 3000. JUNIOR UNDERGRADUATE RESEARCH JUNIOR UNDERGRADUATE RESEARCH. 0 Hours.**

Junior level undergraduate research course. Prerequisites: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**CSE 3302. PROGRAMMING LANGUAGES. 3 Hours.**

Introduction, analysis, and evaluation of the important concepts found in a variety of programming languages. Formalisms useful in specifying language syntax and semantics; programming language paradigms such as algorithmic, functional, logic, and object-oriented. Prerequisite: CSE 1325, CSE 2312 and CSE 2320.

**CSE 3310. FUNDAMENTALS OF SOFTWARE ENGINEERING. 3 Hours.**

Software engineering principles, processes, and techniques; software development approaches focusing on functional analysis and functional design methods. Configuration management, implementation strategies, and testing. Team project. Prerequisite: CSE 1325 and CSE 2315.

**CSE 3311. OBJECT-ORIENTED SOFTWARE ENGINEERING. 3 Hours.**

Study of an agile unified methodology and its application to object-oriented software development. Topics include requirements acquisition, use case derivation, modeling and design of interaction behavior and state behavior, introduction to design patterns, derivation of design class diagrams, implementation considerations and deployment. Team project. Prerequisite: CSE 1325 and CSE 2320.

**CSE 3313. INTRODUCTION TO SIGNAL PROCESSING. 3 Hours.**

Examines models for presentation and processing of digital signals. Sampling theorem, correlation and convolution, time and frequency analysis of linear systems, Fourier transform, Z-transform, design of digital filters structures for discrete time systems. Prerequisite: CSE 2320, IE 3301 and either CSE 3380 or MATH 3330.

**CSE 3315. THEORETICAL CONCEPTS IN COMPUTER SCIENCE AND ENGINEERING. 3 Hours.**

Selected theoretical concepts including regular and context free languages, finite state and pushdown automata, Turing machines, computability, and NP-completeness. Prerequisite: CSE 2315.

**CSE 3320. OPERATING SYSTEMS. 3 Hours.**

Functions and components of an operating system, including process synchronization, job scheduling, memory management, file systems protection, and deadlocks. Related system software, such as loaders, linkers, assemblers, and windowing systems. Prerequisite: CSE 2312; and IE 3301 or MATH 3313 (or concurrently).

**CSE 3323. ELECTRONICS FOR COMPUTER ENGINEERING. 3 Hours.**

Review of basic electronics concepts, Integrated circuit technologies, Realization of digital logic devices, Analog filters, Signals and Signal Conditioning, Instrumentation, A/D, D/A conversion, Sensors, Oscillators, PLLs, Actuators, Prototyping, SMT and Schematics and PCBs (CAD). Prerequisite: EE 2440.

**CSE 3330. DATABASE SYSTEMS AND FILE STRUCTURES. 3 Hours.**

Database system architecture; file structures for databases, including indexing hashing, and B+-trees; the relational model and algebra; the SQL database language; Entity-Relationship data modeling; functional dependencies and basic normalization. Prerequisite: CSE 1325 and CSE 2320.

**CSE 3380. LINEAR ALGEBRA FOR CSE. 3 Hours.**

Solving systems of equations, matrix algebra, determinants, vector spaces, orthogonality and least squares, with applications to computer science. Prerequisite: CSE 2315.

**CSE 3392. SPECIAL TOPICS. 3 Hours.**

New developments in the field of computer science and engineering. Topic may vary from semester to semester. May be repeated for credit when topic changes. Departmental approval required in advance to use for degree credit. Prerequisite: consent of advisor.

**CSE 3442. EMBEDDED SYSTEMS I. 4 Hours.**

Design of microcomputer based systems: microcomputer programming, component and system architectures, memory interfacing, parallel and serial input/output ( I/O) interfacing, analog to digital (A/D) and digital to analog ( D/A) conversion, and typical applications. Prerequisite: CSE 2441, EE 2440.

**CSE 4000. SENIOR UNDERGRADUATE RESEARCH SENIOR UNDERGRADUATE RESEARCH. 0 Hours.**

Senior level undergraduate research course. Prerequisites: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**CSE 4191. INDIVIDUAL PROJECTS. 1 Hour.**

Special problems in computer science and engineering on an individual basis. Topics may change from semester to semester. May be repeated for credit. Departmental approval must be obtained in advance for degree credit. Prerequisite: consent of instructor and department chairperson.

**CSE 4303. COMPUTER GRAPHICS. 3 Hours.**

Theory and practice for the visual representation of data by computers including display devices, output primitives, planes and curved surfaces, two- and three-dimensional transformations, parallel and perspective viewing, removal of hidden lines and surfaces, illumination models, ray tracing, radiosity, color models, and computer animation. Prerequisite: CSE 2320, and either CSE 3380 or MATH 3330.

**CSE 4305. COMPILERS FOR ALGORITHMIC LANGUAGES. 3 Hours.**

Review of programming language structures, translation, and storage allocation. Theory and practice of compilers and issues in compiler construction including parsing, intermediate code generation, local optimization problems such as register allocation, data-flow analysis, and global optimization. Prerequisite: CSE 3302 and CSE 3315.

**CSE 4308. ARTIFICIAL INTELLIGENCE I. 3 Hours.**

An introduction to the field of artificial intelligence studying basic techniques such as heuristic search, deduction, learning, problem solving, knowledge representation, uncertainty reasoning and symbolic programming languages such as LISP. Application areas may include intelligent agents, data mining, natural language, machine vision, planning and expert systems. Prerequisite: CSE 3302, CSE 3315 and CSE 3380 (or MATH 3330).

**CSE 4309. ARTIFICIAL INTELLIGENCE II. 3 Hours.**

Continuation of artificial intelligence methods and techniques, including uncertainty reasoning, machine learning, perception, and advanced topics in knowledge representation, search and planning. Emphasis on design and implementation of AI solutions. Prerequisite: CSE 4308 and IE 3301.

**CSE 4314. PROFESSIONAL PRACTICES. 3 Hours.**

Ethics. Contemporary social aspects and responsibilities of computing in a global, societal context. Lifelong learning goals and resources. Entrepreneurship and intellectual property. Project involving written and oral communication. Prerequisite: COMS 2302.

**CSE 4316. COMPUTER SYSTEM DESIGN PROJECT I. 3 Hours.**

Analysis and design of an industry-type project that involves hardware and software components to meet desired needs within realistic constraints and standards. The project is to be completed in CSE 4317 the following semester. Multidisciplinary teams of CSE 4316 students are required to develop, review, and present problem definition, project planning, requirements formulation, and design specification. Corequisite: CSE 4314 Prerequisites: CSE 3310, CSE 3320, and for CpE Majors CSE 3442.

**CSE 4317. COMPUTER SYSTEM DESIGN PROJECT II. 3 Hours.**

Implementation, integration, quality assurance through peer review and testing, and deployment of the project designed in CSE 4316; oral presentation, documentation and project demonstration. Prerequisite: CSE 4316 and continuation with the same team.

**CSE 4319. MODELING AND SIMULATION. 3 Hours.**

Techniques for system modeling and simulation of stochastic and knowledge-based systems. Modeling methods, model validation and verification procedures, and steady state solution techniques. Prerequisite: CSE 3310 and IE 3301.

**CSE 4321. SOFTWARE TESTING & MAINTENANCE. 3 Hours.**

Study of software quality assurance, software testing, and software maintenance processes, methods and techniques including formal review techniques, software verification, validation, and testing, types of software maintenance, maintenance activities, and regression testing. Prerequisite: CSE 3310.

**CSE 4322. SOFTWARE PROJECT MANAGEMENT. 3 Hours.**

Introduction to software project management. Issues include effort estimation and costing, project planning and scheduling, option analysis, software quality assurance, and formal technical reviews. Prerequisite: CSE 3310.

**CSE 4323. QUANTITATIVE COMPUTER ARCHITECTURE. 3 Hours.**

Pipelined processors, parallel processors including shared and distributed memory, multicore, Very Long Instruction Word (VLIW) and graphics processors, memory and cache design, computer peripherals, and computer clusters. Prerequisite: CSE 3320 or consent of instructor.

**CSE 4331. DATABASE IMPLEMENTATION AND THEORY. 3 Hours.**

Review of the relational model and algebra; relational calculus; relational database design theory; advanced data modeling concepts; object-oriented and object-relational databases; database system implementation techniques, including concurrency control, recovery, atomic commitment, and query processing and optimization, database security; introduction to advanced concepts, such as active, deductive, spatial, temporal, multimedia and distributed databases. Prerequisite: CSE 3330.

**CSE 4334. DATA MINING. 3 Hours.**

Automatic discovery of patterns and knowledge from large data repositories, including databases, data warehouses, Web, document collections, and transactions. Basic topics of data mining including data preprocessing, data warehousing and online analytical processing (OLAP), data cube, frequent pattern and association rule mining, correlation analysis, classification and prediction and clustering, as well as advanced topics covering the techniques and applications of data mining on Web and text documents. Prerequisite: CSE 3330 and IE 3301 (or MATH 3313).

**CSE 4340. MOBILE SYSTEMS ENGINEERING. 3 Hours.**

Mobile devices including hand-held computers, sensor nodes and smart phones, operating systems, middleware and communication in mobile environments. Applications of mobile systems in health, entertainment, security and other areas. Prerequisite: CSE 4344.

**CSE 4342. EMBEDDED SYSTEMS II. 3 Hours.**

Advanced course in design of microcomputer-based systems. Emphasis is on the application of state-of-the-art microprocessors, microcomputers, and other LSI and VLSI components to real-time, interactive, and online problems. Prerequisite: CSE 3442 and CSE 3313.

**CSE 4344. COMPUTER NETWORK ORGANIZATION. 3 Hours.**

Design and analysis of computer networks. Emphasis on the OSI architecture but discusses other schemes (e.g., ARPAnet). Data link control, local networks, protocols/architectures, network access protocols, transport protocols, internetworking, and ISDN. Prerequisite: CSE 3320.

**CSE 4345. COMPUTATIONAL METHODS. 3 Hours.**

Introduction to numerical methods for solving problems in computer science and computer engineering. Topics include computer arithmetic, linear and nonlinear equations, eigenvalue problems, least squares, optimization, interpolation, and simulation. Prerequisite: IE 3301, CSE 2320, and either CSE 3380 or MATH 3330.

**CSE 4346. ADVANCED COMPUTER NETWORKS. 3 Hours.**

Design and engineering issues in networking. Topics include congestion control, scheduling, multicast routing, connection-oriented switching, DNS, bind, domain name space issues, flow control, traffic management, and admission control. Prerequisite: CSE 4344.

**CSE 4348. MULTIMEDIA SYSTEMS. 3 Hours.**

A hands-on approach to the study of principles underlying multimedia systems. Topics include multimedia systems design, multimedia hardware and software, issues in effective representation, processing, and communication of multimedia data such as text, graphics, audio, images, and video. Prerequisite: CSE 3320.

**CSE 4351. PARALLEL PROCESSING. 3 Hours.**

Theory and practice of parallel processing, including characterization of parallel processors, models for memory, algorithms, and interprocess synchronization. Issues in parallelizing serial computations, efficiency and speedup analysis. Programming exercises using one or more concurrent programming languages, on one of more parallel computers. Prerequisite: CSE 3320.

**CSE 4360. AUTONOMOUS ROBOT DESIGN AND PROGRAMMING. 3 Hours.**

An introduction to robotics and the design and programming of autonomous robot systems. Topics include basic kinematics, dynamics, and control, as well as sensors, knowledge representation, and programming techniques. Course work includes individual and group projects involving the building and programming of simulated and real robots. Prerequisite: CSE 2320, CSE 3320 and CSE 3380 (or MATH 3330).

**CSE 4361. SOFTWARE DESIGN PATTERNS. 3 Hours.**

In-depth study of software design patterns including description of patterns, design principles and techniques used by patterns as well as application of patterns to solving practical design problems. Team project. Prerequisites: CSE 3311.

**CSE 4378. INTRODUCTION TO UNMANNED VEHICLE SYSTEMS. 3 Hours.**

Introduction to UVS (Unmanned Vehicle Systems) such as UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground System) and UMS (Unmanned Maritime System), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. UVS missions could include student competitions sponsored by various technical organizations. This course is team-taught by engineering faculty. Prerequisite: Admission to a professional engineering or science program.

**CSE 4379. UNMANNED VEHICLE SYSTEM DEVELOPMENT. 3 Hours.**

Introduction to the technologies needed to create an UVS (Unmanned Vehicle System). Integration of these technologies (embodied as a set of sensors, actuators, computing and mobility platform sub-systems) into a functioning UVS through team work. UVS could be designed to compete in a student competition sponsored by various technical organizations or to support a specific mission or function defined by the instructors. This course is team-taught by engineering faculty. Prerequisite: B or better in CSE 4378 and admission to the UVS certificate program.

**CSE 4380. INFORMATION SECURITY. 3 Hours.**

Hands-on introduction to the basics of security. Includes system security, buffer overflows, a high-level overview of cryptography, firewalls and intrusion detection/prevention, malware, penetration testing, forensics, and system administration. Prerequisite: CSE 3320.

**CSE 4391. INDIVIDUAL PROJECTS. 3 Hours.**

Special problems in computer science and engineering on an individual basis. Topics may change from semester to semester. May be repeated for credit. Departmental approval must be obtained in advance for degree credit. Prerequisite: consent of instructor and department chairperson.

**CSE 4392. SPECIAL TOPICS. 3 Hours.**

New developments in the field of computer science and engineering. Topic may vary from semester to semester. May be repeated for credit when topic changes. Departmental approval required in advance to use for degree credit. Prerequisite: consent of instructor.

**CSE 5191. INDIVIDUAL STUDY IN COMPUTER SCIENCE. 1 Hour.**

Topics dealing with special problems in Computer Science on an individual instruction basis. May be repeated for credit.

**CSE 5194. ORIENTATION SEMINAR. 1 Hour.**

Presentation of computer science research by CSE faculty, students, and invited speakers. Preparation of program of work.

**CSE 5301. DATA ANALYSIS & MODELING TECHNIQUES. 3 Hours.**

Concepts and techniques for performing experiments and analyzing their results. Topics cover fundamental statistics, probability and data-representation concepts, inference through hypothesis testing, information theory, queuing models, and selected topics such as capacity planning and bottleneck analysis, clustering and classification, and hidden Markov models with computer science applications as examples.

**CSE 5306. Distributed Systems. 3 Hours.**

Issues and challenges in distributed systems, including: communication, distributed processes, naming and name services, synchronization, consistency and replication, transactions, fault tolerance and recovery, security, distributed objects, and distributed file systems.

**CSE 5307. PROGRAMMING LANGUAGE CONCEPTS. 3 Hours.**

Study and evaluation of concepts in programming language for modern computer systems. Programming projects are selected from string-based, symbolic, algorithmic, and object-oriented languages.

**CSE 5311. DESIGN AND ANALYSIS OF ALGORITHMS. 3 Hours.**

Techniques for analyzing upper bounds for algorithms and lower bounds for problems. Problem areas include: sorting, data structures, graphs, dynamic programming, combinatorial algorithms, introduction to parallel models.

**CSE 5314. COMPUTATIONAL COMPLEXITY. 3 Hours.**

Sequential and parallel complexity classes (e.g., NP-complete and P-complete) and representative problems in languages, logic and graphs. Reduction techniques. Approximate solutions. Complexity hierarchies.



**CSE 5315. NUMERICAL METHODS. 3 Hours.**

Selected topics from the theory and practice of using automatic digital computers for approximating arithmetic operations, approximating functions, solving systems of linear and non-linear equations, and solving ordinary and partial differential equations.

**CSE 5316. MODELING, ANALYSIS, AND SIMULATION OF COMPUTER SYSTEMS. 3 Hours.**

Mathematical formalism and techniques used for computer system modeling and analysis. Reviews probability, transform theory, coding theory, and Petri nets. Topics may include knowledge based modeling, validation procedures, various simulation techniques for stochastic process and real-time distributed systems.

**CSE 5317. DESIGN AND CONSTRUCTION OF COMPILERS. 3 Hours.**

Review of programming language structures, translation, and storage allocation. Introduction to context-free grammars and their description. Design and construction of compilers including lexical analysis, parsing and code generation techniques. Error analysis and simple code optimizations will be introduced.

**CSE 5318. APPLIED GRAPH THEORY AND COMBINATORICS. 3 Hours.**

Connected and disconnected graphs; trees; graph planarity; Hamiltonian circuits and Euler tours; coloring; flow and graph optimization algorithms, fundamentals of combinatorics; generating functions and recurrence relations; inclusion-exclusion principle; applications in telecommunications; mobile computing, parallel processing and multiprocessor architectures.

**CSE 5319. SPECIAL TOPICS IN THEORY & ALGORITHMS. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 5320. SPECIAL TOPICS IN SOFTWARE ENGINEERING. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 5321. SOFTWARE TESTING. 3 Hours.**

Study of software quality assurance, software testing process, methods, techniques and tools. Topics include formal review techniques, black box testing, white box testing, integration testing, acceptance testing, regression testing, performance testing, stress testing, and testing of object-oriented software. Prerequisite: CSE 5324 or concurrent enrollment.

**CSE 5322. SOFTWARE DESIGN PATTERNS. 3 Hours.**

Study and application of object-oriented software design patterns to software development and maintenance in the object-oriented paradigm. Prerequisite: CSE 5324 or concurrent enrollment.

**CSE 5323. SOFTWARE ENGINEERING PROCESSES. 3 Hours.**

Introduces software lifecycle models, process disciplines, project management concepts, and applies them by mastering the Personal Software Process (PSP).

**CSE 5324. SOFTWARE ENGINEERING: ANALYSIS, DESIGN, AND TESTING. 3 Hours.**

Motivations, principles, and goals of software engineering; technical aspects of software projects, including: review of structured analysis and structured design, emphasis on object-oriented methods of requirements analysis and specification, design, and implementation; software testing concepts; team project.

**CSE 5325. SOFTWARE ENGINEERING: MANAGEMENT, MAINTENANCE, AND QUALITY ASSURANCE. 3 Hours.**

Issues and principles for software management; managerial and support aspects of software projects, including: processes, estimation techniques, planning and scheduling, risk analysis, metrics, and quality assurance. Other topics include: configuration management, verification and validation, and maintenance; team project. Prerequisite: CSE 5324 or concurrent enrollment.

**CSE 5326. REAL-TIME SOFTWARE DESIGN. 3 Hours.**

Specification, design, and analysis of real-time systems including real-time logics and decidability of real-time conditions; real-time scheduling approaches, system requirement specification; procedural and object-oriented methods; specialized analysis techniques for distributed and for control applications; team project. Prerequisite: CSE 5324 or concurrent enrollment.

**CSE 5327. TELECOMMUNICATIONS SOFTWARE DEVELOPMENT. 3 Hours.**

General understanding and classification of telecommunications systems and applications. Issues relating to the analysis, design, implementation, and testing of telecommunications software. Prerequisite: CSE 5324 and CSE 5344.

**CSE 5328. SOFTWARE ENGINEERING TEAM PROJECT I. 3 Hours.**

Apply the knowledge and skills gained in other software engineering courses to synthesize a solution to a significant and realistic software development team project. Participate in activities including: proposal writing, problem analysis, software requirements specification, project planning, software design, implementation, software quality assurance, software testing, integration, and demonstration. Required for and open only to Master of Software Engineering degree candidates. Prerequisite: one of CSE 5321, CSE 5322, CSE 5325.

**CSE 5329. SOFTWARE ENGINEERING TEAM PROJECT II. 3 Hours.**

Apply the knowledge and skills gained in other software engineering courses to synthesize a solution to a significant and realistic software development team project. Participate in activities including: proposal writing, problem analysis, software requirements specification, project planning, software design, implementation, software quality assurance, software testing, integration, and demonstration. Required for and open only to Master of Software Engineering degree candidates. Prerequisite: one of CSE 5321, CSE 5322, CSE 5325.

**CSE 5330. DATABASE SYSTEMS. 3 Hours.**

Database system architecture; management and analysis of files, indexing, hashing, and B+-trees; the relational model and algebra; the SQL database language; database programming techniques, database design using Entry-Relationship, extended E-R, and UML modeling; basics of normalization. Introduction to database security, query processing and transaction management. Prerequisite: CSE 2320.

**CSE 5331. DBMS MODELS AND IMPLEMENTATION TECHNIQUES. 3 Hours.**

DBMS system implementation techniques, including query optimization, transaction processing, concurrency control, buffer management and recovery. Object-oriented, object-relational and XML databases. Introduction to advanced database models, such as active, distributed, temporal, spatial and data warehousing. Prerequisite: CSE 3330/CSE 5330, or consent of instructor.

**CSE 5333. DISTRIBUTED AND PARALLEL DATABASES. 3 Hours.**

Distributed database system architecture and design, distributed transaction management and database interoperability; distributed query processing; parallel database architectures and techniques; and parallel algorithms for database operations. Prerequisite: CSE 5330 or consent of instructor.

**CSE 5334. DATA MINING. 3 Hours.**

Preparing data for mining, using preprocessing, data warehouses and OLAP; data mining primitives, languages and system architecture; data mining techniques including association rule mining, classification/prediction and cluster analysis.

**CSE 5335. WEB DATA MANAGEMENT & XML. 3 Hours.**

XML has become an important standardization for data representation and information exchange among Internet co-operative applications. This course provides an in depth study of the area of web data management with an emphasis on XML standards and technologies. The course primarily covers the state of the art in designing and building web applications and services, primarily focusing on issues and challenges that revolve around the management and processing of XML data. Topics include: Web programming, XML standards, XML query languages, native XML storage management, XML on relational databases, XML indexing, Web Services, metadata management with RDF, and Semantic Web. Prerequisite: CSE 3330/CSE 5330, or consent of instructor.

**CSE 5336. STREAM DATA MANAGEMENT. 3 Hours.**

This course provides a study of special-purpose data management systems for processing stream data generated by sensors, RFIDs (Radio Frequency Identifications), and other ubiquitous devices. Topics include: Analysis of the differences between processing and managing stored data and stream data (including events). Using sliding windows to unblock blocking operations for continuous queries. Approximation techniques for continuous aggregation queries. Quality of Service (QoS) requirements of stream and complex event processing applications and their impact on various aspects of processing. Modeling continuous queries, scheduling strategies for (multiple) continuous queries, adaptive query plans, and load shedding to trade-off QoS requirements. Design and implementation of stream processing systems. Prerequisite: CSE 3330 or CSE 5330, or consent of instructor.

**CSE 5339. SPECIAL TOPICS IN DATABASE SYSTEMS. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 5343. REAL-TIME DATA ACQUISITION AND CONTROL SYSTEMS. 3 Hours.**

Advanced course in design of microcomputer-based systems. Emphasis is on the application of state-of-the-art microprocessors, microcomputers, and other LSI and VLSI components to real-time, interactive, and/or embedded systems. Prerequisite: CSE 5442 or consent of instructor.

**CSE 5344. COMPUTER NETWORKS. 3 Hours.**

Study of computer network architectures, protocols, and interfaces. The OSI reference model and the Internet architecture will be discussed. Networking techniques such as multiple access, packet/cell switching, and internetworking will be studied. Discussion will also include end-to-end protocols, congestion control, high-speed networking, and network management. Emphasis will be on Internet and ATM. Prerequisite: CSE 3320 or consent of instructor.

**CSE 5345. FUNDAMENTALS OF WIRELESS NETWORKS. 3 Hours.**

Fundamentals of wireless networks, including wireless channels, coding and modulation, cellular architectures and protocols, multiple division techniques, multiple access control, wireless LAN/PAN, mobile IP and wireless internet, TCP over wireless, ad-hoc networks, sensor networks. Prerequisite: CSE 4344/CSE 5344 or equivalent course.

**CSE 5346. NETWORKS II. 3 Hours.**

This course provides an in depth study and comparison of the two primary networking paradigms, Internet/broadcast and switched, using two technologies, IPv6 and ATM, as representative examples. The course is implementation-oriented, focusing on issues such as routing, broadcast, multicast, mobility, network configuration, and quality of service. Prerequisite: CSE 5344.

**CSE 5347. TELECOMMUNICATION NETWORKS DESIGN. 3 Hours.**

A study of advanced telecommunication systems and networks, internet working functions, networking architectures and their convergence towards an IP/Ethernet centric architecture. Prerequisite: CSE 4344, CSE 5344, or CSE 5346.

**CSE 5348. MULTIMEDIA SYSTEMS. 3 Hours.**

Representations and techniques for processing, communicating, and compression of text, audio, graphics, and video in real time. Project integrating these topics. Prerequisite: CSE 3320.

**CSE 5349. SPECIAL TOPICS IN NETWORKING. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 5350. COMPUTER ARCHITECTURE II. 3 Hours.**

A study of advanced uniprocessor and basic multiprocessor systems. Topics may include memory management systems, pipelined processors, array and vector processors, and introduction to architecture of multiprocessor systems. Prerequisite: CSE 3322 or consent of instructor.

**CSE 5351. PARALLEL PROCESSING. 3 Hours.**

Covers the theory and practice of parallel processing. Theoretical topics include: abstract models and algorithms for shared memory computation (PRAM); algorithms for various topologies such as meshes and hypercubes; efficiency and speedup analysis. Problem areas include data structures, numerical methods, graphs, combinatorics. Practical topics include synchronization, routing, scheduling, parallelizing serial computations, programming languages. Includes programming exercises using one or more concurrent programming languages, on one or more parallel computers. Prerequisite: CSE 3320 or consent of instructor.

**CSE 5353. DISTRIBUTED COMPUTING. 3 Hours.**

Programming languages, support components, coordination models, and fundamental algorithms for distributed and clustered systems. Prerequisite: CSE 5306.

**CSE 5355. COMPUTER SYSTEM PERFORMANCE EVALUATION. 3 Hours.**

Queueing network models and simulation for studying the performance of overall computer systems. Theory and applications of Markov process, Random Walk, Renewal Process, and Birth and Death Process. Topics also include bottleneck identification, capacity planning, hardware selection and upgrade, and performance tuning. Data collection, presentation and interpretation, benchmarking and the proper choice of performance metrics will be emphasized. Prerequisite: CSE 3320.

**CSE 5359. SPECIAL TOPICS IN SYSTEMS & ARCHITECTURE. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 5360. ARTIFICIAL INTELLIGENCE I. 3 Hours.**

Introduction to the methods, concepts and applications of artificial intelligence, including knowledge representation, search, theorem proving, planning, natural language processing, and study of AI programming languages. Prerequisite: CSE 2320 and CSE 3315, or consent of instructor.

**CSE 5361. ARTIFICIAL INTELLIGENCE II. 3 Hours.**

Continuation of artificial intelligence methods and techniques, including uncertainty reasoning, machine learning, perception, and advanced topics in knowledge representation, search and planning. Emphasis on design and implementation of AI solutions. Prerequisite: CSE 5360 or consent of instructor.

**CSE 5362. SOCIAL NETWORKS AND SEARCH ENGINES. 3 Hours.**

Social networks, Search Engines, Recommendation systems, Question & Answering systems are web-enabled Information Technology main stream. This course covers the foundations of these technology including text/query processing, web content analysis, basic graph theory, random walk, PageRank, power law distribution, random graphs, small world, growth models, and network diffusion. Prerequisite: CSE 5311.

**CSE 5364. ROBOTICS. 3 Hours.**

An introduction to robotics and the design and programming of autonomous robot systems. Topics include basic kinematics, dynamics, and control, as well as sensors, knowledge representation, and programming techniques. Coursework includes individual and group projects involving the building and programming of simulated and real robots. Prerequisite: CSE 2320 and CSE 3442.

**CSE 5365. COMPUTER GRAPHICS. 3 Hours.**

Input/output devices and programming techniques suitable for the visual representation of data and images. Prerequisite: CSE 1320, analytic geometry and linear algebra, or consent of instructor.

**CSE 5366. DIGITAL SIGNAL PROCESSING. 3 Hours.**

Introduction to principles and applications of digital signal processing. Topics include: analysis of signals and systems, Fourier and Z transforms, digital filter design techniques (FIR and IIR), autoregressive (AR) and autoregressive moving average (ARMA) modeling. Applications to science and engineering include: financial predictions and processing of digital music. Laboratory work includes some programming and use of high quality library routines and packages such as Mathematica, Matlab. Prerequisite: CSE 1320 and consent of Graduate Advisor.

**CSE 5367. PATTERN RECOGNITION. 3 Hours.**

Principles and various approaches of pattern recognition processes, including Bayesian classification, parametric/non-parametric classifier design, feature extraction for signal representation, and techniques for classification and clustering. Current issues in pattern recognition research will also be examine. Prerequisite: CSE 2320 , MATH 3313.

**CSE 5368. NEURAL NETWORKS. 3 Hours.**

Theoretical principles of neurocomputing. Learning algorithms, information capacity, and mapping properties of feedforward and recurrent networks. Different neural network models will be implemented and their practical applications discussed. Prerequisite: CSE 1320 and calculus II, or consent of instructor.

**CSE 5369. SPECIAL TOPICS IN INTELLIGENT SYSTEMS. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 5370. BIOINFORMATICS. 3 Hours.**

Basic biology of genome and common laboratory techniques Overview of discrete probability theory, random variables and processes. Issues in genome mapping, sequencing and analysis: sequence alignments and alignment algorithms; genomic databases and information access; structure and features of DNA sequences. Techniques in contemporary biotechnology, including proteomics and gene expression analysis using microarray chips. Prerequisite: CSE 5311 or consent of instructor.

**CSE 5379. SPECIAL TOPICS IN BIOINFORMATICS. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 5380. INFORMATION SECURITY 1. 3 Hours.**

Hands-on introduction to the basics of security. Includes system security, buffer overflows, a high-level overview of cryptography, firewalls and IDS/IPS, malware, penetration testing, forensics, and system administration. Prerequisite: CSE 3320 or consent of instructor.

**CSE 5381. INFORMATION SECURITY 2. 3 Hours.**

Deeper study of the fundamentals of security, including symmetric key cryptography, public key cryptography, cryptographic protocols, malware design, network attacks and defenses, data security, privacy, and wireless security. Prerequisite: CSE 5380 and CSE 4344 or consent of instructor.

**CSE 5382. SECURE PROGRAMMING. 3 Hours.**

This course is an introduction to methods of secure software design and development for upper-level undergraduate students and graduate students. Students will learn about the major security problems found in software today. Using this knowledge, they will work in teams to find these bugs in software, fix the bugs, and design software so that it has fewer security problems. Static analysis tools will be a core part of the class, but students will also be exposed to black box testing tools. Topics will include input validation, buffer overflow prevention, error handling, web application issues, and XML. Prerequisites: CSE 3310 and CSE 3320, or equivalent.

**CSE 5383. INTRODUCTION TO UNMANNED VEHICLE SYSTEMS. 3 Hours.**

Introduction to UVS (Unmanned Vehicle Systems) such as UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground System) and UMS (Unmanned Maritime System), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. UVS missions could include student competitions sponsored by various technical organizations. This course is team-taught by engineering faculty.

**CSE 5384. UNMANNED VEHICLE SYSTEM DEVELOPMENT. 3 Hours.**

Introduction to the technologies needed to create an UVS (Unmanned Vehicle System). Integration of these technologies (embodied as a set of sensors, actuators, computing and mobility platform sub-systems) into a functioning UVS through team work. UVS could be designed to compete in a student competition sponsored by various technical organizations or to support a specific mission or function defined by the instructors. This course is team-taught by engineering faculty.

**CSE 5388. SPECIAL TOPICS IN INFORMATION SECURITY. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 5389. SPECIAL TOPICS IN MULTIMEDIA, GRAPHICS, & IMAGE PROCESSING. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 5391. INDIVIDUAL STUDY IN COMPUTER SCIENCE. 3 Hours.**

Topics dealing with special problems in Computer Science on an individual instruction basis. May be repeated for credit.

**CSE 5392. TOPICS IN COMPUTER SCIENCE. 3 Hours.**

May be repeated for credit when the topics vary.

**CSE 5393. DIRECTED STUDY IN COMPUTER SCIENCE. 3 Hours.****CSE 5394. MASTER'S PROJECT I. 3 Hours.****CSE 5395. MASTER'S PROJECT II. 3 Hours.****CSE 5398. MASTER'S THESIS I. 3 Hours.**

Preliminary research effort for the master's thesis, including problem definition and literature search, along with identification of resources, milestones, examining committee members, and external publication venue. Graded F, R.

**CSE 5442. EMBEDDED COMPUTER SYSTEMS. 4 Hours.**

Design of micro computer-based systems; microcomputer programming, component and system architectures, memory interfacing, parallel and serial I/O interfacing, A/D and D/A conversion, and typical applications. Prerequisite: CSE 3322 or consent of instructor.

**CSE 5698. MASTER'S THESIS II. 6 Hours.**

Completion of tasks in support of the thesis defined in Master's Thesis I, including oral defense of the written documents. Prerequisite: CSE 5398. Graded F, R, P.

**CSE 6197. RESEARCH IN COMPUTER SCIENCE. 1 Hour.**

Individually supervised research projects.

**CSE 6297. RESEARCH IN COMPUTER SCIENCE. 2 Hours.**

Individually supervised research projects.

**CSE 6306. ADVANCED TOPICS IN OPERATING SYSTEMS. 3 Hours.**

May be repeated for credit when topics change. Prerequisite: CSE 5306 or consent of instructor.

**CSE 6311. ADVANCED COMPUTATIONAL MODELS AND ALGORITHMS. 3 Hours.**

This course aims at exploring advanced computation models, theory and advanced algorithm design and analysis techniques that have broad applicability in solving real-life problems in cross-disciplinary areas such as the Internet computing, Web search engines, data mining, bioinformatics, wireless mobile and sensor networks, dynamic resource management, distributed computing, and social networking. Topics include: Theory of NP-completeness; Equivalence of Machine Models; Lower Complexity Bounds; Randomized and Probabilistic Algorithms; Game-theoretic and Information-theoretic Models; Approximation and Optimization Techniques. Prerequisite: CSE 5311 or consent of instructor.

**CSE 6314. ADVANCED TOPICS IN THEORETICAL COMPUTER SCIENCE. 3 Hours.**

May be repeated for credit when topics change. Prerequisite: CSE 5314 or consent of instructor.

**CSE 6319. SPECIAL TOPICS IN ADVANCED THEORY AND ALGORITHMS. 3 Hours.**

May be repeated when topics vary.

**CSE 6323. Automated Software Engineering. 3 Hours.**

Study of foundations, techniques and tools for automating software processes and methodologies including analysis, design, implementation, testing, and maintenance of large software systems. Prerequisite: CSE 5324 or consent of instructor.

**CSE 6324. ADVANCED TOPICS IN SOFTWARE ENGINEERING. 3 Hours.**

May be repeated for credit when topics change. Prerequisite: CSE 5324 or consent of instructor.

**CSE 6329. SPECIAL TOPICS IN ADVANCED SOFTWARE ENGINEERING. 3 Hours.**

May be repeated for credit when topics vary. CSE 5324 or consent of instructor.

**CSE 6331. ADVANCED TOPICS IN DATABASE SYSTEMS. 3 Hours.**

May be repeated for credit when topics change. Prerequisite: CSE 5332 and consent of instructor.

**CSE 6332. TECHNIQUES FOR MULTIMEDIA DATABASES. 3 Hours.**

Overview of data types, formats and compression techniques for audio, video and image data; operating systems techniques for multimedia; video delivery techniques; indexing and retrieval techniques; content-based video modeling; multimedia data on the Web. Prerequisite: CSE 5331 or consent of instructor.

**CSE 6339. SPECIAL TOPICS IN ADVANCED DATABASE SYSTEMS. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 6344. ADVANCED TOPICS IN COMMUNICATION NETWORKS. 3 Hours.**

May be repeated for credit when topics change. Prerequisite: CSE 5346 or consent of instructor.

**CSE 6345. PERVASIVE COMPUTING & COMMUNICATIONS. 3 Hours.**

Issues and challenges in pervasive computing environments: interoperability and heterogeneity; location-awareness and mobility; transparency and proactivity; trust, authentication and security, information acquisition and dissemination in mobile and pervasive systems. Context-aware computing. Ad-hoc, sensor and mobile P2P systems in pervasive computing. Case studies. Prerequisite: Introductory courses in Networks, Algorithms and Operating Systems: e.g., CSE 5344, CSE 5311, and CSE 5306, or consent of instructor.

**CSE 6347. ADVANCED WIRELESS NETWORKS & MOBILE COMPUTING. 3 Hours.**

Wireless architectures and protocols (e.g., GSM, CDMA); channel assignment and resource allocation; mobility and location management; mobile data management; wireless data networking and multimedia; call admission control and QoS provisioning; cross layer optimization, performance modeling. Prerequisite: CSE 5345 and CSE 5330.

**CSE 6348. ADVANCES IN SENSOR NETWORKS. 3 Hours.**

Covers application and architecture of wireless sensor networks. Topics include platforms, routing, coverage, MAC, transport layer, data storage, query, and in-network processing. Prerequisite: CSE 5345 or equivalent course.

**CSE 6349. SPECIAL TOPICS IN ADVANCED NETWORKING. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 6350. ADVANCED TOPICS IN COMPUTER ARCHITECTURE. 3 Hours.**

May be repeated for credit when topics change. Prerequisite: CSE 5350 and consent of instructor.

**CSE 6351. TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING. 3 Hours.**

May be repeated for credit when topics change. Prerequisite: CSE 5350, CSE 5351, or consent of instructor.

**CSE 6352. FAULT-TOLERANT COMPUTING. 3 Hours.**

Topics in reliable and fault-tolerant computing. May be repeated for credit when topics change. Prerequisite: CSE 5350 and consent of instructor.

**CSE 6359. SPECIAL TOPICS IN ADVANCED SYSTEMS & ARCHITECTURE. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 6362. ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE. 3 Hours.**

May be repeated for credit when the topic changes. Prerequisite: CSE 5361 and consent of instructor.

**CSE 6363. MACHINE LEARNING. 3 Hours.**

A detailed investigation of current machine learning methods, including statistical, connectionist, and symbolic learning. Presents theoretical results for comparing methods and determining what is learnable. Current issues in machine learning research will also be examined. Prerequisite: CSE 5361 and consent of instructor.

**CSE 6366. DIGITAL IMAGE PROCESSING. 3 Hours.**

Digitization and coding of images, characterization and representation of digital images in spatial and frequency domains, picture restoration and enhancement, filtering of two-dimensional signals, image reconstruction. Prerequisite: CSE 5366 or consent of instructor.

**CSE 6367. COMPUTER VISION. 3 Hours.**

Advanced techniques for interpretation, analysis, and classification of digital images. Topics include methods for segmentation, feature extraction, recognition, stereo vision, 3-D modeling, and analysis of time-varying imagery. Also taught as EE 6358. Prerequisite: CSE 5301 or CSE 5360 or EE 5356 or EE 5357, and consent of instructor.

**CSE 6369. SPECIAL TOPICS ADVANCED INTELLIGENT SYSTEMS. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 6379. SPECIAL TOPICS IN ADVANCED BIOINFORMATICS. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 6388. SPECIAL TOPICS IN ADVANCED INFORMATION SECURITY. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 6389. SPECIAL TOPICS IN ADVANCED MULTIMEDIA, GRAPHICS, & IMAGE PROCESSING. 3 Hours.**

May be repeated for credit when topics vary.

**CSE 6392. SPECIAL TOPICS IN ADVANCED COMPUTER SCIENCE. 3 Hours.**

May be repeated for credit when the topics vary.

**CSE 6397. RESEARCH IN COMPUTER SCIENCE. 3 Hours.**

Individually supervised research projects.

**CSE 6399. DISSERTATION. 3 Hours.**

Preparation of dissertation in computer science or computer science and engineering. Graded F, R.

**CSE 6697. RESEARCH IN COMPUTER SCIENCE. 6 Hours.**

Individually supervised research projects.

**CSE 6699. DISSERTATION. 6 Hours.**

Preparation of dissertation in computer science or computer science and engineering. Graded F, R,P,W.

**CSE 6997. RESEARCH IN COMPUTER SCIENCE. 9 Hours.**

Individually supervised research projects.

**CSE 6999. DISSERTATION. 9 Hours.**

Preparation of dissertation in computer science or computer science and engineering. Graded P, F, R.

**CSE 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Criminology & Criminal Justice (CRCJ)

### COURSES

**CRCJ 2334. INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM. 3 Hours. (TCN = CRIJ 1301)**

An overview of the entire criminal justice system; history and development, law enforcement, prosecution and defense, courts and trial processes, and corrections. Formerly CRCJ 3334; credit will not be granted for both CRCJ 3334 and CRCJ 2334.

**CRCJ 2335. ETHICS AND THE CRIMINAL JUSTICE SYSTEM. 3 Hours.**

An examination of ethical issues confronted by criminal justice personnel and organizations. The course explores the standards and professional responsibilities of criminal justice practitioners, including law enforcement officers, officers of the courts, and juvenile and corrections officials.

**CRCJ 2340. CRIMINAL INVESTIGATION. 3 Hours. (TCCN = CRIJ 2314)**

Fundamentals of criminal investigation, including theory and history, conduct at crime scenes, sources of information, collection and preservation of evidence, case and trial preparation. Formerly CRCJ 2314; credit will be given for CRCJ 2340 or CRCJ 2314, but not both.

**CRCJ 2350. INTRODUCTION TO LAW ENFORCEMENT. 3 Hours.**

An overview of the historical and organizational development of police systems. Emphasis is placed on the function and organizational structure of law enforcement agencies and how these agencies interface with other components of the criminal justice system.

**CRCJ 3300. THEORETICAL CRIMINOLOGY. 3 Hours.**

The methodological and theoretical perspectives of the social and biological sciences as integrated into the criminal justice system.

**CRCJ 3307. INTRODUCTION TO SECURITY SYSTEMS. 3 Hours.**

Historical development of private security, its form and practice in modern society. Emphasis on three major divisions within the field: industrial, commercial and governmental security organizations and issues.

**CRCJ 3310. PROFESSIONAL WRITING FOR CRCJ MAJORS. 3 Hours.**

Designed to develop or enhance skills in varied writing styles used in the study of criminology and criminal justice. Legal, technical, and academic writing requirements are presented with emphasis on purpose, form and content. Specific focus is on technical reports for law enforcement agencies, legal research, field investigations, as well as proper citation and reference style. Open to CRCJ majors or minors only.

**CRCJ 3320. CYBERCRIME. 3 Hours.**

The course presents a conceptual overview of cybercrime and information security. Topics include: history of cybercrime, cybercrime techniques, cyberterrorism, forensics, and information security fundamentals.

**CRCJ 3330. FUNDAMENTALS OF LAW. 3 Hours.**

This course introduces students to areas of the law that affect the daily lives of U.S. residents. Emphasis is on fundamental criminal law and constitutional law principles which provide a platform for consideration of important public policy issues concerning crime, discrimination, health care, and immigration.

**CRCJ 3336. POLICE MANAGEMENT AND ADMINISTRATION. 3 Hours.**

Examines the principles of administration, management, politics and leadership with emphasis on their applicability to police planning, organization, direction, control and personnel management.

**CRCJ 3337. ADVANCED CRIMINAL PROCEDURE. 3 Hours.**

The processes involved in the criminal justice system; the rules of evidence; the laws of arrest, search and seizure; and the judicial process from offense to conviction.

**CRCJ 3338. JUVENILE JUSTICE SYSTEMS. 3 Hours.**

Organization, processes, and functions of the juvenile justice system in the United States, its historical antecedents, and contemporary challenges. Consideration also given to sociopolitical factors in juvenile justice decision-making.

**CRCJ 3340. CRIMINAL JUSTICE STATISTICS. 3 Hours.**

An introduction to basic concepts and techniques necessary for a preliminary and proficient understanding of criminal justice research. Focus is on analyzing and interpreting research findings including types of data, central tendency, and both descriptive and inferential statistics. Prerequisite: CRCJ 2334 and CRCJ 3350 or equivalent.

**CRCJ 3350. INTRODUCTION TO RESEARCH METHODS IN CRIMINOLOGY AND CRIMINAL JUSTICE. 3 Hours.**

This course introduces students to the research methodology used in criminological research. Emphasis is on the development of a general understanding of why and how research can be and is conducted in the field of criminology and criminal justice. Other dimensions of research are discussed including the nature of scientific thought, the link between research methods and criminological theory, and the various ethical issues concerning research in the field of criminology.

**CRCJ 3370. INTRODUCTION TO FORENSICS. 3 Hours.**

This course provides an overview of forensic science. Emphasis is on crime scene investigation, physical evidence, organic and inorganic analysis, forensic toxicology and use of DNA in investigations.

**CRCJ 3371. CRIME SCENE INVESTIGATION. 3 Hours.**

Provides an in-depth examination of the principles of crime scene investigation. Aspects of forensic crime scene investigation from receiving the call, arriving at the scene, processing of the scene, evidence collection, and safety protocols are examined from scientific, procedural, and legal perspectives. In addition, the tools, techniques, and protocols necessary to perform systematic and thorough crime scene investigation will be presented.

**CRCJ 3380. RACE, CRIME, AND JUSTICE. 3 Hours.**

An examination of race in the context of the criminal justice system. Emphasis is on social construction of crime; and the treatment of racial minorities as victims and offenders by law enforcement, courts, and corrections. Offered as CRCJ 3380 and MAS 3380; credit will be granted only once. Offered as AAST 3380 and CRCJ 3380; credit will be granted in only one department.

**CRCJ 3385. WOMEN AND CRIME. 3 Hours.**

This course examines criminology and criminal justice issues as they relate specifically to women. The three major areas of coverage include (1) women and girls as victims of crime, (2) women and girls as criminal offenders; and (3) women working in the criminal justice system. Offered as CRCJ 3385 and WOMS 3385; credit will be granted only once.

**CRCJ 3390. VICTIMOLOGY. 3 Hours.**

The relationship between victims of crime and the criminal justice system. Includes an analysis of the characteristics of crime victims, victim reporting and nonreporting patterns, treatment of victims by the various segments of the criminal justice system, victim assistance programs, and the issue of compensation and/or restitution for victims of crime.

**CRCJ 3395. DRUG USE AND ABUSE. 3 Hours.**

An examination of the description, classification, and analysis of the problem of illegal drug use. Focus is on current drug policies in the United States, and a comparison of worldwide drug policies, and critical analysis of each.

**CRCJ 4191. CONFERENCE COURSE. 1 Hour.**

Directed individual study; research and study on a topic agreed upon by instructor and student. No more than six hours credit will be granted for conference courses in criminal justice. Prerequisite: permission of the instructor.

**CRCJ 4291. CONFERENCE COURSE IN CRIMINAL JUSTICE. 2 Hours.**

Directed individual study; research and study on a topic agreed upon by instructor and student. No more than six hours credit will be granted for conference courses in criminal justice. Prerequisite: permission of the instructor.

**CRCJ 4301. THE AMERICAN JUDICIAL SYSTEM. 3 Hours.**

Federal, state, and local judicial systems, with special emphasis on state trial courts having criminal jurisdiction. Court structure and function, court management, and judicial behavior.

**CRCJ 4309. PRIVATE SECURITY ADMINISTRATION. 3 Hours.**

The essentials of governmental and proprietary security development and program planning; including personnel recruitment and training, developing and conducting security audits, records and information protection, and general applications of modern management techniques to security organization. Prerequisite: CRCJ 3307.

**CRCJ 4315. CRIMINAL CAREERS AND BEHAVIOR SYSTEMS. 3 Hours.**

Study and analysis of criminal syndicates, corporate crime, computer crime, criminal corporations, organized crime, and transnational criminal operations.

**CRCJ 4325. GANGS. 3 Hours.**

An examination of historical and contemporary street and correctional institutional gangs. Addresses the nature and definition of gangs, types and diversity of membership of gangs, theoretical explanations, criminal and deviant behavior, law enforcement responses, intervention and prevention strategies, and public policy issues.

**CRCJ 4332. COMMUNITY CORRECTIONS. 3 Hours.**

Evaluation of practices, issues, and trends in community corrections. Emphasis is on the de-institutionalization movement, probation, parole, intermediate punishments, and other community alternatives to incarceration.

**CRCJ 4333. INSTITUTIONAL CORRECTIONS. 3 Hours.**

Examination and evaluation of practices, issues, and trends in institutional corrections. Emphasis is on administration, organization, and effectiveness of incarceration.

**CRCJ 4340. FORENSIC DEATH INVESTIGATION. 3 Hours.**

An exploration of death investigations including an overview of protocols utilized to investigate a death as well as autopsy perspectives. Focus is on the numerous causes of death and the working relationship of police investigators, death investigators, forensic pathologists, and forensic laboratories. Prerequisite: CRCJ 3370.

**CRCJ 4341. FORENSIC EXAMINATION OF IMPRESSION EVIDENCE. 3 Hours.**

Explores how impression evidence is formed, how to collect and enhance impression evidence and how to compare this type of evidence. The student will also learn how impression evidence is presented and utilized in a courtroom setting. Prerequisites: CRCJ 3370 and CRCJ 3371 or permission of the instructor.

**CRCJ 4342. FORENSIC HAIR AND FIBER IDENTIFICATION. 3 Hours.**

Introduces the student to forensic hair and fiber examination by microscopy, including the presentation of the techniques, skills, and limitations of the hair and fiber examiner in a modern crime laboratory setting. Collection techniques utilized at the crime scene and from items of evidence will also be examined. The impact of these techniques on the criminal justice system, in particular the court system, will be explored. Prerequisite: CRCJ 3370 or permission of the instructor.

**CRCJ 4343. FORENSIC EXPERT TESTIMONY. 3 Hours.**

Survey of the techniques for providing testimony as an expert witness in a court of law, including proper physical appearance, demeanor, qualifications, presentation of evidence, offering opinion, and ethics of providing testimony. Prerequisite: CRCJ 3370.

**CRCJ 4345. CRIME AND THE CRIMINAL JUSTICE SYSTEM IN THE MEDIA. 3 Hours.**

An examination of crime and the criminal justice system as depicted in the media; special emphasis on the roles of the media in influencing individual and societal perceptions of, and reactions to, crime and the criminal justice system.

**CRCJ 4352. TERRORISM AND MASS VIOLENCE. 3 Hours.**

Examination of historic and current trends in civil disruption from domestic/international perspectives. Considers literature and philosophical basis of political terrorism; costs of terrorism; future trends and deterrence by civil or military intervention. Formerly CRCJ 3352; credit will not be granted for both CRCJ 4352 and CRCJ 3352.



**CRCJ 4355. ORGANIZED CRIME: NATIONAL AND INTERNATIONAL. 3 Hours.**

An examination of organized crime in the United States and internationally, including history, development, ethnic links, impact upon society and the economy, and international cooperation aimed at eradicating the occurrence and proliferation of this form of criminality.

**CRCJ 4365. CAPITAL PUNISHMENT. 3 Hours.**

An examination of historic and current trends in capital punishment. Considers the literature and philosophical basis of capital punishment, the costs of capital punishment, and future trends of capital punishment. Provides an in-depth examination of capital punishment from a criminal justice policy perspective.

**CRCJ 4380. COMPARATIVE CRIMINAL JUSTICE SYSTEMS. 3 Hours.**

An overview of criminal justice systems in other countries. Includes an intensive study and analysis of materials on their law enforcement, judicial, and corrections components; review of comparative studies on a variety of criminal justice topics.

**CRCJ 4386. TOPICS IN CORRECTIONS. 3 Hours.**

May be repeated for credit as the topics vary, but credit will not be granted for more than 12 semester hours of CRCJ-prefix topics courses without permission of advisor.

**CRCJ 4387. TOPICS IN CRIME AND CRIMINOLOGY. 3 Hours.**

May be repeated for credit as the topics vary, but credit will not be granted for more than 12 semester hours of CRCJ-prefix topics courses without permission of advisor.

**CRCJ 4388. TOPICS IN LAW AND JUDICIAL PROCESSES. 3 Hours.**

May be repeated for credit as the topics vary, but credit will not be granted for more than 12 semester hours of CRCJ-prefix topics courses without permission of advisor.

**CRCJ 4389. TOPICS IN LAW ENFORCEMENT AND PRIVATE SECURITY. 3 Hours.**

May be repeated for credit as the topics vary, but credit will not be granted for more than 12 semester hours of CRCJ-prefix topics courses without permission of advisor.

**CRCJ 4390. INTERNSHIP IN CRIMINAL JUSTICE. 3 Hours.**

Provides the student with an opportunity to apply academic experience to practical situations by serving for a specified number of hours as participant-observer in a criminal justice agency. May be taken for a total of six semester hours. Internships must be arranged with internship supervisor in the semester prior to enrolling for this course. Prerequisite: permission of the instructor.

**CRCJ 4391. CONFERENCE COURSE IN CRIMINAL JUSTICE. 3 Hours.**

Directed individual study; research and study on a topic agreed upon by instructor and student. No more than six hours credit will be granted for conference courses in criminal justice. Prerequisite: permission of the instructor.

**CRCJ 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department.

**CRCJ 5196. CONFERENCE COURSE CRJU. 1 Hour.****CRCJ 5301. PROSEMINAR IN CRIMINOLOGY AND CRIMINAL JUSTICE. 3 Hours.**

This course is a comprehensive introduction to the discipline, with particular emphasis on the specialties of department faculty, academic research, and writing style. Classic and contemporary literature will be used to examine criminal behavior and the structure, function, operation, and interaction of the criminal justice system components as well as current practices and future trends in criminology and criminal justice.

**CRCJ 5309. RESEARCH METHODS IN CRIMINAL JUSTICE. 3 Hours.**

Examination of research methodology in criminal justice. Special emphasis on methods and techniques for conducting research in criminal justice, including a review of problems encountered in sampling and survey research, field research, public policy implementation, and program evaluation.

**CRCJ 5310. STATISTICS & RESEARCH PRACTICES IN CRIMINAL JUSTICE. 3 Hours.**

Advanced methods and techniques of research and research design in criminology and criminal justice. Course will cover pure and applied research and expose students to contemporary methodological and analytical issues. Students will be instructed on the use of existing CRCJ databases as well as the collection of new data and particular aspects of SPSS (Statistical Package for the Social Sciences software) and advanced data analysis. Prerequisite: CRCJ 5309 or equivalent.

**CRCJ 5318. CRIMINAL JUSTICE PERSONNEL ADMINISTRATION. 3 Hours.**

Personnel administration and management in criminal justice agencies and institutions; analyzes functions of recruitment, selection, hiring, placement, evaluation, dismissal, benefits systems, minority recruitment, training, education, promotion, career development, and retirement.

**CRCJ 5319. ISSUES IN POLICING. 3 Hours.**

In-depth analysis of historical, current, and future issues in policing and police administration. Emphasis will be placed on the role of police in society, police-citizen relationships, and empirical evaluations of police effectiveness, police behavior, and programs and strategies.

**CRCJ 5327. CONSTITUTIONAL ISSUES IN THE CRIMINAL JUSTICE SYSTEM. 3 Hours.**

Examination of a variety of legal issues critical to a thorough understanding of the various aspects of the criminal justice system. Special attention is given to contemporary constitutional issues and court decisions and their impact on the criminal justice process.

**CRCJ 5332. CORRECTIONAL THEORY AND PRACTICE. 3 Hours.**

Examination of social, psychological, political, and historical bases of interventions in the control and disposition of offenders. Emphasis on contemporary policies, practices, and problems in institutional, semi-institutional, and community-based corrections.

**CRCJ 5342. ETHICS IN CRIMINAL JUSTICE. 3 Hours.**

This course focuses on the ethical decisions and dilemmas encountered in the criminal justice system. Topics covered include criteria for ethical decision making, professional codes of ethics, and ethical and legal dilemmas faced by criminal justice professionals.

**CRCJ 5350. THEORETICAL CRIMINOLOGY. 3 Hours.**

Explores the etiology of crime, theory development and crime causation. Emphasis is on theoretical perspectives and policy implementation.

**CRCJ 5351. TERRORISM AND CRIME. 3 Hours.**

This course examines the origins, nature, and operational characteristics of terrorist groups. Students are exposed to topics ranging from the definition of "terrorism" to the unique characteristics of terrorist cells in the United States and abroad. Particular emphasis is on historical and contemporary terrorist attacks against the United States.

**CRCJ 5352. WOMEN, CRIME & CRIMINAL JUSTICE. 3 Hours.**

A summary of issues related to women as criminal offenders, victims of crime, and professionals in the criminal justice system. The course focuses on crimes women are most likely to commit and/or be processed through the criminal justice system for, the punishment of female offenders, the types of victimizations most often experienced by women, and employment issues unique to women employed in the criminal justice system. While the main emphasis of the course will be on the experiences of women in the U.S., attention will also be given to women on a global scale.

**CRCJ 5353. CRIMINAL JUSTICE ORGANIZATIONAL THEORY & MANAGEMENT THOUGHT. 3 Hours.**

An examination of organizational theory with specific application to the operation and management of criminal justice agencies. The historical precedents and emergence of contemporary perspectives are presented with their implication for effective functioning of the criminal justice system.

**CRCJ 5360. RACE, CRIME JUSTICE & THE LAW. 3 Hours.**

This course explores the role of race and ethnicity within the juvenile and criminal justice system. Emphasis is on the social construction of crime, racial and ethnic inequalities, the law and policies/practices that impact blacks and other racial minorities.

**CRCJ 5364. CRIME AND THE MEDIA. 3 Hours.**

Utilizing a social constructionist perspective, the course examines the mass media's role in engendering and cultivating American society's perception of crime. This course examines factors influencing the social reality of crime, and attempts to deconstruct perceptions of crime-related mass media events.

**CRCJ 5366. JUVENILE DELINQUENCY AND JUVENILE CORRECTIONS. 3 Hours.**

Correctional modes are discussed and applied to juvenile offenders. Theoretic approaches to causation, modification, and control of delinquent behaviors are presented, and policy implications and limitations are discussed. Historical and contemporary perspectives and approaches are presented in the context of evolving and emerging practices and procedures.

**CRCJ 5370. PRACTICUM. 3 Hours.**

Professional or pre-professional experience in a criminal justice related agency or institution with the approval and direction of the student's supervising professor; intended for non-thesis option students who do not have professional experience related to criminal justice.

**CRCJ 5380. CRIMINAL JUSTICE SEMINAR. 3 Hours.**

Synthesis course for advanced graduate students. Special emphasis on examination of constructs of crime/criminals, justice and systems. Requires individual research in area of particular concern to student.

**CRCJ 5381. CRIME & PUBLIC POLICY. 3 Hours.**

This course addresses crime and criminal justice policy. Emphasis is on the examination of media and political forces that shape criminal justice responses and policy initiatives. In the context of theoretical paradigms, the impact of race, class, economics, and gender on development of criminal justice public policy is examined.

**CRCJ 5382. COMPREHENSIVE ISSUES IN CRIME AND JUSTICE. 3 Hours.**

An advanced course covering a broad array of issues related to criminology, crime, and the justice system. This course is designed to review topics related to the comprehensive examination.

**CRCJ 5393. TOPICS IN CRIME AND CRIMINOLOGY. 3 Hours.**

May be repeated for credit as the topic changes.

**CRCJ 5394. TOPICS IN JUSTICE ISSUES. 3 Hours.**

May be repeated for credit as the topic changes.

**CRCJ 5396. CONFERENCE COURSE IN CRIMINAL JUSTICE. 3 Hours.**

Reading and research in a specialized area of criminal justice under the direction of a member of the graduate faculty.

**CRCJ 5398. THESIS. 3 Hours.****CRCJ 5698. THESIS. 6 Hours.**

## Dance Activity (DNCA)

## COURSES

**DNCA 0130. COUNTRY & WESTERN DANCE. 1 Hour. (TCCN = DANC 1133)**

**DNCA 0131. BALLROOM DANCE. 1 Hour. (TCCN = DANC 0129)**

**DNCA 0132. MODERN DANCE. 1 Hour. (TCCN = DANC 1145)**

**DNCA 0133. SWING DANCE. 1 Hour.**

**DNCA 0134. TAP DANCE. 1 Hour. (TCCN = DANC 1110)**

**DNCA 0135. BALLET. 1 Hour. (TCCN = DANC 1141)**

**DNCA 0136. JAZZ DANCE. 1 Hour. (TCCN = DANC 1147)**

**DNCA 0139. DANCE PERFORMANCE. 1 Hour. (TCCN = DANC 1151)**

Audition Required.

**DNCA 1232. INTERMEDIATE MODERN DANCE. 2 Hours.**

**DNCA 1235. INTERMEDIATE BALLET. 2 Hours.**

**DNCA 1236. INTERMEDIATE JAZZ DANCE. 2 Hours.**

## Dance Theory (DNCE)

### COURSES

**DNCE 1300. DANCE APPRECIATION. 3 Hours. (TCCN = DANC 2303)**

Designed to develop an awareness and appreciation of dance in its artistic, social, and cultural contexts through an overview of the aesthetic and critical dimensions of viewing and creating various dance idioms. Offers a variety of dance experiences, including the viewing of dance in live and video formats, reading about dance, and experiencing selected dance movements from various dance genres. Explores the relationship of dance to other art forms. The class is open to all students as a fine arts elective.

## Early Childhood Education (ECED)

### COURSES

**ECED 4308. APPLICATIONS IN TECHNOLOGY FOR TEACHERS OF YOUNG CHILDREN. 3 Hours.**

Provides introduction to basic computer operations and technology, including fundamentals of formatting documents in ClarisWorks; spreadsheet, database and word processing. Students will examine hardware and software appropriate for use with young children and consider developmentally appropriate use of technology in early childhood classrooms. Taken concurrently with ECED 4310 and ECED 4311. Field experience required. Prerequisites: ECED 4305, BEEP 4306, and EDTC 4301.

**ECED 4310. SPECIAL POPULATIONS AND DIVERSE SETTINGS. 3 Hours.**

Provides preparation for accommodating children with special needs in EC-6 classroom settings. Focus on characteristics of children with special needs, program accommodations, legal issues, individual assessment and planning, family and agency involvement, and inclusion strategies. Course will examine a variety of diverse settings where children and families live and learn, including homeless shelters. Taken concurrently with BEEP 4384 and ECED 4311. Field experience required. Prerequisites: ECED 4305.

**ECED 4318. FOUNDATIONS OF EARLY CHILDHOOD EDUCATION. 3 Hours.**

History, issues, and trends in early childhood education; impact of state and federal mandates on programs for children; and foundations for early learning including learning environments, curriculum development, instructional delivery, guidance, and appropriate assessment. Five hours observations in the field required. This course is a prerequisite course and must be taken with ECED 4317.

**ECED 4319. OBSERVATION AND ASSESSMENT OF EC-6 CHILDREN. 3 Hours.**

Principles of designing and implementing authentic assessment techniques that are individually respectful, culturally fair, reliable, and appropriate for children in EC-6 classrooms. Emphasis on observation, documentation, portfolios, informal and formal evaluations, group tests and measurements, purposes of norm-referenced and criterion-referenced tests, and research findings in assessment of children. Taken concurrently with ECED 4314 and ECED 4687 Residency. Prerequisite: BEEP 4384, ECED 4310 and ECED 4311.

**ECED 4320. FOUNDATIONS OF ELEMENTARY EDUCATION. 3 Hours.**

A study of developmentally appropriate curriculum and methods for elementary classrooms, including diversity, assessment, behavior guidance and management, planning instruction and creating positive learning environments. Includes an overview of the history of elementary education and issues currently facing the profession. Course will also address instructional needs and appropriate assessment of all students in inclusive, multicultural, and multilingual classrooms. Five hours observations in the field required. Field-based experiences required - One full day per week on elementary campus. Prerequisite: ECED 4317 and ECED 4318. Taken concurrently with ECED 4320, and BEEP 4306.

**ECED 5190. SELECTED TOPICS IN EARLY CHILDHOOD EDUCATION. 1 Hour.**

An examination of different topics related to early childhood education. This course may be repeated for credit with permission.

**ECED 5191. INDEPENDENT RESEARCH. 1 Hour.**

Research over a topic agreed upon between the student and instructor. May be repeated for credit with permission.

**ECED 5290. SELECTED TOPICS IN EARLY CHILDHOOD EDUCATION. 2 Hours.**

An examination of different topics related to early childhood education. This course may be repeated for credit with permission.

**ECED 5291. INDEPENDENT RESEARCH. 2 Hours.**

Research over a topic agreed upon between the student and instructor. May be repeated for credit with permission.

**ECED 5310. DIVERSE POPULATIONS IN TODAY'S SCHOOLS. 3 Hours.**

Provides preparation for accommodating children with special needs in EC-6 classroom settings. Focus on characteristics of children with special needs, program accommodations, legal issues, individual assessment and planning, family and agency involvement, and inclusion strategies. Course will examine a variety of diverse settings where children and families live and learn, including homeless shelters.

**ECED 5321. LANGUAGE AND LITERACY DEVELOPMENT YEARS. 3 Hours.**

Examine relationships among listening, speaking, reading, and writing. Focus on verbal and non-verbal communication skills in native and second-language development. Consider theories of speaking, reading, and writing in children, with focus on the use of children's literature in social and cognitive development.

**ECED 5390. SELECTED TOPICS IN EARLY CHILDHOOD EDUCATION. 3 Hours.**

An examination of different topics related to early childhood education. This course may be repeated for credit with permission.

**ECED 5391. INDEPENDENT RESEARCH. 3 Hours.**

Research over a topic agreed upon between the student and instructor. May be repeated for credit with permission.

## Economics (ECON)

### COURSES

**ECON 2110. SELECTED TOPICS IN ECONOMICS. 1 Hour.**

Topics of current interest in economics. The subject title is to be listed in the class schedule. May be repeated for credit when the topic changes. Prerequisite: ECON 2305 or ECON 2306.

**ECON 2305. PRINCIPLES OF MACROECONOMICS. 3 Hours. (TCCN = ECON 2301)**

(ECON 2301). Elementary models of the macroeconomy. Measures of aggregate economic activity and unemployment and inflation, money and banking, monetary and fiscal policy, international trade and payments, and applications of theory to society's problems.

**ECON 2306. PRINCIPLES OF MICROECONOMICS. 3 Hours. (TCCN = ECON 2302)**

(ECON 2302) The science of choice; develops demand, supply, and the market mechanism for allocating society's scarce resources; analyzes the impact of different industry structures in the market; applies the tools of microeconomic analysis to various topics such as price controls and international trade.

**ECON 2337. ECONOMICS OF SOCIAL ISSUES. 3 Hours.**

Economic consequences and solutions of current social issues. Each semester, a series of topics will be covered in line with current events and the instructor's expertise to facilitate an understanding of the economic structure. Will not serve to meet degree requirements for College of Business Administration majors. Offered as AAST 2337 and ECON 2337; credit will be granted in only one department.

**ECON 3301. THE ECONOMICS OF HEALTH. 3 Hours.**

Applies economic analysis to the health sector; examines issues involving health insurance and how these issues have been addressed by the market and by the government; role of market structure in health care markets such as the hospital and pharmaceutical industries; compares the U.S. health care system to health care systems in other countries. Prerequisite: ECON 2306.

**ECON 3302. THE ECONOMICS OF CRIME. 3 Hours.**

Economic analysis of criminal activity and its impact on the allocation of scarce resources; economic models of criminal behavior, optimum allocation of criminal justice resources, public and private sector approaches to deterrence, and current issues such as gun control and drug abuse prevention. Prerequisite: ECON 2306.

**ECON 3303. MONEY AND BANKING. 3 Hours.**

Monetary and banking systems of the United States, including the problems of money and prices, proper organization and functioning of commercial banking and Federal Reserve systems, problems of monetary standards, and credit control. Recent monetary and banking trends. Prerequisite: ECON 2305.

**ECON 3304. PUBLIC SECTOR ECONOMICS. 3 Hours.**

Examines various economic reasons that may justify government involvement in the economy with particular focus on the problems inherent in government intervention. It considers topics such as the efficiency and fairness of alternative taxing systems, the growth and effects of government debt, and public choice (how spending and taxing decisions are made). It analyzes various government programs such as Social Security, health care, expenditure programs for the poor, etc. Prerequisite: ECON 2306.

**ECON 3305. LAWS AND ECONOMICS. 3 Hours.**

A review of the economic effects of laws and legal institutions, including property rights, the common law of contracts and torts, regulations, and crime and punishment. Prerequisite: ECON 2306.

**ECON 3306. SPORTS ECONOMICS AND BUSINESS. 3 Hours.**

Basic economics principles applied to the analysis of professional and amateur sports. Topics include fan demand, advertising, team output decisions, league/conference organization, sports rules, and government regulations. The course is designed for both business and economics majors.

Prerequisite: ECON 2306.

**ECON 3310. MICROECONOMICS. 3 Hours.**

Develops the theory of consumer behavior and firm decision-making using tools of marginal analysis and game theory. Uses these insights to develop competitive equilibrium. Explores reasons for imperfect markets including market power, externalities and information asymmetries. Prerequisite: ECON 2306 and 60 credit hours.

**ECON 3312. MACROECONOMICS. 3 Hours.**

Interactions among private sector behavior, government policies, central bank actions and international events, and their effects upon the resulting national living standard, employment, growth, and prices. Particular emphasis upon modeling and the macroeconomy. Prerequisite: ECON 2305, ECON 3303, and 60 credit hours.

**ECON 3313. INDUSTRIAL ORGANIZATION AND PUBLIC POLICY. 3 Hours.**

Explains market structure and its relation to strategic behavior, advertising, pricing and product differentiation decisions. Further topics include the organization of the firm, takeovers, mergers and acquisitions, research and development, and the various regulatory controls placed on firms and industries. Prerequisite: ECON 2306.

**ECON 3318. INTRODUCTION TO ECONOMETRICS. 3 Hours.**

The application of economic theory and statistical techniques for the purpose of testing hypotheses and estimating and analyzing economic phenomena. Prerequisite: STAT 3321 or MATH 3313.

**ECON 3328. PRINCIPLES OF TRANSPORTATION. 3 Hours.**

The application of microeconomic and statistical tools in the analysis of the various modes of transportation. Topics for discussion include transportation as a derived demand, regulation of transportation, mass transit, and international issues in transportation. Prerequisite: ECON 2306.

**ECON 3335. ECONOMICS OF PUBLIC POLICIES. 3 Hours.**

Economic analysis of issues of general interest. A nontechnical application of principles of economics to current topics such as abortion, crime, deficit spending, divorce, education, energy, health care, immigration, politics, recycling, risk and safety, Social Security, sports, and tax policy. Prerequisite: ECON 2306.

**ECON 3388. EUROPEAN ECONOMIC HISTORY, 1750 TO PRESENT. 3 Hours.**

An economic analysis of historical events leading up to and following the Industrial Revolution, large-scale industry, early banking, commerce, Utopian movements, war, postwar economic integration and the continuing debate over economic globalization. Prerequisite: ECON 2305.

**ECON 4191. STUDIES IN ECONOMICS. 1 Hour.**

Advanced studies, on an individual basis, in the various fields of economics. Prerequisite: ECON 2306 and 90 credit hours and departmental permission.

**ECON 4291. STUDIES IN ECONOMICS. 2 Hours.**

Advanced studies, on an individual basis, in the various fields of economics. Prerequisite: ECON 2306 and 90 credit hours and departmental permission.

**ECON 4302. ENVIRONMENTAL ECONOMICS. 3 Hours.**

Economic forces that influence the quality of the environment; economic theory and environmental management; regulatory requirements for economic impact analysis; international issues including trade and implications for Third World economies. Prerequisite: ECON 2306.

**ECON 4306. COMPARATIVE ECONOMIC SYSTEMS. 3 Hours.**

Studies how differing economies are organized with respect to market, command, and traditional institutions. Several empirical economics are evaluated and compared with respect to performance and efficiency. Each economy is placed within its unique historical and social context to explore why certain institutions work in one situation but may fail in others. Prerequisite: ECON 2306.

**ECON 4311. ECONOMICS FOR MANAGERS. 3 Hours.**

Applies economic analysis to decisions of managers. Topics include investment decisions, pricing, price discrimination, strategy, bargaining, uncertainty, moral hazard and adverse selection, and incentive structures for employees and for units of the firm. The class is real-world oriented exploring actual decisions of firms. Prerequisite: ECON 2306 and 60 credit hours.

**ECON 4319. ECONOMIC GROWTH AND DEVELOPMENT. 3 Hours.**

The issues underlying vast differences in development among the nations of the world. Course covers the elements of theories of growth, the role of international trade, and issues of institutional structures related to economic progress in a nation. Prerequisite: ECON 2305 and ECON 2306.

**ECON 4321. INTERNATIONAL TRADE. 3 Hours.**

Explanations of why nations trade and what they trade. The economics and politics of protection of domestic industries. United States and foreign trade policies including regional trading blocs such as NAFTA (North American Free Trade Agreement) and the EU (European Union). Trade problems of developing nations. The role of the multinational firm and labor migration (international factor movements). Prerequisite: ECON 2306.

**ECON 4322. INTERNATIONAL FINANCE. 3 Hours.**

The nature and instruments of international payments. International financial institutions and arrangements. Exchange rate, balance of payment, and income determination theories. Prerequisite: ECON 2305.

**ECON 4323. INTRODUCTION TO MATHEMATICAL ECONOMICS. 3 Hours.**

Exposes students to certain basic mathematical concepts and methods and relates these techniques to various types of economic analysis. Covers the mathematical methods used in static and comparative-static analysis, optimization problems, and simple dynamic analysis. Prerequisite: MATH 1316 and ECON 3310 and ECON 3312.

**ECON 4324. MONETARY AND FISCAL POLICY. 3 Hours.**

The effects of money on production and national income; quantity and commodity theories of money; various theories of interest rates; instruments and policies of Federal Reserve monetary action; proposals for monetary reform. Central bank systems. Prerequisite: ECON 2306 and ECON 3303 and 60 credit hours.

**ECON 4325. ECONOMIC FORECASTING. 3 Hours.**

Develops measures of economic activity; focuses on business forecasting using leading indicators, trend analysis, and techniques used to estimate and project changes. Prerequisites; ECON 2305 and ECON 2306.

**ECON 4330. HUMAN RESOURCE ECONOMICS. 3 Hours.**

Application of economic principles to labor topics such as the demand for marriage, the demand for children, the economics of beauty, the economics of highly paid sports and entertainment stars, the effects of immigration on U.S. wages and employment, workplace discrimination, the effects of affirmative action policies, and the effects of minimum wage legislation. Prerequisite: ECON 2306.

**ECON 4331. SEMINAR IN ECONOMICS. 3 Hours.**

Readings and discussions of special topics in economics. Prerequisite: 60 or 90 credit hours and consent of instructor. May be repeated for credit with consent of department chair.

**ECON 4391. STUDIES IN ECONOMICS. 3 Hours.**

Advanced studies, on an individual basis, in the various fields of economics. Prerequisite: ECON 2306 and 90 credit hours and departmental permission.

**ECON 4393. ECONOMICS INTERNSHIP. 3 Hours.**

Practical training in economics. Analysis of theory applied to real life situations. May be used as an advanced business elective only; graded on a pass/fail basis. No credit will be given for previous experience or activities. May not be repeated for credit. Prerequisite: Junior standing and consent of department internship advisor.

**ECON 5182. Independent Studies in Economics. 1 Hour.**

Extensive analysis of an economic topic. Prerequisite: Departmental Permission Required.

**ECON 5199. GRADUATE ECONOMICS INTERNSHIP. 1 Hour.**

Practical training in economics. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**ECON 5282. Independent Studies in Economics. 2 Hours.**

Extensive analysis of an economic topic. Prerequisite: Departmental Permission Required.

**ECON 5299. GRADUATE ECONOMICS INTERNSHIP. 2 Hours.**

Practical training in economics. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**ECON 5301. MATHEMATICS FOR ECONOMISTS. 3 Hours.**

Course is designed to upgrade mathematical skills for graduate work in economics and business. The emphasis is on calculus and linear algebra and their applications in economic analysis. Mathematical tools covered include optimization, comparative-statics analysis, and simple dynamic analysis. Prerequisite: MATH 1316 or other calculus course.

**ECON 5306. ENVIRONMENTAL ECONOMICS. 3 Hours.**

An examination of the development of laws and policies that concern the environment followed by an application of economic analysis for environmental issues such as water use, air pollution, land controls, public lands, and global environmentalism. Other topics include: property rights, theories of regulation, and enviropreneurship. Participants will produce and present a case study on an environmental economic subject of interest. Prerequisite: ECON 5311 or equivalent.

**ECON 5310. MICROECONOMIC THEORY. 3 Hours.**

Development of marginal analysis and game theory tools in economics; focus on the analysis of consumer choice and decision making by firms; development of competitive model and various deviations from competition including the exercise of market power, externalities, and information asymmetries. Prerequisite: ECON 3310.

**ECON 5311. ECONOMIC ANALYSIS. 3 Hours.**

Provides an overview of microeconomic foundations of economic analysis with a focus on business applications. Topics include supply and demand, marginal analysis, pricing issues, and theory of the firm. An overview of macroeconomics is also provided, covering monetary and fiscal policy, inflation, growth, and international trade. Non-credit for MA in Economics.

**ECON 5312. MACROECONOMIC THEORY. 3 Hours.**

Study of the aggregate approach to the economy and the tools of analysis used for the solving of national economic problems. Prerequisite: ECON 3312.

**ECON 5313. MANAGERIAL ECONOMICS. 3 Hours.**

Application of economic analysis in formulating business decisions based on the theoretical foundations of demand, cost, production, profits, and competition. Macroeconomic topics of particular relevance to managers are included. Prerequisite: ECON 5311 or equivalent.

**ECON 5314. ECONOMIC ANALYSIS FOR BUSINESS DECISIONS. 3 Hours.**

This course applies economic theory and methods to business and administrative decision-making to achieve goals. It emphasizes key economic and business concepts (including analysis of demand, production, cost, and profit; market power and strategic behavior and pricing; the implications of government policies; investment decisions; risk, uncertainty; incentives; and transfer pricing) that influence decisions. Students will test the implications of models covered using real data sets, including the determinants of supply, demand, industry and firm performance, inputs complementarity or substitutability, entry and exit, mergers and acquisitions, and transfer pricing. Students will complete an original empirical research project in the course and present findings. Prerequisite: Graduate Standing.

**ECON 5315. COMPETITION, INNOVATION, AND STRATEGY. 3 Hours.**

This course focuses on skills used to assess the competitive landscape, develop options for strategic responses, and select appropriate business plans. It presents economic theories and provides applications that demonstrate main concepts. Key decisions for products to be analyzed include strategic pricing, positioning for advantage, entry/exit, and R&D investments. Decisions for firm strategy include the effects of agency issues for the organizational structure of the firm, horizontal expansion and vertical integration, and strategic responses to economic ecosystem dynamics. Prerequisite: ECON 3310 or equivalent.

**ECON 5318. ECONOMICS OF SPORTS. 3 Hours.**

Studies the economic structure of sports, with a focus on business issues. Topics include advertising, fan demand, team output decisions, labor relations, league and conference organization, and government regulation. The course is designed for both general business and economics majors. Prerequisite: ECON 5311 or equivalent.

**ECON 5319. THE GLOBAL ECONOMY. 3 Hours.**

This course is a study in the growing global economic integration. Tools are developed to undertake a critical examination of globalization from both the international trade and international finance perspectives. Topics include free trade versus fair trade, government policy harmonization, exchange rate policy, common currency areas, and spillover effects from economic shocks. Particular emphasis is placed on government's role in functioning of the international economic system. Prerequisite: ECON 5311.

**ECON 5321. GLOBAL BUSINESS ANALYTICS. 3 Hours.**

This course provides a working knowledge of tools that directly influences the decisions multinational firms make in the global environment. It is designed to better understand the implications of international trade and foreign exchange theories as they relate to international business management. Students will learn how to test the implications of economic and business models using global data sets, including the determinants of bilateral trade between countries, the impact of trade on labor markets, the trade impact on the development of countries, the relationship between trade and environmental quality, determinants of outsourcing and vertical integration, the relationship between migration and trade, and related topics. Using the concepts and theories learned in the course, students will measure and manage foreign exchange, taxation, and political risks, and make efficient international investment decisions. Students will conduct an original empirical research project in the course and present their findings. Prerequisite: ECON 5336 or BSAD 6317.

**ECON 5327. MONETARY POLICY AND FINANCIAL SYSTEM ANALYSIS. 3 Hours.**

This course focuses on the connection between financial system, monetary policy and the macro economy by focusing on the role that financial markets and financial institutions play in the domestic and global business environment. The course discusses many public policy issues and current events reported in the media to explore how monetary authorities affect financial markets and financial institutions through monetary policy. Students are expected to engage in a series of empirical applications of the related issues in a data-rich environment. Prerequisite: ECON 5336 or BSAD 6317.

**ECON 5329. RESEARCH METHODS IN APPLIED ECONOMICS. 3 Hours.**

Each student presents a replication of a published article that uses methods from Econometrics I/II, Forecasting, Forecasting and/or Time Series. The instructor will present replications of several published papers and assist students in choosing studies that they will attempt to replicate. Class meetings will focus on answering specific questions that arise as students carry out their replication exercises. The course concludes with student presentations, along with submission of a written report summarizing the replication effort and detailing the extent to which published results were replicable. The goal is to develop the skills to write quality papers using a variety of statistical techniques. Prerequisite: ECON 5336 or BSAD 6317.

**ECON 5330. HUMAN RESOURCE ECONOMICS. 3 Hours.**

This course studies labor supply decisions made by households, labor demand decisions made by firms, and the equilibrium wage differences that result from these decisions. Other topics include unemployment, human capital investments, efficiency wages and other incentive schemes, inequality, labor mobility and migration, and discrimination. Prerequisites: ECON 5311 or equivalent.

**ECON 5331. PROJECT EVALUATION AND FEASIBILITY ANALYSIS. 3 Hours.**

This course introduces students to feasibility studies including demand/market evaluation, cost estimation, and benefit-cost analysis. Statistical analysis will be employed to generate and analyze data. Concepts include the time value of money, economic equivalence, and compound interest. Students gain the ability to apply economic analysis methods (present worth, annual cost, rate of return, and benefit-cost ratios) to basic economic problems. Other issues include depreciation, risk and uncertainty, sensitivity analysis, and global economic factors that impact the economy and project funding. Students will perform an empirical evaluation of project feasibility using cost-benefit tools. Prerequisite: Graduate standing.

**ECON 5332. GOVERNMENT, TAXES, AND BUSINESS STRATEGY. 3 Hours.**

The interaction between government and business is broad. Effective business leadership requires the ability to analyze and respond to public policy. Economics provides a framework for understanding the incentives of consumers, businesses, bureaucrats, and civil servants in different policy environments and predicting their behavior in response to policy changes. This course focuses primarily on tax policy at the federal, state and local levels, including issues in corporate taxation, personal income tax, treatment of capital gains and losses, tax incidence, work-leisure choices, fiscal competition among state and local governments, capital flight, and fiscal federalism. Prerequisite: ECON 5311.

**ECON 5333. ECONOMICS OF HEALTH. 3 Hours.**

An economic perspective on a variety of timely health policy issues, including health expenditures, public and private insurance, incentives, provider education and labor markets, hospitals, prescription drugs, malpractice, externalities, long-term care, the Internet, and various proposals for reform. Prerequisite: ECON 5311 or equivalent.

**ECON 5336. APPLIED BUSINESS AND ECONOMICS DATA ANALYSIS. 3 Hours.**

This course develops an understanding of key statistical and econometric techniques. Students will exploit real data and computational power to uncover patterns/trends, examine relationships in business and economics, evaluate research claims, come to conclusions, and make predictive judgments. There is a dual focus on conceptual framework and the application of techniques on data sets in various fields. Students learn how to use statistical packages such as Excel, R, SAS, and STATA to apply these tools to data for designing solutions to practical managerial decision making. Topics include descriptive statistics, statistical inference, simple and multiple regression analysis, heteroskedasticity, serial correlation, specification and data issues, functional forms, endogeneity, basic panel data, and limited dependent variable models. Material covered has practical applications in many fields. Students are expected to complete a term project, which involves posing a problem, collecting an appropriate data set, conducting an empirical analysis, and writing the results in the form of a short research paper. Prerequisite: Graduate standing.

**ECON 5337. BUSINESS & ECONOMIC FORECASTING. 3 Hours.**

This course employs statistical techniques in developing forecasts for business and economic data. It begins with a description of what a forecast is and the tools necessary to evaluate competing forecasts. Various forecasting models are introduced, with emphasis placed on modeling the statistical properties of the data under consideration. As the course progresses, the models become more elaborate as we will introduce ARMA models, forecasts based on regression analysis, multivariate techniques, and nonlinear methods, including potentially neural networks. Throughout the course, students are actively engaged in the practice of forecasting through a set of assignments that require critical thinking while exposing students to state of the art forecasting software that they use continuously through the course. Prerequisite: ECON 5336 or BSAD 6317 or equivalent.

**ECON 5338. APPLIED TIME SERIES. 3 Hours.**

This course covers key topics of time series data analysis popularly used in many fields, including economics and business. The course begins with univariate analysis of time series data with the focus on ARIMA, GARCH model, and unit-root tests, and extends to multivariate analysis of distributed lag model, VAR, and cointegration tests. The last part of the course is devoted to discussion of popular nonlinear dynamic models, such as TAR and structural breaks, before moving on to dynamic panel data models. Since emphasis is put on empirical applications, students will spend time in the computer lab to apply the techniques they learn to a variety of time series data, including the one downloaded from "DataStream." Students will undertake empirical analysis using statistical software. Prerequisite: ECON 5336 or BSAD 6317.

**ECON 5339. APPLIED BUSINESS AND ECONOMICS DATA ANALYSIS II. 3 Hours.**

This course covers cross section, panel data, and limited dependent variables methods. There is a dual focus on the conceptual framework and the application of the techniques on real data sets. Topics include regression analysis of natural experiments, differences-in-differences, panel data methods, instrumental variable estimation, structural equation modeling, sample selection corrections, limited dependent variable models (e.g., Probit, Logit, Tobit, Poisson, Negative Binomial, Ordered Probit), multilevel/hierarchical models, and quantile regression. Students use statistical packages such as EXCEL, SAS, R, and STATA to apply techniques to data sets. The course uses articles from the business and economics literature and shows how models or variables (e.g., diversification index, market value, Q, CAPM, market concentration, elasticity, industrial performance, labor productivity, total factor productivity, CSR index, entry barrier measures, hedonic models, analysis of natural experiments, and gravity model) that are calculated and employed. Students will build an understanding of appropriate methods for different research design or analyses of data for providing solutions to assist in decision making. Students are expected to complete an empirical research project and present their findings. Prerequisite: ECON 5336.

**ECON 5341. ADVANCED BUSINESS AND DATA ANALYTICS. 3 Hours.**

There is a rapidly increasing demand for specialists who are able to exploit the new wealth of information in large and complex data sets to improve analysis, prediction and decision making. This course focuses on modern developments in the intersection of statistical analysis and data mining. With the growth of computer capabilities, data bases become larger and more complex, making traditional statistical methods less effective or even unsuitable. Data from economic transactions, individual health records, Internet search, and environmental data examples of enormous data bases awaiting thorough examination. In these data-rich environments, methods from data mining, statistical visualization, computational statistics, and other computer-intensive statistical methods have become increasingly popular for both governmental agencies and the private sector. Prerequisite: ECON 5336 and ECON 5339 or BSAD 6117 and BSAD 6318.

**ECON 5343. CAUSAL INFERENCE ON BUSINESS DECISIONS. 3 Hours.**

This course addresses how firms distill useful business intelligence from various sources of raw data. Students are introduced to methods determining what results of strategic interventions were caused by, rather than merely correlated with them. This course examines threats to causal identification such as reverse causality, sample selection bias, and unobserved covariates. Topics may include randomized experiments and quasi-experiments, sample selection models, propensity score matching, instrumental variables methods, differences-in-differences, regression discontinuity, synthetic controls, and information from social networks. Prerequisites: ECON 5336 and ECON 5339 or BSAD 6317 and BSAD 6318.



**ECON 5382. INDEPENDENT STUDIES IN ECONOMICS. 3 Hours.**

Extensive analysis of an economic topic. Prerequisite: Departmental Permission Required.

**ECON 5391. SPECIAL TOPICS IN ECONOMICS. 3 Hours.**

In-depth study of selected topics in economics. May be repeated when topics vary. Prerequisite: Departmental Permission Required.

**ECON 5398. THESIS. 3 Hours.**

Graded R/F only. Prerequisite: Permission of Graduate Advisor in Economics.

**ECON 5399. GRADUATE ECONOMICS INTERNSHIP. 3 Hours.**

Practical training in economics. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**ECON 5698. THESIS. 6 Hours.**

Graded P/F/R. Prerequisite: Permission of Graduate Advisor in Economics.

**ECON 5998. THESIS. 9 Hours.**

Graded P/F/R. Prerequisite: Permission of Graduate Advisor in Economics.

**ECON 6310. ADVANCED MICROECONOMIC THEORY. 3 Hours.**

Investigates the advanced neoclassical theory of microeconomics. The course develops formal models of consumer behavior, market structure, general equilibrium, and welfare. The objective of the course is to acquaint students with the analytical tools necessary to evaluate the formal literature in economics and to conduct scientific, hypothesis-driven statistical studies. Prerequisites: ECON 5301 and ECON 5310.

**ECON 6312. ADVANCED MACROECONOMIC THEORY. 3 Hours.**

Topics include dynamic general equilibrium analysis of model economies, monetary theory in overlapping generations models, advanced growth theory, and new open-economy macroeconomics. Prerequisites: ECON 5301 and ECON 5312.

## Education (EDUC)

### COURSES

**EDUC 2101. EXPLORING TEACHING. 1 Hour.**

An opportunity to experience a mentorship with public school students while exploring the impact Gardner's Multiple Intelligences and personality profiles play in the learning environment. Ten hours of mentorship required. Academic credit awarded. Service Learning course.

**EDUC 2330. STUDENT LEADER EFFECTIVENESS TRAINING. 3 Hours.**

Identifies the philosophy and theories of leadership, leadership styles, and contemporary leadership issues for any student who desires to pursue their leadership education. Practical application of leadership skills are developed through interactive class discussions, analyzing case studies, and group problem-solving and role-playing experiences. Elective only and does not count as part of the professional education certification requirements.

**EDUC 4316. FOUNDATIONS OF EDUCATION. 3 Hours.**

The course introduces students to the teaching profession. Historical foundations, professionalism, school law (including special education law), diversity in education, effective communication, family involvement, and current trends and issues in education will be examined. Students will also examine personal reasons for wanting to teach and will create a personal philosophy of education. Field observation required. (2-1).

**EDUC 4325. WOMEN IN SCIENCE. 3 Hours.**

Explores the role of women in science. Emphasis on gender and science, the history of women in science, gender equity in the classroom, strategies for the retention of women scientists, the current culture/climate for women in science, and contemporary women in science. Offered as EDUC 4325, SCIE 4325, and WOMS 4325. Credit will be granted only once.

**EDUC 4331. KNOWING AND LEARNING IN MATH AND SCIENCE. 3 Hours.**

Restricted to students in the UTeach Arlington program. Psychological foundations of learning; problem solving in mathematics and science education utilizing technology; principles of expertise and novice understanding of subject matter; implications of high-stakes testing; and foundations of formative and summative assessment. Three lecture hours a week for one semester; additional hours may be required. Prerequisite: SCIE 1101 with a grade of C or better or concurrent enrollment.

**EDUC 4332. CLASSROOM INTERACTIONS. 3 Hours.**

Restricted to students in the UTeach Arlington program. Principles of delivering effective instruction in various formats (lecture, lab activity, collaborative settings); examination of gender, class, race, and culture in mathematics and science education; overview of policy related to mathematics and science education. Three lecture hours a week for one semester; additional hours may be required. Prerequisite: A University grade point average of at least 2.50, EDUC 4331 with grade of C or better; and SCIE 1102 with grade of C or better OR concurrent enrollment.

**EDUC 4333. MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE. 3 Hours.**

Restricted to students in the UTeach Arlington program who have earned a passing score on the preliminary portfolio. Multiple research-based teaching practices including foundations of project-based, case-based, and problem-based learning environments; principles of project-based curriculum development in mathematics and science education; classroom management and organization of inquiry-based, problem-based/project-based learning classrooms. Three lecture hours a week for one semester with additional fieldwork hours to be arranged. Prerequisite: A University grade point average of at least 2.50, and EDUC 4332 with a grade of C or better.

**EDUC 4340. HUMAN GROWTH AND DEVELOPMENT. 3 Hours.**

Prerequisite to subsequent courses in teacher education. Physical, social, emotional, and cognitive growth patterns from conception to early adulthood, emphasizing familial, cultural, societal, and genetic determinants of behavior. Topics include developmental characteristics of children and adolescents including exceptional learners and students with special needs.

**EDUC 4341. ORGANIZATION AND MANAGEMENT OF INSTRUCTION IN SECONDARY SCHOOLS. 3 Hours.**

Emphasizes the importance of organizing, developing, and adapting management systems to enhance learning in classroom environments. Managing the teaching-learning process, applying a variety of assessment techniques, motivation, and adapting management styles to meet student needs. This course involves a two-hour lecture and two-hour application of lecture/theory. The two-hour application of lecture/theory will require students to spend time in a K-12 classroom during normal school hours, 8 a.m.-4 p.m., Monday-Friday.

**EDUC 4342. APPLICATIONS OF INSTRUCTION IN SECONDARY CLASSROOMS. 3 Hours.**

Field-based applications of curriculum planning and instructional theory and methods. Includes writing and implementing unit and instructional goals and objectives, using instructional lesson models to meet teacher appraisal criteria including utilization of classroom technology and audiovisual aids, planning for individual needs, and evaluating student progress. This course involves a two-hour lecture and two-hour application of lecture/theory. The two-hour application of lecture/theory will require students to spend time in a K-12 classroom during normal school hours, 8 a.m.-4 p.m., Monday-Friday.

**EDUC 4343. TEACHING SOCIAL STUDIES IN THE SECONDARY SCHOOL. 3 Hours.**

Methods and materials for social studies teaching and learning at the secondary school level. Emphasis on establishing a productive classroom environment, curriculum planning, implementation of effective instructional strategies, integration of educational technologies, and assessing student learning. Includes field-experience in a social studies classroom in a local middle or high school. The two-hour application of lecture/theory will require students to spend time in a grades 8-12 social studies classroom during normal school hours, 8 a.m.-4 p.m., Monday-Friday.

**EDUC 4346. SECONDARY SCHOOL CULTURE AND THE TEACHING PROFESSION. 3 Hours.**

School cultures, effective schools and teaching practices, stages of professional development, foundations of American schools, legal and ethical aspects, and societal demands on the school.

**EDUC 4347. SECONDARY SCHOOL INTERNSHIP WITH TECHNOLOGY APPLICATIONS. 3 Hours.**

Supervised and directed professional practice in a local secondary school. The student will be assigned to a public school site for five hours per week. Weekly seminars are required. Internship must be taken the semester prior to residency. Theory from technology will be applied during internship assignment.

**EDUC 4352. TEACHING DIVERSE POPULATIONS. 3 Hours.**

Effective instruction, assessment, and management strategies for working in diverse educational settings. Designed to provide increased self-awareness and insight into issues of diversity such as culture, ethnicity, exceptionality, gender, language, religion, and socioeconomic status. This course involves a two-hour lecture and two-hour application of lecture/theory. The two-hour application of lecture/theory will require students to spend time in a K-12 classroom during normal school hours, 8 a.m.-4 p.m., Monday-Friday.

**EDUC 4390. SELECTED TOPICS IN EDUCATION. 3 Hours.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDUC 4391. CONFERENCE COURSE. 3 Hours.**

Independent study in the preparation of a project or a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: permission of instructor.

**EDUC 4647. SECONDARY STUDENT TEACHING. 6 Hours.**

Supervised and directed student teaching in student's targeted area of certification. The student will be assigned full time for the Independent School District calendar. Required seminars provide students with theory to integrate and apply during student teaching.

**EDUC 5190. SELECTED TOPICS IN EDUCATION. 1 Hour.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDUC 5191. INDEPENDENT RESEARCH. 1 Hour.**

Research for thesis substitute or equivalent over a topic agreed upon between the student and instructor. May be repeated for credit with permission.

**EDUC 5263. READING AND DEVELOPMENT. 2 Hours.**

This course will focus on the acquisition of reading skills in the typically developing child. Sub-skills and precursors of reading such as visual and phonological processing will be examined from a neurological point of view. This foundational knowledge will then be applied to researching reading difficulties as well as the teaching and learning in the classroom for typically developing students and those with reading difficulties.

**EDUC 5290. SELECTED TOPICS IN EDUCATION. 2 Hours.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDUC 5291. INDEPENDENT RESEARCH. 2 Hours.**

Research for thesis substitute or equivalent over a topic agreed upon between the student and instructor. May be repeated for credit with permission.

**EDUC 5305. CURRICULUM DESIGN, IMPLEMENTATION, AND EVALUATION. 3 Hours.**

An examination of theory and research in curriculum development, implementation, and evaluation. Emphasis on current trends in the content areas.

**EDUC 5309. ADVANCED INSTRUCTIONAL STRATEGIES. 3 Hours.**

This course engages students in a study of advanced models of teaching and learning such as concept attainment, inductive thinking, inquiry, problem-based learning, role play, simulation games and other models, with an analysis of research on the effectiveness of these models. Emphasis is on current trends in the content areas.

**EDUC 5310. DIVERSE POPULATIONS IN TODAY'S SCHOOLS. 3 Hours.**

An overview of the diverse populations in today's schools. Urban, suburban, and rural school communities and populations will be addressed with special attention to issues of human growth and development, culture, ethnicity, exceptionality, gender, language, religion and socioeconomic status.

**EDUC 5314. EFFECTIVE CLASSROOM INSTRUCTION. 3 Hours.**

Designed to provide teachers with skills and competencies based on research findings on effective teaching and instruction related to promoting student academic achievement. Includes identifying, developing, and practicing instructional variables that affect teacher performance and student learning tasks.

**EDUC 5315. PRACTICUM. 3 Hours.**

Practicum in student's teaching area. This longitudinal experience will help students apply theory and research to practice.

**EDUC 5321. EDUCATIONAL RESEARCH. 3 Hours.**

Examination of basic concepts and procedures necessary for empirical research investigations within classroom contexts, experimental design, data collection and interpretation, and statistical analysis.

**EDUC 5322. EDUCATIONAL RESEARCH AND EVALUATION. 3 Hours.**

An overview of basic concepts and procedures necessary for analyzing, designing, and conducting quantitative and qualitative educational studies. A focus on educational research, including empirical research, investigations data collection and interpretation, and statistical analysis. Also, a focus on educational evaluation including accreditation, personnel appraisal, and educational programs and materials.

**EDUC 5329. CLASSROOM MANAGEMENT AND DISCIPLINE. 3 Hours.**

Analysis of the variables that affect teacher and student behavior in the classroom. Survey of effective strategies of classroom management and discipline based on contemporary research. Particular attention to individual student differences in settings such as gifted and talented, handicapped, and learning disabled.

**EDUC 5330. LEADERSHIP IN THE INSTRUCTIONAL SETTING. 3 Hours.**

Examination of current research on effective instructional organizations and classroom instruction in today's schools, on characteristics of school leadership, and on the role and function of the teacher as instructional leader. Topics include the essential components of instruction, developing instructional-management systems, evaluating student and teacher performance, assisting colleagues to monitor and improve instructional skills, school climate and leadership styles as they impact on school improvement.

**EDUC 5358. THEMATIC SCIENCE FOR ELEMENTARY AND SECONDARY TEACHERS. 3 Hours.**

Professional development program for elementary and secondary science teachers who will examine a variety of instructional strategies. The course will provide a broad spectrum of content from all areas of science and provide opportunities to participate in investigations, field trips and seminars. The course will facilitate the implementation of a thematic science curriculum in elementary and secondary schools through research-based practices.

**EDUC 5359. ENVIRONMENTAL SCIENCE FOR ELEMENTARY AND SECONDARY TEACHERS. 3 Hours.**

Designed for elementary, middle and high school teachers who will examine a variety of environmental education issues and instructional strategies for classroom and outdoor settings. The course will provide a broad spectrum of content from all areas of science and will provide opportunities to participate in field trips, science investigations and seminar sessions. It will facilitate the implementation of an environmentally based curriculum in schools using best practices.

**EDUC 5360. INTRODUCTION TO MIND, BRAIN, AND EDUCATION. 3 Hours.**

Students will explore and integrate five themes central to the emerging field of Mind, Brain and Education (MBE): development as seen by cognitive scientists and neuroscientists; the conceptual and technical tools used in MBE; and specific educational issues (e.g., dyscalculia, dyslexia, attention deficits, role of emotions etc.). The five themes function as layers students peel back to reveal the complexity of integrating three major disciplines into one field of study.

**EDUC 5361. INTRODUCTION TO EDUCATIONAL NEUROSCIENCE. 3 Hours.**

This course is designed to provide an introduction to foundational areas of neuroscience such as brain anatomy and brain mapping techniques and its applications to education. Students will study different viewpoints of links between education and neuroscience and develop their own notions of what educational questions might be answered with brain-based techniques.

**EDUC 5362. THE NEUROSCIENCE OF TYPICAL AND ATYPICAL LANGUAGE DEVELOPMENT. 3 Hours.**

This course will examine the many levels of language including phonetics, phonology, semantics, syntax and pragmatics from both functional and neuroscientific perspectives.

**EDUC 5363. THE NEUROSCIENCE OF TYPICAL AND ATYPICAL DEVELOPMENT OF MATHEMATICAL AND REASONING ABILITY. 3 Hours.**

The course focuses on the development of problem-solving, logical, numeracy, and mathematical skills from a cognitive neurocognitive perspective. Woven throughout the course is attention to cognitive biases in scientific thinking.

**EDUC 5364. EPISTEMOLOGY AND NEUROSCIENCE. 3 Hours.**

This course looks at how the brain supports the basic approaches of the mind uses to produce knowledge. In particular we compare the deductive and inductive methods and the neurological correlates that support both forms of knowledge production. Also examined is the role of the frontal cortex in decision making that results in the learner's choices in how to make sense of data.

**EDUC 5365. THEORETICAL AND CONCEPTUAL MODELS IN MIND, BRAIN, AND EDUCATION. 3 Hours.**

This course is designed for students who wish to connect cognitive science to instructional practice. Students examine the roles that cognitive models in psychology play in learning and in curriculum design. The cognitive models in this course are used to provide a framework for recognizing possible strategies for improving or redesigning curricula, or to begin building lessons.

**EDUC 5366. DYNAMIC SYSTEMS - UNDERSTANDING COMPLEXITY IN EDUCATIONAL SYSTEMS. 3 Hours.**

This course focuses on making sense of the impact of interactions between educational variables in complex systems like classrooms and schools.

**EDUC 5367. RESEARCH METHODS IN MIND, BRAIN, AND EDUCATION. 3 Hours.**

This course presents an overview of the process of scientific inquiry in general, while fostering an understanding of research paradigms used by educational practitioners. To meet the course objectives students will examine studies from the cognitive neurosciences and medicine. While these modern methods of inquiry are complex, the findings are nevertheless, often, fairly simple to understand, and easily support the primary goal of the course.

**EDUC 5368. CONDUCTING RESEARCH IN MIND, BRAIN, AND EDUCATION. 3 Hours.**

This one to two semester course allows students to build a research project under faculty supervision. The goal of the course is to help students understand the nature and techniques involved in creating useable knowledge in mind, brain and education.

**EDUC 5370. INTRODUCTION TO GIFTED AND TALENTED CHILDREN. 3 Hours.**

Psychological characteristics of gifted and talented children. Introduction to identification techniques, educational programs, instructional approaches, and special problems.

**EDUC 5371. MEASUREMENT AND ASSESSMENT OF GIFTED AND TALENTED CHILDREN. 3 Hours.**

Tests, formal and informal measures, and systems for identification and selection of the gifted and talented student. Basic test construction theory, test interpretation, and test uses.

**EDUC 5372. METHODS, MATERIALS, AND CURRICULUM FOR THE GIFTED AND TALENTED. 3 Hours.**

Curriculum theory and curriculum design for the gifted student. Methodology for implementing practical and theoretical objectives for gifted instruction.

**EDUC 5373. CREATIVITY: THEORIES, MODELS, AND APPLICATION. 3 Hours.**

The concept of and current research on creativity, the nature and assessment of creative thinking, as well as methods of fostering creativity.

**EDUC 5374. PRACTICUM. 3 Hours.**

Participation in a gifted and talented setting supervised by a university and/or school district representative. A wide range of practical experiences will be emphasized. Graded P/F/R.

**EDUC 5380. DIVERSITY IN EDUCATIONAL SETTINGS. 3 Hours.**

Effective leadership, instruction, and management strategies for work in diverse educational settings. Designed to provide increased self-awareness and insight into issues of diversity such as culture, ethnicity, exceptionality, gender, language, religion, and socioeconomic status. Demographic issues along with urban and suburban educational settings will also be addressed.

**EDUC 5390. SELECTED TOPICS IN EDUCATION. 3 Hours.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDUC 5391. INDEPENDENT RESEARCH. 3 Hours.**

Research for thesis substitute or equivalent over a topic agreed upon between the student and instructor. May be repeated for credit with permission.

**EDUC 5394. UNDERSTANDING CLASSROOM RESEARCH. 3 Hours.**

In this course, students gain an understanding of educational research and critically analyze resources of research, such as professional journals, Internet sites, technical reports, ERIC (Education Resources Information Center) documents, and reports of professional organizations. The students will examine historical trends and themes in education and how they have changed and progressed to newer, cutting-edge educational research that informs classroom instruction. Students will analyze research data and reports of research with the purposes of, gaining understanding of sound educational research techniques; evaluating research designs including issues of validity and reliability; gaining knowledge of both quantitative and qualitative data collection procedures; interpreting the results and implications of research; and learning the form of technical, scholarly writing. Through course experiences, students will be prepared to write meaningful research questions and design methodologies for conducting their own classroom research projects. Students will also learn to be effective consumers of research, equipped with skills needed to make sense of classroom, district, state, national, and international educational research studies. This course is to be taken after at least 9 hours of graduate course work and preceding EDUC 5395 and EDUC 5397.

**EDUC 5395. DESIGNING CLASSROOM RESEARCH. 3 Hours.**

In this course, students will develop their own classroom educational research project. Their designed study will be based in the literature in their educational field and focus on classroom research questions and problems that will inform teaching practices. In this course, students will develop an individual research problem statement, argue the significance of the problem, complete a written literature review and logical chain of reasoning related to the stated problem, write specific research questions to investigate the problem in educational settings, and design a research study (methodology) that will effectively investigate their research questions. Students design a research study that shows promise for improving education, written as the first three chapters of a scholarly classroom action research project. Prerequisite: EDUC 5394. For M.Ed.T. students, this course is to be taken in the final semester of the masters' degree program. For M.Ed. students, this course is to be taken in the semester just prior to the final semester of the masters' degree program, and in the semester immediately preceding EDUC 5397.

**EDUC 5396. EEG Laboratory and Experimental Design. 3 Hours.**

This course is an introduction to EEG technique, covering experimental design, recording, analysis, and interpretation of brainwaves.

**EDUC 5397. IMPLEMENTING AND DISSEMINATING CLASSROOM RESEARCH. 3 Hours.**

In this course, students will implement the classroom research designed and written in EDUC 5395, collect data from this research, and interpret results. Students will prepare a final, written research report that presents the investigation and its results in a 5-chapter professional format, such as would be prepared as a paper for presentation at a professional conference and/or publication in an educational journal. At the conclusion of this course, students will submit a copy of their research project report to the course instructor and present the completed project as their final Capstone Experience for the masters degree in education. Prerequisites: EDUC 5394 and EDUC 5395. This course is to be taken in the final semester of the M.Ed. and in the semester immediately following EDUC 5395.

**EDUC 5600. COUNSELING STUDENTS IN SCHOOLS. 6 Hours.**

The focus of this capstone course will be individual and group counseling theories and techniques for pre k-12 students in an educational setting. Special techniques are included for substance abuse, and for using group play therapy. Knowledge of Diagnostic and Statistical Manual of Mental Disorders, 4th. Edition (DSM IV) will be covered for purposes of diagnosis and for outside referral when necessary. Three hours in a supervised counseling practicum in area schools or with school children will be required.

## Education (EDUCIR)

### COURSES

**EDUCIR 5391. INDEPENDENT RESEARCH. 3 Hours.**

Research for thesis substitute or equivalent over a topic agreed upon between the student and instructor. May be repeated for credit with permission.

## Education Counseling (EDCO)

### COURSES

**EDCO 5241. A STUDY OF THE ETHICAL, LEGAL, AND PROFESSIONAL ISSUES IN SCHOOL COUNSELING. 2 Hours.**

A study of the ethical, legal, and professional issues involved in the provision of guidance and counseling services in an educational setting. Content includes issues of confidentiality and privileged communication, record keeping, malpractice, client rights, counselor responsibilities, codes of ethics, and relevant laws.

**EDCO 5242. TESTING AND ASSESSMENT IN SCHOOL COUNSELING. 2 Hours.**

A study of the nature, characteristics, and ethical uses of psychological tests and assessment instruments in an educational setting. Included are measurements of intelligence, aptitude, achievement, interest, and personality.

**EDCO 5243. THE SCHOOL GUIDANCE PROGRAM. 2 Hours.**

Guidance counselors provide a variety of services in addition to counseling. Career and mental health informational services, mediation and crisis intervention services are included as well as working with parents, community resources, and the instructional staff.

**EDCO 5300. Counseling Students in Schools, Part 1. 3 Hours.**

During this capstone course and practicum, candidates will attend a three-hour evening course, and must complete a minimum of 80 of their 160 practicum hours in an approved public school. This will include individual counseling, small group counseling, consulting activities, guidance activities delivered to classrooms, planning, testing and test interpretation, and other activities as directed by the site-based mentor counselor and by a UTA supervisor. Additionally, there will be required every-other-Friday two-hour-after-school seminars at UTA.

**EDCO 5301. Counseling Students in Schools, part 2. 3 Hours.**

This course is a follow up to EDCO 5300 and will also include required every-other-Friday afternoon two-hour-after-school seminars. Candidates will complete their practicum activities this semester by finishing their total of 160 (minimum) supervised hours in their approved public school along with all other course requirements. A university supervisor and a site-based mentor counselor will provide practicum supervision.

**EDCO 5340. ADVANCED HUMAN GROWTH AND DIVERSITY. 3 Hours.**

This advanced course includes the theories of psychosocial, cognitive, and biological development as well as the characteristics and needs of special populations including gifted and talented and special education. Also included is research on gender, culture, ethnicity, socioeconomic status, intellect, lifestyle, and other issues of relevance for educators and students in today's schools.

# Education Middle Level (EDML)

## COURSES

### **EDML 4300. PRE-ADOLESCENT/ADOLESCENT GROWTH AND DEVELOPMENT. 3 Hours.**

Prerequisite to subsequent courses in teacher education. Physical, social, emotional, and cognitive growth patterns from emphasizing familial, cultural, societal, and genetic determinants of behavior. Topics include the following: developmental characteristics of pre-adolescents/adolescents including exceptional learners and students with special needs, a variety of disabilities (Learning Disabled, Emotionally Disabled, Behavior Disorders, Attention Deficit Hyperactivity Disorder, etc.), the creation and purpose of Individual Education Plans, concepts, and forms, as well as the IDEA law, its application and ethical considerations. The course also includes a field component of fifteen hours. Prerequisite: Admitted to the Middle Level Program. Advisor permission required.

### **EDML 4350. NATURE & CURRICULUM NEEDS OF THE YOUNG ADOLESCENT LEARNER. 3 Hours.**

Examines the curriculum, instruction, and organization of middle grades schools. Provides a substantial knowledge base in the nature and needs of early adolescents, as well as in middle school curriculum, instruction, and behavior management. A variety of instructional approaches will be discussed including the purpose and need for appropriate language, behavior, and disability modifications, inclusion, resource, consult, content mastery, and others. Special emphasis will be the Texas Assessment of Knowledge and Skills (TAKS) and other state assessments. Theory and practice in the teaching of students with special needs will be addressed. The course also includes a field component of twenty-five hours. Prerequisite: Admitted to the Middle Level Program. Advisor permission required.

### **EDML 4360. TEACHING STUDENTS WITH SPECIAL NEEDS - A SURVEY. 3 Hours.**

Theory and practice in the teaching of students with special needs, including a survey of the variety of disabilities (LD, ED, physical handicapped, conduct, ADD, ADHD, etc.), the creation and purpose of Individual Education Plans, concepts and forms. The IDEA law and its application, and ethical considerations. A variety of instructional approaches will be discussed including the purpose and need for appropriate modifications, inclusion, resource, consult, content mastery and others. Special emphasis will be the TAKS and State Developed Alternative Assessment.

### **EDML 4370. SOCIAL STUDIES & DIVERSITY IN THE MIDDLE LEVEL GRADES. 3 Hours.**

Examination of materials, methods, content, and assessment learning experiences associated with middle level social studies. Content areas include history, geography, economics, government, citizenship, culture, science, technology, and society. Opportunities to demonstrate application of current researched-based theory in a service learning experience. Prerequisites: EDML 4300 & EDML 4350; BEEP 4384; LIST 4343. Advisor permission required.

### **EDML 4371. SCIENCE IN THE MIDDLE LEVEL GRADES. 3 Hours.**

Instructional approaches, management, materials, and effective teaching practices pertinent to teaching science in the middle level grades; the organization of science content and the selection and implementation of lesson designs which utilize a hands-on approach promoting discovery and inquiry. This Inquiry course involves a two-hour lecture and two-hour application of lecture /theory. The two-hour application of lecture/theory will require students to spend time in a 4-8 classroom during normal school hours. Prerequisites: EDML 4300, EDTC 4301, and EDML 4350.

### **EDML 4372. MATHEMATICS IN THE MIDDLE LEVEL GRADES. 3 Hours.**

Curriculum standards, methods, and effective teaching practices as proposed by the National Council of Teachers of Mathematics for the middle level; the organization of mathematics content with an emphasis on using manipulatives and technology to teach math. This inquiry course involves a two-hour lecture and two-hour application of lecture/theory. The two-hour application of lecture/theory will require students to spend time in a 4-8 classroom during normal school hours. Prerequisite: EDML 4350.

### **EDML 4676. MIDDLE LEVEL FIELD-BASED EXPERIENCE. 6 Hours.**

Supervised and directed field-based experience, Monday through Thursdays. Candidates will be placed in two settings: an early grade (4,5,6) and late grade (6,7,8) experience as well as in two content areas. Prerequisite: EDML 4300, EDML 4350, LIST 4343, and BEEP 4384. This course must be taken just prior to student teaching (EDML 4677). Advisor permission required.

### **EDML 4677. MIDDLE LEVEL STUDENT TEACHING. 6 Hours.**

Supervised and directed student teaching experience in an approved field setting, Monday through Friday. The student will be assigned for the Independent School District (ISD) calendar. Candidates will be placed in two settings: an early grade (4,5,6) and late grade (6,7,8) experience as well as in two content areas. Required seminars will provide students with theory to integrate and apply during student teaching. Prerequisites: EDML 4370, EDML 4371, EDML 4372 and LIST 4378.

### **EDML 5302. SCIENCE IN THE MIDDLE GRADES. 3 Hours.**

The examination of instructional strategies, materials, current research, and technology pertinent to teaching science in the middle grades; the scope and sequence of science content and implementation of instructional approaches to accommodate diverse student populations.

### **EDML 5303. MATHEMATICS IN THE MIDDLE GRADES. 3 Hours.**

The examination of instructional strategies, materials, current research, and technology pertinent to teaching mathematics in the middle grades; the scope and sequence of math content and the selection and implementation of instructional approaches to accommodate diverse student populations.

### **EDML 5304. SOCIAL STUDIES IN THE MIDDLE GRADES. 3 Hours.**

An examination of content, methods, current research, and learning theory appropriate for social studies education in the middle grades. Special attention to methods that promote analytical and evaluative abilities necessary for participatory democracy in a culturally diverse society.

**EDML 5308. MIDDLE GRADES ORGANIZATION, INSTRUCTION, AND MANAGEMENT. 3 Hours.**

The examination of principles, theories, and research related to developmentally responsive middle level programs, effective instruction and effective strategies of classroom management. Attention is given to the employment of a variety of approaches for developing an appropriate climate to meet the varying needs of the middle level student.

**EDML 5315. PRACTICUM. 3 Hours.**

Practicum in student's teaching area(s). This longitudinal experience will help students apply theory and research to practice.

**EDML 5328. PREADOLESCENT/ADOLESCENT GROWTH, DEVELOPMENT, AND LEARNING THEORY. 3 Hours.**

Physical, social, emotional, and cognitive growth patterns of 10- to 15-year-old children, emphasizing familial, cultural, societal, and genetic determinants of behavior. Attention is given to current research regarding the developmental characteristics of adolescents, including exceptional learners and students with special needs.

**EDML 5391. INDEPENDENT RESEARCH. 3 Hours.**

Research for thesis substitute or equivalent over a topic agreed upon between the student and instructor. May be repeated for credit with permission.

## Educational Administration (EDAD)

### COURSES

**EDAD 1130. FOUNDATIONS OF LEADERSHIP. 1 Hour.**

Student leadership trainers, under the supervision of the staff in the Department of Student Activities, facilitate class discussion and assist students in identifying the necessary skills for effective leadership in university organizations and in both personal and professional settings. Topics include: leadership vs. management communication, leadership styles and personality traits, emotionally intelligent leadership, ethical leadership, leadership and change, and diversity and cultural awareness. Opportunities are provided for group problem solving, and team interaction and collaboration. Elective only and does not count as part of the professional certification requirements. Pass-Fail grades will be awarded.

**EDAD 2330. THEORIES IN LEADERSHIP. 3 Hours.**

Identifies the philosophy and theories of leadership, leadership styles, and contemporary leadership issues. Practical application of leadership skills are developed through interactive class discussions, analyzing case studies, and group problem-solving and role-playing experiences.

**EDAD 4330. CAPSTONE IN LEADERSHIP STUDIES. 3 Hours.**

This capstone course focuses on the synthesis of learning and experiences across the prior 15 hours of coursework. Students will design and present their new understandings of leadership and speculate about futures on the horizon. Prerequisite: EDAD 2330.

**EDAD 4390. SELECTED TOPICS IN LEADERSHIP. 3 Hours.**

An examination of different topics related to leadership. This seminar may be repeated for credit as the topic changes.

**EDAD 5190. SELECTED TOPICS IN EDUCATION. 1 Hour.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDAD 5191. INDEPENDENT RESEARCH. 1 Hour.**

Research for thesis substitute or equivalent over topic agreed upon between student and instructor. Can be repeated for credit with permission.

**EDAD 5199. PROBATIONARY CERTIFICATION INTERNSHIP. 1 Hour.**

This course provides mentoring and supervision to UTA Educational Leadership and Policy Studies students employed as assistant principals or principals while on a Probationary Certificate and not enrolled in either EDAD 5389 or EDAD 5399. Individuals must reenroll in EDAD 5199 while on probation, which is initially issued for one calendar year.

**EDAD 5290. SELECTED TOPICS IN EDUCATION. 2 Hours.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDAD 5291. INDEPENDENT RESEARCH. 2 Hours.**

Research for thesis substitute or equivalent over topic agreed upon between student and instructor. Can be repeated for credit with permission.

**EDAD 5302. EDUCATIONAL TECHNOLOGY PLANNING. 3 Hours.**

This course is designed to help prepare future educational administrators in assessing, revising, or developing a technology plan for their school, district, or campus. Students will explore the overall concepts of technology, new applications of technology, and how they apply to educational standards, such as the National Educational Technology Standards for Teachers (NETS-T) and the Technology Standards for School Administrators (TSSA).

**EDAD 5303. Teacher Leadership for School Improvement. 3 Hours.**

Examine formal/informal leadership in schools emphasizing the roles and contributions of teachers as leaders of instructional improvement at the classroom and school levels. Study organizational dynamics and school culture from theoretical and practical perspectives for improving teaching and learning. Develop leadership strategies for shaping professional learning communities.

**EDAD 5304. DATA-DRIVEN ASSESSMENT. 3 Hours.**

Examine the impact of national and state-level education standards on curriculum and instruction. Examine the structure and uses of both standardized and informal assessments. Examine methods for using assessment data to design differentiated instruction that meets varying student needs.

**EDAD 5305. CURRICULUM DESIGN, IMPLEMENTATION, AND EVALUATION. 3 Hours.**

An examination of theory and research in curriculum development, implementation, and evaluation. Emphasis on current trends in the content areas.

**EDAD 5306. Coaching and Consultation Skills. 3 Hours.**

Examine various methods of coaching at the individual teacher, grade-level or subject-area team, and whole-school levels. Includes in-class instructional demonstrations, teacher observations and providing feedback, coaching through team meetings, and providing whole-school professional development. Also effective ways of including school administrators in instructional improvement.

**EDAD 5307. Teacher Leadership Policy Trends and Issues. 3 Hours.**

Examines current national and state-level trends and policies in teacher leadership. Reviews research on the effects of various models of teacher leadership on instructional improvement.

**EDAD 5309. ADVANCED INSTRUCTIONAL STRATEGIES. 3 Hours.**

A study of advanced models of teaching, including concept attainment, inductive thinking, inquiry, cognitive growth, non-directive group investigation, laboratory training, simulation and the training model. Research in teacher effectiveness and demonstration of various models will be required.

**EDAD 5315. RESEARCH PRACTICUM. 3 Hours.**

Examination of basic concepts and procedures necessary for empirical research investigations within classroom contexts, experimental design, data collection and interpretation, and statistical analysis.

**EDAD 5321. EDUCATIONAL RES. 3 Hours.****EDAD 5322. EDUCATIONAL RESEARCH AND EVALUATION. 3 Hours.**

An overview of basic concepts and procedures necessary for analyzing, designing, and conducting quantitative and qualitative educational studies. Topics include familiarization with educational journals, associations, funding agencies, accreditation procedures, program evaluation, sampling procedures, data collection, and statistical analyses.

**EDAD 5330. LEADERSHIP IN THE INSTRUCTIONAL SETTING. 3 Hours.**

Examination of current research on effective instructional organizations and classroom instruction in today's schools, on characteristics of school leadership, and on the role and function of the teacher as instructional leader. Topics include the essential components of instruction, developing instructional-management systems, evaluating student and teacher performance, assisting colleagues to monitor and improve instructional skills, school climate and leadership styles as they impact on school improvement.

**EDAD 5350. AMERICAN COLLEGE STUDENT. 3 Hours.**

The purpose of the course is to explore and understand the nature, culture, and development of the American College Student. The course focuses on examining a range of development theories that offer insight into the processes of student learning, growth, and development during the college years.

**EDAD 5351. HIGHER EDUCATION ADMINISTRATION AND STUDENT AFFAIRS. 3 Hours.**

The course is designed to introduce students to the organization, management, and philosophy of higher education administration and student affairs at post-secondary institutions. It explores the range of services and organizations associated with the wide-range of positions that exist in student and academic affairs and helps students gain a better understanding of the potential career opportunities that await them after graduation.

**EDAD 5352. HIGHER EDUCATION LAW. 3 Hours.**

The purpose of this course is to provide students with the fundamental cases of higher education law for administrators. Topics of this course may include the legal structure of higher education, separation of church and state, religion, academic freedom, employment and tenure, due process, computer-related legal issues, copyright, students' rights of speech and expression, search and seizure, desegregation, tort liability, contracts and collective bargaining.

**EDAD 5353. HIGHER EDUCATION FINANCE. 3 Hours.**

This course will provide knowledge of the theoretical basis for use of tax funds for education, student fees and tuition, state methods for financing, planning, cost benefit, budgeting, federal role, capital outlay, and the relationships between educational objectives and resource allocations.

**EDAD 5354. THE AMERICAN COMMUNITY COLLEGE. 3 Hours.**

This course will provide students with the philosophical and historical foundations of the American community college system. Students will explore current issues including, but not limited to, the evolution of the community college baccalaureate, principles of accreditation, institutional effectiveness, workforce development, and federal oversight of community colleges.

**EDAD 5355. HIGHER EDUCATION CURRICULUM. 3 Hours.**

An examination of theory and research in curriculum development, implementation, and evaluation in higher education settings. Emphasis will be on current trends in the content areas.

**EDAD 5356. HISTORY, PRINCIPLES, AND PHILOSOPHY OF HIGHER EDUCATION ADMINISTRATION. 3 Hours.**

This course is for current and prospective faculty, administrators, and staff seeking to learn about the American higher education system. The topics addressed include the history, recent developments, and strategies for future management and administration, finance, organization, governance, and the mission and role of higher education in American society.

**EDAD 5357. HIGHER EDUCATION TRENDS AND ISSUES. 3 Hours.**

The course is designed to introduce students to key issues affecting higher education today. Through diverse and critical readings, the students explore issues such as access and equity, affirmative action, faculty, academic freedom, college costs, and strategic change.

**EDAD 5360. LEADERSHIP THEORY. 3 Hours.**

Leadership theories and the practice of leadership serve to focus this course designed to prompt self awareness as a school leader.



**EDAD 5363. ADVANCED EDUCATIONAL RESEARCH. 3 Hours.**

An in-depth coverage of selected topics in the design of research and the collection and analysis of data. Topics include multivariate analyses, experimental and quasi-experimental designs, development and selection of data collection instruments, focus group interviewing, observational research, the delphi method, and interpretive analysis.

**EDAD 5365. Leading Learning Organizations. 3 Hours.**

The change process in educational settings serves to focus this course. Moving along the continuum of change theories, the planning, adoption, implementation and institutionalization of change are explored across public school and post-secondary learning organizations.

**EDAD 5376. EDUCATIONAL GOVERNANCE. 3 Hours.**

Focus on the appointed and elected entities and bureaucracies that determine and implement policy in public education.

**EDAD 5377. CONTEMPORARY ISSUES IN EDUCATION. 3 Hours.**

An exploration of selected controversial issues in contemporary education. Symposium/seminar/lecture format.

**EDAD 5379. SUPERINTENDENCY INTERNSHIP. 3 Hours.**

Provides experiences in the various roles and responsibilities of a superintendent of schools under the direction of a school district mentor and a university supervisor. An internship project will be developed in consultation with public school and university personnel.

**EDAD 5380. DIVERSITY AND EQUITY IN EDUCATION. 3 Hours.**

Effective leadership, instruction, and management strategies for work in diverse educational settings. Designed to provide increased self-awareness and insight into issues of diversity and equity such as culture, ethnicity, exceptionality, gender, language, and socioeconomic status. Demographic issues along with urban and suburban educational settings will also be addressed.

**EDAD 5381. GOVERNANCE, POLITICAL AND LEGAL ASPECTS OF EDUCATION. 3 Hours.**

Focus on the legal foundation of public education, political theory, and application of political skills in working with school personnel, students, parents, and community organizations. The role of the law, court rulings, and the politics of school governance at the federal, state, and local levels will be addressed.

**EDAD 5382. FOUNDATIONS OF EDUCATIONAL ADMINISTRATION. 3 Hours.**

Will address the various aspects of instructional leadership roles and responsibilities of central office as well as building level administrators and supervisors. Topics included will be history of educational administration, educational philosophy, the global understanding of administrative roles in urban and rural settings, and professional organizations, as well as an overview of educational reforms, site-based management, governance, instructional management, evaluation, exchanging ideas, making changes, coaching beginning teachers, mentoring of teachers and peers, and a diverse community.

**EDAD 5383. THE PRINCIPALSHIP. 3 Hours.**

The Principalship will address the role of the campus leader in the leadership, organization and administration of schools. The importance of campus culture, climate, vision and ethics will be stressed throughout standards-based instruction, case studies, developmental activities, readings, reflections and field experiences. The importance of appropriate principal induction will be stressed along with the concepts of the principal as scholar-practitioner and proactive leader. An emphasis will be placed on continuous school improvement and a commitment to professional development.

**EDAD 5384. RESOURCE MANAGEMENT IN EDUCATION. 3 Hours.**

School finance, as well as auxiliary areas of resource management, will be addressed. The emphasis will be on the use of technology, alternative models of financing and budgeting, and sources of revenue from the federal, state, and local levels as well as from private sources. The course is designed to assist administrators in developing an understanding of the functions, operation, and evaluation of auxiliary services which support the educational program.

**EDAD 5388. EDUCATIONAL POLICY ISSUES IN THE PUBLIC SCHOOLS. 3 Hours.**

Examination of positions on policy issues of importance in education.

**EDAD 5389. ADMINISTRATIVE PRACTICUM. 3 Hours.**

Designed to provide prospective educational administrators job-related experiences under supervision in an appropriate educational setting. An approved professional study is designed in relationship to the intern's interest and past experiences. Can be repeated for credit with approval of advisor.

**EDAD 5390. SELECTED TOPICS IN EDUCATION. 3 Hours.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDAD 5391. INDEPENDENT RESEARCH. 3 Hours.**

Research for thesis substitute or equivalent over topic agreed upon between student and instructor. Can be repeated for credit with permission.

**EDAD 5395. FUTURISTIC LEADERSHIP ROLES IN SCHOOL ADMINISTRATION. 3 Hours.**

Concepts and skills to prepare educational leaders for learner-centered schools and to anticipate and foster the professional development of all staff and parents in the learning community.

**EDAD 5399. CAPSTONE PRACTICUM IN EDUCATIONAL LEADERSHIP AND POLICY STUDIES. 3 Hours.**

The course focus will be on collaborative inquiry and action research in the individual classroom, team, school, and/or professional learning community. Each student will identify, research, design and initiate addressing a real problem at their work site. Students will leave this course and graduate from the program with a research presentation as part of their informal professional portfolio. Successful completion of the Capstone Internship will fulfill the comprehensive examination requirements for the graduate degree and/or certification. Requirements of EDAD 5399 will include, but not be limited to, those collaboratively established by University faculty and school administrative personnel.

**EDAD 6179. SUPERINTENDENCY PRACTICUM. 1 Hour.**

Provides experiences in the various roles and responsibilities of a superintendent of schools under the direction of a school district mentor and a university supervisor. An internship project will be developed in consultation with public school and university personnel.

**EDAD 6279. SUPERINTENDENCY PRACTICUM. 2 Hours.**

Provides experiences in the various roles and responsibilities of a superintendent of schools under the direction of a school district mentor and a university supervisor. An internship project will be developed in consultation with public school and university personnel. Prerequisite: permission of advisor.

**EDAD 6304. K-16 QUANTITATIVE RESEARCH DESIGN & METHODOLOGY. 3 Hours.**

Advanced course that covers the logic of research methods and design with an emphasis on empirical and other quantitative methods, including designing, conducting, and analyzing research from multiple paradigms. Emphasis will be placed on the steps involved in the administration of a research project including literature review, methodology, data collection and analysis, and presentation and publication in multiple media. State-of-the-art technology will be utilized.

**EDAD 6308. QUALITATIVE RESEARCH DESIGN & METHODOLOGY. 3 Hours.**

Research processes including developing interview questions, interviewing, coding/analyzing, interpreting data, theorizing, and reporting results, with participant observation as needed. Special focus on methods available to triangulate/verify data in order to confirm or achieve convergent validity. Establishing appropriate safeguards to ensure that findings are drawn from the data.

**EDAD 6310. STATISTICAL METHODS. 3 Hours.**

Statistical applications that emphasize sampling theory, normal, t, and F distributions, hypothesis tests, types of errors, power, analysis of variance for designs with one or more levels of classification, random effects and mixed models, comparisons among means, randomized block designs, designs with repeated measures including split-plot designs, zero-order correlation, and simple linear regression. More advanced principles of parametric and non-parametric statistics will also be emphasized. State-of-the-art technology will be utilized.

**EDAD 6315. ADVANCED STATISTICAL METHODS. 3 Hours.**

Review of correlation topics including zero-order, part and partial correlation, two variable linear regression theory, standard error of estimate, coefficient of determination, test for linearity of regression, relation of correlation ratio to analysis of variance, multiple correlation, point-biserial correlation, phi coefficient, tetrachoric correlation, canonical correlation, rank correlation, Fisher's Z and significance test for r, and effect size. Fundamentals of multiple regression including relationship to analysis of variance, and analysis of covariance. General introduction to factor analysis models, multiple analysis of variance, multiple analysis of covariance, and meta-analysis. Applicability to K-16 studies.

**EDAD 6318. ADVANCED QUALITATIVE METHODS. 3 Hours.****EDAD 6320. K-16 PHILOSOPHY & HISTORY POLICY RESEARCH. 3 Hours.**

Analysis of the roles of history, philosophy, culture, and values in shaping educational policy. Topics include the Greek Academies, the Medieval Universities, Progressivism, Neo-Conservatism, and Postmodern perspectives, as necessary antecedents to the K-16 movement. Detailed analysis of the roles, history, philosophy, culture, and values for public school and policy making within institutions of higher education.

**EDAD 6325. K-16 POLICY ANALYSIS RESEARCH. 3 Hours.**

A study of principles and practices involved in policy analysis research in educational settings.

**EDAD 6327. K-16 POLICY & LAW ANALYSIS RESEARCH. 3 Hours.**

A study of principles and practices involved in policy analysis research in educational settings and critical analysis of the legal underpinnings of public K-16 education with particular emphasis on the United States Constitution.

**EDAD 6330. K-16 LEGAL POLICY RESEARCH. 3 Hours.**

Critical analysis of the legal underpinnings of public K-16 education with particular emphasis on the United States Constitution. Attention will also be paid to varieties of statutory construction, the role of case law, and the significance of administrative decisions in the K-16 context. Legal implications of synergistic relationships spanning the K-16 context.

**EDAD 6331. LEADERSHIP IN THE K-12 INSTRUCTIONAL SETTING. 3 Hours.**

Examination of current research on effective instructional organizations and classroom instruction in today's schools, on characteristics of school leadership, and on the role and function of the teacher as instructional leader. Topics include the essential components of instruction, developing instructional-management systems, evaluating student and teacher performance, assisting colleagues to monitor and improve instructional skills, school climate and leadership styles as they impact on school improvement. For doctoral students only.

**EDAD 6335. K-16 ACCOUNTABILITY POLICY RESEARCH. 3 Hours.**

A comprehensive course covering the research about and role of outcomes assessment in institutional accountability and accreditation. Addresses the relationship between outcomes assessment and strategic planning. Exploration of outcomes assessment in public schools and institutions of higher education.

**EDAD 6340. K-16 ORGANIZATIONAL THEORY RESEARCH. 3 Hours.**

In depth study of theories of organizing, the ways in which they are evidenced in educational organizations and the ways in which they influence leaders and learning.

**EDAD 6342. K-16 ORGANIZATIONAL & LEADERSHIP THEORY RESEARCH. 3 Hours.**

In depth study of theories of organizing, the ways in which they are evidenced in educational organizations and the ways in which they influence leaders and learning. Analysis of both classical and contemporary theories, and their application in K-16 settings.

**EDAD 6345. K-16 HUMAN RESOURCES LEADERSHIP RESEARCH. 3 Hours.**

Human resource needs in educational settings, including faculty and staff recruitment, selection, evaluation, retention, promotion, tenure, grievances, and leadership and personnel development.

**EDAD 6350. K-16 CURRICULUM LEADERSHIP RESEARCH. 3 Hours.**

Foundations, principles, and issues of curriculum, including vertical alignment and the middle college concept. Exploration of curriculum development in both public schools and institutions of higher education. Analysis of the role of articulation agreements.

**EDAD 6351. HIGHER EDUCATION AND STUDENT AFFAIRS ADMINISTRATION. 3 Hours.**

The course is designed to introduce students to the organization, management, and philosophy of higher education administration and student affairs at post-secondary institutions. It explores the range of services and organizations associated with the wide-range of positions that exist in student and academic affairs and helps students gain a better understanding of the potential career opportunities that await them after graduation. For doctoral students only.

**EDAD 6352. HIGHER EDUCATION LAW. 3 Hours.**

The purpose of this course is to provide students with the fundamental cases of higher education law for administrators. Topics of this course may include the legal structure of higher education, separation of church and state, religion, academic freedom, employment and tenure, due process, computer-related legal issues, copyright, students' rights of speech and expression, search and seizure, desegregation, tort liability, contracts and collective bargaining. For doctoral students only.

**EDAD 6353. HIGHER EDUCATION FINANCE. 3 Hours.**

This course will provide knowledge of the theoretical basis for use of tax funds for education, student fees and tuition, state methods for financing, planning, cost benefit, budgeting, federal role, capital outlay, and the relationships between educational objectives and resource allocations. For doctoral students only.

**EDAD 6354. American Community College. 3 Hours.**

This course will provide students with the philosophical and historical foundations of the American community college system. Students will explore current issues including, but not limited to, the evolution of the community college baccalaureate, principles of accreditation, institutional effectiveness, workforce development, and federal oversight of community colleges. For doctoral students only.

**EDAD 6355. K-16 STUDENT SERVICES LEADERSHIP RESEARCH. 3 Hours.**

Analysis of the student services, co-curricular, extracurricular, and auxiliary enterprise functions of both public schools and institutions of higher education. Particular emphasis on the relationship with the institutions' stated curricula, purposes, and institutional missions.

**EDAD 6356. HISTORY, PRINCIPLES, AND PHILOSOPHY OF HIGHER EDUCATION ADMINISTRATION. 3 Hours.**

This course is for current and prospective faculty, administrators, and staff seeking to learn about the American higher education system. The topics addressed include the history, recent developments, and strategies for future management and administration, finance, organization, governance, and the mission and role of higher education in American society. For doctoral students only.

**EDAD 6357. HIGHER EDUCATION TRENDS AND ISSUES. 3 Hours.**

The course is designed to introduce students to key issues affecting higher education today. Through diverse and critical readings, the students explore issues such as access and equity, affirmative action, faculty, academic freedom, college costs, and strategic change. For doctoral students only.

**EDAD 6358. AMERICAN COLLEGE STUDENT. 3 Hours.**

The purpose of the course is to explore and understand the nature, culture, and development of the American College Student. The course focuses on examining a range of development theories that offer insight into the processes of student learning, growth, and development during the college years. For doctoral students only.

**EDAD 6359. HIGHER EDUCATION CURRICULUM. 3 Hours.**

An examination of theory and research in curriculum development, implementation, and evaluation in higher education settings. Emphasis will be on current trends in the content areas. For doctoral students only.

**EDAD 6360. K-16 LEADERSHIP THEORY RESEARCH. 3 Hours.**

Organizational leader behavior in K-16 settings with reference to interpersonal relationships, hierarchy, management style, and communication. Analysis of both classical and contemporary organizational theories, and their application in K-16 settings.

**EDAD 6365. K-16 LEADING LEARNING ORGANIZATIONS RESEARCH. 3 Hours.**

Building on organizational and leadership theories and their use in educational organizations, this course focuses on the study of change theory and its uses in leading learning organizations in times of change.

**EDAD 6371. PERSONNEL & SCHOOL LAW. 3 Hours.**

Focuses on understanding the relationship between motivation and the management of human resources; articulate the basics of team management and group facilitation; identify proper procedures for recruiting, assignment, and inducting personnel; and recognize the legal requirement for suspension, transfer, reduction in force and dismissal of professional personnel. Prerequisite: permission of advisor.

**EDAD 6373. THE SUPERINTENDENCY. 3 Hours.**

This course introduces candidates to the many facets of the superintendency with a focus on the challenges facing the superintendent today. Topics include: exercising collaborative leadership, developing a strong organizational culture, dealing with the politics of education, building strong superintendent-board relations, managing the problems of school reform, and planning. Instruction is problem-oriented and included field-based experiences.

**EDAD 6374. ADVANCED SCHOOL BUSINESS ADMINISTRATION. 3 Hours.**

Survey principles of public school finance at the local, state, and federal levels. Examines the school budgeting process, methods of school funds accounting and techniques of school business management. Prerequisite: permission of advisor.

**EDAD 6376. Educational Governance. 3 Hours.**

Focus on the appointed and elected entities and bureaucracies that determine and implement policy in public education. For doctoral students only.

**EDAD 6378. ADVANCED CURRICULUM AND PROGRAM ASSESSMENT. 3 Hours.**

Focuses on the processes of implementing district-wide curriculum, programs, and other innovations in school systems. Topics include: recent research on the implementation of change in curriculum and instruction, trends in education, strategic and contextual planning, program and student assessment and accountability, and national curriculum projects. Prerequisite: permission of advisor.

**EDAD 6380. K-16 RESEARCH PRACTICUM I. 3 Hours.**

An In depth research experience that provides an opportunity for participants to work with an experienced faculty researcher on cutting edge K-16-related research. The practicum experience will be personalized to best meet the individual student's needs, aptitudes, and aspirations in the context of the K-16 research arena.

**EDAD 6381. POLITICAL AND LEGAL ASPECTS OF K-12 EDUCATION. 3 Hours.**

Focus on the legal foundation of public education, political theory, and application of political skills in working with school personnel, students, parents, and community organizations. The role of the law, Ct rulings, and the politics of school governance at the federal, state, and local levels will be addressed. For doctoral students only.

**EDAD 6383. The Principalship. 3 Hours.**

Examination of current research on effective instructional organizations and classroom instruction in today's schools, on characteristics of school leadership, and on the role and function of the teacher as instructional leader. Topics include the essential components of instruction, developing instructional-management systems, evaluating student and teacher performance, assisting colleagues to monitor and improve instructional skills, school climate and leadership styles as they impact on school improvement. For doctoral students only.

**EDAD 6384. RESOURCE MANAGEMENT IN K-12 EDUCATION. 3 Hours.**

School finance, as well as auxiliary areas of resource management, will be addressed. The emphasis will be on the use of technology, alternative models of financing and budgeting, and sources of revenue from the federal, state, and local levels as well as from private sources. The course is designed to assist administrators in developing an understanding of the functions, operation, and evaluation of auxiliary services which support the educational program. For doctoral students only.

**EDAD 6385. K-16 RESEARCH PRACTICUM II. 3 Hours.**

A research experience in K-16 research that provides an opportunity for participants to experience the process research with an experienced university professional. The experience will be individualized to best meet the student's needs, aptitudes, and aspirations in the context of K-16 research.

**EDAD 6390. SELECTED TOPICS K-16 EDUCATIONAL LEADERSHIP RESEARCH. 3 Hours.**

Topics will vary by semester, and may afford students the opportunity for choice within the cohort design. Selected topics courses will provide opportunities for faculty to teach courses in their area of expertise that meet students' needs, aptitudes, and aspirations. Examples of selected topics that may be offered in leadership research include: k-16 student judicial processes, K-16 academic program administration, and K-16 student information management systems. May be repeated for credit with permission of instructor.

**EDAD 6391. Independent Research. 3 Hours.**

Research for independent study over topic agreed upon between student and instructor. Can be repeated for credit with permission. For doctoral students only.

**EDAD 6392. SELECTED TOPICS K-16 EDUCATION POLICY RESEARCH. 3 Hours.**

Topics will vary by semester, and may afford students the opportunity for choice within the cohort design. Selected topics courses will provide opportunities for faculty to teach courses in their area of expertise that meet students' needs, aptitudes, and aspirations. Examples of selected topics that may be offered in leadership research include: K-16 governance, IDEA & ADA, and K-16 articulation. May be repeated for credit with permission of instructor.

**EDAD 6399. DISSERTATION. 3 Hours.**

Prerequisite: admission to candidacy for the Doctor of Philosophy degree, and permission of major professor. Graded P/F.

**EDAD 6699. DISSERTATION. 6 Hours.**

Prerequisite: admission to candidacy for the Doctor of Philosophy degree, and permission of major professor. Graded R/F/P/W.

**EDAD 6999. DISSERTATION. 9 Hours.**

Prerequisite: admission to candidacy for the Doctor of Philosophy degree, and permission of major professor. Graded P/R/F.

**EDAD 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Educational Administration (EDADIR)

### COURSES

**EDADIR 5391. INDEPENDENT RESEARCH. 3 Hours.**

Research for thesis substitute or equivalent over topic agreed upon between student and instructor. Can be repeated for credit with permission.

**EDADIR 6391. Independent Research. 3 Hours.**

Research for independent study over topic agreed upon between student and instructor. Can be repeated for credit with permission. For doctoral students only.

## Educational Technology (EDTC)

### COURSES

**EDTC 4201. TECHNOLOGY APPLICATIONS. 2 Hours.**

This course is for K-12 educators who are interested in integrating technology into teaching and learning. Its focus is on the Technology Applications Texas Essential Knowledge and Skills (TA-TEKS). Participants should gain a greater understanding of the Technology Applications TEKS and how to introduce them into curriculum. Study and application of technology use in educational environments. Topics include: instructional learning and computer software.

**EDTC 4301. TECHNOLOGY APPLICATIONS. 3 Hours.**

This course is for K-12 educators who are interested in integrating technology into teaching and learning. Focus is on the Technology Applications Texas Essential Knowledge and Skills (TA-TEKS). Participants should gain a greater understanding of the Technology Applications TEKS and how to introduce them into curriculum. Study and application of technology use in educational environments. Topics include: instructional learning and computer software.

**EDTC 5190. SELECTED TOPICS IN EDUCATION. 1 Hour.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDTC 5191. INDEPENDENT RESEARCH. 1 Hour.**

Research for thesis substitute or equivalent over topic agreed upon between student and instructor. May be repeated for credit with permission.

**EDTC 5290. SELECTED TOPICS IN EDUCATION. 2 Hours.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDTC 5291. INDEPENDENT RESEARCH. 2 Hours.**

Research for thesis substitute or equivalent over topic agreed upon between student and instructor. Can be repeated for credit with permission.

**EDTC 5300. INTRODUCTION TO FOUNDATION OF EDUCATION INSTRUCTIONAL DESIGN AND TECHNOLOGY. 3 Hours.**

Analysis of integrating TEKS, computers and related technologies in education. Topics include issues and concerns prior to integration, use of software in teaching and learning, identifying resources and strategies for use of the World Wide Web, and creating instructional activities into and across curriculum.

**EDTC 5301. CURRENT APPLICATIONS OF TECHNOLOGY IN EDUCATION. 3 Hours.**

Study of technology use in educational environments. Topics include: instructional, learning, assessment, and management applications; a review of current research on selection, evaluation, and integration of appropriate media; and computer hardware and software, multimedia, laser disk, CD-ROM, and telecommunications systems.

**EDTC 5302. INTERNET IN EDUCATION. 3 Hours.**

Course is designed to aid educators and training professionals in developing robust techniques for locating, utilizing, and creating Internet resources for professional productivity and research.

**EDTC 5310. COMPUTER APPLICATIONS IN CURRICULUM AND INSTRUCTION. 3 Hours.**

Designed for both elementary and secondary teachers; skills and methods necessary to implement computer applications within the curriculum. Methods for managing the computer in the classroom, courseware telecommunications within the curriculum.

**EDTC 5320. WEB AUTHORING. 3 Hours.**

Study of Web site planning, development and HTML tagging. Topics include: storyboards, content creation, Web site tagging with browser independent tags, use of color and fonts to communicate concepts, interactivity by design, ethical use of and respect for intellectual property, understand copyright, fair use, patent, and trademarks, the Master Technology Teacher Standards (EC-12) and the Standards for Basic Endorsement in Educational Computing and Technology Literacy.

**EDTC 5330. DESKTOP PUBLISHING. 3 Hours.**

Study of desktop publishing planning, development, and production. Topics include: desktop publishing terminology, basic design theory, principles of form and design, guidelines for desktop publishing, ethical use of and respect for intellectual property, understand copyright, fair use, patent, and trademarks, the Master Technology Teacher Standards (EC-12) and the Standards for Basic Endorsement in Educational Computing and Technology Literacy.

**EDTC 5340. MULTIMEDIA. 3 Hours.**

Study of multimedia planning, development, and implementation that maximize the use of technology, student learning, and teacher effectiveness. Topics include: methodologies for tutorials, hypermedia, drills, simulations, educational games, open-ended learning environments, testing, Web-based learning, interactivity by design, ethical use of and respect for intellectual property, understand copyright, fair use, patent, and trademarks, the Master Technology Teacher Standards (EC-12) and the Standards for Basic Endorsement in Educational Computing and Technology Literacy.

**EDTC 5390. SELECTED TOPICS IN EDUCATION. 3 Hours.**

An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**EDTC 5391. INDEPENDENT RESEARCH. 3 Hours.**

Research for thesis substitute or equivalent over topic agreed upon between student and instructor. May be repeated for credit with permission.

## Electrical Engineering (EE)

### COURSES

**EE 1000. FRESHMAN UNDERGRADUATE RESEARCH. 0 Hours.**

Freshman level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**EE 1104. INTRODUCTION TO ENGINEERING. 1 Hour.**

Introduction to basic engineering concepts. Students become familiar with engineering and its many sub-fields, ethical responsibilities, creativity and design.

**EE 1105. ELECTRICAL ENGINEERING FRESHMAN SEMINAR. 1 Hour.**

This course introduces Electrical Engineering students to basic concepts in analog and digital electronic circuits, control and robotics, semiconductors, electromagnetics, signal processing, optics and photonics, energy and telecommunication systems. Fundamental intellectual concepts in the EE curriculum such as modularity, subsystems, block diagrams, signal routing, signal processing, feedback, etc., will be discussed in class via examples from recent project work by faculty across the department and from industry. Co-requisite: EE 1104.

**EE 1106. ELECTRICAL ENGINEERING FRESHMAN PRACTICUM. 1 Hour.**

A project based course in which basic concepts in electrical engineering, such as electrical systems, power and energy, circuit laws, measurements, and data analysis will be introduced. Student teams will engage in laboratory experiments, application hands-on projects, which cover areas of study in electrical engineering including analog and digital electronics, robotics, semiconductors, electromagnetics, signal processing, photonics, energy management, and telecommunication systems. Co-requisite: EE 1104.

**EE 2000. SOPHOMORE UNDERGRADUATE RESEARCH. 0 Hours.**

Sophomore level undergraduate research course. Prerequisites: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**EE 2181. CIRCUIT ANALYSIS LABORATORY. 1 Hour.**

Circuits laboratory for non-electrical engineering majors. This is identical to the laboratory portion of EE 2440. Prerequisite: Grade C or better in MATH 2425. Corequisite: EE 2320 and PHYS 1444.

**EE 2182. SOPH ELEC ENG II. 1 Hour.****EE 2313. ELEC SCI I. 3 Hours.****EE 2314. ELECT SCI II. 3 Hours.****EE 2320. CIRCUIT ANALYSIS. 3 Hours.**

For non-electrical engineering majors. Basic principles of R, L, and C components. Kirchoff's laws, network analysis, loop and node equations, basic network theorems. Steady-state Alternating Current (AC) phasor analysis, operational amplifiers, filtering, and digital circuits. Prerequisite: Grade C or better in MATH 2425 and PHYS 1444.

**EE 2347. MATHEMATICAL FOUNDATIONS OF ELECTRICAL ENGINEERING. 3 Hours.**

Introduction and application of mathematical and algorithmic thinking to solve electrical engineering problems and interpret the results. Analytical, numerical, and graphical analysis, utilization of complex numbers, vectors, matrices, and arrays to represent EE variables and special functions. Transform methods to solve differential and integral equations, linear and nonlinear equations, advanced vector and 3D integral and differential calculus applied to EE problems. Sources of error when using arithmetic operations, data structures, sorting and searching. Problems and numerical examples using MATLAB will be covered during recitation and computer laboratory sessions. Prerequisite: Grade of C or better in each of CSE 1311, MATH 2326, and MATH 3319.

**EE 2403. ELECTRONICS I. 4 Hours.**

Introduction to semiconductors, carrier statistics, drift and diffusion, semiconductor diodes, bipolar junction transistors (BJTs), and field-effect transistors (FETs). Circuit applications of diodes. Direct Current (DC) biasing and stability of circuits containing diodes, BJTs, and FETs. Introduction to mid-band single stage small signal analysis of BJT and FET circuits. Laboratory experiments to complement concepts learned in class. Prerequisite: Grade C or better in both EE 2415 and MATH 2326.

**EE 2415. CIRCUIT ANALYSIS I. 4 Hours.**

Basic circuit concepts of resistor, inductor, and capacitor (RLC) components. Kirchhoff's laws, resistive network analysis, power calculations, loop and node equations, topology, basic network theorems. Dependent sources and operational amplifiers. Computer-assisted solution of circuit problems. Elementary transient time-domain analysis. Introduction to frequency domain analysis and Bode plots. Steady state A-C phasor analysis, including element laws and phasor diagrams. Problems and experimental demonstrations will be covered during recitation and laboratory sessions. Prerequisite: Grade C or better in EE 1205, MATH 2425. Co-requisite: MATH 3319, PHYS 1444.

**EE 2440. CIRCUIT ANALYSIS WITH LAB. 4 Hours. (TCCN = ENGT 1401)**

For non-electrical engineering majors. Basic principles of R, L, and C components. Kirchhoff's laws, network analysis, loop and node equations, basic network theorems. Steady-state AC phasor analysis, operational amplifiers, filtering, and digital circuits. Concurrent laboratory experiments complement lecture topics. Prerequisite: Grade C or better in MATH 2425 and PHYS 1444.

**EE 2441. DIGITAL LOGIC AND MICROPROCESSORS 1. 4 Hours.**

Theory and design of digital logic circuits. Number systems and binary arithmetic. Boolean function theorems and minimization by algebraic and mapping methods, logic gates, arithmetic logic units, multiplexers/ demultiplexers, analysis and synthesis of combinatorial logic circuits, read-only memory (ROM) memories, programmable logic arrays (PLAs), introduction of hardware description language, synchronous and asynchronous state machines, hazards and races in pulse mode and fundamental mode state machines. Laboratory consists of "proof of concept" experiments using digital components. Prerequisite: CSE 1311 with grade of C or better.

**EE 3000. JUNIOR UNDERGRADUATE RESEARCH. 0 Hours.**

Junior level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**EE 3302. FUNDAMENTALS OF POWER SYSTEMS. 3 Hours.**

Introduction to power systems, three-phase circuit analysis, symmetrical components, transformer, polyphase induction motors, synchronous generators, synchronous motors, diode and diode circuits, thyristor and thyristor circuits, DC-DC switching converters, and DC-AC switching converters, Renewable energy sources. Concurrent laboratory experiments complement the course lecture topics. Prerequisite: Grade C or better in EE 3446. Corequisite: EE 3407.

**EE 3310. DIGITAL LOGIC AND MICROPROCESSORS II. 3 Hours.**

Principles of operation for microprocessors, including assembly language programming, internal architecture of processors, timing analysis, and interfacing techniques. Special emphasis will be placed on hardware-software interactions, design of memory systems for microprocessors and utilization of programmable peripheral devices. Prerequisite: Grade of C or better in CSE 1311, EE 2441 and EE 2403.

**EE 3315. CIRCUITS. 3 Hours.****EE 3317. LINEAR SYSTEMS. 3 Hours.**

For non-electrical engineering majors. Time-domain transient analysis, convolution, Fourier Series and Transforms, Laplace Transforms and applications, transfer functions, signal flow diagrams, Bode plots, stability criteria, and sampling. Classes meet concurrently with EE 3417. ME Majors Prerequisite: Grade C or better in MATH 3330, ME Majors Corequisite: EE 2320 or equivalent. BE Majors Prerequisite: Grade C or better in MATH 3319.

**EE 3318. DISCRETE SIGNALS AND SYSTEMS. 3 Hours.**

Discrete-time convolution. Time and frequency domain analyses of linear time invariant systems. Stability analyses of causal and non-causal systems using the Z-transform. Sampling and Introduction to Digital Control. Finite Impulse Response (FIR) digital filter design. Convolution via the discrete Fourier transform. Design of frequency selective Infinite Impulse Response (IIR) digital filters using frequency transformations and the bilinear transform. Prerequisite: Grade of C or better in both EE 2441 and EE 3417.

**EE 3330. PROBABILITY AND RANDOM SIGNALS. 3 Hours.**

Probability, random variables, functions of random variables, random signals, noise. Statistical techniques and random variables for characterizing system response to noisy signals. Rigorous mathematical concepts will be tied to engineering system issues such as characterizing uncertainty due to measurement error, component and system tolerances, and noise sources such as device noise, quantization noise, communication channel noise, and thermal noise. Prerequisite: Grade of C or better in EE 3417. Corequisite: EE 3318.

**EE 3407. ELECTROMAGNETICS. 4 Hours.**

Time varying electric and magnetic fields, displacement current, Maxwell's equations and transverse electromagnetic waves; plane waves in an unbounded medium, waves in media with planar interfaces, boundary conditions, reflection and transmission, plane waves in lossless and lossy media; electromagnetic waves in a bounded medium, guided waves, wave guides, propagation modes; transmission lines, circuit models of transmission lines, transmission line equations, reflection at discontinuities, terminations, transient response, steady state waves on transmission lines, open and short circuited lines, power flow, impedance matching and the Smith chart, antennas. Problems and experimental demonstrations will be covered during recitation and laboratory sessions. Prerequisite: C or better in both EE 2347 and PHYS 1444. Co-requisite is EE 3446.

**EE 3417. CONTINUOUS SIGNALS AND SYSTEMS. 4 Hours.**

Time-domain transient analysis, convolution, state-space analysis, frequency domain analysis, Laplace transforms and transfer functions, signal flow and block diagrams, Bode plots, stability criteria, Fourier series and transforms. Applications from control systems and signal processing. Problems and numerical examples using MATLAB will be covered during recitation and computer laboratory sessions. Prerequisite: Grade C or better in both EE 2347 and EE 2415.

**EE 3444. ELECTRONICS II. 4 Hours.**

Low and high frequency characteristics and circuit models for diodes, bipolar junction transistors (BJTs), and field effect transistors (FETs). Analysis and design of full spectrum small signal BJT and FET circuits. Analysis and transistor level design of active filters, oscillators, feedback configurations, and multistage differential and operational amplifiers. Concurrent laboratory exercises in support of the topics covered in class. Prerequisite: Grade C or better in both EE 2403 and EE 3446.

**EE 3446. CIRCUIT ANALYSIS II. 4 Hours.**

Analysis and design of filters, oscillators, feedback configurations, and operational amplifiers. Dependent sources, device models, two-port networks, and mutual inductance and transformers. Network response functions, poles and zeros, network theorems, resonance, and the analysis and design of active filters. Application of phasors in steady-state circuit analysis. Introduction to distributed networks and transmission lines. Introduction to single-phase and three-phase balanced and unbalanced power networks, complex power, power factor correction, and maximum power transfer. Concurrent laboratory experiments complement lecture topics. Prerequisite: Grade C or better in both EE 2347 and EE 2415.

**EE 4000. UNDERGRADUATE RESEARCH. 0 Hours.****EE 4301. POWER SYSTEMS ANALYSIS AND CONTROL. 3 Hours.**

This course includes an introduction to synchronous machines, power flow analysis, short circuit analysis, power system controls, and the fundamentals of transient stability analysis. Prerequisite: Grade of C or better in EE 3302 or consent of instructor.

**EE 4313. CONTROL SYSTEMS FOR NON-EE MAJORS. 3 Hours.**

For non-electrical engineering majors. Analyses of closed loop systems using frequency response, root locus, and state variable techniques. Analog and digital control design methods. System modeling, identification, and control design based on analytic and computer methods. Classes meet at the same time as EE 4314. Prerequisite: Grade of C or better in either EE 3317 or MAE 3319.

**EE 4314. CONTROL SYSTEMS. 3 Hours.**

Analyses of closed loop systems using frequency response, root locus, and state variable techniques. Analog and digital control design methods. System modeling, identification, and control design based on analytic and computer methods. Use of laboratory experiments with mechatronic systems to complement the course lectures. Prerequisite: Grade of C or better in EE 3417. Co-requisite: EE 3318.

**EE 4315. INTRODUCTION TO ROBOTICS. 3 Hours.**

Overview of industrial robots. Study of principles of kinematics, dynamics, and control as applied to industrial robotic systems; robotic sensors and actuators; path planning; programming of industrial robot in the laboratory; survey of robotic applications in various modern and traditional fields; and guidelines to robot arm design and selection. Prerequisite: C or better in, MAE 3318 (or EE 4314).

**EE 4318. DIGITAL SIGNAL PROCESSING. 3 Hours.**

Discrete time convolution. Fast convolution using the fast Fourier transform (FFT). Amplitude and phase of digital filters. Stability analyses using the Z-transform. Design of finite impulse response (FIR) digital filters through windowing and optimization approaches. Infinite Impulse Response (IIR) digital filter design approaches using transformation and optimization. Prerequisite: Grade of C or better in both EE 3417 and EE 3318.

**EE 4320. DIGITAL VLSI DESIGN. 3 Hours.**

Introduction to Very Large Scale Integration circuit design and fabrication technology. Metal-Oxide Semiconductor (MOS) device models and digital integrated circuit design with Metal-Oxide Semiconductor Field-Effect Transistor (MOSFETs). Computer Aided Drafting (CAD) tools for VLSI design. Processing models and process flow. MOS integrated circuits for logic gates and digital systems. Prerequisite: Grade of C or better in EE 3444.

**EE 4327. THEORY AND DESIGN OF ANTENNAS. 3 Hours.**

Basic theory of antennas with emphasis on design and engineering application. Prerequisite: Grade of C or better in EE 3407.

**EE 4328. CURRENT TOPICS IN ELECTRICAL ENGINEERING. 3 Hours.**

To introduce current topics into the curriculum prior to the creation of permanent course numbers. A notice listing a descriptive course title, a course description, and the name of the instructor will be posted outside the departmental office each time the course contents are changed. Prerequisite: consent of instructor.



**EE 4329. SEMICONDUCTOR DEVICES. 3 Hours.**

Introduction to semiconductors in terms of atomic bonding and electron energy bands. Equilibrium statistics of electrons and holes. Carrier dynamics; continuity, drift, and diffusion currents; generation and recombination processes, including important optical processes. Introduction to P-N junctions, metal-semiconductor junctions, light detectors and emitters; bipolar junction transistors, junction and Metal-Oxide Semiconductor Field-Effect Transistors (MOSFETs). Prerequisite: Grade of C or better in EE 3444.

**EE 4330. FUNDAMENTALS OF TELECOMMUNICATIONS SYSTEMS. 3 Hours.**

Examines analog and digital communication techniques including amplitude modulation, frequency modulation, and pulse code modulation. Time domain and frequency domain multiplexing. Analog and digital noise analysis, information theory. Design of communications systems. Prerequisite: Grade of C or better in EE 3330.

**EE 4331. DATA COMMUNICATIONS ENGINEERING. 3 Hours.**

Data communications network planning, design, and analysis. The OSI (Open Systems Interconnection) layered model, interface standards, signals and protocols, modem and LAN (Local Area Network) standards. Prerequisite: Grade of C or better in EE 4330.

**EE 4333. MODERN TELECOMMUNICATIONS. 3 Hours.**

Basics of telecommunications and telephone networks, switching and transmission systems. Circuit and packet switching. Call processing. Common channel signaling systems. Queuing theory and applications. OSI-layered (Open Systems Interconnection) reference architecture. ISDN (Integrated Services Digital Network ). Prerequisite: Grade of C or better in EE 4330.

**EE 4334. PROGRAMMABLE LOGIC DESIGN. 3 Hours.**

Design of digital systems using programmable logic devices and high-level techniques. The course emphasizes the understanding of state-of-the-art hardware devices as well as design and simulation tools. Hardware description language will be taught and used for digital system design. Various design options and compromises will be explored for typical tasks. Projects will be assigned to develop design proficiency. Prerequisite: Grade of C or better in EE 3310.

**EE 4339. RADIO FREQUENCY CIRCUIT DESIGN. 3 Hours.**

Analysis of waves on ideal transmission lines, assorted practical transmission line systems, and hollow waveguides. Circuit theory for transmission line systems involving scattering parameters and the Smith chart. Microwave impedance matching techniques. Design of lumped element amplifiers from VHF to microwave frequencies. Real world microwave characterization techniques. Prerequisite: Grade of C or better in EE 3444 and EE 3407.

**EE 4340. CONCEPTS & EXERCISES IN ENGINEERING PRACTICE. 3 Hours.**

Integration of technical knowledge and skills with project planning, teamwork, and communication skills (written and oral). A project-oriented approach is used including the preparation of literature-based research reports, research proposals, product development proposals, and project management plans. Supporting topics: technical information resources, ethics, safety, intellectual property. Students will begin their engineering capstone design experience, including team formation, project selection, background research, and preparation of preliminary project plan. Must be taken in the semester prior to EE 4349 (Engineering Design Project). An EE Proficiency Test will be administered on first day of class. Prerequisite: Grade of C or better in each of COMS 2302, EE 3318, EE 3330, EE 3446 and EE 3407. Co-requisite: ECON 2305.

**EE 4349. ENGINEERING DESIGN PROJECT. 3 Hours.**

A practicum resulting in the design, construction, and evaluation of a device or system, building on electrical or electronic knowledge and skills acquired in earlier course work, and incorporating appropriate engineering standards. The application of project management techniques in order to meet design specifications through the effective allocation of team resources, scheduling, and budgetary planning. The demonstration of the finished product/ prototype through both oral presentation and a written project report. Mode of Instruction: Practicum. Prerequisite: Grade of C or better in EE 4340. Grade of C or better in all prior 3000 and 4000 level EE coursework.

**EE 4378. INTRODUCTION TO UNMANNED VEHICLE SYSTEMS. 3 Hours.**

Introduction to UVS (Unmanned Vehicle Systems) such as UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground System) and UMS (Unmanned Maritime System), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. UVS missions could include student competitions sponsored by various technical organizations. This course is team-taught by engineering faculty.

**EE 4379. UNMANNED VEHICLE SYSTEM DEVELOPMENT. 3 Hours.**

Introduction to the technologies needed to create an UVS (Unmanned Vehicle System). Integration of these technologies (embodied as a set of sensors, actuators, computing and mobility platform sub-systems) into a functioning UVS through team work. UVS could be designed to compete in a student competition sponsored by various technical organizations or to support a specific mission or function defined by the instructors. This course is team-taught by engineering faculty.

**EE 4391. ADVANCED PROBLEMS IN ELECTRICAL ENGINEERING. 3 Hours.**

A research project under the direction of a faculty supervisor. May be taken as a technical elective with the permission of the department.

**EE 5190. ELECTRICAL ENGINEERING GRADUATE SEMINAR. 1 Hour.**

Topics vary from semester to semester. May be repeated for credit. Graded F, P. Prerequisite: graduate standing or consent of the department.

**EE 5191. ADVANCED STUDY IN ELECTRICAL ENGINEERING. 1 Hour.**

Individual research projects in electrical engineering. Prior approval of the EE Graduate Advisor is required for enrollment. A written report is required. Graded F, I, P.

**EE 5301. ADVANCED ENGINEERING ANALYSIS. 3 Hours.**

Analytical and numerical techniques for solving various types of engineering problems. Topics include matrix reduction by Gaussian elimination, similarity transformation, singular value decomposition, Jordan normal form, etc. Analysis techniques include Fourier series and transforms, fast Fourier transform, discrete convolution, complex analysis, least squares, and others.

**EE 5302. RANDOM SIGNALS AND NOISE. 3 Hours.**

Probability, random variables, and stochastic processes in physical systems. Topics include probability space, discrete and continuous random variables, density and conditional density functions, functions of random variables, mean-square estimation, random signals, system response, optimum system design, and Markov processes.

**EE 5303. ENGINEERING MANAGEMENT. 3 Hours.**

The management of the engineering function in high-technology industry with principal emphasis on the historical development of industrial management principles, decision-making, and planning.

**EE 5304. NETWORK SYNTHESIS. 3 Hours.**

Introduction to network synthesis of circuits using lumped, linear, passive, and operational amplifiers. Topics include realizability theory, synthesis of driving point impedances and two port circuits, passive and active filters, and Hilbert Transforms.

**EE 5305. ADVANCED ELECTRONICS. 3 Hours.**

Advanced study of solid-state devices and integrated circuits. Analysis, design and simulation of analog integrated circuits including biasing, gain stages, active loads, power amplifiers, operational amplifiers and wideband amplifiers.

**EE 5306. ELECTROMAGNETIC THEORY. 3 Hours.**

Advanced study of electromagnetic theory, its content, methods, and applications. Topics include theorems in electromagnetic theory, cylindrical and spherical wave functions, waveguides, integral equation methods, scattering and diffraction.

**EE 5307. LINEAR SYSTEMS ENGINEERING. 3 Hours.**

Topics include state-space description of dynamic systems, analysis and design of linear systems, similarity transformation, state feedback, state observers, and matrix characterization of multivariable systems.

**EE 5308. POWER SYSTEM MODELING AND ANALYSIS. 3 Hours.**

Fundamental concepts for modeling transmission lines, distribution lines, power system generators, power transformers and power system load. The method of symmetrical components is discussed. Simulation of power systems during normal and abnormal conditions are presented. The philosophy of deregulation regarding separation of power systems into generation, transmission and distribution companies is introduced.

**EE 5309. TOPICS IN ELECTRICAL ENGINEERING. 3 Hours.**

Material may vary from semester to semester. Topics are selected from current areas of electrical engineering interest. May be repeated when topic changes.

**EE 5310. DIGITAL VLSI DESIGN. 3 Hours.**

Introduction of VLSI digital circuit design methodology and processing technology. Application of various design software packages for circuit analysis and layout. Design of basic CMOS digital logic circuits. Implementation of digital logic design at the transistor level.

**EE 5311. VLSI SIGNAL PROCESSING ARCHITECTURES. 3 Hours.**

Design and synthesis of DSP and telecommunication systems using integrated modeling, design, and verification tools. Exploration of high-level architectural transformations that can be used to design families of DSP architectures for a given signal processing algorithm. Prerequisite: EE 5350.

**EE 5312. CMOS RFIC DESIGN. 3 Hours.**

Transceiver design for wireless communications using advanced CMOS technology. Emphasis on full-custom chip design, RFIC design concepts. Transceiver architectures. Topics include low noise amplifier, mixer, oscillator, frequency synthesizer, and power amplifier. A project is required, including design, simulation and layout using an IC design tool. Prerequisite: EE 5305 or EE 5318.

**EE 5313. MICROPROCESSOR SYSTEMS. 3 Hours.**

Hardware/software development techniques for microprocessors and their programmable peripherals, with emphasis on multi-byte width memory design, throughput issues including DMA controller design, co-processor operation, interrupt-driven i/o, oscillators and timer peripherals, analog signal interfacing, and digital buses and interfaces. Topics include: code efficiency issues, hardware-software interactions, and design of memory systems, DMA controllers, and real-world interfacing.

**EE 5314. EMBEDDED MICROCONTROLLER SYSTEMS. 3 Hours.**

Hardware/software development techniques for microcontroller systems with emphasis on hardware-software interactions, programming internal peripherals, and real-time control and conditioning of external devices. Other topics include: code efficiency, pin reuse, interrupt-driven processing, USART operations, 12C and SPI bus peripherals, and use of internal peripherals.

**EE 5315. DSP MICROPROCESSORS. 3 Hours.**

Device architectures and various aspects of hardware/software design will be presented for dominant families of function-specific, application-specific and general-purpose digital signal processors (DSPs) from leading manufacturers. Special attention will be given to problems related to real-time acquisition and processing of analog data (audio, video, RF, etc.), including design principles for the state-of-the-art data conversion interfaces.

**EE 5316. CMOS MIXED SIGNAL IC DESIGN. 3 Hours.**

Design of CMOS mixed signal ICs with emphasis on full custom chip design. Comparators, switched-capacitor circuits, converter architectures, analog-to-digital converters, digital-to-analog converters, integrator-based filters. A project is required, including design, simulation and layout using an IC design tool. Prerequisite: EE 5305 or EE 5318.

**EE 5317. ADVANCED DIGITAL VLSI DESIGN. 3 Hours.**

Design of logical gates using CMOS technologies; static and dynamic circuit techniques; advanced techniques in logic circuits; general VLSI system components design; arithmetic circuits in VLSI; low power design; chip layout strategies. A design project using computer tools is required. Prerequisite: EE 5310.

**EE 5318. ANALOG CMOS IC DESIGN. 3 Hours.**

Analysis and design of CMOS analog integrated circuits; MOS device structure and models; single-state and differential amplifiers; current mirror and opamp design; noise analysis and feedback; comparators and voltage references.

**EE 5319. TOPICS IN DIGITAL SYSTEMS. 3 Hours.**

Formal instruction in selected topics in digital systems and microcomputers. May be repeated when topic changes.

**EE 5320. CONTROL SYSTEM DESIGN. 3 Hours.**

Design, analysis, and computer simulation of digital and continuous control systems. Controller design using classical techniques and modern state-variable techniques, including linear quadratic regulator, polynomial, and observer design. Discrete systems and Z-transform theory. Use of high-level computer programs in system analysis and design will be emphasized. A prior introductory systems course, such as EE 5307, is desirable.

**EE 5321. OPTIMAL CONTROL. 3 Hours.**

Design of optimal control systems. Topics include optimization under constraints, linear quadratic regulators, Riccati's equation, suboptimal control, dynamic programming, calculus of variations, and Pontryagin's minimum principle. A prior introductory systems course, such as EE 5307, is desirable.

**EE 5322. INTELLIGENT CONTROL SYSTEMS. 3 Hours.**

Principles of intelligent control including adaptive, learning, and self-organizing systems. Neural networks and fuzzy logic systems for feedback control. Mobile robots. Discrete event systems and decision-making supervisory control systems. Manufacturing work-cell control. Advanced sensor processing including Kalman filtering and sensor fusion. A prior introductory systems course, such as EE 5307, is desirable.

**EE 5323. NONLINEAR SYSTEMS. 3 Hours.**

Analysis and design of nonlinear systems. A general course in nonlinear systems with examples from multiple engineering and science disciplines. Topics include phase planes, Lyapunov's theory, describing functions, iterative maps, chaos and fractals, and nonlinear optimization methods.

**EE 5324. DESIGN OF DIGITAL CONTROL SYSTEMS. 3 Hours.**

Sampling and data reconstruction. Z-transforms and state variable descriptions of discrete-time systems. Linear quadratic optimal control and state estimation. Quantization and other nonlinearities. Real-time control systems. Digital feedback control systems. Constructing discrete-time mathematical model system. Analysis of system behavior using discrete-time model and evaluation of the system performance. Discrete controller design techniques such as root locus, frequency response, and state space techniques. Evaluation and testing of system performance using digital simulations. (Also listed as AE 5380 and ME 5380).

**EE 5325. ROBOTICS. 3 Hours.**

Principles of kinematics, dynamics, and control of robot manipulators and mobile robots. Analysis of dynamical equations and design of robot control systems using modern nonlinear systems techniques. Computer simulation of robotic and mobile robot systems. Path planning, workcell coordination and control. Also listed as ME 5337.

**EE 5326. FUZZY LOGIC. 3 Hours.**

Introduction to FLS (fuzzy logic system) systems theory, design, and applications. Topics include fuzzy logic and crisp logic, fuzzy rules and inference, fuzzification, defuzzification, non-singleton FLS, type 1 and type 2 FLS, TSK (The Sleuth Kit) FLS, applications to signal processing, telecommunications, control, and decision making.

**EE 5327. SYSTEM IDENTIFICATION AND ESTIMATION. 3 Hours.**

Introduction to parametric and non-parametric modeling and identification and estimation methods for linear and nonlinear systems. Methods covered include linear and non-linear least squares, LTI (linear time-invariant) black-box models, empirical transfer function estimate, state-space and frequency domain model reduction methods, Kalman filtering and self-tuning adaptive control. Introductory systems and signals courses, such as EE 5302 and EE 5307, are desirable.

**EE 5328. INSTRUMENTATION AND MEASUREMENT. 3 Hours.**

Measurement principles and design of sensor and measurement systems. Topics include computer-based measurement systems, sensor design, signal conditioning, data acquisition, smart sensors, and mechatronics. Techniques for measuring quantities encountered in robotics and automation, manufacturing, biomedical, and other applications. A previous course in analog or digital electronics is desirable.

**EE 5329. TOPICS IN SYSTEMS ENGINEERING. 3 Hours.**

Formal instruction in selected topics in systems engineering, such as advanced controls, systems performance, manufacturing, graphics subsystems design, stochastic control, decision and information theory, hierarchical or distributed parameter control. May be repeated when topic changes.

**EE 5331. MICROWAVE SYSTEMS ENGINEERING. 3 Hours.**

Topics include frequency planning, design and performance analysis of transmitter and receiver circuits for communications and radar. Emphasis is on design using commercially available mixers, amplifiers, oscillators, and modulation circuits. Analysis includes receiver noise figure, distortion and path loss effects.

**EE 5332. ANTENNA SYSTEM ANALYSIS. 3 Hours.**

Fundamental study of antennas and antenna design techniques. Topics include numerical analysis of wire antennas; aperture antennas; geometrical theory of diffraction; horns and reflector antennas; and antenna synthesis and measurements. Prerequisite: EE 5306.

**EE 5333. WAVE PROPAGATION AND SCATTERING. 3 Hours.**

Fundamentals of VHF, UHF, and microwave propagation in radar and communications. Propagation over irregular terrain. Propagation in built-up areas. Propagation modeling and prediction tools. Multipath phenomena. Signal statistics. Prerequisites: EE 5302 and EE 5306.

**EE 5334. FUNDAMENTALS OF RADAR REMOTE SENSING. 3 Hours.**

Active and passive remote sensing systems, platforms for remote sensing, radar equation, interaction of electromagnetic wave with matter, radar cross section, scattering from area extensive targets, surface scattering, volume scattering, radiative transfer theory, radar data collection and analysis, retrieval of target parameters.

**EE 5335. FUNDAMENTALS OF RADAR IMAGING. 3 Hours.**

Radar system, antenna system, radar equation, electromagnetic waves scattering from targets, radar signal and noise, detection and extraction of signal from noise or clutter, range and Doppler profiles, radar image formation, real aperture radar imaging, SAR imaging, ISAR imaging, image distortion, superresolution radar imaging techniques.

**EE 5337. THEORY AND LABS OF MICROWAVE MEASUREMENTS. 3 Hours.**

Circuit parameters and measurement techniques at microwave frequencies. The labs include standing wave pattern measurement using slotted lines and automated measurements using vector network analyzers.

**EE 5338. Computational Methods in Electrical Engineering. 3 Hours.**

A few mathematical and computational methods to analyze physical phenomena in electrical engineering, including Fourier transformation, finite difference method, finite element method, and integral equation method.

**EE 5339. TOPICS IN ELECTROMAGNETICS. 3 Hours.**

Formal instruction in selected topics in electromagnetics. May be repeated when topic changes.

**EE 5340. SEMICONDUCTOR DEVICE THEORY. 3 Hours.**

Quantum mechanics applicable to semiconductor theory. Energy band theory, density of states and effective mass theory. Intrinsic and extrinsic semiconductors, equilibrium statistics for electrons and holes. Transport, generation and recombination of excess carriers. Device equations and physics. Theory and performance of p-n and Schottky diodes, bipolar and MOS transistors.

**EE 5341. ELECTRONIC MATERIALS: FUNDAMENTALS AND APPLICATIONS. 3 Hours.**

Fundamental theory required for the study of electronic materials: waves and particles, quantum mechanics, crystal structures, chemical bonds, and band theory. Materials and properties considered will be metals, semiconductors, and dielectrics including effective mass, doping, and carrier statistics, and electronic, dielectric, magnetic, and optical properties of materials as applied to integrated circuits, wireless communication, optoelectronics, optical communication, and data storage.

**EE 5342. SEMICONDUCTOR DEVICE MODELING AND CHARACTERIZATION. 3 Hours.**

Device models and characterization procedures for the pn junction and Schottky diodes, the BJT, JFET, MOSFET, HBT, and optical sources and detectors. SPICE derived and higher level circuit simulator models will be presented. Prerequisite: EE 5340 or EE 5341.

**EE 5343. SILICON INTEGRATED CIRCUIT FABRICATION TECHNOLOGY. 3 Hours.**

Basic integrated circuit fabrication processes: crystal growth (thin film and bulk), thermal oxidation, dopant diffusion/implantation, thin film deposition/etching, and lithography. Introduction to process simulators, such as SUPREM. Fabrication and characterization of resistors, MOS capacitors, junction diodes and MOSFET devices. Prerequisite: Pass the NanoFAB Safety and Clean Room Protocol test.

**EE 5344. INTRODUCTION TO MICROELECTROMECHANICAL SYSTEMS (MEMS) AND DEVICES. 3 Hours.**

Develops the basics for microelectromechanical devices and systems including microsensors, and micromotors, principles of operation, different micromachining techniques, and thin-film technologies as they apply to MEMS.

**EE 5345. INTRODUCTION TO BIO-NANOTECHNOLOGY. 3 Hours.**

Introduction to the area of bio-nanotechnology. Basics of nanotechnology as applicable to biological and biomedical sensing, therapy and diagnostics. Theory, fabrication, techniques and uses of nano-scale devices and objects in biomedical and biology.

**EE 5346. MICROWAVE DEVICES. 3 Hours.**

Device physics and applications of microwave semiconductor devices and vacuum tubes. Topics include operation, modeling and characterization of MESFETs and HEMTs, microwave diodes, and microwave vacuum tubes. Prerequisite: EE 5340 and EE 5341.

**EE 5347. MICROWAVE CIRCUITS. 3 Hours.**

Theory of microwave circuit design; techniques include use of Kuroda identities, Richard's transformation, and ABCD parameters; topics include design of couplers, impedance transformers, filters, and resonators incorporating coupled transmission lines. Design of coaxial lines, strip lines, and microstrip is addressed. Prerequisite: EE 5348.

**EE 5348. RADIO-FREQUENCY CIRCUIT DESIGN. 3 Hours.**

Design of lumped- and distributed-element radio-frequency circuits operating at frequencies to 2 GHz, such as impedance-matching circuits, low noise and power amplifiers, and oscillators. S parameters will be used in determining gain, noise figure, and stability of an amplifier. Prerequisite: EE 5305.

**EE 5349. TOPICS IN INTEGRATED CIRCUIT TECHNOLOGY. 3 Hours.**

Formal instruction in selected topics in integrated circuit technology. May be repeated when topic changes.

**EE 5350. DIGITAL SIGNAL PROCESSING. 3 Hours.**

Time and frequency domain analyses of linear time invariant systems. Stability analyses of causal and non-causal systems using the Z-transform. FIR digital filter design. Design of frequency selective IIR digital filters using frequency transformations and the bilinear transform. Design of infinite and finite impulse response filters.

**EE 5351. DIGITAL VIDEO CODING. 3 Hours.**

Fundamentals, principles, concepts and techniques of data compression such as Huffman, Lempel-Ziv, Arithmetic, Facsimile, Transform, DPCM, VQ, and Hybrid coding and applications in ITU, ISO, and IEC standards related to audio, video, and image compression.

**EE 5352. STATISTICAL SIGNAL PROCESSING. 3 Hours.**

Estimation of autocorrelations, cross-correlations and power spectral densities. Least squares filter design via Toeplitz recursion and AR modeling. Adaptive noise cancellation. Algorithm development using maximum likelihood and minimum mean square error approaches. Lower bounds on estimation error variance. Prerequisites: EE 5350 and EE 5302 or consent of instructor.

**EE 5353. NEURAL NETWORKS. 3 Hours.**

Introduction to nonlinear networks for regression/approximation, classification, and clustering. Support vector machines. Training algorithms, methods for evaluating network performance. Applications in classification, estimation and forecasting. Prerequisite: EE 5350 or concurrent registration.

**EE 5354. WAVELETS AND FILTER BANKS. 3 Hours.**

Fundamentals of signal decomposition, discrete multirate systems and polyphase structures. Time-frequency analysis and multiresolution signal representation. Two-channel filter banks, dyadic wavelets, and scaling and wavelet functions. M-channel filter banks and their lattice structures. Applications in signal de-noising, compression and communications. Prerequisite: EE 5350.

**EE 5355. DISCRETE TRANSFORMS AND THEIR APPLICATIONS. 3 Hours.**

Principles and properties of discrete transforms such as discrete Fourier, discrete cosine, Walsh-Hadamard, slant, Haar, discrete sine, discrete Hartley, LOT and Wavelet transforms, and their applications in signal and image processing.

**EE 5356. DIGITAL IMAGE PROCESSING. 3 Hours.**

Digital image processing as applied to image sampling and quantization, image perception, image enhancement, image restoration, image reconstruction from projections, and filtering and image coding. Prerequisite: EE 5350.

**EE 5357. STATISTICAL PATTERN RECOGNITION. 3 Hours.**

Introduction to statistical pattern recognition. Deformation invariant and deformation variant feature extraction for class separability. Decision theory and statistical learning theory. Classifier design using Bayes, nearest neighbor, and regression-based approaches. Sensor fusion. Feature selection using transformation and subsetting. Prerequisites: EE 5350 and EE 5302 or consent of instructor.

**EE 5358. COMPUTER VISION. 3 Hours.**

Techniques for the interpretation, analysis, and classification of digital images. Methods for segmentation, feature extraction, object recognition, stereo vision and 3-D modeling. A research project will be assigned.

**EE 5359. TOPICS IN SIGNAL PROCESSING. 3 Hours.**

Formal instruction in selected topics in signal processing. May be repeated when topic changes.

**EE 5360. DATA COMMUNICATIONS ENGINEERING. 3 Hours.**

Principles underlying communication network design, including physical layer, MAC (media access control) layer modeling and engineering, and data link layer. Queuing theory. Internet structure, Internet protocol models and engineering. Physical layer description will include modulation, FEC (forward error correction), cyclic and Trellis coding. MAC layer modeling will include CSMA/CD (Carrier Sense Multiple Access / Collision Detection), ALOHAS, and other splitting algorithms.

**EE 5361. FUNDAMENTALS OF TELECOMMUNICATION SYSTEMS. 3 Hours.**

Analysis of analog and digital communication techniques including amplitude modulation, frequency modulation, and pulse code modulation. Time-domain and frequency domain multiplexing. Analog and digital noise analysis, information theory, design of communication systems.

**EE 5362. DIGITAL COMMUNICATIONS. 3 Hours.**

Fundamental principles underlying the transmission of digital data over noisy channels. Basics of source coding techniques including entropy coding, Lempel-Ziv. Channel capacity. Spectral analysis of digital modulation techniques. Optimum receiver design and error probability performance of commonly used modulation schemes. Applications to lightwave and wireless systems.

**EE 5363. TELECOMMUNICATION SYSTEMS. 3 Hours.**

Basics of telecommunications and telephone networks. Switching and transmission systems. Circuit and packet switching. Call processing. Common channel signaling systems. Queuing theory and applications. OSI-layered (Open Systems Interconnection) reference architecture. ISDN (Integrated Services Digital Network ).

**EE 5364. INFORMATION THEORY AND CODING. 3 Hours.**

Transmission of information over noisy channels, Shannon's coding theorems, techniques of coding and decoding for reliable transmission over noise channels, error-detecting, and error-correcting codes.

**EE 5365. FIBER OPTIC TRANSMISSION SYSTEMS. 3 Hours.**

Propagation in optical fibers, characteristics and manufacture of fibers, semiconductor lightwave sources and detectors, optical transmitters and receivers, lightwave transmission systems for wide area and local area networks.

**EE 5366. COMMUNICATION SATELLITE SYSTEMS. 3 Hours.**

Introduction of space communications, satellite orbits and their effect on communication system design. Atmospheric propagation effects. Communication link analysis, modulation, multiplexing, multiple access, encoding and forward error correction in satellite links. Design of communication satellites, earth station and their principal subsystems. Prerequisite: EE 5361.

**EE 5367. WIRELESS SYSTEMS AND PROPAGATION MODELING. 3 Hours.**

Fundamental principles and techniques of electromagnetic wave propagation as it applies to current wireless and cellular systems, development of models of propagation and their application in wireless system design, characteristics of microwave devices used in wireless systems, system and traffic design techniques used in wireless systems.

**EE 5368. WIRELESS COMMUNICATION SYSTEMS. 3 Hours.**

Fundamental principles of radio system design and propagation. Basics of cellular systems, environment, propagation models, traffic models and spectral capacity. Multiple-access techniques including FDMA (frequency division multiple access), TDMA (time division multiple access), CDMA (code division multiple access). Analog and digital modulation techniques used in wireless communication and problems with RF (radio frequency) interference.

**EE 5369. TOPICS IN COMMUNICATIONS. 3 Hours.**

Formal instruction in selected topics in communications. May be repeated when topic changes.

**EE 5371. POWER SYSTEM PLANNING, OPERATION, AND CONTROL IN A DEREGULATED ENVIRONMENT. 3 Hours.**

Current market structure and practices are discussed. The issues of system planning, operation, and control in a deregulated environment are addressed. Prerequisite: EE 5308.

**EE 5372. CONGESTION MANAGEMENT. 3 Hours.**

Phenomena of congestion and transmission pricing are presented. Thermal related congestion, such as power flow, and stability related congestion, such as voltage stability, transient stability, and dynamic stability, are covered. The effects of reactive power are discussed. Reliability and security issues of power transmission systems are presented. Congestion management and congestion relief measures are discussed. Prerequisite: EE 5308.

**EE 5373. UNBUNDLING SERVICES OF A DEREGULATED POWER SYSTEM. 3 Hours.**

The fundamental operating functions of a deregulated power system are presented. Unbundling of these functions and cost allocations are discussed. Topics of ancillary services, power marketing, price forecasting, and load forecasting are covered. Prerequisite: EE 5308.

**EE 5374. POWER SYSTEM PROTECTIVE RELAYING. 3 Hours.**

Fundamental understanding of symmetrical components, applications of symmetrical components in system protection, philosophy of power system protection, various protective relay systems, and the special considerations in applying the microprocessor based relays are covered. Experiments utilizing the Power System Simulation Laboratory are required.

**EE 5375. POWER SYSTEM DISTRIBUTION. 3 Hours.**

The basic functions of a Distribution Company are presented. Load representation, distribution load flow and the philosophy of simulation for a distribution system are discussed in detail.

**EE 5376. POWER SYSTEM RELIABILITY IN PLANNING AND OPERATION. 3 Hours.**

Loss of Load indices, Loss of Energy indices, Frequency and Duration methods, Interconnected Reliability methods, and Composite Generation and Transmission Reliability methods will be covered.

**EE 5377. PROGRAMMABLE LOGIC CONTROLLERS IN INDUSTRIAL AUTOMATION. 3 Hours.**

The application of Programmable Logic Controllers (PLC) in industrial automation and energy systems monitoring will be covered. Transducers, Supervisory Control and Data Acquisition (SCADA) systems, and Distributed Control Systems (DCS) will be discussed. Material covered is also applicable to various mechanical and civil engineering fields, thus enrollment of graduate engineering students from other disciplines is welcome. Experiments utilizing the Power System Simulation Laboratory are required.

**EE 5378. POWER QUALITY. 3 Hours.**

Principles of harmonics and filtering, source of voltage surges and surge protection, causes of voltage sags, flickers, and interruptions, and voltage supporting devices, and utility and end-user strategies for improving power quality are covered.

**EE 5379. TOPICS IN POWER SYSTEM ENGINEERING. 3 Hours.**

Formal instruction in selected topics in power system engineering. May be repeated when topic changes.

**EE 5380. PRINCIPLES OF PHOTONICS AND OPTICAL ENGINEERING. 3 Hours.**

Optical fields with applications to laser, optical fibers, and photonic signal processing. Encoding, manipulating, transmitting, storing, and retrieving information using light. Light propagation including isotropic and birefringent optical media, dielectric interfaces, interference and diffraction, Gaussian beams, optical cavities and principles of laser action, optical waveguides and fibers, electro- and acousto-optic modulation, and holography. Design, analysis and application of optical devices in communications and signal processing.

**EE 5381. FOUNDATIONS IN SEMICONDUCTORS. 3 Hours.**

Electronic properties of semiconductors affecting semiconductor devices: quantum behavior; Kronig-Penny model; energy bands; carrier statistics; density of states; one, two, and three dimensional systems; carrier transport; thermoelectric effects; surface and bulk generation-recombination statistics; continuity equations and their solutions; optical properties; semiconductor characterization techniques.

**EE 5382. OPTICAL DETECTORS AND RADIATION. 3 Hours.**

Basic principles of optical detectors used in imaging and communications. The course focuses on infrared detectors. Geometric optics, blackbody radiation, radiometry, photon detection mechanisms, thermal detection mechanisms, noise in optical detectors, figures of merit for detectors, photovoltaic detectors, photoconductive detectors, bolometers, pyroelectric detectors, and quantum well detectors.

**EE 5383. SOLAR ELECTRICITY & PHOTOVOLTAICS. 3 Hours.**

Solar radiation and other forms of renewable energy: wind, tide, biomass and hydropower. Fundamental theory of photovoltaics: crystal structures, band theory, semiconductors, doping, carrier statistics, optical absorption, and p-n junctions. Status of solar cell, including cost, optical design, system engineering, silicon solar cells and thin film solar cells. Prospects of solar cells, regarding low-cost and high-efficiency solar cells. Prerequisite: EE 5340 or EE 5341.

**EE 5384. OPTOELECTRONIC DEVICES FOR COMMUNICATION. 3 Hours.**

Electronic and optical processes in semiconductors. Light emitting diodes. Laser diodes: structures, properties and operating principles. Photodetectors and solar cells. Noise and the photoreceiver. Optoelectronic modulators and switching devices. Systems needs and new device challenges.

**EE 5385. NONLINEAR OPTICS. 3 Hours.**

Nonlinear optical processes and applications in crystals, optical fibers and waveguides. Second- and third- order nonlinear susceptibility, symmetry properties, coupled-wave propagation, phase-matching techniques, sum- and difference-frequency generation, parametric amplification, four-wave mixing, self- and cross-phase modulation, soliton propagation, and Raman scattering.

**EE 5386. INTEGRATED OPTICS. 3 Hours.**

Theory and techniques of integrated optics including optical waveguiding, coupling, modulation, grating diffraction, detection and integrated systems.

**EE 5387. FOURIER OPTICS AND HOLOGRAPHY. 3 Hours.**

Theory of Fourier optics and holography including scalar diffraction theory, Fresnel and Fraunhofer diffraction, Fourier transforming properties of lenses, optical imaging systems, spatial filtering, and the theory and applications of holography. Prerequisite: EE 5306.

**EE 5388. LASERS. 3 Hours.**

Propagation of optical rays and waves, Gaussian laser beams, laser resonators, atomic systems, lasing and population inversion, laser amplifiers, practical gas and solid-state lasers including continuous-wave and pulsed lasers, mode locking, Q-switching, frequency doubling, tunable lasers, semiconductor lasers, vertical-cavity lasers and applications of lasers.

**EE 5389. TOPICS IN OPTICS. 3 Hours.**

Formal instruction in selected topics in optics. May be repeated when topic changes.

**EE 5391. ADVANCED STUDY IN ELECTRICAL ENGINEERING. 3 Hours.**

Individual research projects in electrical engineering. Prior approval of the EE Graduate Advisor is required for enrollment. A written report is required. Graded F,P,R.

**EE 5392. PROJECT IN ELECTRICAL ENGINEERING. 3 Hours.**

Individual research projects performed for fulfilling the requirements of the thesis substitute option. Prior approval of the EE graduate advisor is required for enrollment. A written and oral report is required. Graded F, P, R.

**EE 5398. THESIS. 3 Hours.**

Graded F, R. Prerequisite: Graduate standing in electrical engineering.

**EE 5698. THESIS. 6 Hours.**

Graded F, P, R. Prerequisite: Graduate standing in electrical engineering.

**EE 6313. ADVANCED MICROPROCESSOR SYSTEMS. 3 Hours.**

Study of the advanced microprocessor architectures including 32/64-bit RISC and CISC families of microprocessors will be compared based on detailed architectural analysis of the selected devices. Topics include: address/instruction pipelines, burst cycles, memory caching and cache coherency issues, register renaming, speculative instruction execution and other performance-oriented techniques. Prerequisite: EE 5313.

**EE 6314. ADVANCED EMBEDDED MICROCONTROLLER SYSTEMS. 3 Hours.**

Study of advanced microcontroller system designs with an emphasis on multi-tasking, real-time control of devices. Topics include: design of real-time control systems, programmable logic controller (PLC) hardware, USB peripherals and network appliances. Prerequisite: EE 5314.

**EE 6318. ADVANCED ANALOG VLSI SYSTEMS. 3 Hours.**

Data converter design: Nyquist rate D/A and A/D converters and oversampling converters; continuous time filters; phase lock loops; low power analog circuit design techniques.

**EE 6321. INTRODUCTION TO UNMANNED VEHICLE SYSTEMS. 3 Hours.**

Introduction to UVS (Unmanned Vehicle Systems) such as UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground System) and UMS (Unmanned Maritime System), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. UVS missions could include student competitions sponsored by various technical organizations. This course is team-taught by engineering faculty.

**EE 6322. UNMANNED VEHICLE SYSTEM DEVELOPMENT. 3 Hours.**

Introduction to the technologies needed to create an UVS (Unmanned Vehicle System). Integration of these technologies (embodied as a set of sensors, actuators, computing and mobility platform sub-systems) into a functioning UVS through team work. UVS could be designed to compete in a student competition sponsored by various technical organizations or to support a specific mission or function defined by the instructors. This course is team-taught by engineering faculty.

**EE 6323. NONLINEAR AND ADAPTIVE CONTROL. 3 Hours.**

Advanced design of nonlinear and adaptive systems. Topics include phase planes, Lyapunov's theory, describing function, feedback linearization, parameter estimation, self-tuning, and model reference adaptive systems. Also offered as AE 5337, ME 5374. Credit will be granted only once. Prerequisite: EE 5323.

**EE 6327. KALMAN FILTERING. 3 Hours.**

Kalman filter design and implementation. Optimal filtering for discrete-time and continuous-time dynamical systems with noise. Wiener filtering. State-space determination. Also offered as AE 5336/ME 5336. Credit will be granted only once. Prior introductory systems or identification course, such as EE 5307 or EE 5327, is desirable. Credit will be granted only once.

**EE 6340. INTRO TELE NETW. 3 Hours.****EE 6341. FEEDBACK AMPL. 3 Hours.****EE 6342. ADVANCED QUANTUM DEVICES. 3 Hours.**

Advanced concepts in quantum theory of semiconductors. Epitaxial growth and characterization of heterostructures, quantum wells, and superlattices including strained layers; electronic and optical properties of these structures; electronic and optoelectronic devices based on quantum wells and superlattices. Prerequisite: Graduate standing.

**EE 6343. QUANTUM WELL LASERS. 3 Hours.**

Introduction to semiconductor heterostructures and quantum wells. Quantum theory of optical processes and laser operation. Threshold, spectral, and dynamical behavior. Modern laser structures and technologies, including strained-layer and surface emitting lasers. Prerequisite: EE 5340 and EE 5341.

**EE 6344. NANOSYSTEMS AND QUANTUM ELECTRONIC DEVICES. 3 Hours.**

Design, analysis, and techniques for conceptualizing and fabricating nanoscale systems. Role of quantum confinement and mesoscopic behavior, phase coherence, quantum transport, single electron devices, semiconductor heterostructures, self-assembly and molecular electronic schemes, lithographic methods, atomic epitaxy, and surface analysis techniques. Prerequisite: EE 5340 and EE 5341.

**EE 6345. ADVANCED MEMS -- MICROELECTROMECHANICAL SYSTEMS. 3 Hours.**

Microelectromechanical systems (MEMS) and devices including micro-actuators and optical MEMS. Application strategy of MEMS; fabrication and design; actuation mechanism and architectures; optical sensor and communication applications. Mask layout and hands-on design, fabrication procedures, design rules, demonstrated examples, and integration architectures. Prerequisite: EE 5344.

**EE 6352. DIGITAL COM SYS. 3 Hours.****EE 6356. IMAGE AND VIDEO CODING. 3 Hours.**

Fundamentals, principles, concepts, and techniques of data (image/video/audio) compression such as Huffman coding, arithmetic coding, Lempel-Ziv coding, facsimile coding, scalar and vector quantization, DPCM, PCM, sub-band coding, transform coding, hybrid coding and their applications. Prerequisite: EE 5350.

**EE 6360. DIGI SIGNAL PRO. 3 Hours.****EE 6362. ADVANCED DIGITAL COMMUNICATIONS. 3 Hours.**

Digital communication systems design with intersymbol interference. Partial response signaling. Adaptive equalization. Viterbi decoding. Digital signaling on fading multi-path channels and wireless channels. Applications of error detecting and correction coding. Spread spectrum systems. Prerequisite: EE 5362.

**EE 6363. SPREAD SPECTRUM COMMUNICATION. 3 Hours.**

Direct-sequence spread spectrum systems utilizing pseudonoise (PN) generators. PN sequences and their properties. Maximal length codes, Gold codes. Code acquisition techniques. Phase-locked loops and their applications in carrier tracking and code tracking. Performance of spread spectrum systems in jamming environments. Prerequisite: EE 5362.

**EE 6364. ADVANCED DATA NETWORKS. 3 Hours.**

Network performance analysis, link and upper layer. Internet and ATM protocols, Internet routing and traffic management, ATM switch design and ATM traffic management. Prerequisite: EE 5360.

**EE 6365. ADVANCED FIBER OPTICS SYSTEMS. 3 Hours.**

Course reviews the modern WDM systems and methods of their design. Topics include architecture of state-of-the-art WDM systems; design of optical amplifiers; signal-to-noise-ratio budget; estimation of various system impairments; popular modulation formats; transmitter and receiver design issues; balancing optical nonlinearity and dispersion; optical networking; and characterization of WDM system's performance. Familiarity with fiber optics and telecommunications is desirable.

**EE 6367. ADVANCED WIRELESS COMMUNICATIONS. 3 Hours.**

Performance analysis of cellular systems with multipath propagation, diversity, equalization, smart antennas. Interference compensation and signal separation in multiuser systems. Micro- and pico-cell design. Allocation of channels, hard and soft handoffs. Data transmission on mobile networks. Review of selected current and proposed systems. Prerequisite: EE 5368.



**EE 6368. SIMULATION OF COMMUNICATION SYSTEMS. 3 Hours.**

Simulation methods of analysis of communications systems using C programming language and other languages. Analysis involving atmospheric point-to-point radio and cellular channels and fiber optic systems and their elements. Prerequisite: EE 5362, EE 5368, EE 5365, C, and UNIX.

**EE 6371. ELECTRIC AND HYBRID ELECTRIC VEHICLES. 3 Hours.**

Dynamic modeling of vehicles, internal combustion engines, transmission, brake, electric motor drives, battery management and energy storage, vehicle to power grid interface, fuel economy, intelligent energy management system, fuel cell cars, vehicular communication.

**EE 6372. HIGH VOLTAGE ENGINEERING. 3 Hours.**

Introduction to design, measurement and testing methods for high voltage systems. A study of electrical insulation materials and their properties, partial discharges and voltage breakdowns, electric field plotting methods, generation of high voltage test pulses, and high voltage measurement techniques.

**EE 6373. RENEWABLE ENERGY SYSTEMS. 3 Hours.**

Wind energy harvest, solar energy sources and harvesting, hydropower resources, geothermal, fuel cell and hydrogen economy, power grid interface and distributed generation, microscopic energy harvest from vibration and thermal, role of power electronics in integration of renewable energy systems. Familiarity with the principles of power electronics and electric power recommended.

**EE 6374. ADVANCED ELECTRIC MOTOR DRIVES. 3 Hours.**

Fundamentals of electromechanical energy converters, dc-brushed and permanent magnet dc motor drives, two axis theory of ac-electric machines, field oriented control of induction motor/generator drives, field oriented control of the brushless dc machines, switched reluctance motor drives, vector space pulse width modulated (PWM) power converters, electromagnetic interference / electromagnetic compatibility (EMI/EMC) issues and solutions in adjustable speed motor drives. Familiarity with the principles of power electronics and electric power recommended.

**EE 6375. POWER ELECTRONICS ENGINEERING. 3 Hours.**

Switched mode DC-DC converters, controlled rectifiers, commutated and resonant inverters. Also, performance evaluation of specific applications by means of state space analysis will be discussed. Prerequisite: Must have consent of instructor.

**EE 6376. SUSTAINABLE ENERGY SYSTEMS. 3 Hours.**

Laws of thermodynamic, electromechanical energy conversion, economic sustainability, environmental sustainability, Kyoto protocol, fossil fuels, renewable energy sources, nuclear energy.

**EE 6381. NANOPHOTONICS. 3 Hours.**

Introduction to nanophotonic materials, devices, systems integration, and applications. Principles of nanoscale structures, quantum dots, photonic crystals, near field optics, plasmonics and metamaterials. Design, modeling, synthesis and fabrication of nano-structures and devices. Scaling of photonic components and optoelectronic integration.

**EE 6397. RESEARCH IN ELECTRICAL ENGINEERING. 3 Hours.**

Individually approved research projects leading to a doctoral dissertation in the area of electrical engineering. Graded F, P, R.

**EE 6399. DISSERTATION. 3 Hours.**

Graded F, R.

**EE 6697. RESEARCH IN ELECTRICAL ENGINEERING. 6 Hours.**

Individually approved research projects leading to a doctoral dissertation in the area of electrical engineering. Graded F, P, R.

**EE 6699. DISSERTATION. 6 Hours.**

Graded F, R, P, W.

**EE 6997. RESEARCH IN ELECTRICAL ENGINEERING. 9 Hours.**

Individually approved research projects leading to a doctoral dissertation in the area of electrical engineering. Graded F, P, R.

**EE 6999. DISSERTATION. 9 Hours.**

Graded F, P, R.

**EE 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Elementary Education (ELED)

## COURSES

### **ELED 4305. LANGUAGE AND LITERACY DEVELOPMENT IN EC-6 CLASSROOMS. 3 Hours.**

Focus on children's developing verbal and non-verbal communication skills. Examine relationships among listening, speaking, reading, and writing. Consider theories of early literacy development. Special attention to the relationships among literacy, social, and cognitive development; technological advances; and diversity in children and families. Prerequisite: EDUC 4316; ELED 4317. Weekly field experience in EC-6 classrooms required.

### **ELED 4311. TEACHING MATHEMATICS IN EARLY AND ELEMENTARY EDUCATION. 3 Hours.**

Principles of integration of mathematics concepts in relation to cognitive development. Emphasis on developing dispositions promoting scientific investigation and appropriate objects, materials, activities and programs to assist in assimilation of mathematics concepts. Course will also address the instructional needs and appropriate assessment of all students in inclusive, multicultural and multilingual classrooms for this content area. Field-based experiences required - One full day per week on elementary campus.) Prerequisite: EDUC 4316, ELED 4313, ELED 4317, ELED 4321, EDTC 4301 and BEEP 4306. Taken concurrently with ELED 4312, ELED 4314 and BEEP 4384.

### **ELED 4312. TEACHING SCIENCE AND HEALTH IN EARLY AND ELEMENTARY EDUCATION. 3 Hours.**

Principles of integration of science and health concepts in relation to cognitive, socio-emotional, and psychomotor development. Emphasis on developing dispositions promoting scientific investigation and appropriate objects, materials, activities and programs to assist in assimilation of science and health concepts. Course will also address the instructional needs and appropriate assessment of all students in inclusive, multicultural and multilingual classrooms for this content area. Field-based experiences required - One full day per week on elementary campus. Prerequisite: EDUC 4316; ELED 4313, ELED 4317, ELED 4321; EDTC 4301, and BEEP 4306. Taken concurrently with ELED 4312, ELED 4314 and BEEP 4384.

### **ELED 4313. ARTS IN ELEMENTARY EDUCATION. 3 Hours.**

Provides EC-6 candidates with an understanding of how experiences in visual art, music, drama and movement are integrated throughout elementary curriculum to support children's learning and development. Candidates will learn the importance of the arts for children's cognitive, socio-emotional and psychomotor development. Course will also address the instructional needs and appropriate assessment of all students in inclusive, multicultural, and multilingual classrooms for this content area. Field-based experiences required - One full day per week on elementary campus. Prerequisite: EDUC 4316 and ELED 4317. Taken concurrently with ELED 4321 and BEEP 4306.

### **ELED 4314. TEACHING SOCIAL STUDIES IN EARLY ELEMENTARY EDUCATION. 3 Hours.**

Examination of materials, methods, content, and assessment learning experiences associated with elementary social studies. Content areas include history, geography, economics, government, citizenship, culture, science, technology and society. Opportunities to demonstrate applications in field settings. Course will also address the instructional needs and appropriate assessment of all students in inclusive, multicultural, and multilingual classrooms for this content area. Prerequisites: EDUC 4316; ELED 4317, ELED 4313, ELED 4321; EDTC 4301, BEEP 4306. Field experiences required.

### **ELED 4317. GROWTH, DEVELOPMENT, AND LEARNING THEORY. 3 Hours.**

Examination of the relationship between major theories and principles of cognitive, socio-emotional, and psychomotor development and EC-6 student learning, home-school connections, and behavior in the classroom. Emphasis on environmental and cultural influences on children's development and learning, prenatal through age 12. This course is a prerequisite course and must be taken with EDUC 4316.

### **ELED 4321. CLASSROOM MANAGEMENT, PEDAGOGY, AND PRACTICES IN EC-6 EDUCATION. 3 Hours.**

A study of developmentally appropriate curriculum and methods for elementary classrooms, including diversity, assessment, behavior guidance and management, planning instruction, and creating a positive learning environment. Course will also address instructional needs and appropriate assessment of all students in inclusive, multicultural, and multilingual classrooms. Field observations required. Prerequisites: EDUC 4316, ELED 4317. Students in the EC-6 Generalist program take this course concurrently with ELED 4313.

### **ELED 4687. STUDENT TEACHING IN EARLY AND ELEMENTARY EDUCATION. 6 Hours.**

Full-day, Monday - Friday, supervised and directed practice in university-approved classrooms for students in EC-6 classrooms. Candidates will have two placements: one in PK-2 and one in grade 3-6. Student teaching must immediately follow the field-based experiences semester. Student teaching assumes that candidates will follow the school district's calendar, and report to the classroom all day and each day of the semester. Prerequisites: EDUC 4316; ELED 4311, ELED 4312, ELED 4313, ELED 4314, ELED 4317, ELED 4321; BEEP 4306, BEEP 4384; EDTC 4301; LIST 4373, LIST 4374, LIST 4376.

### **ELED 5309. TRENDS AND ISSUES IN EARLY CHILDHOOD EDUCATION. 3 Hours.**

In-depth analysis of current research on issues in Early Childhood Education. Emphasis on the evaluation and impact of historical, political, and social policy; overview of legislation and advocacy on behalf of young children.

### **ELED 5312. EC6: INSTRUCTIONAL STRATEGIES IN SCIENCE. 3 Hours.**

Study of principles of integration of content in EC-6 classrooms with focus on science concepts and cognitive development. Emphasis on developing dispositions toward scientific inquiry and the use of appropriate objects, materials, activities, and programs to assist in the learning of science concepts.

### **ELED 5315. PRACTICUM. 3 Hours.**

Practicum in student's teaching area(s). This semester-long experience will help students apply theory and research to practice.

### **ELED 5317. THEORIES OF CHILD DEVELOPMENT AND LEARNING. 3 Hours.**

Human growth and development, including developmental anomalies, from birth through middle childhood with emphasis on cognitive, social, emotional, and physical growth. Attention is given to current research regarding establishment of learning environments that foster development of the child's self-concept, cognitive competencies, oral language and literacy development, and positive social behaviors including appreciation of diversity among individuals and groups.

**ELED 5318. FOUNDATIONS IN EC6 EDUCATION. 3 Hours.**

An overview of historical and philosophical influences and current research in early and elementary education on promoting educational environments that support development of the whole child. Attention is given to the development and implementation of appropriate EC-6 curricula and programs that extend and integrate learning experiences of children, including the home-school relationship.

**ELED 5319. EC6 EDUCATION: INSTRUCTIONAL STRATEGIES IN MATHEMATICS. 3 Hours.**

Study of principles of integration of content in EC-6 classrooms with focus on mathematics concepts and cognitive development. Emphasis on developing dispositions toward the use of appropriate objects, materials, activities, and programs to assist in learning of mathematics concepts.

**ELED 5320. EC6 EDUCATION: INSTRUCTIONAL STRATEGIES IN SOCIAL STUDIES AND THE CREATIVE ARTS. 3 Hours.**

Study of principles of integration of content in EC-6 classrooms with focus on social studies, the creative arts, and cognitive and socio-emotional development. Emphasis on developing dispositions promoting awareness of self and others, and the study of group dynamics involved in the socialization process in a diverse community. Strategies for enhancing creativity and risk-taking characteristics in EC-6 classrooms.

## Eng for Speakers of Other Lang (ESOL)

### COURSES

**ESOL 4300. ACADEMIC WRITING. 3 Hours.**

Development of academic writing practices common to advanced study and research environments in American universities. Include review of relevant points of English grammar and development of argumentation styles common to academic writing. Open only to advanced undergraduates/beginning graduate students for whom English is not their native language. This course may not be used for credit toward any degree program.

**ESOL 4301. ACADEMIC PRESENTATION SKILLS. 3 Hours.**

Development of presentation skills useful for advanced study and research in American universities. Topics include public speaking and pronunciation, use of visual aids in oral presentations, abstract writing, and CV development. Open only to advanced undergraduates/beginning graduate students for whom English is not their native language. This course may not be used for credit toward any degree program.

## Engineering (ENGR)

### COURSES

**ENGR 1204. ENGINEERING FIRST YEAR SEMINAR. 2 Hours.**

Introduction to basic engineering concepts, engineering and its many subfields, ethical responsibilities, creativity and design. Self-management and academic skills necessary for academic and professional success.

**ENGR 2100. SUPERVISED ENGINEERING WORK EXPERIENCE. 1 Hour.**

Course is for cooperative education students in engineering to be taken in the semester or summer they are employed. Each student will prepare a technical report based upon their work experience. Students who complete the cooperative program will receive certificates and this will be entered on their transcript. Prerequisite: acceptance into and continuance in the Engineering Cooperative Education Program. May be repeated.

**ENGR 2300. INTRODUCTION TO SUSTAINABLE ENGINEERING. 3 Hours.**

Introduction to key sustainability concepts and the role of engineering in sustainability. The engineering design process and consideration of sustainability. Use of life cycle assessment to quantify environmental and economic impacts of various design alternatives. Case study project. Prerequisite: Math 2425.

**ENGR 3000. SUPERVISED ENGINEERING WORK EXPERIENCE. 0 Hours.**

Course is for cooperative education students in engineering to be taken in the semester or summer they are employed. Each student will prepare a technical report based upon their work experience. Students who complete the cooperative program will receive certificates and this will be entered on their transcript. Prerequisite: acceptance into and continuance in the Engineering Cooperative Education Program. May be repeated.

**ENGR 3100. SUPERVISED ENGINEERING WORK EXPERIENCE. 1 Hour.**

Course is for cooperative education students in engineering to be taken in the semester or summer they are employed. Each student will prepare a technical report based upon their work experience. Students who complete the cooperative program will receive certificates and this will be entered on their transcript. Prerequisite: acceptance into and continuance in the Engineering Cooperative Education Program. May be repeated.

**ENGR 4100. SUPERVISED ENGINEERING WORK EXPERIENCE. 1 Hour.**

Course is for cooperative education students in engineering to be taken in the semester or summer they are employed. Each student will prepare a technical report based upon their work experience. Students who complete the cooperative program will receive certificates and this will be entered on their transcript. Prerequisite: acceptance into and continuance in the Engineering Cooperative Education Program. May be repeated.

**ENGR 4102. ENGINEERING ENTREPRENEURSHIP. 1 Hour.**

Topics include special problems of newly formed firms, planning, start-up business considerations, business strategy, management basics, and business plan design. Students will engage in business and entrepreneurship training, become aware of basic business operations, and learn about inventions, intellectual property, licensing, the patenting process and international patenting, as well as high-tech marketing. Opportunities in university environments will be discussed including incubation centers and patent licensing. Other topics include papers, legal issues, Small Business Innovation Research (SBIR) proposal design, SBIR funding from National Science Foundation (NSF), National Institutes of Health (NIH), and others, the review process, reporting, local high-tech business accelerators, venture plans, and venture capital. Classes will feature lectures from College of Engineering and College of Business faculty, and experts from industry.

**ENGR 4302. ENGINEERING ENTREPRENEURSHIP. 3 Hours.**

Topics include special problems of newly formed firms, planning, start-up business considerations, business strategy, management basics, and business plan design. Students will engage in business and entrepreneurship training or discussion, become aware of basic business operations, and learn about inventions, intellectual property, and the patenting process. Other topics include assessment of possible markets, venture feasibility, teambuilding, and leadership. Opportunities in university environments will be discussed including incubation centers and patent licensing. We address legal issues, SBIR proposal design, SBIR funding from NSF, NIH, and others, the review process, reporting, local high-tech business accelerators, venture plans, and venture capital. Prerequisite: junior standing.

**ENGR 4391. INTRODUCTION TO UNMANNED VEHICLE SYSTEMS. 3 Hours.**

Introduction to unmanned (aerial, ground, surface and underwater) vehicular systems (Unmanned Vehicles Systems), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. Application through interdisciplinary team projects pertaining to development of UVS. This course is team-taught by faculty from various engineering departments. Prerequisite: Junior standing (60 or more hours) and admission to a professional engineering program.

**ENGR 4392. UNMANNED VEHICLE SYSTEMS DESIGN AND CONSTRUCTION. 3 Hours.**

Team engineering approach to a UVS design project that integrates engineering knowledge from several courses. Problem definition and creative synthesis of prospective design solutions. Engineering proposals, feasibility studies, trade-off studies, systems models and analysis, decision making, and engineering reports and presentations. The design of a UVS is finalized, a physical model (prototype) is manufactured and tested. Redesign and retest is accomplished as desired. The final design is documented by written report and oral presentation. Prerequisite: Junior standing (60 or more hours) and admission into the professional program.

**ENGR 4395. SUSTAINABLE ENGINEERING DESIGN PROJECT. 3 Hours.**

This course provides an open-ended design experience. Planning, analysis of alternatives, and design of selected projects that cross various engineering disciplines, and include multiple realistic constraints. Students will use life cycle assessment to quantify environmental and economic impacts of various design alternatives. They will also identify trade-offs among social, economic, and environmental drivers. A team approach is emphasized. Prerequisites: ENGR 2300, IE 3315, ECON 2305 or IE 2308, societal context elective.

**ENGR 5102. ENGINEERING ENTREPRENEURSHIP. 1 Hour.**

Topics include special problems of newly formed firms, planning, start-up business considerations, business strategy, management basics, and business plan design. Students will engage in business and entrepreneurship training, become aware of basic business operations, and learn about inventions, intellectual property, licensing, the patenting process and international patenting, as well as high-tech marketing. Opportunities in university environments will be discussed including incubation centers and patent licensing. Other topics include papers, legal issues, Small Business Innovation Research (SBIR) proposal design, SBIR funding from National Science Foundation (NSF), National Institutes of Health (NIH), and others, the review process, reporting, local high-tech business accelerators, venture plans, and venture capital. Classes will feature lectures from College of Engineering and College of Business faculty, and experts from industry.

**ENGR 5302. ENGINEERING ENTREPRENEURSHIP. 3 Hours.**

Topics include special problems of newly formed firms, planning, start-up business considerations, business strategy, management basics, and business plan design. Students will engage in business and entrepreneurship training or discussion, become aware of basic business operations, and learn about inventions, intellectual property, and the patenting process. Other topics include assessment of possible markets, venture feasibility, teambuilding, and leadership. Opportunities in university environments will be discussed including incubation centers and patent licensing. We address legal issues, SBIR proposal design, SBIR funding from NSF, NIH, and others, the review process, reporting, local high-tech business accelerators, venture plans, and venture capital.

## Engineering Mechanics (EM)

### COURSES

EM 2311. STATICS. 3 Hours.

## English (ENGL)

### COURSES

ENGL 0100. INTEGRATED READING/WRITING. 1 Hour.

Integration of critical reading and academic writing skills. Fulfills TSI requirements for reading and/or writing.

**ENGL 0300. INTRODUCTION TO CRITICAL READING AND WRITING. 3 Hours.**

Offers additional preparation in academic reading and writing. Focus is on comprehending college-level reading material and writing academic essays in standard written English. Passing this course satisfies Texas Success Initiative requirements. Students who need to raise their THEA reading score for Texas Education Certification may also enroll. This course may not be submitted for any other English course, and credit in this course does not fulfill any degree requirement.

**ENGL 1301. RHETORIC AND COMPOSITION I. 3 Hours. (TCCN = ENGL 1301)**

Introduction to college reading and writing. Emphasizes recursive writing processes, rhetorical analysis, synthesis of sources, and argument.

**ENGL 1302. RHETORIC AND COMPOSITION II. 3 Hours. (TCCN = ENGL 1302)**

Continues ENGL 1301, but with an emphasis on advanced techniques of academic argument. Includes issue identification, independent library research, analysis and evaluation of sources, and synthesis of sources with students' own claims, reasons, and evidence. Prerequisite: Grade of C or better in ENGL 1301.

**ENGL 2303. TOPICS IN LITERATURE. 3 Hours. (TCCN = ENGL 2341)**

Focus on a particular genre, theme, or issue to enable comparison and analysis of several texts. Emphasis on critical thinking, reading, and writing. Possible course topics are literature of the Cold War, working-class literature, environmental literature and film, or the Gothic as cultural text. May be repeated for credit as course content changes. Prerequisite: ENGL 1301, ENGL 1302.

**ENGL 2309. WORLD LITERATURE. 3 Hours. (TCCN = ENGL 2331)**

Significant works of world literature chosen from various national cultural traditions, with focus on cross-cultural issues. These might include moral ambiguities across cultures, the transition from colonial to postcolonial, or the nature of translation. Examines at least three genres and six authors. Emphasis on critical reading, writing, and thinking. Prerequisite: ENGL 1301 and ENGL 1302.

**ENGL 2311. SUR ENG LIT. 3 Hours.****ENGL 2319. BRITISH LITERATURE. 3 Hours. (TCCN = ENGL 2321)**

Concentration on works of British literature with focus on how cultural, geographic, and political issues shape and reflect literature in a particular culture. Issue for British literature might include the nature of empire, Romantic conceptions of heroism, or literary representations of the sciences. Examines at least three genres and six authors. Emphasis on critical reading, writing, and thinking. Prerequisite: ENGL 1301 and ENGL 1302.

**ENGL 2329. AMERICAN LITERATURE. 3 Hours. (TCCN = ENGL 2326)**

Concentration on works of American literature with a focus on how cultural, geographic and political issues shape and reflect literature in a particular culture. Issues for American literature might include the struggle to discover a national identity, the transition from war to postwar periods, or the tensions of a multicultural society. Examines at least three genres and six authors. Emphasis on critical reading, writing, and thinking. Prerequisites: ENGL 1301 and ENGL 1302.

**ENGL 2338. TECHNICAL WRITING. 3 Hours.**

This course covers the processes of researching, drafting, designing, editing, and revising technical reports, proposals, instructions, resumes, and professional correspondence for specific audiences. Prerequisites: ENGL 1301, ENGL 1302.

**ENGL 2350. INTRODUCTION TO ANALYSIS AND INTERPRETATION. 3 Hours.**

Teaches students to identify characteristics of genres, to recognize and understand critical and literary terms, and to develop and use methods and strategies for analyzing and interpreting texts. Required for English and English/Education majors. Prerequisite: ENGL 1301 and ENGL 1302.

**ENGL 2384. STRUCTURE OF MODERN ENGLISH. 3 Hours.**

Introduction to the grammatical structure of modern English at the level of the word, clause, and discourse, with applications for effective writing. Required for English and English/Education majors. Formerly ENGL 3384; may not be repeated for credit. Prerequisites: ENGL 1301 and ENGL 1302.

**ENGL 3300. TOPICS IN LITERATURE. 3 Hours.**

May include such topics as Utopian literature, the American short story, literature and philosophy, introduction to theatre, and modern British fiction. May be repeated for credit when content changes. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 3301. RUSSIAN LITERATURE IN TRANSLATION. 3 Hours.**

The works of major Russian authors during the period from the beginning of Russian literature until the 1917 Revolution. The interrelationship of various literary movements and philosophies. Students receiving Russian credit will be required to compare selected translations with the original works and must complete a research or translation project. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A. Offered as ENGL 3301 and RUSS 3301; credit will be granted in only one department.

**ENGL 3306. SOVIET AND POST-SOVIET LITERATURE IN TRANSLATION. 3 Hours.**

The works of major Soviet and post-Soviet authors from 1917 to the present against the background of unfolding social and political development in the USSR and post-USSR. May be repeated for credit as topics and periods vary. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A. Students receiving credit in Russian will complete a translation or research project using the Russian language. Offered as ENGL 3306 and RUSS 3306; credit will be given in only one department.

**ENGL 3339. CLASSICAL BACKGROUNDS. 3 Hours.**

Literature of the Greco-Roman world including, but not limited to, The Odyssey, selected Greek tragedies, The Aeneid, Metamorphoses, and selected lyrics, epigrams, and satires.

**ENGL 3340. HISTORY OF AMERICAN LITERATURE. 3 Hours.**

American literature from its beginnings as related to the development of American culture; may include the study of canon formation.

**ENGL 3342. AMERICAN POETRY. 3 Hours.**

Examines the forms, traditions, and cultural contexts of the poetry of the United States. May include the relationship between American poetry and poetry written in English elsewhere, and/or poetry written in other languages. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 3343. US CHICANO/LATINO LIT. 3 Hours.**

This interdisciplinary course explores Chicana/o and Latina/o experiences from 1848 to the present as conditioned by the intersections of race, class, gender, sexuality, and regional variation. Focus on Chicano/Latino people's quest for self-determination and social justice and on historical, political, and economic factors that contribute to the formation of Chicanos and Latinos today. Focus on major literary developments including the farm workers movement, the Chicano/Brown Power movement, the emergence of Chicana/Latina authors, and the current concept of "Hispanidad." Prerequisite: For English majors: ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 3344. AMERICAN INDIAN LITERATURE. 3 Hours.**

Offers an introduction to American Indian literatures or focuses on a particular genre, period or topic. May be repeated for credit as course content changes.

**ENGL 3345. AFRICAN AMERICAN LITERATURE. 3 Hours.**

Offers an introduction to African American literature or focuses on a particular genre, period or topic. May be repeated for credit as course content changes. Offered as AAST 3345 and ENG 3345; credit will be granted in only one department.

**ENGL 3346. MEXICAN AMERICAN LITERATURE. 3 Hours.**

Provides an introduction to Mexican American literature or focuses on a particular genre, period or topic. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours sophomore literature with an A. Offered as ENGL 3346 and MAS 3346; ENGL 3346 may be repeated as course content changes, but credit will be granted in only one department, and credit for MAS 3346 will be granted only once.

**ENGL 3347. TOPICS IN MULTICULTURAL LITERATURES. 3 Hours.**

Either an intensive focus within one tradition or a comparison between two or more traditions. Topics may include Asian-American literature, the American Indian novel, the Harlem Renaissance, Jewish-American literature, Mexican-American and American Indian literatures, or African American literature. May be repeated for credit as course content changes. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore with a grade of A. Offered as ENGL 3347 and MAS 3347; credit will be granted in only one department, and credit for MAS 3347 will be granted only once.

**ENGL 3351. HISTORY OF BRITISH LITERATURE I. 3 Hours.**

British literature and language from their origins through the 18th century, as they relate to the development of British culture.

**ENGL 3352. HISTORY OF BRITISH LITERATURE II. 3 Hours.**

An introduction to British literature from Romanticism to the present, focusing on the relationship between literature and its social and historical contexts. Addresses a wide range of authors from William Blake to Zadie Smith. Texts may include poetry, novels, plays, essays, and short stories. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 3355. POST-COLONIAL LITERATURE IN ENGLISH. 3 Hours.**

Offers an introduction to literatures of once-colonial nations, focusing on theory as well as practice and on new relations to and divergences from the imperial center. Texts might include poetry, fiction, drama, film and critical theory. May be repeated for credit as course content changes.

**ENGL 3361. HISTORY OF WORLD LITERATURE I. 3 Hours.**

An introduction to major texts in western literature from early oral and manuscript traditions through the first centuries of printing. Texts and authors studied may include the Bible, Homer, the Greek dramatists, Vergil and other Roman poets, medieval epic and romance, Dante, Petrarch, Ariosto, Montaigne, and Cervantes. Prerequisites: for Engl majors: ENGL 2350; for non-majors, 6 hours of sophomore literature or three hours of sophomore literature with an A.

**ENGL 3362. HISTORY OF WORLD LITERATURE II. 3 Hours.**

An introduction to major literary texts from mid-seventeenth century to the present. Material might cover neoclassicism, romanticism, realism, modernism, postcolonial literature, magical realism, and the literature of globalization, as well as various theoretical problems involved in such a study of world literature including delimiting the field, translation, and English as a global language. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 3364. GAY AND LESBIAN LITERATURE. 3 Hours.**

Examines modern representations of same-sex desire in relation to a variety of texts---religious, philosophical, literary and scientific---from the ancient world up through the 'invention' of homosexuality in the nineteenth century. Prerequisite: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A. Offered as ENGL 3364 and WOMS 3364; credit will be granted in only one department.

**ENGL 3366. TOPICS IN LITERATURE AND ENVIRONMENT. 3 Hours.**

Investigates the relationship between literature and the environment, considering how texts and other cultural practices represent and engage with the natural world. Topics may include nature writing, animal studies, environmental literature, film, environmental justice, or posthumanism. May be repeated for credit when course content changes. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 3368. TOPICS IN GENDER AND SEXUALITY. 3 Hours.**

Examines a variety of topics to do with issues of gender and sexuality, which include literary, theoretical, and philosophical texts that foreground questions of desire, sexual identity, and gender asymmetry. Considers how gender and sexuality shape and are shaped by race, ethnicity, class, ability/disability, religion, and age. May be repeated for credit as course content changes. Offered as ENGL 3368 and WOMS 3368; credit will be granted in only one department. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 3370. WOMEN IN LITERATURE. 3 Hours.**

Works by women writers and/or images of women in literature. May be repeated for credit as subject matter changes. Offered as ENGL 3370 and WOMS 3370; credit will be granted in only one department.

**ENGL 3371. ADVANCED EXPOSITION. 3 Hours.**

An advanced writing course emphasizing writing that explains, demonstrates, or explores a subject. Attention given to audience, invention, style (coherence, unity, and clarity), and to the revision process. Prerequisites: ENGL 1301, ENGL 1302.

**ENGL 3372. COMPUTERS AND WRITING. 3 Hours.**

An advanced writing course, conducted in a computerized classroom. An emphasis on rhetorical analyses of electronic discourse and writing in electronic environments. Prerequisites: ENGL 1301, ENGL 1302.

**ENGL 3373. TECHNICAL COMMUNICATION. 3 Hours.**

An advanced writing class that prepares students for writing about technical, scientific, and professional subject matters. Students study the concepts and techniques of technical communication and learn to create a variety of documents, such as instructions, visual aids, proposals, reports, and professional correspondence. Prerequisites: ENGL 1301, ENGL 1302.

**ENGL 3374. WRITING, RHETORIC, AND MULTIMEDIA AUTHORING. 3 Hours.**

Introduction to the rhetorical structure of multimedia. An emphasis on composing writing-intensive and research-oriented projects for academic, business, and/or creative audiences. Prerequisite: ENGL 1301, ENGL 1302.

**ENGL 3375. CREATIVE WRITING. 3 Hours.**

Introduction to creative writing in formats that may include workshop, lecture, and individual conference. Students will write in two or three genres, including poetry, prose fiction, and other forms. Prerequisites: ENGL 1301, ENGL 1302.

**ENGL 3376. BUSINESS & PROFESSIONAL WRITING. 3 Hours.**

An advanced writing course, taught in a computerized classroom, that focuses on writing in the workplace. Emphasis is placed upon producing business and professional documents based on current, standardized formats; considering the role of audience; writing in a clear, concise, and appropriate style; and revising texts to improve their effectiveness. Prerequisite: ENGL 1301, ENGL 1302.

**ENGL 3385. TOPICS IN RHETORIC. 3 Hours.**

Various topics including legal rhetorics, American Civil Rights rhetorics, the rhetorics of Cybercultures, and the rhetorics of print and electronic essays, fiction, poetry, advertisements, or video and film. Prerequisites: ENGL 1301, ENGL 1302. May be repeated for credit when course content changes.

**ENGL 3390. HONORS COLLOQUIUM. 3 Hours.**

An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors College. Prerequisite: participation in the Honors College and/or permission of instructor.

**ENGL 4191. LITERATURE CONFERENCE COURSE. 1 Hour.**

Requires permission of the department chair and the instructor.

**ENGL 4301. HISTORY OF THE ENGLISH LANGUAGE. 3 Hours.**

The sounds and structure of the English language from pre-history to the present.

**ENGL 4311. AMERICAN LITERATURE, 1800-1910. 3 Hours.**

Literary movements such as Romanticism, Realism, and Naturalism in their cultural contexts. May include essays, journals, and poetry by transcendentalists such as Emerson, Thoreau, and Fuller, as well as the fiction, poetry, autobiography, and/or criticism of such writers as Poe, Hawthorne, Douglass, Stowe, and Melville. May also draw upon such writers as Dickinson, Whitman, Twain, Howells, Crane, Chopin, Gilman, and James. Prerequisites: for majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4313. AMERICAN LITERATURE 1910-CONTEMPORARY. 3 Hours.**

Examines modern and contemporary literary movements in their cultural contexts. Genres studied may include fiction, poetry, drama, and literary criticism. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4321. MEDIEVAL ENGLISH LITERATURE. 3 Hours.**

Literature of England from its beginnings to the end of the 15th century. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A.

**ENGL 4322. SIXTEENTH & SEVENTEENTH CENTURY BRITISH LITERATURE. 3 Hours.**

Poetry, prose, and drama from 1500 to 1700. The works of Spenser, Sidney, or the sonneteers may be emphasized. May include a study of Milton. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4324. RESTORATION AND EIGHTEENTH-CENTURY LITERATURE. 3 Hours.**

Literature of England from 1660 to 1798, centering on various representative works with attention to literary forms and historical contexts.

**ENGL 4325. CHAUCER. 3 Hours.**

Works of the 14th-century English poet Geoffrey Chaucer. Examination of his works, intellectual milieu, and literary influence.

**ENGL 4326. SHAKESPEARE. 3 Hours.**

Selected plays by Shakespeare in their historical and literary context. May include his nondramatic works.

**ENGL 4330. ADVANCED CREATIVE WRITING: TOPICS. 3 Hours.**

Intensive creative writing in course formats that may include workshop, lecture, and individual conference. Students may write in one or more literary genres, depending on the topic. May be repeated for credit as course content changes. Prerequisite: ENGL 3375.

**ENGL 4331. THE BRITISH ROMANTICS. 3 Hours.**

An in-depth look at the British Romantic period (roughly 1789-1837), with special attention to the relationship between literature and culture. Genres may include lyric and epic poetry; historical novels, realist novels, and romances; essays and journals; science fiction and the gothic. Authors may include Austen, Blake, the Wordsworths, the Shelleys, Coleridge, Keats, Byron, Barbauld, Scott, and others. Possible topics may include politics and revolution, nature and the imagination, science and industry, and travel and empire. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4332. THE VICTORIANS. 3 Hours.**

Literature of Britain from 1837 to 1901. Texts will include poetry, prose, fiction, and drama. Will focus on major themes or issues in social, ethical, and aesthetic thought, such as Darwinism, democracy, class conflict, and empire. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4333. LITERARY GENRES. 3 Hours.**

May focus on such genres as modern British drama, the continental novel, detective fiction, or the Gothic. May be repeated for credit as course content changes. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4334. TOPICS IN BRITISH LITERATURE. 3 Hours.**

May include such topics as law and literature, literature and industrialization, or detective fiction. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A. May be repeated for credit as course content changes.

**ENGL 4336. TOPICS IN AMERICAN LITERATURE. 3 Hours.**

May concentrate on a topic, on a particular historical era, or on one to three significant authors. May address important themes, movements, regions, genres, or cross-cultural comparisons. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A. May be repeated for credit as course content changes.

**ENGL 4337. TOPICS IN COMPARATIVE LITERATURE. 3 Hours.**

May include such topics as literature and psychoanalysis, literature and philosophy or literature and revolution. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A. May be repeated for credit as course content changes.

**ENGL 4338. TWENTIETH-CENTURY BRITISH LITERATURE. 3 Hours.**

Literature of England from the turn of the century to the present focusing on major figures, major themes, or literary movements. May include major Irish works.

**ENGL 4340. LITERATURE BY WOMEN. 3 Hours.**

Focus on women's writing in a particular genre or historical period or on a concept or issue of importance to women writers. May be repeated for credit as course content changes. Offered as ENGL 4340 and WOMS 4340; credit will be granted in only one department.

**ENGL 4341. RHETORIC AND COMPOSITION: HISTORY, THEORY, AND PRACTICE I. 3 Hours.**

Surveys the history of rhetorical theory and practices from earliest formulations in Greek and Roman antiquity to the early modern period. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore lit or 3 hours sophomore lit with a grade of A.

**ENGL 4342. RHETORIC AND COMPOSITION: HISTORY, THEORY AND PRACTICE II. 3 Hours.**

Surveys the history of rhetorical theory and practices from the early modern period to current manifestations in composition studies. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore lit or 3 hours sophomore lit with a grade of A.

**ENGL 4344. TOPICS IN ENGLISH LANGUAGE STUDY. 3 Hours.**

Analysis of texts primarily for their use of language or their engagement with linguistic issues. May include Old English, the emergence of the vernacular, literature and dialect, global English, or slang. May be repeated for credit when course content changes. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4345. TOPICS IN CRITICAL THEORY. 3 Hours.**

May include the study of major figures (e.g., Agamben, Barthes, Derrida, Foucault, Heidegger, Levinas, Said, Spivak) or topics (e.g., aesthetics, digital technology, disability studies, feminist views of science, film theory). May be repeated for credit as course content changes. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.



**ENGL 4346. TOPICS IN THEORIES OF LANGUAGE AND DISCOURSE. 3 Hours.**

May include the in-depth study of a major theorist (e.g., Dennett, Halliday, Lakoff, Pinker, Pratt, Quine) or a broader survey of related theories (e.g., discourse analysis; evolutionary theories of language and mind; integrational linguistics; speech-act theory) that investigate "language-in-general" and/or "language-in-use" and that question the limitations of these terms. May be repeated for credit as course content changes. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4347. ADVANCED CREATIVE WRITING: FICTION. 3 Hours.**

Intensive instruction in the writing of fiction in course formats that may include workshop, lecture, and individual conference. May not be repeated for credit. Prerequisite: ENGL 3375.

**ENGL 4348. ADVANCED CREATIVE WRITING: POETRY. 3 Hours.**

Intensive instruction in the writing of poetry in course formats that may include workshop, lecture, and individual conference. May not be repeated for credit. Prerequisite: ENGL 3375.

**ENGL 4349. ADVANCED CREATIVE WRITING: CREATIVE NON-FICTION. 3 Hours.**

Intensive instruction in the writing of creative non-fiction in course formats that may include workshop, lecture, and individual conference. May not be repeated for credit. Prerequisite: ENGL 3375.

**ENGL 4350. TOPICS IN FILM AND LITERATURE. 3 Hours.**

An introduction to the study of film and the techniques of film analysis. Compares films to literary or other texts. Considers films in relation to history, critical theory, and culture. Topics may include Nature in Film, Shakespeare in Film, American Indian Film and Literature, the British Novel as Film. May be repeated for credit as course content changes. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A.

**ENGL 4355. LITERARY CRITICISM AND THEORY I. 3 Hours.**

Readings and discussion of classics of literary criticism from Plato through Pater. Primary focus on traditional answers to the question of the nature and function of criticism. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A.

**ENGL 4356. LITERARY CRITICISM AND THEORY II. 3 Hours.**

Readings, discussion and practical application of 20th-century and contemporary methodologies such as new criticism; formalism; structuralism; poststructuralism; hermeneutics; semiotics; reader-response; psychoanalysis; Marxism; theories of gender, sexuality, and race; and cultural studies. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore lit or 3 hours sophomore lit with a grade of A.

**ENGL 4365. CHILDREN'S LITERATURE. 3 Hours.**

A survey of literature for children, with attention to theoretical perspectives and cultural contexts. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours of sophomore literature with a grade of A .

**ENGL 4366. YOUNG ADULT LITERATURE. 3 Hours.**

A survey of literature for adolescents and young adults, with attention to theoretical perspectives and cultural contexts. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A.

**ENGL 4370. RHETORIC AND COMPOSITION FOR SECONDARY SCHOOL TEACHERS. 3 Hours.**

Survey of recent scholarship in rhetoric and composition as it applies to middle school and high school settings. Focuses on the development of reading and writing assignments, formative response to student writing, and assessment of student writing. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A.

**ENGL 4371. ADVANCED ARGUMENTATION. 3 Hours.**

Examines classical and contemporary theories of argumentation and applies them to academic and non-academic writing. Assignments focus on both the analysis and the production of argumentative discourse in various forms (e.g., academic essays, advertising, editorials, political speeches, etc.). Prerequisites: ENGL 1301, ENGL 1302.

**ENGL 4374. WRITING, RHETORIC, AND MULTIMEDIA AUTHORIZING II. 3 Hours.**

Advanced study of the rhetorical structure of multimedia. An emphasis on composing writing-intensive and research-oriented projects for academic, business, and creative audiences. Prerequisite: ENGL 3374.

**ENGL 4377. TOPICS IN SCIENCE & TECHNOLOGY. 3 Hours.**

Explores issues in the rhetorical, cultural, and aesthetic dimensions of science and technology. May be repeated for credit as course content changes. For English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4381. MEDIEVAL LITERATURE. 3 Hours.**

Various aspects of Western literature from the Fifth to the end of the 15th century. May focus on major figures and their milieu and heritage or on particular genres, themes, or topics.

**ENGL 4382. RENAISSANCE & BAROQUE LITERATURE. 3 Hours.**

Aspects of Western literature of the 16th and 17th Centuries. May focus on Petrarchan, anti-Petrarchan, Platonic, and anti-Platonic poetry; meditative poetry; drama or the relationship of literature and the arts, with special attention to Mannerism and Baroque and Rococo styles. Course may be repeated when content changes.

**ENGL 4383. NEOCLASSICISM & ROMANTICISM. 3 Hours.**

Tenets and dicta of Neoclassicism with examples from the drama, satire, and epic works from the period of Corneille through the 18th century; the growth of Romanticism from its emergence in Enlightenment thought through its displacement of Realism, with emphasis on English, French, German, Italian, and/or Spanish poetry, fiction, drama, and essay. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4384. REALISM & NATURALISM. 3 Hours.**

Realistic and Naturalistic fiction and drama from their beginnings in Romanticism through their displacement by Impressionism. Examples drawn from the literature of France, Germany, Russia, Italy, Spain, England, and/or the Americas. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**ENGL 4385. MODERNISM. 3 Hours.**

Major works of the early and mid-twentieth century in Europe that belong to the movement known as Modernism. May include the study of Freud and literature, Impressionism, Surrealism, and Existentialism.

**ENGL 4387. CONTEMPORARY LITERATURE. 3 Hours.**

Contemporary literary forms and movements.

**ENGL 4390. INTERNSHIP IN ENGLISH. 3 Hours.**

Provides the student with an opportunity to apply academic skills learned in English classes to practical situations by working in a business related to the discipline.

**ENGL 4391. LITERATURE CONFERENCE COURSE. 3 Hours.**

An independent study of a topic not otherwise available. Requires permission of the department chair and the instructor. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A.

**ENGL 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or project of equivalent difficulty under the direction of a faculty member in the major department.

**ENGL 4399. SENIOR SEMINAR. 3 Hours.**

Capstone course for English majors. A writing-intensive, seminar-style, in-depth study of a topic. Content may consist of a figure or figures, a period, a literary movement, a thematic, or a critical theory. Prerequisites: ENGL 2350 and completion of 18 hours of required 3000 - 4000 level English courses.

**ENGL 5191. INDEPENDENT STUDY. 1 Hour.**

Supervised independent study at the M.A. or Ph.D. level.

**ENGL 5300. THEORY AND PRACTICE IN ENGLISH STUDIES. 3 Hours.**

Core graduate course, introduction to graduate study in English. Covers a wide range of methodological and theoretical approaches to, as well as current issues in, criticism, rhetoric, and literary studies. Enrollment requires the approval of the Graduate Advisor in English.

**ENGL 5301. MEDIEVAL ENGLISH LITERATURE. 3 Hours.**

English literature of the period before 1500. May include Old English poetry, Anglo-Latin prose, William Langland, the alliterative revival, romances, Malory, and Chaucer.

**ENGL 5302. 16TH CENTURY BRITISH LITERATURE. 3 Hours.**

Non-dramatic literature of the 16th century, including works by Thomas More, Sir Philip Sidney, Sir Walter Raleigh, John Skelton, Edmund Spenser, and Elizabeth I.

**ENGL 5303. 17TH CENTURY ENGLISH LITERATURE. 3 Hours.**

Poetry and prose of the 17th Century. May include a study of Milton and/or a study of writers and motifs of the period.

**ENGL 5304. RESTORATION AND 18TH CENTURY BRITISH LITERATURE. 3 Hours.**

Drama, poetry, fiction, and essays from 1660 to 1798. Includes writers such as John Dryden, Aphra Behn, Alexander Pope, Samuel Johnson, Henry Mackenzie, Ignatio Sancho, and Maria Edgeworth, as well as issues of the period such as the nature of reason.

**ENGL 5305. ROMANTIC BRITISH LITERATURE. 3 Hours.**

Poetry and fiction from 1798 to 1837. Includes writers such as William and Dorothy Wordsworth, Mary and Percy Shelley, Felicia Hemans, and Walter Scott, as well as issues such as the meaning of nature.

**ENGL 5306. VICTORIAN ENGLISH LITERATURE. 3 Hours.**

Concepts and problems in texts by Victorian novelists, poets, and essayists (writers will vary). Attention to historical and cultural as well as literary issues.

**ENGL 5307. 19TH CENTURY BRITISH LITERATURE AND CULTURE. 3 Hours.**

An overview of the writings and culture of the long 19th century in Britain from 1798 to 1914. Makes connections between Romantic and Victorian periods, covers literary and other relations with the empire, and includes significant non-literary figures such as Darwin and Freud.

**ENGL 5308. SHAKESPEARE. 3 Hours.**

Representative works of Shakespeare. May vary from comprehensive readings in the dramatic literature to intensive examination of certain plays, or to other related topics.

**ENGL 5311. FOUNDATIONS OF RHETORIC AND COMPOSITION. 3 Hours.**

An intellectual and institutional history of rhetoric and composition studies. Special attention will be given to the history and ethics of writing instruction; the importation of classical rhetoric into contemporary composition classrooms; the institutional formation of the field and its ambiguous status in the academy; and the major contemporary pedagogical approaches (e.g., expressivism, cognitivism, social constructionism). May also address recent topics that have attracted the attention of the field (e.g., dialogism, institutional critique, plagiarism, post-process theory, service learning, writing across and beyond the curriculum).

**ENGL 5313. 20TH CENTURY BRITISH LITERATURE. 3 Hours.**

A study of English and Irish writing in the 20th Century; may focus on major authors, themes, or topics.

**ENGL 5320. SELECTED READINGS IN AMERICAN LITERATURE BEFORE 1800. 3 Hours.**

Designed to establish the diversity of our early literature. Includes Indian oral literature, travel accounts, Puritan writing, diaries, autobiography, poetry, drama and fiction. Cultural context stressed.

**ENGL 5322. 19TH CENTURY AMERICAN LITERATURE. 3 Hours.**

Examines significant authors, forms, and aesthetic movements within literary, historical, and cultural contexts. Writers examined may include established figures associated with traditionally recognized forms, movements, and eras, such as Romanticism, the domestic novel, the American Literary Renaissance, slave narratives, Realism, and Naturalism, as well as non-canonical authors and less-recognized forms and movements.

**ENGL 5323. AMERICAN LITERATURE SINCE 1900. 3 Hours.**

Includes representative works of multiple authors selected for the study of modern and contemporary themes and methods.

**ENGL 5324. TOPICS IN AMERICAN LITERARY GENRES. 3 Hours.**

Concentrates on the nature and aesthetic-cultural significance of one literary genre. Genres examined may include, but are not limited to, poetry, drama, fiction, autobiography, travel literature, and oral narratives. May be repeated when content changes.

**ENGL 5326. TOPICS IN AMERICAN LITERATURE BEFORE 1900. 3 Hours.**

May focus on one to three writers such as Melville, Hawthorne, or Emerson, or a significant theme or movement such as the rise of Realism, the representation of women, or women's fiction. May be repeated when content changes.

**ENGL 5327. TOPICS IN 20TH CENTURY AMERICAN LITERATURE. 3 Hours.**

May focus on one to three writers such as Faulkner, O'Neill, or Morrison, or a significant theme or movement such as Modernism and Postmodernism, multicultural narrative, or feminist theory/feminist fiction. May be repeated when content changes.

**ENGL 5330. TOPICS IN CRITICISM. 3 Hours.**

Studies in critical topics such as textual criticism, psychoanalytic criticism, philosophy and criticism, Renaissance poetics and literature, critical movements, or focus on a major theorist in criticism. May be repeated when content changes.

**ENGL 5331. TOPICS IN LANGUAGE OR DISCOURSE STUDIES. 3 Hours.**

Concentration on historical and theoretical approaches to the study of language and the specific discursive practices of its users. May be repeated for credit when content changes.

**ENGL 5337. SEMINAR IN TEACHING LITERATURE. 3 Hours.**

Study of recent scholarship in English Studies and other disciplines pertaining to the teaching of literature. Comparative analysis of methods and objectives for the teaching of literature. Course will include a practicum component in which students observe the teaching of experienced faculty, teach particular texts, design syllabi and write statements of teaching philosophy. The course is intended to prepare graduate students to teach literature courses at the university, college or community college level, and to provide a range of pedagogical models to enhance the skills of secondary school teachers.

**ENGL 5340. CRITICAL THEORY: THE MAJOR TRADITIONAL TEXTS. 3 Hours.**

A study of literary and cultural theory and practice from the Greco-Roman period to the early 20th Century. May include such theorists as Plato, Aristotle, Horace, Longinus, Dante, Sidney, B. Jonson, Dryden, Pope, Johnson, Coleridge, Arnold, Richards, Eliot, and others.

**ENGL 5350. HISTORY OF RHETORIC I: CLASSICAL RHETORIC. 3 Hours.**

A study of the theory and practice of Greco-Roman rhetoric from its pre-Socratic origins to the Second Sophistic. Attention will be given to major theorists, such as Gorgias, Protagoras, Plato, Aristotle, Isocrates, Hermagoras, Hermongenes, Cicero, Quintilian and the transitional figure of St. Augustine.

**ENGL 5351. HISTORY OF RHETORIC II: MEDIEVAL AND RENAISSANCE RHETORIC. 3 Hours.**

A study of the theory and practice of western rhetoric from the early medieval period through the Renaissance. Attention will be given to major theorists, such as St. Augustine, Geoffrey of Vinsauf, Robert of Basevorn, Christine de Pizan, Desiderius Erasmus, Baldesar Castiglione, Juan Luis Vives, Sir Philip Sidney, Peter Ramus and Francis Bacon.

**ENGL 5352. HISTORY OF RHETORIC III: MODERN AND CONTEMPORARY RHETORIC. 3 Hours.**

A study of the theory and practice of western rhetoric from the 18th century to the present. Attention will be given to major theorists, such as Whatley, Blair, Bain, Campbell, Spencer, Richards, Burke, Weaver, Toulmin, Perelman, Bitzer, Vatz, Harriman, Leff, Farrell, McGee, Gaonkar, Kinneavy, Scott, Crosswhite, Meyer, Gross, Miller, Fuller and Kent.

**ENGL 5355. STUDIES IN ENGLISH DISCOURSE. 3 Hours.**

Analysis of English grammatical structures above the level of the clause, including the sentence, the paragraph, and the whole text; examination of the work of major discourse theorists Dik, Harris, Halliday, Longacre, Pike and van Dijk.

**ENGL 5356. COMPOSING PROCESSES. 3 Hours.**

Study of research about writing processes and examination of the available methods of conducting research; special attention given to major researchers and theorists.

**ENGL 5357. READING PROCESSES. 3 Hours.**

Contemporary theories of interpretation and empirical research into reading processes; special attention given to major researchers and theorists.

**ENGL 5358. WRITING ASSESSMENT, EVALUATION, AND RESPONSE. 3 Hours.**

Study of the methods and ethics of assessing, evaluating, and responding to the writing of students individually or collectively.

**ENGL 5359. ARGUMENTATION THEORY. 3 Hours.**

Emphasis on theories of argumentation and persuasion that further the rhetorical aims of convincing or achieving agreement through identification and consensus. Attention to classical and contemporary approaches to issue analysis, invention, audience analysis, building common ground, stasis theory, types of proofs and tests of validity, organizational strategies, and style. Special attention to argument on the Internet. Assignments may include constructing Web sites related to argument. Study of such theorists as Aristotle, Perelman, Toulmin, Ong, K. Burke, Brockreide and Ehninger, Bitzer, Young, Becker and Pike, and others.

**ENGL 5360. CONTEMPORARY CRITICAL THEORY. 3 Hours.**

Study of contemporary theories of interpretation, concentrating on one or more schools of critical and cultural theory may include, New Criticism, the Neo-Aristotelians, Marxist Critical Theory, Hermeneutics, psychoanalysis, Russian Formalism, semiotics, speech-act theory, phenomenology, structuralism, and post-structuralism. May be repeated when content changes.

**ENGL 5370. SCHOLARLY ARGUMENT. 3 Hours.**

An introduction to the research for the writing of argumentative scholarly essays. Surveys research skills, materials, forms of scholarly argument, and involves the writing of a research-based essay.

**ENGL 5380. TEXTUAL THEORIES OF CULTURE. 3 Hours.**

Study of the interpretations of culture yielded by the traditions of semiotics and hermeneutics and cultural studies may include works by the following: Lyotard, Foucault, Habermas, Derrida, Pierce, Barthes, Deleuze, Gadamer, Levi-Strauss, Butler, Haraway, and Hall.

**ENGL 5388. GTA PREPARATION. 3 Hours.****ENGL 5389. TOPICS IN TEACHING COMPOSITION. 3 Hours.**

Seminar for investigating problems of and approaches to teaching composition. Special attention given to current compositional theorists. May be repeated when content changes.

**ENGL 5391. INDEPENDENT STUDY. 3 Hours.**

Supervised independent study at the M.A. or Ph.D. level.

**ENGL 5398. THESIS. 3 Hours.**

The graduate student must be registered for this course (a) when in consultation over the thesis with the supervisory committee, and (b) in the semester or term in which the Master of Arts degree will be conferred.

**ENGL 5698. THESIS. 6 Hours.**

The graduate student must be registered for this course (a) when in consultation over the thesis with the supervisory committee, and (b) in the semester or term in which the Master of Arts degree will be conferred.

**ENGL 5998. THESIS. 9 Hours.**

The graduate student must be registered for this course (a) when in consultation over the thesis with the supervisory committee, and (b) in the semester or term in which the Master of Arts degree will be conferred.

**ENGL 6191. INDEPENDENT STUDY. 1 Hour.**

Independent study at the M.A. or Ph.D. level. May be repeated as needed. Prerequisite: permission of instructor.

**ENGL 6329. TOPICS AND THEMES IN COMPARATIVE LITERATURE. 3 Hours.**

The study of a theme or topic, such as primitivism, utopianism, representations of the unconscious, or the quest, within different literary traditions. May be repeated as content changes.

**ENGL 6330. GENRE STUDIES IN BRITISH LITERATURE. 3 Hours.**

Intensive study of a genre in any period(s) of British Literature; may focus on autobiography, history of the novel, Restoration and eighteenth-century drama, nineteenth-century British fiction, or other. May be repeated when course content changes.

**ENGL 6333. GENRES IN COMPARATIVE LITERATURE. 3 Hours.**

Theory of literary forms or types and the conventions they embody. May focus on the epic, the novel, lyric poetry, autobiography, drama, or magical realism, across different literary traditions. May be repeated as course content changes.

**ENGL 6335. TOPICS IN ENGLISH LITERATURE. 3 Hours.**

Focus on writers or issues in literature written in English, including colonial and postcolonial literatures. May include poetry, drama, fiction, or non-fiction. May be repeated when content changes.

**ENGL 6339. TOPICS IN AMERICAN LITERATURE. 3 Hours.**

Themes or issues not bound by particular historical periods, for example, women writers, canon formation, American Indian literature, African-American literature, utopian literature, cultural studies. May be repeated when content changes.

**ENGL 6340. METACRITICAL THEORY. 3 Hours.**

A study of theories of literature from the point of view of their systems-theoretical character. Focuses on the writing of selected metatheorists such as Barbour, Braithwaite, Bruss, Harr, Lakotos, Popper, Rescher, and others, on questions of the genesis, nature, function, validity, and potential of literary theory.

**ENGL 6350. TOPICS IN THE HISTORY AND THEORY OF RHETORIC. 3 Hours.**

An intensive study of specific problems or issues in classical, medieval, Renaissance, modern, or contemporary rhetoric, (e.g., civic functions of rhetoric, logic and rhetoric, rhetoric of science, theories of invention), especially those that involve the connections and collisions between rhetoric and other intellectual traditions (e.g., critical theory, cultural studies, feminist theory, history, literary studies, non-western rhetoric, philosophy). May focus on the work of a major theorist. May be repeated for credit when content changes.

**ENGL 6351. TOPICS IN COMPOSITION STUDIES. 3 Hours.**

An intensive study of specific problems or issues in contemporary composition studies (e.g., authorship and intellectual property, computers and composition, the ideologies of writing instruction, the role of empirical research, service learning), especially those that involve connections and collisions between composition studies and other intellectual traditions (e.g., cognitive science, critical theory, cultural studies, feminist theory, hermeneutics, history, linguistics, literary study, rhetoric, philosophy, psychology, sociology). May focus on the work of a major researcher or theorist. May be repeated for credit when content changes.

**ENGL 6360. TOPICS IN FEMINIST THEORY. 3 Hours.**

Study of interdisciplinary feminist theories of language, power, knowledge, and culture. Course may focus on Marxist feminism, postmodern feminism, feminist cultural studies, or other topics. Course may include such theorists as Wollstonecraft, Woolf, Beauvoir, Irigaray, Spillers, Anzaldúa, Haraway, Butler, or Cornell.

**ENGL 6370. TOPICS IN LITERATURE AND THE ENVIRONMENT. 3 Hours.**

Introduces interdisciplinary theories and methods of the environmental humanities, in order to investigate how texts and other cultural practices represent and engage with the natural world. Topics may include environmental theories, nature writing, animal studies, environmental literature, film, science studies, environmental justice, posthumanism, green cultural studies. May be repeated for credit when course changes.

**ENGL 6391. GRADUATE READINGS. 3 Hours.**

Supervised reading for the Ph.D. exam.

**ENGL 6399. DISSERTATION. 3 Hours.**

The graduate student must be registered for this course (a) when in consultation over the dissertation with the supervisory committee, and (b) in the semester or term in which the Ph.D. will be conferred. A minimum of 9 hours of dissertation credit is required for the Ph.D. Graduate teaching assistants must take ENGL 6699. ENGL 6999 must be taken during the final semester of the Ph.D.

**ENGL 6691. GRADUATE READINGS. 6 Hours.**

Independent Reading for the Comprehensive Exam.

**ENGL 6699. DISSERTATION. 6 Hours.**

The graduate student must be registered for this course (a) when in consultation over the dissertation with the supervisory committee, and (b) in the semester or term in which the Ph.D. will be conferred. A minimum of 9 hours of dissertation credit is required for the Ph.D. Graduate teaching assistants must take ENGL 6699. ENGL 6999 must be taken during the final semester of the Ph.D.

**ENGL 6991. GRADUATE READINGS. 9 Hours.**

Independent Reading for the Comprehensive Examination.

**ENGL 6999. DISSERTATION. 9 Hours.**

The graduate student must be registered for this course (a) when in consultation over the dissertation with the supervisory committee, and (b) in the semester or term in which the Ph.D. will be conferred. A minimum of 9 hours of dissertation credit is required for the Ph.D. Graduate teaching assistants must take ENGL 6699. ENGL 6999 must be taken during the final semester of the Ph.D.

**ENGL 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Environmental Science and Engineering (EVSE)

### COURSES

**EVSE 5100. SELECTED TOPICS IN ENVIRONMENTAL SCIENCE AND ENGINEERING. 1 Hour.**

May be repeated for credit when topic changes.

**EVSE 5120. ENVIRONMENTAL PROFESSIONAL MENTORING & BUSINESS ETHICS. 1 Hour.**

Provides credit to students participating in an approved mentoring program with an experience environmental professional. May be repeated once for credit.

**EVSE 5200. SELECTED TOPICS IN ENVIRONMENTAL & EARTH SCIENCES. 2 Hours.**

May be repeated for credit when topic changes.

**EVSE 5294. INDIVIDUAL PROBLEMS IN ENVIRONMENTAL & EARTH SCIENCES. 2 Hours.**

Individual research projects supervised by a faculty member.

**EVSE 5300. SELECTED TOPICS IN ENVIRONMENTAL & EARTH SCIENCE. 3 Hours.**

May be repeated for credit when topic changes.

**EVSE 5309. ENVIRONMENTAL SYSTEMS-BIOLOGICAL ASPECTS. 3 Hours.**

An introduction to the biological components of environmental systems. Population dynamics, species interactions, community structure, biodiversity, bioenergetics, nutrient cycling and human impacts are reviewed. Focus will be on natural processes and their engineering applications.

**EVSE 5310. ENVIRONMENTAL SYSTEMS-CHEMICAL ASPECTS. 3 Hours.**

An introduction to the chemistries of air at different altitudes, of water systems and of soils. Chemical and physico-chemical processes at phase boundaries, modeling for kinetics and mass transport, analytical techniques and disposal and recycling are included as well as their impact on engineering decisions.

**EVSE 5311. ENVIRONMENTAL SYSTEMS-GEOLOGICAL ASPECTS. 3 Hours.**

Introduction to the tectonic, volcanic, atmospheric, climatic, hydrologic and geochemical processes and natural hazards of the earth, and their interaction with political, economic and engineering decisions.

**EVSE 5315. PROFESSIONAL EXPERIENCE. 3 Hours.**

Provides credit to students participating in an approved internship or part-time work experience.

**EVSE 5320. TOXICOLOGY. 3 Hours.**

An introduction to the general principles of toxicology with an emphasis on certain classes of toxic agents, their sources and toxic effects, as well as their environmental fate. Prerequisite: CHEM 2322.

**EVSE 5321. HEALTH RISK ASSESSMENT. 3 Hours.**

An introduction to health considerations relevant to environmental projects. Prepares students to take the Registered Environmental Health Specialist Examination.

**EVSE 5322. ENVIRONMENTAL RISK ASSESSMENT. 3 Hours.**

An introduction to the health assessment process, presenting methodologies and guidelines for conducting health assessments.

**EVSE 5323. ISSUES IN ENVIRONMENTAL HEALTH. 3 Hours.**

An introduction to health issues of current concern resulting from environmental exposures. Topics include: environmental asthma, endocrine disruptors, climate change and health, emerging contaminants, nanotechnology and health, airborne particles and pediatric health.

**EVSE 5350. CONTAMINANT HYDROGEOLOGY. 3 Hours.**

Sources and types of various organic and inorganic contaminants; the physical, chemical, and biological factors and processes that affect the transport and fate of contaminants in the subsurface; non-aqueous phase liquids and multiphase flow; and various remedial techniques of contaminated sites. Prerequisite: GEOL 4320 or GEOL 5328 (or concurrent enrollment).

**EVSE 5351. GEOMORPHOLOGY AND QUATERNARY STRATIGRAPHY OF SEDIMENTARY SYSTEMS. 3 Hours.**

This course examines those physical processes that sculpt the surface of the Earth and result in deposition of sediments. Surface systems covered include weathering, mass wasting, rivers, shorelines, eolian processes, and glaciers. The course also examines the stratigraphic techniques used to decode the recent (2 million to present) stratigraphic record of these systems. Course is designed for geologists, biologists, and other fields concerned with interpreting and/or managing modern environments.

**EVSE 5352. OCEANOGRAPHY. 3 Hours.**

The many aspects of oceanography with special emphasis on physical oceanography and marine geology.

**EVSE 5394. INDIVIDUAL PROBLEMS IN ENVIRONMENTAL & EARTH SCIENCES. 3 Hours.**

Individual research projects supervised by a faculty member. Prerequisite: consent of instructor.

**EVSE 5395. MASTER'S PROJECT. 3 Hours.**

May be used as elective for students in non-thesis program. Graded F, P.

**EVSE 5398. THESIS. 3 Hours.**

Graded F, R.

**EVSE 5405. METEOROLOGY AND CLIMATOLOGY. 4 Hours.**

A quantitative approach to the study of the structure, energy, and motions of the atmosphere.

**EVSE 5698. THESIS. 6 Hours.**

Graded F, P, R.

**EVSE 5998. THESIS. 9 Hours.**

Graded F, P, R.

**EVSE 6100. SEMINAR IN ENVIRONMENTAL & EARTH SCIENCES. 1 Hour.**

Topics presented by faculty, students, and invited lecturers.

**EVSE 6197. RESEARCH IN ENVIRONMENTAL & EARTH SCIENCES. 1 Hour.**

Individually approved research projects. May be repeated for credit. Graded F, P, R.

**EVSE 6297. RESEARCH IN ENVIRONMENTAL & EARTH SCIENCES. 2 Hours.**

Individually approved research projects. May be repeated for credit. Graded F, P, R.

**EVSE 6397. RESEARCH IN ENVIRONMENTAL AND EARTH SCIENCES. 3 Hours.**

Individually approved research projects. May be repeated for credit. Graded F, P, R.

**EVSE 6399. DISSERTATION. 3 Hours.**

Graded F, R.

**EVSE 6697. RESEARCH IN ENVIRONMENTAL & EARTH SCIENCE. 6 Hours.**

Individually approved research projects. May be repeated for credit. Graded F, P, R.

**EVSE 6699. DISSERTATION. 6 Hours.**

Graded F, R, P, W.

**EVSE 6997. RESEARCH IN ENVIRONMENTAL & EARTH SCIENCE. 9 Hours.**

Individually approved research projects. May be repeated for credit. Graded F, P, R.

**EVSE 6999. DISSERTATION. 9 Hours.**

Graded F, P, R.

**EVSE 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Environmental and Sustainability (ESST)

### COURSES

**ESST 2300. INTRODUCTION TO ENVIRONMENTAL & SUSTAINABILITY STUDIES. 3 Hours.**

Introduces major topics, questions, issues and methods within interdisciplinary and cross-disciplinary environmental studies. Includes a study of some of the most significant texts, studies, practices, and creative works from at least four different fields as they pertain to questions of environment, ecology, and sustainability. Features guest lectures by faculty teaching courses within the Environmental & Sustainability Studies minor. Offered as ARCH 3354, ARCH 5354, and ESST 2300; credit will be granted only once. Prerequisites: ARCH 2303, ARCH 2304 and Junior standing in the program; restricted to Architecture and Interior Design majors. Students only seeking the minor in Environmental and Sustainability Studies must take ESST 2300.

## Exchange Courses (EXCH)

### COURSES

**EXCH 1191. EXCHANGE COURSE. 1 Hour.****EXCH 1291. EXCHANGE COURSE. 2 Hours.****EXCH 1391. EXCHANGE COURSE. 3 Hours.****EXCH 1491. EXCHANGE COURSE. 4 Hours.****EXCH 1591. EXCHANGE COURSE. 5 Hours.****EXCH 2191. EXCHANGE COURSE. 1 Hour.****EXCH 2291. EXCHANGE COURSE. 2 Hours.****EXCH 2391. EXCHANGE COURSE. 3 Hours.****EXCH 2491. EXCHANGE COURSE. 4 Hours.**

**EXCH 2591. EXCHANGE COURSE. 5 Hours.**

**EXCH 3191. EXCHANGE COURSE. 1 Hour.**

**EXCH 3291. EXCHANGE COURSE. 2 Hours.**

**EXCH 3391. EXCHANGE COURSE. 3 Hours.**

**EXCH 3491. EXCHANGE COURSE. 4 Hours.**

**EXCH 3591. EXCHANGE COURSE. 5 Hours.**

**EXCH 4191. EXCHANGE COURSE. 1 Hour.**

**EXCH 4291. EXCHANGE COURSE. 2 Hours.**

**EXCH 4391. EXCHANGE COURSE. 3 Hours.**

**EXCH 4491. EXCHANGE COURSE. 4 Hours.**

**EXCH 4591. EXCHANGE COURSE. 5 Hours.**

**EXCH 4691. EXCHANGE COURSE. 6 Hours.**

**EXCH 5291. EXCHANGE COURSE. 2 Hours.**

**EXCH 5391. EXCHANGE COURSE. 3 Hours.**

**EXCH 5491. EXCHANGE COURSE. 4 Hours.**

**EXCH 5691. EXCHANGE COURSE. 6 Hours.**

Study Abroad Program.

**EXCH 6391. EXCHANGE COURSE. 3 Hours.**

## **Executive Master of Business Administration (EMBA)**

### **COURSES**

**EMBA 5192. SPECIAL TOPICS IN ASIAN BUSINESS. 1 Hour.**

Topic/issue presentations and discussions contained in a seminar which examines state-owned enterprises, foreign-invested firms, and private business organizations in China.

**EMBA 5201. ASSESSING LEADER STYLE, BEHAVIOR, AND RESULTS. 2 Hours.**

Strength based leadership" recognizes that there are many different aspects of leadership such as an individual's personality, skills, experience, creativity, personal integrity, initiative, and environment. Using a battery of leadership assessment tests, participants will explore their own strengths (and weaknesses) and the impacts these have on their personal leadership style.

**EMBA 5205. UNDERSTANDING ETHICAL DIMENSIONS OF BUSINESS. 2 Hours.**

Leaders face many challenges. Not the least of these are the challenges that rapid growth, personal wealth, and stockholder/stakeholder pressures place on executives. This course explores these issues with emphasis on the ethics of managerial decision making, creating ethical environments for employees, establishing expected norms of behavior, and the consequences of unethical behavior.

**EMBA 5206. BUILDING AN INTELLIGENT AND INNOVATIVE ENTERPRISE. 2 Hours.**

Students investigate an organization's effort to build an intelligent and innovative enterprise, how to deploy strategic information technologies (IT), and how to launch IT-enabled new products and services. Students explore how strategic IT can help the organization to become structurally more competitive and culturally more innovative through the development of knowledge management systems.

**EMBA 5211. COMPETING IN A GLOBAL ENVIRONMENT. 2 Hours.**

With an ever-growing number of industries becoming global in scope, managers are being increasingly challenged to manage strategies within a global perspective. This course provides participants with the skills, knowledge and sensitivity required to successfully manage organizations and organizational units within a multinational environment.

**EMBA 5302. MANAGERIAL ECONOMICS IN THE GLOBAL BUSINESS ENVIRONMENT. 3 Hours.**

This module provides a detailed review of world economic development and international managerial economics. Multinational trade, international finance, and country economic development are critically examined using a comparative perspective, including gateways and barriers to entering country markets.

**EMBA 5303. OPTIMIZING QUALITY AND PROCESS WITH ACCOUNTING INFORMATION. 3 Hours.**

Modern tools for meeting the competing challenges of organizational cost minimization are explored within an environment that demands near-perfect quality standards. Emphasis is on leveraging accounting information for decision making, strategic management, and for the control of processes and organizations.



**EMBA 5304. MAKING STRATEGIC DECISIONS WITH FINANCIAL DATA. 3 Hours.**

Practical analytical skills needed to manage the financial and tangible resources of a firm are presented. Students gain exposure to the fundamentals of asset valuation models, financial forecasting, risk management, capital structure alternatives, cash flow management, reporting and disclosure issues, liability identification, and equity development.

**EMBA 5307. DESIGNING GLOBAL SUPPLY CHAINS FOR COMPETITIVE ADVANTAGE. 3 Hours.**

Students learn how to analyze logistics problems on a functional, business, and companywide basis and gain an understanding of the organizational structures used in logistics, how to select a multinational location site, how to configure global-scale facilities, and ways to develop international sourcing networks.

**EMBA 5308. CREATING CUSTOMER VALUE. 3 Hours.**

This course focuses on strategies and tactics to create customer value and build long term relationships to meet organizational goals. Students are exposed to tools that enable managers to understand the ever-changing marketplace and then build an effective marketing strategy to meet corporate goals. Not all customers are profitable or perhaps desirable. Customer management strategies to build marginal buyers into desired customers are also covered.

**EMBA 5309. ACCESSING CAPITAL MARKETS FOR GLOBAL OPERATIONS. 3 Hours.**

Effective utilization of capital markets, both domestic and foreign, is essential for a thriving firm. Leaders must be able to assess relative benefits and costs of both short-term and long-term sources of expansion capital not only within their home markets but also within the context of global markets. Evaluation of and access to foreign capital markets requires an understanding of characteristics of international financial instruments, the operation and structure of foreign capital markets and fundamentals of measurement and management of foreign exchange exposure.

**EMBA 5310. DEVELOPING STRATEGIES FOR COMPETITIVE ADVANTAGE. 3 Hours.**

This course seeks to broaden students' perspectives of competitive strategy and encourage development and understanding of how firms create and reinforce a competitive advantage in the marketplace. Conceptual tools associated with the understanding of industry and industry dynamics are explained with the assessment of core competencies. Students learn how to evaluate key competitors in the formulation and implementation of "winning" strategies.

**EMBA 5312. BUILDING HIGH PERFORMANCE TEAMS. 3 Hours.**

One of the most difficult challenges that business leaders face is developing talented managers into a high performance executive team. This becomes even more critical in a multinational environment. This module focuses on the strategic management of human resources for building effective teams, retaining high performers, and managing people for gaining competitive advantage.

**EMBA 5413. EXPERIENCING THE GLOBAL ENVIRONMENT: INTERNATIONAL PROJECT. 4 Hours.**

A key factor in determining the ultimate success of a business plan to penetrate a global market is a thorough understanding of the local culture. Immersion in a culture is an excellent way to gain an appreciation of local customs and traditions. Students will create a business plan for a U.S.-based company to enter a foreign market and participate in a ten day to two week study abroad.

## Exercise and Sport Activity (EXSA)

### COURSES

**EXSA 0101. ARCHERY. 1 Hour.**

**EXSA 0105. BADMINTON. 1 Hour.**

**EXSA 0106. BRAZILIAN JIU-JITSU. 1 Hour.**

This course is designed to provide students instruction in the art of Brazilian jiu-jitsu as popularized in the Ultimate Fighting Championship (UFC). Techniques, as well as live grappling in both the Gi (traditional martial arts uniform) and No-Gi (shorts and T-shirt) format will be taught. Males and females of all skill levels are welcome. Come learn one of the most dynamic and effective martial arts in a comfortable and welcoming atmosphere with a national and international competitor.

**EXSA 0107. MARTIAL ARTS. 1 Hour.**

**EXSA 0108. BASKETBALL. 1 Hour.**

**EXSA 0120. BOWLING. 1 Hour.**

**EXSA 0140. GOLF. 1 Hour.**

**EXSA 0145. BEGINNING FENCING. 1 Hour.**

**EXSA 0154. FITNESS WALK. 1 Hour.**

**EXSA 0156. JOGGING FOR FITNESS. 1 Hour.**

**EXSA 0157. AEROBIC DANCE. 1 Hour.**

**EXSA 0159. EXERCISE AND SPORT FOR THE HANDICAPPED. 1 Hour.**

**EXSA 0160. STEP AEROBICS. 1 Hour.**

**EXSA 0163. YOGA. 1 Hour.**

**EXSA 0164. CARDIO KICKBOXING. 1 Hour.**

**EXSA 0165. PILATES. 1 Hour.**

This course is designed to improve muscular strength, endurance, flexibility, posture and overall joint mobility as well as stress reduction techniques. Students will be provided with a basic working knowledge of Pilates positions, the benefits associated with Pilates, and knowledge to all students the basic skills needed to pursue independent training as part of their lifetime fitness program.

**EXSA 0166. RACQUETBALL. 1 Hour.**

**EXSA 0167. SOCCER. 1 Hour.**

**EXSA 0168. INTERMEDIATE YOGA. 1 Hour.**

Previous yoga experience preferred but not required.

**EXSA 0169. ADVANCED PILATES. 1 Hour.**

This course is designed to improve muscular strength, endurance, flexibility, posture, and overall joint mobility as well as stress reduction techniques. Students will be provided with an advanced working knowledge of Pilates positions, the benefits associated with Pilates, and knowledge of the advanced skills needed to pursue independent training as part of a lifetime fitness program.

**EXSA 0170. SWIMMING: BEGINNING. 1 Hour.**

**EXSA 0171. WATER POLO. 1 Hour.**

**EXSA 0172. SWIMMING FOR FITNESS. 1 Hour.**

**EXSA 0174. WATER AEROBICS. 1 Hour.**

**EXSA 0175. BODY SCULPTING/CORE STRENGTH. 1 Hour.**

This course is designed to improve total body muscular strength and flexibility. This is an all over body workout using a variety of exercise equipment such as hand weights, tubing, stability balls, balance boards, bosu, and bars. Students will be provided with a basic working knowledge of proper biomechanics, anatomy, nutrition, and the benefits associated with long term strength training.

**EXSA 0176. ZUMBA INTERVAL TRAINING. 1 Hour.**

Zumba fuses hypnotic Latin rhythms and easy to follow moves to create a dynamic workout system. Zumba students achieve long term benefits while experiencing an absolute blast in one exhilarating class of caloric-burning, heart-racing, muscle-pumping, body-energizing, awe-inspiring movements meant to engage and captivate for life!

**EXSA 0177. TENNIS. 1 Hour.**

**EXSA 0178. TENNIS: ADVANCED. 1 Hour.**

**EXSA 0180. VOLLEYBALL. 1 Hour.**

**EXSA 0181. VOLLEYBALL: ADVANCED. 1 Hour.**

**EXSA 0184. WEIGHT TRAINING. 1 Hour.**

**EXSA 0189. INTERCOLLEGIATE ATHLETICS. 1 Hour.**

**EXSA 0191. DESIGNATED ACTIVITIES. 1 Hour.**

**EXSA 1116. PACE: EXERCISE AT YOUR OWN PACE. 1 Hour.**

Exercise and conditioning class for all levels of activity emphasizing individual physical needs and adapting exercise to meet those needs. For additional information: pmaxmwell@uta.edu.

**EXSA 1118. BOOT CAMP AEROBICS. 1 Hour.**

Boot camp aerobics.

**EXSA 1119. CO-ED SELF DEFENSE. 1 Hour.**

Co-ed Self Defense.

**EXSA 1220. LIFEGUARD TRAINING. 2 Hours.**

**EXSA 1246. SELF DEFENSE FOR WOMEN. 2 Hours.**

**EXSA 1247. EXERCISE & WEIGHT MANAGEMENT. 2 Hours.**

This class is designed to provide students with the practical skills and knowledge involving exercise and weight management. Along with a variety of fun and exciting exercise activities, fundamental nutrition and behavior/environmental modification techniques will also be discussed. Additional information: mevans@uta.edu.

**EXSA 1249. SCUBA DIVING. 2 Hours. (TCCN = PHED 1251)**

**EXSA 1259. ADVANCED SCUBA. 2 Hours. (TCCN = PHED 1252)**

## **Exercise and Sport Studies (EXSS)**

## COURSES

**EXSS 1117. PHYSICAL COND. 1 Hour.**

**EXSS 1120. TRACK & FIELD. 1 Hour.**

**EXSS 1214. BIOPH PR HU MV. 2 Hours.**

**EXSS 1225. APP EXER & MVT. 2 Hours.**

**EXSS 2220. LIFEGRD INSTR. 2 Hours.**

**EXSS 2287. RHYTHMS & DANCE. 2 Hours.**

**EXSS 2288. DEVLOP MTR ACT. 2 Hours.**

**EXSS 2289. TRANS MTR ACT. 2 Hours.**

**EXSS 2290. EX SPT ACT PRC. 2 Hours.**

**EXSS 2331. STAGE MOVEMENT. 3 Hours.**

**EXSS 3210. DANCE IMPROVIS. 2 Hours.**

**EXSS 3220. LIFEGRD TRAIING. 2 Hours.**

**EXSS 3312. DANCE HISTORY. 3 Hours.**

**EXSS 4121. PRAC ADOLESNTS. 1 Hour.**

**EXSS 4196. SPEC TOP EX SP. 1 Hour.**

**EXSS 4210. CHOREOGRAPHY. 2 Hours.**

**EXSS 4310. DANCE PRODUCTN. 3 Hours.**

**EXSS 4312. INTEG DNC PRNS. 3 Hours.**

**EXSS 4332. CHOREOGRAPHY. 3 Hours.**

## Finance (FINA)

### COURSES

**FINA 2330. MONEY, FINANCE AND THE MODERN CONSUMER. 3 Hours.**

An analysis of consumer and financial behavior in present-day society. Against this backdrop, students understand how consumption choices define one's identity in society and understand the importance of value-oriented financial goals for the wellbeing of individuals, families, and society at large. Students also develop the critical-thinking and quantitative decision-making skills needed for responsible spending and financial choices.

**FINA 3313. BUSINESS FINANCE. 3 Hours.**

Emphasizes the financing and investment decisions of the financial manager. Topics include financial statement analysis, working capital management, capital budgeting, long-term financing, and international finance. Prerequisite: ECON 2306, ACCT 2302, MATH 1316 (or permission of instructor), and 60 credit hours.

**FINA 3315. INVESTMENTS. 3 Hours.**

Principles governing the proper investment of personal and institutional funds, information sources, security analysis, exchanges and regulations. Formerly FINA 4313; credit will be granted only once. Prerequisite: ECON 2306, ACCT 2302, and 60 credit hours.

**FINA 3317. FINANCIAL INSTITUTIONS AND MARKETS. 3 Hours.**

The structure of financial institutions and markets in the United States and their interactions. How and why the institution has evolved, how it fits within the financial system, how it operates, what is its current impact, and what may its future role be. Formerly FINA 4314; credit will be granted only once. Prerequisite: ECON 2306, ACCT 2302, and 60 credit hours.

**FINA 4191. STUDIES IN FINANCE. 1 Hour.**

Advanced studies, on an individual basis, in the various fields of finance. Prerequisite: 90 credit hours and permission of department. May be repeated for credit with consent of department chair.

**FINA 4291. STUDIES IN FINANCE. 2 Hours.**

Advanced studies, on an individual basis, in the various fields of finance. Prerequisite: 90 credit hours and permission of department. May be repeated for credit with consent of department chair.

**FINA 4311. MONEY AND CAPITAL MARKETS. 3 Hours.**

This in-depth analysis of the development, characteristics, and significance of money and capital markets explores how the markets interrelate, interact, and impact the financing/investment decisions that are the basis of finance. Prerequisite: FINA 3313.

**FINA 4315. ADVANCED BUSINESS FINANCIAL ANALYSIS. 3 Hours.**

To develop an ability to recognize financial problems, analyze financial data, formulate alternative solutions, and render financial decisions. Case materials are used in studying financial problems. Management of investment in current and fixed assets, planning of profits, forecasting of cash requirements, capital budgeting, planning of methods of financing and capital structure, dividend policy, valuation of assets, and mergers. Prerequisite: FINA 3313.

**FINA 4318. PORTFOLIO MANAGEMENT AND SECURITY ANALYSIS. 3 Hours.**

This course develops an understanding of portfolio management and security analysis by focusing on the analytical techniques and empirical results of investment theorists and practitioners. Risk, efficiency, diversification, fundamental analysis, and technical analysis as they apply to corporate finance, international finance, and investments will be examined. Prerequisite: FINA 3313.

**FINA 4319. FINANCIAL DERIVATIVES. 3 Hours.**

Topics included in this course are an introduction to options and futures markets, investment and risk management strategies using these derivative products, and pricing of options and futures contracts. Additional coverage includes basic swap agreements, exotic options, and corporate risk management. Prerequisite: FINA 3313.

**FINA 4320. CAPITAL BUDGETING. 3 Hours.**

Development of the logic and methodology of the capital budgeting decision. Measurement of cash flows, present value techniques, evaluation of capital investments, ranking of capital investments, analysis of risk, and administration of capital investments. Prerequisite: FINA 3313.

**FINA 4324. INTERNATIONAL CORPORATE FINANCE. 3 Hours.**

Issues and questions which concern financial management of international corporations. Analysis of the financing of investment abroad and the management of assets in differing financial environments. The foreign investment decision, cost of capital and financial structure for multinational decision making, management of foreign subsidiary working capital, and financial control of multinational operations. Prerequisite: FINA 3313.

**FINA 4331. SEMINAR IN FINANCE. 3 Hours.**

Readings and discussion of special topics in Finance. Prerequisite: Junior or senior standing and consent of instructor. May be repeated for credit with consent of department chair.

**FINA 4351. FINANCIAL MODELING. 3 Hours.**

The focus is on computer applications in the major areas of finance. Financial Modeling integrates financial theory and practice through software-driven hands-on experience. Students will learn how to utilize financial concepts and practice within a software framework. Core concepts are drawn from corporate finance, investments, and financial institutions and markets. Examples of topics include: financial statement forecasting and consolidation, mergers and acquisitions, statistical approaches in finance, the Capital Asset Pricing Model, portfolio analysis, predictive models of different risk categories, bond and stock valuation, and market interest rate behavior. Learning is enhanced using a lecture-lab format. Prerequisite: FINA 3313.

**FINA 4391. STUDIES IN FINANCE. 3 Hours.**

Advanced studies, on an individual basis, in the various fields of finance. Prerequisite: 90 credit hours and permission of department. May be repeated for credit with consent of department chair.

**FINA 4393. FINANCE INTERNSHIP. 3 Hours.**

Practical training in finance. Analysis of theory applied to real life situations. May be used as an advanced business elective only; graded on a pass/fail basis. No credit will be given for previous experience or activities. May not be repeated for credit. Prerequisite: FINA 3313, 60 credit hours, and consent of department internship advisor.

**FINA 5182. INDEPENDENT STUDIES IN FINANCE. 1 Hour.**

Extensive analysis of a finance topic. Prerequisite: consent of instructor and department chair.

**FINA 5199. GRADUATE FINANCE INTERNSHIP. 1 Hour.**

Practical training in finance. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**FINA 5299. GRADUATE FINANCE INTERNSHIP. 2 Hours.**

Practical training in finance. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**FINA 5311. BUSINESS FINANCIAL MANAGEMENT. 3 Hours.**

Study of providing the organization with funds necessary for its operation and of achieving effective utilization of funds. Primary emphasis on financial decision-making within organizations, and techniques of financial analysis and forecasting. Prerequisite: ACCT 5301 or departmental permission.

**FINA 5315. HEALTH CARE FINANCIAL MANAGEMENT. 3 Hours.**

Analysis of financial problems with an emphasis on the application of financial management principles and concepts to health care organizations.

**FINA 5323. INVESTMENTS. 3 Hours.**

Application of principles and techniques of investment management in solving investment problems of individuals and financial institutions. Considers apportionment of investment funds among alternatives, analysis of risk, valuation timing of security acquisitions. Prerequisite: FINA 5311.

**FINA 5327. FINANCIAL DERIVATIVES. 3 Hours.**

Nature and functions of the various futures and options markets; hedging for risk reduction, speculative trading for profit; the role of futures and options in overall portfolio strategy, along with fundamental concepts such as basis, spreading, normal and inverted markets and money management. Prerequisite: FINA 5311 and FINA 5323.

**FINA 5329. PORTFOLIO AND SECURITY ANALYSIS. 3 Hours.**

The use of economic and accounting data in the selection of securities. Examination of current and traditional techniques used by investment practitioners. Prerequisite: FINA 5311 and FINA 5323.

**FINA 5330. REAL OPTIONS. 3 Hours.**

Option approaches to evaluating firm capital budgeting decisions. Techniques for making investment decisions involving physical assets of nonfinancial firms. Prerequisite: FINA 5311.

**FINA 5331. INTERNATIONAL FINANCE. 3 Hours.**

Examines ways in which financial decision-making processes are altered by operation in a multinational environment. Includes the effects of devaluation expectations, foreign exchange and investment controls. Also, case study materials related to actual decisions by multinational firms. Prerequisite: FINA 5311.

**FINA 5334. FINANCIAL INSTITUTIONS AND MARKETS. 3 Hours.**

An examination of major financial institutions and markets with emphasis on trends affecting the current operations, competitive position, and overall future of the primary financial intermediaries and the financial markets. Prerequisite: FINA 5311.

**FINA 5340. FINANCIAL APPLICATIONS. 3 Hours.**

Analysis of financial problems of business concerns, presented in case materials. Considers determination of capital needs, choosing among alternative capital investments, planning methods of financing new capital expenditures, and planning recapitalizations, mergers, and reorganizations. Prerequisite: FINA 5311.

**FINA 5350. MATHEMATICAL FINANCE. 3 Hours.**

Intensive review of the mathematics necessary for graduate work in finance, with application to selected areas of business finance, investment analysis and financial markets. Prerequisite: FINA 5311.

**FINA 5351. SEMINAR IN FINANCIAL MODELING. 3 Hours.**

Study of common financial modeling techniques are explored in this course. The primary focus is on portfolio optimization models and models used for pricing and analyzing derivative stock options, although most of these techniques have other applications. Students are provided with the opportunity to develop the skills needed to build financial models of their own. Prerequisite: FINA 5311.

**FINA 5382. INDEPENDENT STUDIES IN FINANCE. 3 Hours.**

Extensive analysis of a finance topic. Prerequisite: departmental permission.

**FINA 5392. SELECTED TOPICS IN FINANCE. 3 Hours.**

In depth study of selected topics in finance. May be repeated when topics vary. Prerequisite: departmental permission.

**FINA 5398. THESIS. 3 Hours.**

Thesis. FINA 5398 graded R (Research) or F only. Prerequisite: STAT 5325 and approval of Graduate Advisor.

**FINA 5399. GRADUATE FINANCE INTERNSHIP. 3 Hours.**

Practical training in finance. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**FINA 5698. THESIS. 6 Hours.**

Thesis. Prerequisite: STAT 5325 and approval of Graduate Advisor.

**FINA 6192. RESEARCH IN FINANCE. 1 Hour.**

Independent study of advanced topics in finance under the direction of graduate faculty. May be repeated for credit when topics vary. Prerequisite: FINA 5311.

**FINA 6292. RESEARCH IN FINANCE. 2 Hours.**

Independent study of advanced topics in finance under the direction of graduate faculty. May be repeated for credit when topics vary. Prerequisite: FINA 5311.

**FINA 6301. SEMINAR IN THE THEORY OF FINANCE. 3 Hours.**

Development of the fundamental theories of modern finance from their microeconomic origins. Topics include: investment under uncertainty, asset pricing models, market equilibrium, market efficiency, and expected utility theory. Prerequisite: FINA 5311.

**FINA 6311. SEMINAR IN THE THEORY OF CORPORATE FINANCE. 3 Hours.**

Advanced theory of corporate finance. Capital budgeting, dividend policy, and capital structure. Prerequisite: FINA 5311.

**FINA 6312. SEMINAR IN THE THEORY OF INVESTMENTS. 3 Hours.**

Advanced theory of investments. Modern portfolio theory and the efficiency of capital markets. Prerequisite: FINA 5311.

**FINA 6313. ADVANCED RESEARCH IN FINANCE. 3 Hours.**

Analytical methods commonly applied in the academic finance literature. Topics such as factor analysis in arbitrage pricing models and techniques for identification of nonstationarities in risk. Prerequisite: FINA 5311 and STAT 5301.

**FINA 6314. ADVANCED RESEARCH IN FINANCE II. 3 Hours.**

Specialized and evolving techniques in financial research; topics such as identification of efficient markets, linear programming in capital budgeting, and multiple discriminant analysis in bankruptcy prediction and bond rating models. Prerequisite: FINA 5311 and STAT 5301.

**FINA 6390. SEMINAR IN SPECIAL TOPICS IN FINANCE. 3 Hours.**

Doctoral level coverage of advanced topics in finance. May be repeated for credit when topics vary. Prerequisite: FINA 5311.

**FINA 6392. RESEARCH IN FINANCE. 3 Hours.**

Independent study of advanced topics in finance under the direction of graduate faculty. May be repeated for credit when topics vary. Prerequisite: FINA 5311.

## **First Year Seminar - Art (FS-ART)**

### **COURSES**

**FS-ART 1300. FIRST YEAR SEMINAR IN ART. 3 Hours.**

This is a required course intended to establish a solid overview of the Art and Art History Department for all first semester UTA students who intend to declare a studio art or art history major. Topics for the class can include: visiting artist speakers, attendance of exhibitions, writing assignments, surviving the advising process and concentration portfolio review, and library resources. Other topics may be discussed. This course may only be taken once for credit.

## **First Year Seminar - Biology (FS-BIOL)**

### **COURSES**

**FS-BIOL 1300. FIRST YEAR SEMINAR IN BIOLOGY. 3 Hours.**

Special Topics in Biology taught in conjunction with college transitions skills. Topics may include: current research in the field of biology, critical thinking and active learning skills, engagement with UTA community. Only offered as a First Year Seminar for incoming first-year students. May not be repeated for credit.

## **First Year Seminar - Business (FS-BUSA)**

### **COURSES**

**FS-BUSA 1300. BUSINESS DECISION MAKING - PLANNING, ETHICS, SUSTAINABILITY, AND AGILITY. 3 Hours.**

Special topics in business. taught in conjunction with college transition skills. Students are exposed to broad and integrative business knowledge as they learn to lead and manage teams while creating a business plan. The business decisions they make focus on value added offerings and are crafted in a culture of ethical, sustainable, and agile business activity. The written business plans are evaluated by business professionals. Students then compete for various financial and non-financial awards by presenting their plans to the business community in a business exhibition venue called the Sustainable Business Challenge. Only offered as a first year seminar for incoming first year students. May not be repeated for credit.

## **First Year Seminar - Communications (FS-COMM)**

### **COURSES**

**FS-COMM 1300. FIRST YEAR SEMINAR IN COMMUNICATION. 3 Hours.**

Special topics in communication taught in conjunction with college transition skills. Topic will vary with instructor. Focus on issues in communication studies and mass communication, development of critical thinking and active learning skills, and engagement with the UTA community. Only offered as a First Year Seminar for incoming first-year students. May not be repeated for credit.

## **First Year Seminar - Criminal Justice (FS-CRCJ)**

### **COURSES**

**FS-CRCJ 1300. FIRST YEAR SEMINAR IN CRIMINOLOGY AND CRIMINAL JUSTICE. 3 Hours.**

Special topics in Criminology and Criminal Justice taught in conjunction with college transition skills. Topics may include any subject in criminology and criminal justice, along with critical thinking and active learning skills, as well as engagement with the UTA community. Only offered as a First Year Seminar for incoming first-year students. It may not be repeated for credit.

## **First Year Seminar - English (FS-ENGL)**

### **COURSES**

**FS-ENGL 1300. FIRST YEAR SEMINAR IN ENGLISH. 3 Hours.**

Special topics in English in conjunction with college transition skills. Topics may include: "Food, Language, and Literature," "Remix Culture," and others. Critical thinking, active learning skills, and engagement with UTA community. Only offered as a First Year Seminar for incoming first-year students.

## First Year Seminar - History (FS-HIST)

### COURSES

#### **FS-HIST 1300. FIRST YEAR SEMINAR IN HISTORY. 3 Hours.**

Special topics in history taught in conjunction with college transition skills. Topic will vary with instructor. Focus on use of historical materials, development of critical thinking and active learning skills, and engagement with the UTA community. Only offered as a First Year Seminar for incoming first-year students. May not be repeated for credit.

## First Year Seminar - Management (FS-MANA)

### COURSES

#### **FS-MANA 1300. FIRST YEAR SEMINAR IN MANAGEMENT. 3 Hours.**

Special topics in management taught in conjunction with college transition skills. Topic will vary with instructor. This course will focus on preventive stress management, good stress (motivation), leadership and stress, and newcomer socialization. Only offered as a First Year Seminar for incoming first-year students. May not be repeated for credit.

## First Year Seminar - Math (FS-MATH)

### COURSES

#### **FS-MATH 1300. FIRST YEAR SEMINAR IN MATHEMATICS. 3 Hours.**

Special topics in mathematics taught in conjunction with college transition skills. Topics may include mathematical games and logic, concepts on counting and infinity, different types of arithmetic, the Golden Rectangle, Fibonacci numbers in nature, geometric patterns and symmetry, knots, fractals, chaos, voting schemes and statistics, and modern topics in pure and applied mathematics. Includes a study of the relevance and utility of mathematics in everyday activities and modern society, including critical thinking, active learning, effective communication, and engagement within the UTA community. Only offered as a First Year Seminar for incoming first-year students. May not be repeated for credit.

## First Year Seminar - Modern Languages (FS-MODL)

### COURSES

#### **FS-MODL 1300. FIRST YEAR SEMINAR IN MODERN LANGUAGES. 3 Hours.**

First Year Seminar. Special topics in Modern Languages in conjunction with college transition skills. Topics include, but are not limited to: Language and literary/cultural studies relating to Arabic, Chinese, French, German, Russian, Spanish and other languages, critical thinking and active learning skills, and engagement with UTA community. Only offered as a First Year Seminar for incoming first-year students.

## First Year Seminar - Nurse (FS-NURS)

### COURSES

#### **FS-NURS 1300. INTRODUCTION TO PROFESSIONAL NURSING. 3 Hours.**

Designed to introduce and transition the freshman and transfer pre-nursing student to the language of nursing, critical thinking, the essential academic skills for incoming students and the interpersonal skills required for success in nursing school and the nursing profession. Selected concepts and processes for professional nursing will be included in the course, including an introduction to nursing's theoretical, philosophical, ethical and legal dimensions.

## First Year Seminar - Theater (FS-THEA)

### COURSES

#### **FS-THEA 1300. FIRST YEAR SEMINAR IN THEATRE ARTS. 3 Hours.**

Special topics in Theatre Arts taught in conjunction with college transitions skills. Topics may include: the theatrical experience in front of and/or behind the curtain, and/or other theatre related topics, critical thinking and active learning skills, engagement with UTA community. Only offered as a First Year Seminar for incoming first-year students. May not be repeated for credit.

## First Year Seminar - University Studies (FS-UNIV)

**COURSES****FS-UNIV 1300. UNIVERSITY FIRST YEAR SEMINAR. 3 Hours.**

Seminar taught by faculty across campus on a topic of interest or professional development. Within the framework of research-based content, students will learn foundational skills that will assist them in developing critical thinking, self-management, and study skills as well as their transition to UT Arlington.

**First Year Seminar -Philosophy (FS-PHIL)****COURSES****FS-PHIL 1300. FIRST YEAR SEMINAR. 3 Hours.**

Special topics in philosophy taught in conjunction with college transition skills. Topic will vary with instructor. Focus on use of philosophical materials, development of critical thinking and active learning skills, and engagement with the UTA community. Only offered as a First Year Seminar for incoming first-year students. May not be repeated for credit.

**French (FREN)****COURSES****FREN 1441. BEGINNING FRENCH I. 4 Hours. (TCCN = FREN 1411)**

Multimedia immersion in the culture and language of French-speaking countries. Designed to enable students to understand and communicate effectively in French at the beginning level. No prerequisites.

**FREN 1442. BEGINNING FRENCH II. 4 Hours. (TCCN = FREN 1412)**

Continuation of beginning French. Prerequisite: FREN 1441 with a grade of C or better.

**FREN 2301. TOPICS IN FRENCH LITERATURE IN TRANSLATION. 3 Hours.**

Study of the works of major authors and intellectual trends of a given period or periods. May be repeated for credit as topics or periods vary. FREN 2301 may be taken to fulfill the foreign language literature requirement. Prerequisite: ENGL 1301 and ENGL 1302 with a grade of C or better.

**FREN 2313. INTERMEDIATE FRENCH I. 3 Hours. (TCCN = FREN 2311)**

Continued immersion in the culture and language of French -speaking countries. Application of strategies and technology in mastering listening, speaking, reading, and writing at the intermediate level. Prerequisite: FREN 1442 with a grade of C or better.

**FREN 2314. INTERMEDIATE FRENCH II. 3 Hours. (TCCN = FREN 2312)**

Continuation of intermediate French. Prerequisite: FREN 2313 with a grade of C or better.

**FREN 2391. INDEPENDENT STUDY. 3 Hours.**

Prerequisite: Permission.

**FREN 3300. PHONOLOGY & PRONUNCIATION. 3 Hours.**

This course provides a practical introduction to sound patterns in standard, metropolitan French, stressing the acquisition of pronunciation. Students will also be introduced to theoretical aspects of French phonetics and phonology. Not open to native and heritage speakers of French. Prerequisite: FREN 2314 with a grade of C or better.

**FREN 3303. ADVANCED FRENCH CONVERSATION. 3 Hours.**

Practice in oral expression with an introduction to practical phonetics and vocabulary building. Of special interest to students who wish to improve their skill in pronunciation, comprehension, and oral expression. Credit will not be granted to native speakers of French. Prerequisite: FREN 2314 with a grade of C or better.

**FREN 3304. GRAMMAR AND COMPOSITION. 3 Hours.**

Introduction to the analysis of literary texts with emphasis on reading comprehension, grammar, writing skills and compositional techniques. Lab attendance required. Strongly recommended prior to FREN 3311, FREN 3312, and 4000 level courses. Credit will not be granted to native or heritage speakers of French. Prerequisite: FREN 2314 with a grade of C or better.

**FREN 3305. FRENCH CULTURE AND CIVILIZATION. 3 Hours.**

Historical development of the social, institutional, intellectual, and artistic life of France from inception to the present. Credit will not be granted to native or heritage speakers of French. Prerequisite: FREN 2314 with a grade of C or better.

**FREN 3310. INTRODUCTION TO LITERATURE. 3 Hours.**

Principles of literary analysis pertaining to genre, concepts of literary structure, language, and criticism through examination of selected works. Prerequisite: FREN 2314 with a grade of C or better.

**FREN 3311. FRENCH LITERATURE AND CULTURE I. 3 Hours.**

The main currents of French literature, art, and thought from the Middle Ages through the 18th century in relation to French political and social history. Prerequisite: FREN 2314 with a grade of C or better.



**FREN 3312. FRENCH LITERATURE AND CULTURE II. 3 Hours.**

The main currents of French literature, art, film, and thought of the 19th and 20th Centuries in relation to French political and social history. Prerequisite: FREN 2314 with a grade of C or better.

**FREN 3316. TOPICS IN CITIES OF FRANCE. 3 Hours.**

Study of the representation of place, as a geographical, political and cultural construct, in literature, the visual arts (including film), and the media. Topics may include the city, various regions of France, the metro, public spaces, various institutions. May be repeated for credit when content changes. Prerequisite: FREN 2314 with a grade of C or better.

**FREN 3318. PROBLEMS OF IDENTITY. 3 Hours.**

Study of the individual and/or group from the Middle Ages to the present. Topics may include the child, the bourgeoisie, the immigrants, the courtesan. May be repeated for credit when content changes. Prerequisite: FREN 2314 with a grade of C or better.

**FREN 3320. LOCALIZATION AND TRANSLATION I. 3 Hours.**

Introduction to cultural and linguistic issues in the translation of French language texts. Students will explore current technologies used in various real-world translation contexts and how to adapt texts, products, and services to the locale for which they are intended. Prerequisite: FREN 2314 with a grade of B or better.

**FREN 3321. LOCALIZATION AND TRANSLATION II. 3 Hours.**

Continued study of cultural and linguistic issues in the translation of French and English language texts. Systematic development of advanced skills in localization and computer-aided translation and in using TMX/TBX (international standards for translation memory and terminology exchange) tools. Translation practice, individually and in translation teams, with increasingly longer and more specialized texts. Prepares localization and translation specialists for real-world careers in the language-services industry. May be repeated once. Prerequisite: FREN 3320 with a grade of B or better.

**FREN 3391. CONFERENCE COURSE. 3 Hours.**

Independent study; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: Permission.

**FREN 4314. ADVANCED FRENCH GRAMMAR AND COMPOSITION. 3 Hours.**

A detailed study of French grammar with practice in composition requiring original themes, essays, and research papers. An overview of the history of the French language and the influences of other languages and cultures on its evolution. Recommended for senior French majors. Prerequisite: FREN 3304, FREN 3311 or FREN 3312 with a grade of C or better.

**FREN 4318. INTRODUCTION TO FRENCH LINGUISTICS. 3 Hours.**

An introductory course on the linguistic structure of modern standard French, including phonology, morphology and syntax. Prerequisite: Any two 3000 level French courses with a grade of C or better. FREN 3300 is strongly recommended before taking FREN 4318.

**FREN 4322. STUDIES IN THE SEVENTEENTH CENTURY. 3 Hours.**

Political and artistic climate of a defining period in French culture. Classical doctrine and literature. FREN 3311 with a grade of C or better.

**FREN 4324. TOPICS IN NINETEENTH-CENTURY FRENCH STUDIES. 3 Hours.**

Major currents such as Romanticism, Realism, and Impressionism in literature and art. Emphasis on bourgeois tastes and institutions, the role of capitalism in the development of culture, and the commercial and representational construction of leisure. May be repeated for credit when content changes. Prerequisite: FREN 3312 with a grade of C or better.

**FREN 4325. TOPICS IN 18TH CENTURY FRENCH STUDIES. 3 Hours.**

Major currents such as Sensibility, Libertinism, the Republic of Letters, Exoticism, and Orientalism in literature and art. Patterns of French thought comprising the Enlightenment leading to the Revolution. May be repeated for credit when content changes. Prerequisite: FREN 3311 or FREN 3312 with a grade of C or better.

**FREN 4328. TOPICS IN TWENTIETH-CENTURY FRENCH STUDIES. 3 Hours.**

Cultural and literary output of France before and after the Second World War. Patterns of French thought, writing, and self-representation, New Europe, decolonization, and nationalism through various media. May be repeated for credit when content changes. Prerequisite: FREN 3312 with a grade of C or better.

**FREN 4332. STUDIES IN MEDIEVAL AND RENAISSANCE CULTURE. 3 Hours.**

Readings in modern French of Medieval and Renaissance French literature. Works include the adventures of King Arthur and the Knights of the Round Table, Gargantua, reflections on the self, friendship, education, and the "Other" in Montaigne's Essais, and the love poems of Ronsard. Emphasis on the importance of religion, the evolution and the meaning of cathedrals and monasteries, and the effect of the discovery of the "New World" on perceptions of self and of community. Prerequisite: FREN 3311 with a grade of C or better.

**FREN 4334. CONTEMPORARY FRENCH CULTURE. 3 Hours.**

Social, political, and economic structures in France, with focus on current events relevant to the Francophone world. Prerequisite: two 3000-level courses or equivalent (FREN 3312 and FREN 3315 are strongly recommended) with a grade of C or better, or a knowledge of the language and consent of the instructor.

**FREN 4335. BUSINESS FRENCH. 3 Hours.**

Students learn to function in French in business environments, with emphasis on writing business letters, conducting telephone conversations and business meetings, using terminology for transactions in places such as banks, post offices, airports, and hotels. Video segments and interactive computer packages are used extensively to reinforce vocabulary and knowledge acquired through lectures, translations, and readings. Prerequisite: FREN 3515 and one additional 3000- or 4000-level course or equivalent (FREN 3304, FREN 3311, FREN 4314 strongly recommended) with a grade of C or better, or a knowledge of the language and the consent of the instructor.

**FREN 4338. SELECTED TOPICS IN FRENCH LITERATURE OR CULTURE. 3 Hours.**

May be repeated for credit when topic changes.

**FREN 4339. ACQUISITION OF FRENCH. 3 Hours.**

Theory and practice of language acquisition. Techniques needed to understand and analyze the sounds, vocabulary, and grammar of the French language. Primarily for students seeking teacher certification.

**FREN 4391. CONFERENCE COURSE. 3 Hours.**

Independent study in the preparation of a paper on a research topic and consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: Permission.

**FREN 4394. HONORS THESIS / SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department. May not be repeated for credit.

**FREN 5101. TEACHING PRACTICUM I. 1 Hour.**

Required of all teaching assistants in French in their first semester. May not be counted toward a master's degree. Graded P/F/R.

**FREN 5102. TEACHING PRACTICUM II. 1 Hour.**

Required of all teaching assistants in French in their second semester. May not be counted toward a master's degree. Graded P/F/R.

**FREN 5314. ADVANCED STYLISTICS. 3 Hours.**

Focuses on advanced problems of grammar and style, including syntax, morphology, semantics and stylistics. Surveys the history of the French language, including influences of other languages and cultures on its evolution. Attention given to pedagogical models and approaches as well as intensive composition practices.

**FREN 5316. MEDIEVAL AND RENAISSANCE LITERATURE AND CULTURE. 3 Hours.**

A study of the main currents of French literature and culture in their social, economic and political context through the representative genres of the period: epic verse, poetry, tales, fabliaux, comic narrative, and theatre to name a few.

**FREN 5317. 17TH AND 18TH CENTURY LITERATURE AND CULTURE. 3 Hours.**

A study of the main currents of French literature and culture in their social, economic and political context through the representative genres of the period: theatre, the romance, the novel, the portrait and maxim, the philosophic dialogue and tale, among others.

**FREN 5318. 19TH AND 20TH CENTURY LITERATURE AND CULTURE. 3 Hours.**

A study of the main currents of French literature and culture in their social, economic and political context through the representative genres of the period: theatre, the nouvelle, poetry, the novel, the anti-novel, etc.

**FREN 5320. TOPICS IN FRENCH LANGUAGE & LINGUISTICS. 3 Hours.**

Special studies in French language and linguistics not ordinarily covered by regular course offerings. Topics may include "Socio-Phonetics," "French Phonetics and Phonology," and "History of the French Language." May be repeated for credit when content changes.

**FREN 5321. TOPICS IN GENRES OF THE 17TH CENTURY. 3 Hours.**

Investigates ideology and practice through literature, the visual arts, music and other cultural "texts." Major topics may include "Versailles: Architecture, Literature, and Politics," "Jansenism and its Discontents: Pascal, Racine, de Lafayette," "Libertins: Masks and Counter Masks." May be repeated for credit when topic changes.

**FREN 5325. TOPICS IN GENRES OF THE 18TH CENTURY. 3 Hours.**

Studies oppositional discourse as expressed through the different genres (theatre, poetry, fiction, political and philosophical writings) popular in the 18th century as well as the role and the effect of these works in constituting the Republic of Letters. May be repeated for credit when topic changes.

**FREN 5330. TOPICS IN GENRES OF THE 19TH CENTURY. 3 Hours.**

Concentrates on literature, the visual arts, entertainment, and fashion as expressions of popular culture. The rise of the "petite bourgeoisie," social utopias, the rebuilding of Paris, and responses to modernity will be studied in such courses as "Paris and Its Subcultures," "Impressionism and the Bourgeoisie," "The Novel and the Body." May be repeated for credit when topic changes.

**FREN 5331. TOPICS IN GENRES OF THE 20TH CENTURY. 3 Hours.**

Focuses on the work of French and Francophone writers in the light of modernist and post-modernist aesthetics. Literature, art, architecture, music, film, video, television, and other forms of popular production are studied as reflections of an era in crisis. May be repeated for credit when topic changes.

**FREN 5338. TOPICS IN FRENCH CULTURE. 3 Hours.**

Survey of themes and structures on a range of topics such as "Women in/as Fiction," "Self and Society," & "Revolutions," "French Film." May be repeated for credit when topic changes.

**FREN 5391. CONFERENCE COURSE IN FRENCH LINGUISTICS, CULTURE, OR LITERATURE. 3 Hours.**

Graded R. Prerequisite: permission of Graduate Advisor. Course may be repeated for credit when the topic changes.

**FREN 5398. THESIS. 3 Hours.****FREN 5698. THESIS. 6 Hours.****FREN 5998. THESIS. 9 Hours.****FREN 6310. FRENCH STUDIES. 3 Hours.**

## Geography (GEOG)

### COURSES

**GEOG 1302. INTRODUCTION TO HUMAN GEOGRAPHY. 3 Hours.**

An introduction to geographical perspectives. An exploration of human activities from a local to a global scale. Emphasis on mapping and interpreting patterns and processes of human geography.

**GEOG 1303. WORLD REGIONAL GEOGRAPHY. 3 Hours.**

Survey of the geography of major world regions. Introduces global issues from a regional perspective with an emphasis on developing an understanding of the connections between and differences among world regions.

**GEOG 2401. WEATHER & CLIMATE. 4 Hours.**

Processes that control weather and climate. Methods of describing and forecasting weather. Predicting severe weather, tornadoes, hurricanes, and floods. Offered as GEOG 2401 and GEOL 2401; credit will be granted only once.

**GEOG 3304. HISTORICAL GEOGRAPHY OF THE UNITED STATES TO 1850. 3 Hours.**

The geography of the United States from the colonial era to 1850 with an emphasis on acquisition of geographic knowledge, cultural transfer and acculturation, spatial organization of societies, human-environment relationships, sectionalism, territorial expansion, and changing notions of territory, borderlands and boundaries. Course taught as HIST 3304 and GEOG 3304. Credit will be granted in only one department.

**GEOG 3305. HISTORICAL GEOGRAPHY OF THE UNITED STATES SINCE 1850. 3 Hours.**

The geography of the United States since 1850 with an emphasis on sectionalism, regional and national integration, urbanization, human-environment relationships, cultural landscapes, and evolving notions of territory, borderlands and frontiers. Course taught as HIST 3305 and GEOG 3305. Credit will be granted in only one department.

**GEOG 3350. READING THE LANDSCAPE. 3 Hours.**

How historians and geographers identify and interpret clues in the landscape (such as place names, architecture, vegetation, transportation, field and street patterns) that reflect historical change and its social, economic, environmental and geographic consequences. Offered as GEOG 3350 and HIST 3350; credit will be granted only once.

**GEOG 3355. ENVIRONMENTAL HISTORY OF THE UNITED STATES. 3 Hours.**

People and the natural environment from the colonial period to the present. Ecological change, conservation movements, and artistic and literary interpretations of landscape and nature. Listed as GEOG 3355 and HIST 3355; credit will be granted only once.

**GEOG 3371. IMAGES OF THE SOUTHWEST. 3 Hours.**

Examines the changing culture, architecture, and landscapes of the American Southwest as depicted in literature, art, film, television, and advertising, including the role of popular culture and commerce in creating and marketing a regional "Southwestern style." Offered as GEOG 3371 and HIST 3371; credit will be granted only once.

**GEOG 4191. CONFERENCE COURSE. 1 Hour.**

Topics assigned on an individual basis covering personal research or study in designated areas. Prerequisite: permission of the instructor.

**GEOG 4291. CONFERENCE COURSE. 2 Hours.**

Topics assigned on an individual basis covering personal research or study in designated areas. Prerequisite: permission of the instructor.

**GEOG 4301. HISTORICAL GEOGRAPHY AND CARTOGRAPHY. 3 Hours.**

An introduction to cultural and historical geography with an emphasis on cartography and the use of maps in research and teaching. Offered as GEOG 4301 and HIST 4301; credit will be granted only once.

**GEOG 4310. GEOGRAPHY OF THE GREATER SOUTHWEST. 3 Hours.**

Geography of the Greater Southwest to include Texas, New Mexico, Arizona, California, and Mexico. How the natural environment, cultural environment, and space itself have affected the history and development of the Southwest.

**GEOG 4350. SPECIAL TOPICS IN MODERN GEOGRAPHY. 3 Hours.**

Selected topics in an identified area of geography. The course may be repeated for credit.

**GEOG 4391. CONFERENCE COURSE. 3 Hours.**

Topics assigned on an individual basis covering personal research or study in designated areas. Prerequisite: permission of the instructor.

## Geology (GEOL)

## COURSES

### **GEOL 1135. GEOLOGICAL LABORATORY. 1 Hour.**

Experiments and exercises related to geological principles and problems. Prerequisite: Permission from department.

### **GEOL 1136. GEOLOGICAL LABORATORY II. 1 Hour.**

Experiments and exercises related to geological principles and problems of earth history. Prerequisite: Permission from department.

### **GEOL 1137. GEOLOGICAL LABORATORY III. 1 Hour.**

Experiments and exercises related to geological principles and problems of environmental science. Prerequisite: permission from department.

### **GEOL 1301. EARTH SYSTEMS. 3 Hours.**

An integrated study of the earth, emphasizing interactions between plate tectonics, the atmosphere, the oceans, the biosphere, and human activity.

### **GEOL 1302. EARTH HISTORY. 3 Hours.**

History of the earth and evolution of life emphasizing the co-evolution of the atmosphere, oceans, and biosphere.

### **GEOL 1315. METEORITES, ASTEROIDS, FLOOD VOLCANISMS AND MASS EXTINCTIONS. 3 Hours.**

An introduction to the geology of the solar system from the perspectives of earth science, and the fascinating world of meteorites, asteroids, comets, and impact craters. Special emphasis is on the meteorite evidence for our understanding of planetary formation, the age and origin of the earth, and the role of near synchronous impacts and flood basalts in causing two of the largest mass extinctions in earth history. Weekly practicum with hands-on examination of solar system materials, including observations under polarizing light microscopy.

### **GEOL 1330. GLOBAL WARMING. 3 Hours.**

Global environmental challenges confronting humanity such as pollution, depletion of natural resources, ecosystem deterioration, food production, and population growth.

### **GEOL 1340. WEATHER AND CLIMATE. 3 Hours.**

Nature and variability of weather and climate, including wind, temperature, clouds and precipitation, droughts and flooding. Storm systems, fronts, thunderstorms, tornadoes, hurricanes. Atmospheric chemistry and air pollution. Mean climate, seasonal variations and climatic change.

### **GEOL 1350. INTRODUCTION TO OCEANOGRAPHY. 3 Hours.**

The study of ocean basins and their origin, ocean currents, waves and tides, properties of sea water, and marine ecosystems, emphasizing the role of the ocean in the Earth system. Discussion of weekly ocean news, and incorporation of web-delivered current oceanographic data into the course material. Formerly offered as GEOL 3301 and GEOL 3184 and GEOL 2412; credit will be granted only once.

### **GEOL 1360. GEOLOGIC HAZARDS. 3 Hours.**

Processes producing earthquakes, floods, eruptions and landslides, and their effect on people.

### **GEOL 2406. NATURAL RESOURCES & SUSTAINABILITY. 4 Hours.**

Energy, construction, agricultural, and hydrological resources are evaluated in terms of their production and use, including storage and disposal of waste. Emphasis is placed on the importance of preserving clean water, air and soils. The course will concentrate on what humans take from the Earth, the impacts it has on their environment, and what it takes to make the planet sustainable for human habitation.

### **GEOL 2410. PLANETARY GEOLOGY. 4 Hours.**

The geology, history and landscapes of the terrestrial planets and satellites of the outer planets. Composition of the planets as a guide to the origin and evolution of the solar system.

### **GEOL 2414. THE GLOBAL ENVIRONMENT AND HUMAN HEALTH. 4 Hours.**

This course will assess the impact on human health of: population growth and available resources; exposure to man-made harmful substances; and environmental degradation.

### **GEOL 2445. MINERALOGY. 4 Hours. (TCN = GEOL 2409)**

Lectures discuss the physical and chemical principles governing the properties and formation of minerals. There are three major divisions of the subject matter: (a) geometric and optical crystallography; (b) crystal chemistry and properties of minerals, and (c) occurrence, origins, and pressure-temperature stabilities of the major rock-forming minerals. Laboratories are devoted to exercises in crystallography, X-ray diffraction, optical mineralogy and hand-specimen mineral identification. Prerequisites: CHEM 1441 and MATH 1303 or higher-level MATH.

### **GEOL 2446. PETROLOGY AND GEOCHEMISTRY. 4 Hours.**

Distribution, description, classification, plate-tectonic setting and origins of igneous and metamorphic rocks in the light of theoretical-experimental multicomponent phase equilibria studies; use of trace elements and radiogenic and stable isotopes as tracers in rock genesis; hand specimen and microscopic examinations of the major igneous-metamorphic rock types in the laboratory. Prerequisite: C or better in GEOL 2445.

### **GEOL 3100. GEOSCIENCE PROFESSIONAL ORIENTATION. 1 Hour.**

Review of various careers in the Geosciences, and how to prepare a resume, network, and interview. Principles to follow for on-the-job success. Class will involve field trips and guest lectures.

**GEOL 3316. ASTROBIOLOGY. 3 Hours.**

This is an interdisciplinary course between astrophysics, biology and geology. Topics include properties of life, origin and evolution of life on Earth, mass extinctions, extremophiles, search for life in the Solar System, space missions, stellar habitable zones, SETI, Fermi paradox, Drake equation. Offered as BIOL 3316, GEOL 3316 and PHYS 3316; credit will be granted only once. Prerequisites: PHYS 1441 & PHYS 1442 or equivalent and PHYS 2315 or PHYS 3315, or permission from instructor. Prerequisites for Biology majors: PHYS 1441 and PHYS 1442 or equivalent and BIOL 3315. Offered as BIOL 3316, GEOL 3316, and PHYS 3316; credit will be granted only once.

**GEOL 3340. GEOLOGY FOR ENGINEERS. 3 Hours.**

Introduction to geological materials and processes important to practice of civil engineering. Includes processes forming minerals and rocks; mechanics and deformation of rocks, weathering, erosion and soils; soil hazards, land subsidence and mass movements; groundwater hydrology, geochemistry and contamination; and rivers. Labs will include introduction to geologic materials and use of GIS software to store, analyze and display geologic and engineering data. Prerequisites: PHYS 1443 and CHEM 1465 or CHEM 1442.

**GEOL 3387. FIELD GEOLOGY I. 3 Hours.**

Stratigraphic and structural mapping and analysis of data collected in the field. Taught for three weeks only in the summer session. Prerequisite: GEOL 2446, GEOL 3442, GEOL 3443. Special fee covers cost of transportation, room, and board while in the field.

**GEOL 3388. FIELD GEOLOGY II. 3 Hours.**

Mapping and analysis of igneous and metamorphic rock data as well as hydrologic, geochemical and mass wasting data collected in the field. Taught for three weeks after GEOL 3387 only in the summer session. Prerequisite: GEOL 2446, GEOL 3442, GEOL 3443, and GEOL 3387. Special fee covers cost of transportation, room, and board while in the field.

**GEOL 3441. PALEONTOLOGY. 4 Hours.**

Biology, morphology, and taxonomy of fossil invertebrates. Prerequisite: GEOL 1302 and BIOL 1442.

**GEOL 3442. SEDIMENTOLOGY AND STRATIGRAPHY. 4 Hours.**

An introduction to the description, origin, and historical interpretation of stratified rocks. Prerequisite: GEOL 2446 or concurrent enrollment.

**GEOL 3443. STRUCTURAL GEOLOGY. 4 Hours.**

The genesis, classification, and description of structural features resulting from deformation of the earth's crust. Prerequisite: GEOL 2446 and PHYS 1441 or PHYS 1443.

**GEOL 4189. RESEARCH IN GEOLOGY. 1 Hour.**

Supervised undergraduate research in any one of the various fields of geology. May be repeated but will not meet Geology degree requirements. Prerequisite: permission from instructor.

**GEOL 4190. GEOSCIENCE INTERNSHIP. 1 Hour.**

Work in geoscience for a commercial concern at least 20 hours per week for three months. Requirements include: writing a resume, learning how to interview and function on the job, and a report describing the work. Prerequisite: 16 hours of Geology coursework.

**GEOL 4289. RESEARCH IN GEOLOGY. 2 Hours.**

Supervised undergraduate research in any one of the various fields of geology. May be repeated but will not meet Geology degree requirements. Prerequisite: permission from instructor.

**GEOL 4301. MARINE GEOLOGY & GEOCHEMISTRY. 3 Hours.**

Geologic and geochemical processes of the oceans. Chemistry of seawater; geochemical and biogeochemical cycles; carbonate sediment production. Prerequisite: CHEM 1441 and CHEM 1442.

**GEOL 4302. PLATE TECTONICS. 3 Hours.**

Understanding our dynamic Earth through the study of seafloor spreading, subduction and continental collision. This course will examine the geophysical evidence for plate tectonics: magnetism, gravity, and heat flow; and will review the history of plate motions and their effect on climate, evolution, and the formation of natural resources. Prerequisite: GEOL 3443.

**GEOL 4304. SOLID EARTH GEOMECHANICS. 3 Hours.**

Application of continuum mechanics to understanding deformation in the earth, including mechanical analysis of natural geologic structures such as faults, folds, lava flows, and dikes, as well as practical problems related to reservoir geomechanics and mining applications. Prerequisites: GEOL 3443, MATH 2425, and PHYS 1444.

**GEOL 4305. SELECTED TOPICS IN GEOLOGY. 3 Hours.**

Geological topics not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for Geology elective credit as different topics are offered.

**GEOL 4307. SEQUENCE STRATIGRAPHY. 3 Hours.**

This course introduces sequence stratigraphy within context of all stratigraphy and history of sequence stratigraphy. Includes overview of sequence stratigraphy principles. Review of basic fundamental concepts of surface- and facies-based physical stratigraphy. Review of architectural element analysis, sequence stratigraphic in seismic, borehole expression of sequences and overview of subsurface stratigraphic techniques. Prerequisite: GEOL 3442.

**GEOL 4308. ENVIRONMENTAL GEOCHEMISTRY. 3 Hours.**

The geochemistry of natural waters with emphasis on processes that control solute concentrations including complexation reactions, oxidation and reduction reactions, biogeochemistry, and chemical weathering reactions. Prerequisites: GEOL 2445 and CHEM 1441.

**GEOL 4309. INTRODUCTION TO GEOPHYSICS. 3 Hours.**

Introduction to the fundamental physical principles, theory, and techniques of geophysics. Topics include gravity and magnetic fields, heat-flow, earthquakes and elastic wave propagation, and geodesy. Emphasis will be on how geophysical data are used to constrain plate tectonic processes as well as the internal structure and dynamics of the solid Earth. Prerequisites: GEOL 3443 and MATH 2425.

**GEOL 4320. HYDROGEOLOGY. 3 Hours.**

Hydrologic cycle, Darcy's law, hydraulic properties, aquifer types and materials, groundwater flow to wells, fracture flow, vadose zone flow, groundwater chemistry, and groundwater modeling. Prerequisite: PHYS 1441 or PHYS 1443.

**GEOL 4322. CONTAMINANT HYDROGEOLOGY. 3 Hours.**

Sources and types of organic and inorganic contaminants; the physical, chemical, and biological factors and processes that affect the transport and fate of contaminants in the subsurface; non-aqueous phase liquids and multiphase flow; and various remedial techniques of contaminated sites. Prerequisite: GEOL 4320 or concurrent enrollment.

**GEOL 4325. PALEOCLIMATE & CLIMATE CHANGE. 3 Hours.**

Climate change throughout geologic time, especially the last 100 million years: models of the climate system, reconstruction and modeling of past climates, abrupt climate change, warm climates, paleoclimatology, climate change and mass extinctions. Prerequisite: GEOL 1301, MATH 1426, and junior standing, or permission from instructor.

**GEOL 4330. UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS. 3 Hours.**

A practical introduction to GIS and methods of creating, maintaining and displaying spatial data using the ArcGIS software. This course replaces GEOL 4352; credit will not be granted for both. Prerequisite: Junior standing.

**GEOL 4331. ANALYSIS OF SPATIAL DATA. 3 Hours.**

Analyzing spatial data using ArcGIS, Spatial Analyst, and 3-D Analyst, topological surface analysis and modeling; 3-D visualization and viewscales; spatial statistics and data quality management. Prerequisite: GEOL 4330.

**GEOL 4332. GLOBAL POSITIONING SYSTEM. 3 Hours.**

Review of the NAVSTAR Global Positioning System and its segments: space, operational control, and GPS receivers. Mechanics of the satellite constellation; GPS signal structure; datums and coordinate systems; precision and accuracy; error factors; absolute (point) versus relative (differential) positioning. Various positioning techniques using several types of GPS receivers; field data collection and input into GIS programs for data analysis and presentation. Prerequisite: GEOL 4330.

**GEOL 4333. REMOTE SENSING FUNDAMENTALS. 3 Hours.**

The electromagnetic spectrum and the interaction of EM waves with matter; various types of sensing devices; spectral and spatial resolution parameters; airborne and satellite sensor platforms; aerial photographs and false-color images. The sequence of data acquisition, computer processing, and interpretation; sources of data; the integration of remote sensing data with other data types in GIS. Prerequisite: GEOL 4330.

**GEOL 4334. GEOGRAPHIC DATA ANALYSIS. 3 Hours.**

Acquisition, processing and analysis of a set of spatial data selected by the student with approval of the instructor. A written report of the results is required. Prerequisite: GEOL 4330, GEOL 4331, GEOL 4333.

**GEOL 4342. MICROFOSSILS & THE CORRELATION OF SEDIMENTARY ROCKS. 3 Hours.**

This course is an introduction to microfossil groups useful in the regional and global correlation of sedimentary rock strata throughout the Phanerozoic. Microfossils record plant, animal, and protist life forms including foraminifers, radiolarians, ostracodes, conodonts, algae and coccolithophorids. Morphology, taxonomy and biostratigraphy of these groups will be stressed along with the principles used in the correlation of sedimentary rocks. Prerequisite: GEOL 3441.

**GEOL 4346. BASIN ANALYSIS. 3 Hours.**

Formation of sedimentary basins and evaluation of their economic potential in context of plate tectonics; paleogeography and paleoclimatology. Prerequisite: GEOL 3442 and MATH 1426.

**GEOL 4350. STABLE ISOTOPE GEOCHEMISTRY. 3 Hours.**

Principles governing the fractionation and distribution of stable isotopes (C, H, N, O, S) in nature, and application of stable isotope geochemistry to environmental problems and global climate change. Prerequisite: GEOL 2445 and CHEM 1442, or permission from instructor.

**GEOL 4352. ANALYTICAL METHODS IN GEOCHEMISTRY. 3 Hours.**

Principles of geochemical analysis of waters, rocks and soils, and gases. Methods to be covered include x-ray fluorescence and diffraction, mass spectrometry, coulometry, inductively-coupled plasma, and gas/ion chromatography with various detection methods. Prerequisite: CHEM 1442.

**GEOL 4353. VOLCANOLOGY. 3 Hours.**

A broad survey of volcanic rocks, landforms, products, minerals, volatiles, and processes at a generally descriptive to semi-quantitative level. Introduces areas of interface with other branches of geology and with socioeconomic interest. Prerequisite: GEOL 2446.

**GEOL 4360. GEOLOGICAL PROCESSES OF OCEANS. 3 Hours.**

Sedimentation in the oceans, chemistry of seawater, geochemical cycles in the oceans, and physical and biological processes that relate to sediment production, origin of seafloor topography, and seafloor spreading. Prerequisite: GEOL 3442.

**GEOL 4393. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or project under the direction of a faculty member in the Earth and Environmental Sciences Department.

**GEOL 4402. COMPUTER MODELING IN EARTH SCIENCE. 4 Hours.**

An introduction to basic programming and computation in the earth sciences using Matlab®, with emphasis on development of univariate and bivariate statistical models, spatial and image analysis, time series analysis, and the development of basic deterministic physics-based models of geological processes. Prerequisite: MATH 2425.

**GEOL 4405. METEOROLOGY AND CLIMATOLOGY. 4 Hours.**

A quantitative approach to the study of the structure, energy, and motions of the atmosphere. Prerequisite: MATH 1426 and junior standing, or permission of instructor.

**GEOL 4443. SEDIMENTARY SYSTEMS. 4 Hours.**

Focuses on the processes transporting and archiving siliciclastic sediment, and the approaches using siliciclastic sedimentary rocks to reconstruct earth surface processes. This course includes a heavy component of student-led presentation and discussion. Prerequisite: GEOL 3442.

**GEOL 4465. PHYSICAL OCEANOGRAPHY. 4 Hours.**

Oceanographic instrumentation and measurement; physical properties of sea water; heat and salt budgets; thermal distribution; wind-driven and thermohaline circulation; mass of the world's oceans; waves and tides. Prerequisites: MATH 1426 and PHYS 1443.

**GEOL 5180. PROFESSIONAL ORIENTATION AND BUSINESS ETHICS. 1 Hour.**

A mentoring program using working professionals selected by the Earth and Environmental Sciences Department. Each participant meets at least once a month with a mentor who provides information on practices and skills necessary to succeed in the workplace. Course participants review business ethics statements provided by the mentor's company or other companies and write a critique based on materials from professional business ethics organizations such as the International Business Ethics Institute. Prerequisite or concurrent enrollment GEOL 5345.

**GEOL 5181. RESEARCH IN GEOLOGY. 1 Hour.**

Independent study in various areas of research including paleontology, stratigraphy, tectonics, structural geology, sedimentology, geochemistry, petrology, geophysics, and volcanology. May be repeated for credit. Graded P/F/R/W.

**GEOL 5190. GEOSCIENCE INTERNSHIP. 1 Hour.**

Work in geoscience for a commercial concern at least 20 hrs/wk for 3 months. Requirements include writing a resume, learning how to interview and function on the job, and a report describing the work. Prerequisite: GEOL 5345 or concurrent enrollment.

**GEOL 5199. TECHNICAL SESSIONS. 1 Hour.**

Forum for presentation of results of graduate students and faculty research. Required each semester of all graduate students.

**GEOL 5265. TOPICS IN GEOL. 2 Hours.****GEOL 5281. RESEARCH IN GEOLOGY. 2 Hours.**

Independent study in various areas of research including paleontology, stratigraphy, tectonics, structural geology, sedimentology, geochemistry, petrology, geophysics, and volcanology. May be repeated for credit. Graded P/F/R/W.

**GEOL 5301. ENVIRONMENTAL GEOCHEMISTRY. 3 Hours.**

Fundamentals of low-temperature aqueous geochemistry, and anthropogenic impacts on natural water systems. Topics include equilibrium thermodynamics, kinetics, aqueous complexation, and oxidation/reduction processes that affect metals and organic matter in natural waters.

**GEOL 5302. GLOBAL TECTONICS. 3 Hours.**

Plate tectonic theory and evidence, review of plate tectonic history since the late Precambrian. Prerequisite: Geol 3442, Geol 3443.

**GEOL 5304. SOLID EARTH GEOMECHANICS. 3 Hours.**

Application of continuum mechanics to understanding deformation in the earth, including mechanical analysis of natural geologic structures such as faults, folds, lava flows, and dikes, as well as practical problems related to reservoir geomechanics and mining applications. Prerequisite: GEOL 3443, MATH 2325, PHYS 1441 or PHYS 1443.

**GEOL 5306. ENVIRONMENTAL GEOLOGY. 3 Hours.**

Hydrological systems, water quality, and behavior of pollutants; atmospheric systems, air quality, and effects of pollutants; occurrence, prediction, and amelioration of natural environmental hazards including floods, earthquakes, volcanism, and landslides.

**GEOL 5308. PALEOCLIMATE AND CLIMATE CHANGE. 3 Hours.**

Climate change throughout geologic time, especially the last 100 million years: models of the climate system, reconstruction and modeling of past climates, abrupt climate change, warm climates, paleoclimatology, climate change and mass extinctions.

**GEOL 5309. GEOMORPHOLOGY & QUATERNARY STRATIGRAPHY OF SEDIMENTARY SYSTEMS. 3 Hours.**

This course examines those physical processes that sculpt the surface of the Earth and result in deposition of sediments. Surface systems covered include weathering, mass wasting, rivers, shorelines, eolian processes, and glaciers. The course also examines the stratigraphic techniques used to decode the recent (2 million to present) stratigraphic record of these systems. Course is designed for geologists, biologists, and other fields concerned with interpreting and/or managing modern environments.

**GEOL 5312. SANDSTONE PETROLOGY. 3 Hours.**

Petrographic examination of terrigenous clastics, including textural, compositional, and diagenetic aspects. Focus on paleogeographic, tectonic, and environmental interpretation. Prerequisite: GEOL 3442.

**GEOL 5313. CARBONATE PETROLOGY. 3 Hours.**

Nature and composition of ancient and modern carbonate sediments and rocks in terms of their genesis, depositional environments, biological constituents, and processes involved in transport, deposition, diagenesis, and lithification. Knowledge of stratigraphy and paleontology is necessary for success in this course. Prerequisite: GEOL 3442 or permission of the instructor.

**GEOL 5320. UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS. 3 Hours.**

A practical introduction to GIS and methods of creating, maintaining and displaying spatial data using the ArcGIS software.

**GEOL 5321. ANALYSIS OF SPATIAL DATA. 3 Hours.**

Analyzing spatial data using ArcGIS, Spatial Analyst, and 3D Analyst, topological surface analysis and modeling; 3D visualization and viewscales; spatial statistics and data quality management. Prerequisite: GEOL 4330 or GEOL 5320.

**GEOL 5322. GLOBAL POSITIONING SYSTEM. 3 Hours.**

Review of the NAVSTAR Global Positioning System and its segments: space, operational control, and GPS receivers. Mechanics of the satellite constellation; GPS signal structure; data and coordinate systems; precision and accuracy; error factors; absolute (point) versus relative (differential) positioning. Various positioning techniques using several types of GPS receivers; field data collection and input into GIS programs for data analysis and presentation. Prerequisite: GEOL 4330 or GEOL 5320.

**GEOL 5323. REMOTE SENSING FUNDAMENTALS. 3 Hours.**

The electromagnetic spectrum and the interaction of EM waves with matter; various types of sensing devices; spectral and spatial resolution parameters; airborne and satellite sensor platforms; aerial photographs and false-color images. The sequence of data acquisition, computer processing and interpretation; sources of data; the integration of remote sensing data with other data types in GIS. Prerequisite: GEOL 4330 or GEOL 5320.

**GEOL 5324. GEOGRAPHIC DATA ANALYSIS PROJECT. 3 Hours.**

Acquisition, processing and analysis of a set of spatial data selected by the student with the approval of the instructor. A written report of the results is required. Prerequisite: GEOL 5320, GEOL 5321, and GEOL 5323.

**GEOL 5328. HYDROGEOLOGY. 3 Hours.**

Hydrologic cycle, Darcy's law, hydraulic properties, aquifer types and materials, groundwater flow to wells, fracture flow, vadose zone flow, groundwater chemistry, and groundwater modeling; a term paper about the relevant topics covered in the class is required. Prerequisites: GEOL 2446, MATH 2425.

**GEOL 5332. STABLE ISOTOPE GEOCHEMISTRY. 3 Hours.**

Principals governing the fractionation and distribution of stable isotopes (C, H, N, O, S) in nature, and application of stable isotope geochemistry to environmental problems and global climate change.

**GEOL 5333. FIELD METHODS. 3 Hours.****GEOL 5334. ANALYTICAL METHODS IN ENVIRONMENTAL SCIENCE. 3 Hours.**

Principals of geochemical analysis of waters, rocks and soils, and gases. Methods to be covered include x-ray fluorescence and diffraction, mass spectrometry, coulometry, inductively-coupled plasma, and gas/ion chromatography with various detection methods.

**GEOL 5335. Isotopes and Tectonics. 3 Hours.**

An Introduction to the fundamentals of clumped isotopes, and major radiogenic and cosmogenic isotope systems and their applications to the study of earth system processes and Earth history; emphasis will be placed on applications to tectonics, geochronology, and thermochronology. Prerequisite: CHEM 1442 or GEOL 4302.

**GEOL 5342. MICROFOSSILS AND THE CORRELATION OF SEDIMENTARY ROCKS. 3 Hours.**

This course is an introduction to microfossil groups useful in the regional and global correlation of sedimentary rock strata throughout the Phanerozoic. Microfossils record plant, animal, and protist life forms including foraminifers, radiolarians, ostracodes, conodonts, algae, and coccolithophorids. Morphology, taxonomy, and biostratigraphy of these groups will be stressed along with the principles used in the correlation of sedimentary rocks. Prerequisite: GEOL 3441 and GEOL 3442.

**GEOL 5344. DEPOSITIONAL ENVIRONMENTS: TERRIGENOUS CLASTICS. 3 Hours.**

Depositional processes, physiographic and environmental components, and facies characteristics and relationships of alluvial, eolian, deltaic, clastic shoreline, shallow siliciclastic sea and deep sea clastic depositional systems. Emphasis on interpretation of ancient analogs. Prerequisite: GEOL 3442.

**GEOL 5345. PETROLEUM GEOLOGY. 3 Hours.**

Origin, generation and migration of petroleum; reservoirs, seals and traps; the subsurface environment; properties of petroleum; exploration and production methods; use of seismic lines and well logs; types of petroleum basins; reserves and resources.

**GEOL 5348. MARINE GEOLOGY AND GEOCHEMISTRY. 3 Hours.**

Geologic and geochemical processes of the oceans. Chemistry of seawater; geochemical and biogeochemical cycles; carbonate sediment production.

**GEOL 5350. CONTAMINANT HYDROGEOLOGY. 3 Hours.**

Sources and types of organic and inorganic contaminants; the physical, chemical, and biological factors and processes that affect the transport and fate of contaminants in the subsurface; non-aqueous phase liquids and multiphase flow; and various remedial techniques of contaminated sites. Prerequisite: GEOL 4320 or GEOL 5328 (or concurrent enrollment).



**GEOL 5365. TOPICS IN GEOLOGY. 3 Hours.**

Topics offered depend on student and faculty interest. Such topics might include identification of fossil fragments in thin section; magmatic processes; plate tectonics and sedimentary basin evolution; stratigraphic paleontology; sedimentary or volcanogenic ore deposition; geostatistics; geophysical archeology; and various advanced subjects in sedimentology, stratigraphy, paleontology, geophysics, geochemistry, volcanology and petrology. May be repeated for credit when topic changes.

**GEOL 5369. SEQUENCE STRATIGRAPHY. 3 Hours.**

This course introduces sequence stratigraphy within context of all stratigraphy and history of sequence stratigraphy. Includes overview of sequence stratigraphy principles. Review of basic fundamental concepts of surface- and facies-based physical stratigraphy. Review of architectural element analysis, sequence stratigraphic in seismic, borehole expression of sequences and overview of subsurface stratigraphic techniques.

**GEOL 5370. SEDIMENTARY SYSTEMS. 3 Hours.**

Carbonate and clastic depositional systems, recognition of facies, systems tracts, diagenetic overprint, shelf to basin profiling, and sequence stratigraphic analysis.

**GEOL 5371. BASIN ANALYSIS. 3 Hours.**

Topics include: the classification and characteristics of sedimentary basins and the mechanisms forming them; and the tectonic, climatic, and eustatic controls on basin subsidence and the basin fill. Applications include the influence of basin evolution on petroleum generation, migration, and accumulation. Prerequisite GEOL 3442 (Sedimentology and Stratigraphy).

**GEOL 5372. STRUCTURAL GEOMETRY AND TECTONICS OF PETROLEUM FIELDS. 3 Hours.**

Structural styles of thin-skinned, basement involved and reactivated systems in shortening, extensional and strike-slip deformation. Use of structural modeling and restoration methods to test the reliability of structural interpretations.

**GEOL 5373. RESERVOIR CHARACTERIZATION. 3 Hours.**

Principles, protocols, analysis and measurement of petrophysical properties (e.g., fluid content, porosity, permeability, pore size distribution, water retention curve, imbibition) of petroleum reservoir rocks.

**GEOL 5374. SEISMIC INTERPRETATION. 3 Hours.**

Introduction to the methods of acquisition and processing as they relate to the interpretation of seismic records. Structural and stratigraphic interpretation methods and pitfalls using two and three dimensional seismic data. Introduction to Seismic Interpretation Software such as the Kingdom Suite from Seismic Micro Technology, Inc. Prerequisite GEOL 5345 or concurrent enrollment.

**GEOL 5375. INTRODUCTION TO WELL LOG INTERPRETATION AND MAPPING. 3 Hours.**

Introduction to the various types of well logs used in the petroleum industry and their petrophysical interpretations, including evaluations of porosity, water saturation, shale volume, permeability, and lithology. Introduction to techniques of contouring data and use of mapping software such as PETRA. Prerequisite GEOL 5345 or concurrent enrollment.

**GEOL 5381. RESEARCH IN GEOLOGY. 3 Hours.**

Independent study in various areas of research including paleontology, stratigraphy, tectonics, structural geology, sedimentology, geochemistry, petrology, geophysics, and volcanology. May be repeated for credit. Graded R.

**GEOL 5398. THESIS. 3 Hours.**

Graded F, R.

**GEOL 5405. METEOROLOGY AND CLIMATOLOGY. 4 Hours.**

A quantitative approach to the study of the structure, energy, and motions of the atmosphere.

**GEOL 5409. APPLIED GEOPHYSICS. 4 Hours.**

Geophysical Techniques used to determine the presence and extent of deposits of minerals and the subsurface structure of selected localities from field methods.

**GEOL 5410. PHYSICAL OCEANOGRAPHY. 4 Hours.**

Oceanographic instrumentation and measurements; physical properties of sea water; heat and salt budgets; thermal distribution; wind-driven and thermohaline circulation; mass of the world's oceans; waves and tides. Prerequisites: PHYS 1443; MATH 2425.

**GEOL 5698. THESIS. 6 Hours.**

Graded F, P, R.

## German (GERM)

### COURSES

**GERM 1441. GERMAN LEVEL I. 4 Hours. (TCCN = GERM 1411)**

Multimedia immersion in the culture and language of German-speaking countries. Designed to enable students to understand and communicate effectively in German at the beginning level. No prerequisites.

**GERM 1442. BEGINNING GERMAN II. 4 Hours. (TCCN = GERM 1412)**

Continuation of beginning German. Prerequisite: GERM 1441 with a grade of C or better.

**GERM 2301. TOPICS IN GERMAN LITERATURE IN TRANSLATION. 3 Hours.**

Study of the works of major authors and intellectual trends of a given period or periods. May be repeated for credit as topics or periods vary. GERM 2301 may be taken to fulfill the foreign language literature requirement. Prerequisite: ENGL 1301 and ENGL 1302.

**GERM 2313. INTERMEDIATE GERMAN I. 3 Hours. (TCCN = GERM 2311)**

Continued immersion in the culture and language of German-speaking countries. Application of strategies and technology in mastering listening, speaking, reading, and writing at the intermediate level. Prerequisite: GERM 1442 with a grade of C or better.

**GERM 2314. INTERMEDIATE GERMAN II. 3 Hours. (TCCN = GERM 2312)**

Continuation of intermediate German. Prerequisite: GERM 2313 with a grade of C or better.

**GERM 2391. INDEPENDENT STUDY. 3 Hours.****GERM 3301. TOPICS IN GERMAN LITERATURE AND CULTURE IN TRANSLATION. 3 Hours.**

Intellectual and literary trends in life and literature of German-speaking countries as reflected in text, film, and video. Topics: 20th century cinema, the Holocaust experience in literature and culture, women writers from the Enlightenment to the present, postwar in two Germanies, among others. May be repeated as topic varies. The course will be count only once, however, toward a minor in German. Prerequisite: GERM 2314 with a grade of C or better.

**GERM 3310. LOCALIZATION AND TRANSLATION I. 3 Hours.**

Introduction to cultural and linguistic issues in the translation of German language texts. Students will explore current technologies used in various real-world translation contexts and how to adapt texts, products, and services to the locale for which they are intended. May be repeated once. Prerequisite: GERM 2314 with a grade of B or better.

**GERM 3311. LOCALIZATION AND TRANSLATION II. 3 Hours.**

Continued study of cultural and linguistic issues in the translation of German and English language texts. Systematic development of advanced skills in localization and computer-aided translation and in using TMX/TBX (international standards for translation memory and terminology exchange) tools. Translation practice, individually and in translation teams, with increasingly longer and more specialized texts. Prepares localization and translation specialists for real-world careers in the language-services industry. May be repeated once. Prerequisite: GERM 3310 with a grade of B or better.

**GERM 3312. ADVANCED GERMAN GRAMMAR. 3 Hours.**

A detailed study of German grammar. Prerequisite: GERM 2314 with a grade of C or better.

**GERM 3313. TOPICS IN GERMAN CULTURE & CONVERSATION. 3 Hours.**

Topics in German culture with emphasis on conversation and reading skills in German with grammar review. Course may be repeated for credit with departmental permission as topic varies. Credit will not be given to native speakers of German, except with permission of the department. Prerequisite: GERM 2314 with a grade of C or better.

**GERM 3314. TOPICS IN GERMAN CULTURE AND CIVILIZATION. 3 Hours.**

Topics in culture and civilization of German-speaking Europe with emphasis on reading, grammar, and composition in conjunction with practice in speaking and listening. Course may be repeated for credit with departmental permission as topic varies. Prerequisite: GERM 2314 with a grade of C or better.

**GERM 3317. INTRODUCTION TO LITERATURE AND CULTURE STUDIES. 3 Hours.**

Introduction to the study of literature and culture including approaches to texts, basic theoretical considerations, fundamentals of scholarship. Prerequisite: GERM 2314 with a grade of C or better.

**GERM 3318. SPECIAL TOPICS IN GERMAN STUDIES I. 3 Hours.**

German courses that may be cross-period or thematically oriented like Kinderliteratur or Film but also those courses targeted at specific groups (e.g. Business, Science, etc.). Course may be repeated for credit with departmental permission as topic varies.

**GERM 3391. CONFERENCE COURSE. 3 Hours.**

Independent study; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: consent of the department.

**GERM 4313. STUDIES IN THE GERMAN LANGUAGE AND CULTURE I. 3 Hours.**

Topics in literary and cultural history from 750 to the present. Courses may focus on one area of the history of cultural (including literary) texts, or they may broadly survey the history of written texts in German-speaking Europe. Course may be repeated for credit as topic varies. Course is taught in English. Students may elect to read some of the texts in German. Prerequisite: two 3000-level German courses with a grade of C or better.

**GERM 4314. STUDIES IN THE GERMAN LANGUAGE AND CULTURE II. 3 Hours.**

German language and culture. Topics in the history of the German language, discourse analysis, language and culture in German media. May be repeated for credit as topics and texts vary. Prerequisite: two 3000-level German courses with a grade of C or better.

**GERM 4317. TOPICS IN GERMAN TRANSLATION. 3 Hours.**

Introduction to the theory and practice of translation. Examples will cover a wide range of texts including literature, business, newspapers, etc. (May substitute for GERM 4335). May be repeated for credit when subject changes up to 3 times total. Prerequisite: One GERM 3000-level course with a grade of C or better, or permission of the instructor.

**GERM 4321. TOPICS IN LITERATURE & CULTURE. 3 Hours.**

Literary periods, genres, authors, and research themes from German speaking countries. May include literature and thought from the Enlightenment and Classical period; Romanticism; the German Novelle and drama; German opera; banned books and postwar works from modern Germany. May be repeated as topics and texts vary. Prerequisite: GERM 2314 with a grade of B or better.

**GERM 4322. SPECIAL TOPICS IN GERMAN STUDIES II. 3 Hours.**

German courses that may be cross-period or thematically oriented, such as Culture of Obedience, Classical Tradition, or Women Writers, as well as specific time periods. Course may be repeated for credit with departmental permission as topic varies. Prerequisite: GERM 2314 with a grade of C or better.

**GERM 4334. THE CULTURE OF BUSINESS. 3 Hours.**

The relationship of culture, language, and meaning to issues affecting business and e-commerce in the German-speaking world, with emphasis on intercultural communication in an international business environment. Web-based media segments about international business in German-speaking Europe and the United States are used as an aid in the acquisition of pertinent cultural knowledge, as well as vocabulary. Prerequisite: GERM 2314 with a grade of C or better.

**GERM 4335. BUSINESS GERMAN. 3 Hours.**

Students learn to function in business environments, with emphasis on the skills needed for conducting e-commerce. Web-based media segments from the United States and German-speaking Europe are used to reinforce vocabulary and other linguistic knowledge. Prerequisite: GERM 4334 with a grade of C or better.

**GERM 4339. THE ACQUISITION OF GERMAN. 3 Hours.**

Theory and practice of acquisition of German. Techniques needed to understand and analyze the sounds, vocabulary, and grammar of the German language. Introduction to reading strategies, the development of oral communication skills, and writing strategies.

**GERM 4391. CONFERENCE COURSE. 3 Hours.**

Independent study in the preparation of a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: Permission.

**GERM 4393. INTERNSHIP IN GERMAN. 3 Hours.**

This internship course combines field-related experience in the business or service sector with an academic component. Students conceptualize a field project and work on-site. Coursework may include journal writing in German, outside readings, and formal presentations. Must be taken concurrently with GERM 4334, GERM 4335, or a culture course as approved by department. Prerequisite: Permission.

**GERM 4394. HONORS THESIS / SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department. May not be repeated for credit.

**GERM 5101. TEACHING PRACTICUM I. 1 Hour.**

Required of all teaching assistants in German in their first semester. May not be counted toward a master's degree.

**GERM 5102. TEACHING PRACTICUM II. 1 Hour.**

Required of all teaching assistants in German in their second semester. May not be counted toward a master's degree.

**GERM 5304. TOPICS IN GERMAN LANGUAGE AND LINGUISTICS. 3 Hours.**

May include topics such as history of the German language, applied German linguistics, dialectology, Middle High German. May be repeated for credit when topic changes.

**GERM 5312. ADVANCED GERMAN GRAMMAR AND STYLE. 3 Hours.**

Readings of samples of contemporary German prose, both narrative and expository, as a basis for the writing of exercises and essays stressing application of grammatical and stylistic principles.

**GERM 5320. TOPICS IN GERMAN LITERATURE. 3 Hours.**

May include topics from any period, genre, or author of literature in German. May be repeated for credit when topic changes.

**GERM 5331. TOPICS IN GERMAN NARRATIVE, 1700 TO PRESENT. 3 Hours.**

The novel, Novelle, short story and other forms of German prose: historical overview, theory and selected primary texts as illustration. Topics vary in focus and methodology; emphasis ranges from individual authors, works or themes to theoretical or interdisciplinary issues. May be repeated for credit when topic changes.

**GERM 5332. TOPICS IN OLDER GERMAN LITERATURE, TO 1700. 3 Hours.**

Topics vary in focus and methodology; emphasis may range from individual authors, works, or themes to theoretical or interdisciplinary issues. May be repeated for credit when topic changes.

**GERM 5333. TOPICS IN GERMAN DRAMA. 3 Hours.**

History and theory of the drama in German-speaking countries; methods of drama analysis, interrelationship of drama, theatre, audience. Topics vary in focus and methodology, emphasis may range from individual authors, works, themes, or periods to theoretical or interdisciplinary issues. May also include the study of German film. May be repeated for credit when topic changes.

**GERM 5334. TOPICS IN GERMAN POETRY. 3 Hours.**

Study of the development of German poetry, and a close study of representative poets and poems from the beginnings to the present. Focus on selected poetic forms including the folk song, ballad, epic poem, sonnet, and religious and political poetry. Topics may vary in focus and methodology. May be repeated for credit when topic changes.

**GERM 5391. CONFERENCE COURSE IN GERMANIC LINGUISTICS AND LITERATURE. 3 Hours.****GERM 5398. THESIS. 3 Hours.**

**GERM 5698. THESIS. 6 Hours.**

**GERM 5998. THESIS. 9 Hours.**

## Global (GLOBAL)

### COURSES

**GLOBAL 2301. INTRODUCTION TO GLOBAL ISSUES. 3 Hours.**

Comparative perspectives on a broad range of cultural, linguistic, economic, political, and social issues confronting a globalized world today. Designed to draw attention to the multifaceted connections among nation-states, nongovernmental organizations, diverse ethnic, cultural and religious groups, and populations around the world. GLOBAL 2301 may be taken as a Liberal Arts elective. May not be repeated for credit. No Prerequisite.

**GLOBAL 3301. TOPICS IN INTERNATIONAL CULTURES AND CIVILIZATIONS I. 3 Hours.**

Intensive study of a particular world region and/or culture including, but not limited to, its language, geography, history, arts, commerce, politics, and government. Focus on its uniqueness as a culture and its integral place in global society. Repeatable for credit as topic varies. No prerequisite. Recommend enrollment in GLOBAL 2301 concurrently or previously.

**GLOBAL 3302. TOPICS IN INTERNATIONAL CULTURES AND CIVILIZATIONS II. 3 Hours.**

Advanced study of a particular world region and/or culture including, but not limited to, its language, geography, history, arts, commerce, politics, and government. Emphasis on film, media, international communication, or other subjects of global study. Repeatable for credit as topic changes. No prerequisite. Strongly recommended: GLOBAL 2301 and GLOBAL 3301, concurrently or previously.

**GLOBAL 3310. LOCALIZATION AND TRANSLATION. 3 Hours.**

Introduction to cultural and linguistic issues in the translation of language texts. Students will explore current technologies used in various real-world translation contexts and how to adapt texts, products, and services to the locale for which they are intended. Prerequisite: GLOBAL 3301 in the language under study or permission of the instructor.

## Greek (GREK)

### COURSES

**GREK 1441. GREEK LEVEL I. 4 Hours. (TCCN = GREE 1411)**

**GREK 1442. GREEK LEVEL II. 4 Hours. (TCCN = GREE 1412)**

Prerequisite: GREK 1441 or equivalent.

**GREK 2313. GREEK LEVEL III. 3 Hours. (TCCN = GREE 2311)**

Prerequisite: GREK 1442 or equivalent.

**GREK 2314. GREEK LEVEL IV. 3 Hours. (TCCN = GREE 2312)**

Prerequisite: GREK 2313 or equivalent.

**GREK 4335. TOPICS IN GREEK LITERATURE. 3 Hours.**

Close reading of one or more Greek texts, with attention both to grammatical precision and to interpretation. Students should be able to read unaltered Greek.

**GREK 4391. CONFERENCE COURSE. 3 Hours.**

Advanced independent study in Greek literature. May be repeated for credit with departmental permission.

**GREK 5391. CONFERENCE COURSE IN GREEK. 3 Hours.**

May be taken only with the permission of the instructor and the Graduate Advisor.

## Health (HEED)

### COURSES

**HEED 1230. FIRST AID / CPR / AED TRAINING. 2 Hours.**

This course is designed to cover the components of Standard First Aid, Cardio-Pulmonary Resuscitation (CPR) for the Professional Rescuer, and Automated External Defibrillator (AED) training. Certification is possible upon successful course completion. Offered as HEED 1230 and KINE 1230. Students seeking credit in HEED should enroll in HEED 1230 and students seeking credit in KINE should enroll in KINE 1230. Credit will not be granted for both courses.

**HEED 1301. NUTRITION. 3 Hours.**

Nutrients essential to an adequate diet and good health and the nutritive values of common foods are reviewed. Offered as BIOL 1301 and HEED 1301: credit will be granted for only one of these courses. Students seeking certification in Health Education must enroll in HEED 1301. Students seeking credit toward their science requirement must enroll in BIOL 1301. May not be used for biology grade point calculation or biology credit toward a BS degree in biology, microbiology, or medical technology.

**HEED 1316. FOUNDATIONS OF HEALTH. 3 Hours.**

Emphasis on interrelationship of physical, emotional, mental, social, and spiritual dimensions of health. Involves the analysis of personal health status and development of strategies for improving quality of life.

**HEED 1340. HEALTHY LIFESTYLES. 3 Hours.**

This course will present theoretical content related to a healthy lifestyle. Students will apply these concepts in laboratory sessions where they evaluate current health habits and develop a nutrition, exercise, and stress management plan to promote a healthy lifestyle. The laboratory section will also provide instruction with regards to proper technique and form for resistance training, flexibility and aerobic conditioning. Lifestyle related diseases and addictions such as cardiovascular disease, cancer, diabetes, substance abuse, sexually transmitted diseases and achievement and maintenance of optimal body composition will also be addressed. These problems will be discussed relative to social, cultural and ethnic concerns.

**HEED 2300. STUDENT HEALTH PEER TRAINING. 3 Hours.**

Train students to be peer counselors who will work as group leaders both on campus and in the community in the Fall and Spring Semesters. Students learn about alcohol and other drugs and their relationship to health and sex issues which prepare them for group presentations and in making referrals when necessary. Topics of training include alcohol and other drug use/abuse, sexually transmitted diseases (STDs), HIV/AIDS, acquaintance rape, smoking/tobacco cessation, eating disorders, suicide, and self-esteem. Prerequisite: permission of instructor.

**HEED 2317. BASIC CONCEPTS IN HUMAN SEXUALITY. 3 Hours.**

The physiological, psychological, and sociological aspects of human sexuality. Offered as BIOL 2317, HEED 2317, PSYC 2317, and WOMS 2317. Credit will be granted for one of these courses only. Students seeking certification in Health Education must enroll in HEED 2317. Students seeking credit toward their science requirement must enroll in BIOL 2317. May not be used for biology grade point calculation or biology credit toward a BS degree in biology, microbiology, medical technology, psychology, or sociology.

**HEED 2330. CARE AND PREVENTION OF ATHLETIC INJURIES. 3 Hours.**

An introduction to the profession of Athletic Training. Common sports-related injuries and illnesses will be discussed with an emphasis on the proper methods for prevention, recognition, and immediate care. Offered as HEED 2330 and KINE 2330. Kinesiology majors must take KINE 2330.

**HEED 3301. SPORTS NUTRITION. 3 Hours.**

Overview of nutrients necessary for healthful living and nutritional impact on reducing risk factors of lifestyle diseases. Application of nutrient recommendations for sports and exercise activities, including fluid replacement, sports supplements, and ergogenic aids.

**HEED 3303. DRUGS AND BEHAVIOR. 3 Hours.**

A survey of the psychoactive agents, their therapeutic uses, and social abuses. Alcohol, nicotine, caffeine, narcotics, hallucinogens, stimulants, and tranquilizers. Offered as BIOL 3303, HEED 3303, and PSYC 3303; credit will be granted only once. May not be used for biology grade point calculation or biology credit toward a B.S. degree in biology, microbiology, or medical technology. Students seeking certification in health education must enroll in HEED 3303.

**HEED 3305. WOMEN'S HEALTH ISSUES. 3 Hours.**

Will address specific issues of importance to women and their health, including growth and development, nutrition, reproductive health, pregnancy, chronic diseases, and relationship/family issues. Offered as HEED 3305 and WOMS 3305. Credit will be granted only once.

**HEED 3330. CONSUMER HEALTH. 3 Hours.**

Analysis of personal, social, cultural, economic, and political aspects of health. Topics covered include managed health care, health insurance, health services/products, doctor-patient communication, traditional vs. non-traditional medicine, diagnosis and treatment of chronic diseases, and health legislation.

**HEED 4191. CONFERENCE COURSE. 1 Hour.**

Topics assigned on an individual basis covering personal research or study in the designated area.

**HEED 4192. SPECIAL TOPICS IN HEALTH. 1 Hour.**

Designed to present topics in health not currently offered in existing curriculum. May be repeated for credit when the topic changes.

**HEED 4291. CONFERENCE COURSE. 2 Hours.**

Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of department chairperson.

**HEED 4292. SPECIAL TOPICS IN HEALTH. 2 Hours.**

Designed to present topics in health not currently offered in existing curriculum. May be repeated for credit when the topic changes.

**HEED 4310. STRESS MANAGEMENT. 3 Hours.**

Analysis of the psychophysiology of stress and the role of stress in the development of acute and chronic diseases. Examine personal and medical uses of stress management techniques.

**HEED 4311. ENVIRONMENTAL HEALTH. 3 Hours.**

This course is a study of the basic principles of ecology as they relate to the general health of society. Topics including conditions of soil, water, and air - nationally and globally - will be discussed. The successful student will acquire a level of proficiency in appropriate health care techniques specific to environmental health concerns.

**HEED 4312. HEALTH & HUMAN DISEASE. 3 Hours.**

Basic principles of human diseases including cardiovascular disease, cancer, AIDS, influenza, and Alzheimer's. The role of infectious and communicable diseases in human history will also be discussed.

**HEED 4320. STUDIES IN HEALTHY AGING. 3 Hours.**

Emphasis on complex issues associated with aging and death. Topics include changes/losses related to specific stages of life; care-giving to the dying; pertinent legal issues; medical gerontology; other salient issues and problems concerning aging and death. This course is especially helpful to those students who plan careers in the medical profession.

**HEED 4330. COMPREHENSIVE SEXUALITY EDUCATION. 3 Hours.**

Explores contemporary issues in human sexuality (i.e., physiological, psychological, and sociological) and prepares those interested in teaching health education to teach sexuality education with diverse populations in a variety of settings (i.e., school or community agency). Students will increase their knowledge of sexuality and enhance their ability to educate about and promote sexual health. Students seeking certification in health must enroll in HEED 4330.

**HEED 4340. PRINCIPLES OF HEALTH APPLICATIONS. 3 Hours.**

Designed to integrate the information base of health studies into action plans for developing health education and promotion programs for organizations, agencies, and schools. Prerequisite: HEED 1316, junior standing or permission of instructor.

**HEED 4357. HEALTH PSYCHOLOGY. 3 Hours.**

This course provides a broad introduction to health psychology and its interface with the medical world. The course provides a balanced presentation of the important issues in the field, as well as specific content topics that are especially relevant today to better understand health and illness. Offered as BIOL 4357, HEED 4357, and PSYC 4357. Students seeking science requirement credit must enroll in BIOL 4357; students seeking Certification in Health must enroll in HEED 4357. Prerequisite: PSYC 1315 or BIOL 1333 or BIOL 1441 or BIOL 2457; junior standing recommended.

**HEED 4391. CONFERENCE COURSE. 3 Hours.**

Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of department chairperson.

**HEED 4392. SPECIAL TOPICS IN HEALTH. 3 Hours.**

Designed to present topics in health not currently offered in existing curriculum. May be repeated for credit when the topic changes.

## Health Care Administration (HCAD)

### COURSES

**HCAD 5192. SPECIAL TOPICS IN HEALTH CARE ADMINISTRATION. 1 Hour.**

In-depth study of selected topics in health care administration.

**HCAD 5199. GRADUATE HEALTH CARE ADMINISTRATION INTERNSHIP. 1 Hour.**

Practical training in health care administration. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**HCAD 5292. SPECIAL TOPICS IN HEALTH CARE ADMINISTRATION. 2 Hours.**

In-depth study of selected topics in health care administration.

**HCAD 5299. GRADUATE HEALTH CARE ADMINISTRATION INTERNSHIP. 2 Hours.**

Practical training in health care administration. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**HCAD 5301. HEALTH CARE ADMINISTRATION I. 3 Hours.**

Introduction to health care; legislation; reimbursement systems; characteristic administrative and clinical roles responsibilities and education; public health care structures; regulatory agencies; health industry trends; and advances in research and technologies.

**HCAD 5302. HEALTH CARE ADMINISTRATION II. 3 Hours.**

Managed care; types of health care delivery systems; national health care policy; teamwork in primary care; management of cost and quality of care; legal issues; ethical issues, including bioethics and business ethics; changing roles of health care professionals; varieties of domestic, public and international health care delivery systems.

**HCAD 5305. FINANCIAL ACCOUNTING FOR HEALTH CARE INDUSTRY. 3 Hours.**

Introduction to concepts, purposes, problems, methodology, and terminology of financial accounting for health care industry.

**HCAD 5306. MANAGERIAL ACCOUNTING FOR HEALTH CARE INDUSTRY. 3 Hours.**

Introduction to concepts, purposes, problems, methodology, and terminology of managerial accounting for health care industry. Prerequisite: HCAD 5305.

**HCAD 5310. HEALTH CARE LAW. 3 Hours.**

Coverage of statutory and case law of the health care industry. Topics include patient rights and malpractice, employment and compensation matters, insurance and claims, and government agencies that regulate aspects of health services delivery.

**HCAD 5337. ETHICS, LEADERSHIP, AND TEAMWORK. 3 Hours.**

Examines the leadership process, change management, and high-performance team-building strategies. Emphasis will be placed on the development of self-awareness and skills necessary to lead. Identification of values and ethical issues in health care administration will also be stressed through the application of ethical principles and theories of decision making in the analysis of ethical dilemmas.

**HCAD 5390. STRATEGIC MANAGEMENT FOR HEALTH CARE ORGANIZATIONS. 3 Hours.**

Development of skills necessary for managing health care organizations from a strategic perspective. Particular emphasis is given to the use of systematic assessment of the environment and the organization, as well as the development and implementation of business strategies to meet the needs of stakeholders. Must be taken in last semester of with permission of the Graduate Advisor.

**HCAD 5392. SPECIAL TOPICS IN HEALTH CARE ADMINISTRATION. 3 Hours.**

In-depth study of selected topics in health care administration.

**HCAD 5398. RESEARCH IN HEALTH CARE ADMINISTRATION. 3 Hours.**

Independent research under the supervision of a faculty member.

**HCAD 5399. GRADUATE HEALTH CARE ADMINISTRATION INTERNSHIP. 3 Hours.**

Practical training in health care administration. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

## History (HIST)

### COURSES

**HIST 1311. HISTORY OF THE UNITED STATES TO 1865. 3 Hours. (TCCN = HIST 1301)**

An introduction to the political, social, economic, and cultural history of the United States prior to 1865. This course is designed to help students understand and evaluate their society, comprehend the historical experience, and further develop reading and writing competencies and critical skills. Prerequisite: completion of or concurrent enrollment in ENGL 1301.

**HIST 1312. HISTORY OF THE UNITED STATES, 1865 TO PRESENT. 3 Hours. (TCCN = HIST 1302)**

An introduction to the political, social, economic, and cultural history of the United States since 1865. This course is designed to help students understand and evaluate their society, comprehend the historical experience, and further develop reading and writing competencies and critical skills. Prerequisite: completion of or concurrent enrollment in ENGL 1301.

**HIST 2301. HISTORY OF CIVILIZATION. 3 Hours. (TCCN = HIST 2311)**

(HIST 2311). Significant developments from prehistoric times through the 16th century. Achievements and experiences of great civilizations, emphasizing major historical figures and epochs, important ideas and religions, and factors of continuity and change. Provides a foundation for understanding our heritage and shared values, and introduces students to the historical forces that have shaped today's world.

**HIST 2302. HISTORY OF CIVILIZATION. 3 Hours. (TCCN = HIST 2312)**

(HIST 2312). Major modern trends such as industrialism, nationalism, imperialism, socialism, and the more complex problems and conflicts of the present century. Particular attention to the emergence of a global civilization. Provides a foundation for understanding our heritage and shared values, and introduces students to the historical forces that have shaped today's world.

**HIST 2311. AMER HISTORY. 3 Hours.****HIST 2313. HISTORY OF ENGLAND. 3 Hours. (TCCN = HIST 2313)**

The history of Britain from prehistoric times to 1688. The development of English laws and institutions. Required of all pre-law majors.

**HIST 2314. HISTORY OF ENGLAND. 3 Hours. (TCCN = HIST 2314)**

British history from 1688 to the present. The growth of English laws and institutions. Required of all pre-law majors. HIST 2313 is not a prerequisite for this course.

**HIST 3300. INTRODUCTION TO HISTORICAL RESEARCH. 3 Hours.**

Introduction to the methods that historians use to conduct research and present their findings in written and oral form. Required for history majors.

**HIST 3304. HISTORICAL GEOGRAPHY OF THE UNITED STATES TO 1850. 3 Hours.**

The geography of the United States from the colonial era to 1850 with an emphasis on acquisition of geographic knowledge, cultural transfer and acculturation, spatial organization of societies, human-environment relationships, sectionalism, territorial expansion, and changing notions of territory, borderlands and boundaries. Course taught as HIST 3304 and GEOG 3304. Credit will be granted in only one department.

**HIST 3305. HISTORICAL GEOGRAPHY OF THE UNITED STATES SINCE 1850. 3 Hours.**

The geography of the United States since 1850 with an emphasis on sectionalism, regional and national integration, urbanization, human-environment relationships, cultural landscapes, and evolving notions of territory, borderlands and frontiers. Course taught as HIST 3305 and GEOG 3305. Credit will be granted in only one department.

**HIST 3307. HISTORY OF DISABILITY. 3 Hours.**

Examines the history of ideas about disability, the historical lives of people with disabilities, and the history of disability policy. The growth of asylums, the rise of the eugenics movement, a historical look at freak shows, the impact of industrialization on experiences of disability, the evolution of special education, the role of ideas about disability in colonialism, the historical treatment of disabled veterans, and the development of the disability rights movement. Geographic focus will vary. Prerequisites: HIST 1311 and HIST 1312.

**HIST 3309. WOMEN AND WORK, 1600 TO THE PRESENT. 3 Hours.**

Examines the history of women and work, both waged and nonwaged, in Europe and the Americas, including the United States. Highlights differences within women's work cultures as well as variation in women's employment opportunities and their efforts to achieve equality with men in the workplace, by ethnicity, region, and nation. Offered as HIST 3309 and WOMS 3309; credit will be granted only once.

**HIST 3310. U.S. WOMEN'S HISTORY TO 1860. 3 Hours.**

Women in politics, work and society from the colonial era to the Civil War. Women's efforts to reform society, including the abolition of slavery and acquisition of suffrage. Offered as HIST 3310 and WOMS 3310; credit will be granted only once.

**HIST 3311. U.S. WOMEN'S HISTORY 1860 TO PRESENT. 3 Hours.**

American women in politics, work and society since 1860, focusing on race and class and women's struggles for rights and liberation. Offered as HIST 3311 and WOMS 3311; credit will be granted only once.

**HIST 3315. WORK AND LEISURE IN THE UNITED STATES. 3 Hours.**

Examines changing ideas and practices of work and leisure from colonial America to post-industrial society. Discusses how work and leisure rights developed according to social lines of class, gender, and race, and examines the impact of shifts in capitalist, industrial and consumer economies on those rights.

**HIST 3317. U.S. LEGAL AND CONSTITUTIONAL HISTORY, COLONIAL TO 1877. 3 Hours.**

Traces the adaptation of laws to changing social and economic needs with emphasis on the interrelations of law, public opinion, the legal profession, judiciary, and the political process. Topics include the transatlantic origins of American law, slavery and indentured servitude, poor laws and dependency, family law and gender, developments in criminal and civil law, and the failure of Reconstruction.

**HIST 3318. U.S. LEGAL AND CONSTITUTIONAL HISTORY, 1877 TO PRESENT. 3 Hours.**

Traces the adaptation of laws to changing social and economic needs with emphasis on the interrelations of law, public opinion, the legal profession, judiciary, and the political process. Topics include civil rights, disability and the law, education, abortion, the death penalty, healthcare and social welfare, gun rights, eugenics, family law, and the impact of personality on judicial decision-making.

**HIST 3319. GREAT ANGLO-AMERICAN TRIALS. 3 Hours.**

The historical development of criminal trial procedure in Britain and the United States: arrest and detention procedures; the roles of judge and jury; press coverage; political implications of celebrated and notorious cases.

**HIST 3320. U.S. CIVIL LIBERTIES. 3 Hours.**

The historical origins of individual liberties in the United States. Topics include Bill of Rights freedoms and histories of case law relating to speech, privacy and religion.

**HIST 3321. COLONIAL AMERICA TO 1763. 3 Hours.**

The beginnings of colonization in North America; the development of colonies and their political, social, economic, and cultural aspects; and the international ramifications culminating in the Great War for the Empire and the Treaty of Paris in 1763.

**HIST 3322. THE AMERICAN REVOLUTION AND THE CONSTITUTION, 1763-1789. 3 Hours.**

The origins of the American Revolution, the transformation of American politics and society during the Revolutionary era, and the establishment of the new national government under the Constitution. Special topics include the development of law, civilian-military relations, slavery and race relations, and women's social experience.

**HIST 3323. THE NEW NATION, 1789-1844. 3 Hours.**

The development of the national government, the party system, the market economy, and reform movements from Jefferson through Jackson. The birth of modern American society and personality, with special emphasis on changing views of man, community, and society.

**HIST 3324. THE COMING OF THE CIVIL WAR, 1820-1860. 3 Hours.**

Sectional conflict in the United States from the Missouri Compromise of 1820 to the election of Abraham Lincoln in 1860. Southern separatism, slavery as a political issue, the antislavery movement, the breakup of the national political system, and the failure of sectional compromise. Offered as AAST 3324 and HIST 3324; credit will be granted in only one department.

**HIST 3325. CIVIL WAR AND RECONSTRUCTION, 1850-1876. 3 Hours.**

The background and causes of secession and the Civil War, the organization of the Confederate States of America, the progress of the war, and the attempts to solve the racial, social, political, and economic problems of the post-war period.

**HIST 3326. THE OLD SOUTH, 1607-1863. 3 Hours.**

Colonial origins of plantation agriculture, slavery, economics, King Cotton, politics and secession. Other topics include slave cultures, religion, slave insurrections, plantation lifestyle, honor, dueling and southern belles.

**HIST 3327. THE NEW SOUTH, 1863-PRESENT. 3 Hours.**

From military defeat to Sun Belt growth. Topics include Reconstruction, segregation, migration of Southerners to the North and West, depressions, reforms, Civil Rights, Moral Majority, cultural expressions in literature and music. Offered as AAST 3327 and HIST 3327; credit will be granted in only one department.

**HIST 3328. THE AGE OF INDUSTRY AND REFORM, 1876-1920. 3 Hours.**

Examines the emergence of the United States as an industrial and world power between Reconstruction and World War I. Investigates how corporate capitalism, labor conflicts, immigration, urbanization, racial tensions, and a diverse array of reform movements laid the foundation for a recognizably modern United States. Credit will not be given for both HIST 3328 and HIST 3330 unless those courses were taken in 2007 or earlier. Prerequisites: HIST 1311 and HIST 1312.

**HIST 3334. HISTORY OF THE UNITED STATES, 1920-1945. 3 Hours.**

The technological revolution of the 1920s, the Great Depression, and World War II.



**HIST 3342. CONTEMPORARY AMERICA, 1945-PRESENT. 3 Hours.**

Special topics: the origins of the Cold War, the problem of loyalty in a democratic nation, the Vietnam conflict, the Fair Deal and Great Society, the Civil Rights Movement, student unrest and the growth of the New Left, and the impact of Richard Nixon and subsequent presidents on American politics.

**HIST 3344. HISTORY AND FILM. 3 Hours.**

Using historically-themed films, this course explores the ways in which the dramatic design of film can contribute to an understanding of history.

**HIST 3345. IMMIGRATION IN UNITED STATES HISTORY. 3 Hours.**

Immigration to the United States from the arrival of European colonists to the present. An examination of different forms of migration--voluntary and involuntary, temporary and permanent, legal and illegal. Explores the similarities and differences between the experiences of various immigrant groups. Particular attention to the shifting definitions of race, ethnicity, and citizenship, and the impact of immigrants on society and politics in the United States. Prerequisites: HIST 1311 and HIST 1312.

**HIST 3346. RADICALISM IN MODERN AMERICA. 3 Hours.**

An examination of the various movements that sought to radically alter the political and economic structure of the United States in the decades since the Civil War. This course examines the development of and differences between revolutionary movements such as anarchism, socialism, communism, and the New Left. Particular attention is given to the circumstances that gave rise to radical movements, the goals of these movements, how they attempted to achieve their goals, and the impact that they had on American society. Prerequisites: HIST 1311 and HIST 1312.

**HIST 3348. HISTORY OF AMERICAN FOREIGN RELATIONS, 1775-1913. 3 Hours.**

American foreign relations from the Revolution to the outbreak of World War I. Four topics will be explored in depth: the problems of the young republic in conducting foreign policy; the acquisition of continental empire; the rise of the United States to Great Power status; the acquisition and rule of overseas empire.

**HIST 3349. HISTORY OF AMERICAN FOREIGN RELATIONS, 1913- PRESENT. 3 Hours.**

American diplomacy from the outbreak of World War I to the present. American entry into the two World Wars; the Vietnam quagmire; American relations with the Soviet Union, China, and the Middle East.

**HIST 3350. READING THE LANDSCAPE. 3 Hours.**

How historians and geographers identify and interpret clues in the landscape (such as place names, architecture, vegetation, transportation, field and street patterns) that reflect historical change and its social, economic, environmental and geographic consequences. Offered as GEOG 3350 and HIST 3350; credit will be granted only once.

**HIST 3351. HISTORY OF THE DALLAS-FORT WORTH METROPLEX. 3 Hours.**

The growth and development of Dallas and Fort Worth from competitive 19th-century trade centers in a rural setting to cooperative high-tech cities in a rapidly urbanizing metropolis. Political, economic, cultural, and spatial changes of this area are explored within a national urban context.

**HIST 3352. THE SOUTHWEST. 3 Hours.**

A multicultural history of the southwestern United States from pre-Columbian times to the present. Cultural adaptation to environment; cultural contact and conflict; political, social, and economic change. Also listed as MAS 3352; credit will be granted only once.

**HIST 3353. AFRICAN AMERICANS IN THE WEST. 3 Hours.**

A history of African Americans in the West, focusing on the experiences of the first Africans who accompanied the first European explorers in the West and Southwest; the post-Civil War migration and settlement of African Americans in the West in the nineteenth and twentieth centuries; and the development and impact of the "West Coast" experience on African American culture. Offered as AAST 4370 and HIST 4370; credit will be granted in only one department.

**HIST 3354. RELIGION & AMERICAN CULTURE. 3 Hours.**

A summary of American religious traditions and spirituality. Emphasis on the intersection of sacred and secular in shaping national development.

**HIST 3355. ENVIRONMENTAL HISTORY OF THE UNITED STATES. 3 Hours.**

People and the natural environment from the colonial period to the present. Ecological change, conservation movements, and artistic and literary interpretations of landscape and nature. Listed as GEOG 3355 and HIST 3355; credit will be granted only once.

**HIST 3356. MILITARY HISTORY OF THE UNITED STATES. 3 Hours.**

U.S. military history from the colonial period to the present. The role of the military establishment in the nation, the historical evolution of its organization, and the basic strategic and tactical concepts which it has employed.

**HIST 3357. THE EARLY FRONTIER. 3 Hours.**

The clash of empires and the patterns of exploration and settlement from the Atlantic Coast to the Mississippi River. Indian-white relations and the development of cultural, social, and political life on the early frontier.

**HIST 3358. THE LATER FRONTIER. 3 Hours.**

American settlement west of the Mississippi River through the close of the frontier. Exploration, the fur trade, mining, the cattle industry, Indian relations, and the role of the West in U.S. foreign affairs.

**HIST 3359. PRESIDENTIAL PERSONALITY. 3 Hours.**

This course will examine in their historical contexts the dynamics of presidential behavior, personality and leadership. A select number of chief executives will be reviewed, whose backgrounds, careers, and management styles will enable students to understand the extent and limits of presidential power.

**HIST 3360. TWENTIETH CENTURY AMERICAN CULTURAL HISTORY. 3 Hours.**

The development of mass culture in 20th century America. The rise and social effects of popular culture, especially radio, film, television, advertising, and popular music.

**HIST 3361. THE UNITED STATES IN VIETNAM, 1945-1975. 3 Hours.**

American involvement in the Indochinese conflict; the causes, outcome, and consequences of the war.

**HIST 3362. CITIES AND SUBURBS IN UNITED STATES HISTORY. 3 Hours.**

Traces urban and suburban development from the colonial era to the present with special emphasis not only on the transformation of their physical appearance over time but on their changing meaning and significance in American history. Focuses on the economic base of urban and suburban expansion, as well as the social, political and cultural dynamics of metropolitan America.

**HIST 3363. TEXAS TO 1850. 3 Hours.**

Multicultural heritage of Texas from pre-Colombian period to early statehood. Cultural contact; social, economic, and political change. Completion of either HIST 3363 or HIST 3364 is recommended for those planning to teach in Texas schools. Also listed as MAS 3363; credit will be granted only once.

**HIST 3364. TEXAS SINCE 1845. 3 Hours.**

Texas in the Mexican-American and Civil Wars. Political events and ethnic relations since annexation. Rise of cotton, cattle, and oil industries. Literature and music in the 20th century. Completion of either HIST 3363 or HIST 3364 is recommended for those planning to teach history in Texas secondary schools.

**HIST 3365. AFRICAN-AMERICAN HISTORY TO 1865. 3 Hours.**

History of blacks in America from their African origins to 1865. Emphasis on early African society, American slavery, and the development of black institutions and culture in the U.S. Offered as AAST 3365 and HIST 3365; credit will be granted in only one department.

**HIST 3366. AFRICAN-AMERICAN HISTORY, 1865-PRESENT. 3 Hours.**

Emphasis on the transition from slavery to freedom, the political, social, and economic status of blacks in the late 19th century, 20th century black institutions and culture, and the evolution of the civil rights movements. Offered as AAST 3366 and HIST 3366; credit will be granted in only one department.

**HIST 3367. AMERICAN INDIAN HISTORY. 3 Hours.**

Representative Indian tribes within the continental limits of the United States from pre-history to the contemporary period. Special topics: tribal cultures, the impact of European contact, and the colonial and United States Indian policies.

**HIST 3368. MEXICAN AMERICAN HISTORY. 3 Hours.**

The role of the Mexican American in the cultural and historical development of the United States with special emphasis on the Southwest. Offered as HIST 3368 & MAS 3368; credit will be granted only once.

**HIST 3369. HISTORY OF LATINO RELIGIONS. 3 Hours.**

Treats selected aspects of Christianity and other religious expression to show their impact on identity formation, gender roles, politics and other aspects of Latino incorporation into American society. Offered as HIST 3369 and MAS 3369; credit will be granted only once.

**HIST 3370. THE IMAGE OF THE AMERICAN WEST. 3 Hours.**

The way the American West has been portrayed and the part the Western myth has played in a search for a national identity. First impressions of the new world; the West in colonial literature; fiction in the 19th and 20th centuries; art, music and film; Western themes in politics; recent variations of the Western myth; the way such developments have reflected changes in popular values and a sense of national purpose.

**HIST 3371. IMAGES OF THE SOUTHWEST. 3 Hours.**

Examines the changing culture, architecture, and landscapes of the American Southwest as depicted in literature, art, film, television, and advertising, including the role of popular culture and commerce in creating and marketing a regional "Southwestern style." Offered as GEOG 3371 and HIST 3371; credit will be granted only once.

**HIST 3372. U.S. BUSINESS AND ECONOMIC HISTORY, 1607-1865. 3 Hours.**

The roots of American economic growth with an emphasis on the transition from a colonial economy dominated by merchant families to an agricultural republic. The market and transportation revolutions as well as the developing sectional conflict between the emerging Northern industrial economy and the Southern agricultural slave economy.

**HIST 3373. U.S. ECONOMIC HISTORY, 1860-PRESENT. 3 Hours.**

Rise of manufacturing, marketing, and electrification. Organized labor and rebellions against the corporate world. Government regulation of business and labor. Corporations and unions during depressions and wars. Auto, high tech, and other industries. The military-industrial complex. Franchising and other trends.

**HIST 3374. ANCIENT GREECE. 3 Hours.**

The origins, development and diversity, successes and failures of Ancient Greece from around 1500 to 31 B.C. Near Eastern and Bronze Age background; Archaic Age and the City State; Sparta and Athens; war and imperialism; democracy and culture; Alexander the Great and the Hellenistic Era.

**HIST 3375. ANCIENT ROME. 3 Hours.**

The origin, development, expansion, problems, and achievements of the Roman Republic and Empire. Roots and rise of Rome; Roman Imperialism; Republic and Revolution; Roman Empire, Emperors, and Peace; Paganism and Christianity; Late Empire.

**HIST 3376. MEDIEVAL EUROPE I. 3 Hours.**

The rise of new states and cultures in western Europe and Byzantium after the Roman Empire's breakdown; institutional Christianity and the medieval papacy; foundation of the Holy Roman Empire; Islam at Europe's borders.

**HIST 3377. MEDIEVAL EUROPE II. 3 Hours.**

The formation of national, religious, and ethnic identities in Europe; intellectual developments associated with universities and new religious movements; the expansion of Europe's borders; and the confrontation of Western Christianity with Islam.

**HIST 3378. EUROPE: THE RENAISSANCE. 3 Hours.**

The political, social, and intellectual events of the Renaissance period. The rise of the modern state, the emergence of individualism, and the incipient secularization of politics, arts, and letters.

**HIST 3379. EUROPE: THE REFORMATION AND COUNTER-REFORMATION. 3 Hours.**

The religious reawakening and reform that swept Europe in the 16th century with its consequent religious wars. The political effects of religious reform in the remaking of European attitudes in regard to politics, society, and religion.

**HIST 3380. HISTORY OF ANCIENT SPORT. 3 Hours.**

The nature, variety, and role of sports in ancient history. The origin and development of sport in Greece and Rome, the Olympic Games, religious and political implications, the nature of events and contests, intellectual and popular attitudes, sport in art and society.

**HIST 3382. REVOLUTIONS AND REVOLUTIONARIES IN HISTORY. 3 Hours.**

A historical examination of the world's major revolutions, from the 16th through the 20th centuries.

**HIST 3383. EARLY MODERN EUROPE, 1560-1715. 3 Hours.**

The major social, economic, cultural, and political developments that occurred in the major European countries from the end of the Counter-Reformation to the early eighteenth century.

**HIST 3384. WAR AND SOCIAL CHANGE/MILITARY REVOLUTION. 3 Hours.**

Changes in European art of war from advent of gunpowder to American rebellion. Effects of these changes upon demography, political institutions, industrial production, social structure, and taxation patterns.

**HIST 3389. WORLD WAR II, 1939-1945. 3 Hours.**

Various aspects of the Second World War from American, European, and Asian perspectives. Origins of the conflict, U.S. mobilization, the Holocaust, the Soviet-German confrontation, and the legacy of the most devastating conflict in modern history.

**HIST 3390. HONORS COLLOQUIUM. 3 Hours.**

A multidisciplinary course designed to meet the needs of advanced undergraduates in the Honors College.

**HIST 4101. MOOT COURT. 1 Hour.**

Students will develop an understanding of legal debate and legal history through the study of constitutional law and legal research methods in preparation for simulated oral arguments before the Supreme Court of the United States. Attendance at statewide competitions required. May be repeated for total of 3 hours credit. This course does not satisfy distribution requirements. Offered as HIST 4101 and POLS 4101; may be taken in only one department per semester.

**HIST 4191. UNDERGRADUATE CONFERENCE COURSE. 1 Hour.**

Topics assigned on an individual basis covering personal research or study in designated areas with tenure-track/tenured faculty. Course may be repeated for credit once with a change in faculty. Prerequisite: Prior completion of an organized course with the intended conference faculty member, plus prior approval of the instructor and the undergraduate advisor. The faculty member may petition for the student's exemption from these prerequisites.

**HIST 4291. UNDERGRADUATE CONFERENCE COURSE. 2 Hours.**

Topics assigned on an individual basis covering personal research or study in designated areas with tenure-track/tenured faculty. Course may be repeated for credit once with a change in faculty. Prerequisite: Prior completion of an organized course with the intended conference faculty member, plus prior approval of the instructor and the undergraduate advisor. The faculty member may petition for the student's exemption from these prerequisites.

**HIST 4301. HISTORICAL GEOGRAPHY AND CARTOGRAPHY. 3 Hours.**

An introduction to cultural and historical geography with an emphasis on cartography and the use of maps in research and teaching. Offered as GEOG 4301 and HIST 4301; credit will be granted only once.

**HIST 4330. MEDIEVAL CRUSADE AND JIHAD. 3 Hours.**

A history of the crusading movement of Western Europe, and the counter-crusades. This course will consider the events, ideas, and peoples involved, and their impacts on the civilizations of medieval Christendom, North Africa, and the Middle East.

**HIST 4331. MEDIEVAL TRAVELERS. 3 Hours.**

Medieval people traveled for a wide variety of reasons: exploration, survival, profit, belief. Students will study medieval travel accounts to understand how voyages and other travels illustrate cultural contact, communication, exchange, and diffusion of ideas.

**HIST 4345. TUDOR-STUART ENGLAND, 1485-1714. 3 Hours.**

The legacy of the Wars of the Roses: the so called new monarchy of the Tudors; The Protestant Reformation in England; constitutional implications of the controversy between crown and Parliament; changes in family and social structures; the emergence of England as a world power. Credit cannot be received for both HIST 4345 and HIST 4346 or HIST 4347.

**HIST 4348. ENGLAND 1714-1848. 3 Hours.**

English history in the age of revolution. Topics include the consolidation of aristocratic power, nature of Parliament, rise of Empire and the American rebellion, the Industrial Revolution, the governance of Ireland, wars of the French Revolution and Napoleon, the challenge of democratic radicalism and the alternative of political reform or revolution.

**HIST 4349. ENGLAND 1848 - PRESENT. 3 Hours.**

English history from Victorian grandeur to 20th century decline. Topics include the growth of social stability and democracy, the rise to and fall from world supremacy in industry and empire, the labor and women's movements, the problem of Ireland, World Wars I and II, the emergence of the socialist state, and its post-1980 revision by recent prime ministers.

**HIST 4350. BRITISH CONSTITUTIONAL HISTORY. 3 Hours.**

The development of the British constitution from its earliest beginnings to the present day, with special emphasis on the Anglo-Saxon institutions, the Norman constitutional development, the evolution of the major offices of the government, the development of Parliament, constitutional developments of the Stuarts, the Hanoverian constitution, the growth of democracy in the 19th and 20th centuries, and the imperial and commonwealth institutions.

**HIST 4351. BRITISH EMPIRE. 3 Hours.**

Examines the major parts of the empire--Ireland, Canada, West Indies, India, Australia/New Zealand, and South Africa--from 1600 to present. Also considers English attitudes and policies, and changing ideas of imperialism.

**HIST 4352. MODERN IRELAND. 3 Hours.**

The contemporary crisis in Ireland in the light of Irish history. Begins with a look at present day Ireland, North and South, then examines the history: the English conquest in the 16th and 17th centuries, the awakening of 18th century Ireland, the 19th century "Irish Question"; the South's war for independence and the creation of Northern Ireland, the rise of the I.R.A. and the Protestant terrorist groups, and recent British and Irish government policies.

**HIST 4354. EARLY FRANCE: OLD REGIME AND REVOLUTION, 1610-1799. 3 Hours.**

Society and politics from the assassination of Henry IV to Napoleon. The traditions of the French people and their kings, the splendor and misery of the Age of Louis XIV, the Enlightenment of Voltaire and Rousseau, the coming of the Revolution, the Reign of Terror, and the rise of Napoleon.

**HIST 4355. MODERN FRANCE, 1799-PRESENT. 3 Hours.**

From Napoleon to the emergence of a modern democratic state. Social and cultural trends together with the politics of two monarchies, two empires, five republics, and two German occupations. The acceleration of change in recent decades in contrast with earlier social patterns.

**HIST 4356. IMPERIAL GERMANY, 1740-1914. 3 Hours.**

Prussian, German, and Hapsburg empires. Feudal society, absolutism, German romanticism, democratization, industrialization. The challenges of nationalism, colonialism, and the collapse of the empires.

**HIST 4357. MODERN GERMANY, 1914-1990. 3 Hours.**

Social, political, and cultural history of Germany through World War I and II, division of Germany into East and West and ultimate unification.

**HIST 4358. THE THIRD REICH: GERMAN HISTORY, 1933 - 1945. 3 Hours.**

A pivotal event in the history of the twentieth century, Hitler's Germany continues to elicit fascination, revulsion, and controversy. Dealing with this extraordinary and deeply disturbing historical phenomenon, the seminar explores the origin, nature, and demise of the Third Reich. Beginning with the rise of the National Socialism in Weimar Germany, it goes on to examine the Nazi seizure of power, the centrality of Hitler, the ideology and racial agenda of Nazism, and the destruction of the Reich in five years of war and genocide. These and other topics, such as popular opinion and everyday life, will be discussed from a variety of perspectives - cultural, political, and socioeconomic - to provide a broad interpretative framework for understanding the genesis, consolidation, and criminality of the Nazi State.

**HIST 4359. HISTORY OF RUSSIA TO 1855. 3 Hours.**

A survey of Russian history from the origins of the first Russian state through the reign of Nicholas I. Special attention to such topics as the Kievan Rus, the Mongol impact and Muscovite state, the rise of Imperial Russia, and Russia's emergence as a global power. Offered as HIST 4359 and RUSS 4359.

**HIST 4360. HISTORY OF RUSSIA SINCE 1855. 3 Hours.**

A survey of Russian history from the reign of Alexander II to the present. Special attention to such topics as the decline of Imperial Russia, the rise of the revolutionary spirit, and the emergence, consolidation, and development of the Soviet state. Offered as HIST 4360 and RUSS 4360.

**HIST 4361. THE RUSSIAN EMPIRE 1552-1917. 3 Hours.**

The political, social, and cultural impact of Russian imperial rule between the sixteenth and twentieth centuries; interactions between the Russian state and non-Russian nationalities during the successive stages of the Russian expansion: the Siberian frontier in the 16th and 17th centuries; the "Western Borderlands" (Eastern Europe) from the 18th century on; the Russian presence in the Caucasus and Central Asia in the 19th century. Special focus on the structure and functioning of Russian imperial institutions; types of contact between Russians and non-Russians (strategies of conquest, resistance, forms of collaboration); and the production of culture and knowledge in the service of the Russian empire.

**HIST 4362. RUSSIA AND THE SUCCESSOR STATES TODAY. 3 Hours.**

The metamorphosis of the Communist Party and the current political philosophies of the post-Soviet states. Examination of attitudes and self-perceptions of citizens of these states in the post-Soviet period. Offered as HIST 4362, POLS 4362, and RUSS 4362; credit will be given in only one department.

**HIST 4365. HISTORY OF SPAIN AND PORTUGAL. 3 Hours.**

The cultural, political and economic history of the Iberian peninsula from ancient times. The medieval epoch; the Catholic Church; the overseas empires of Spain and Portugal, and their artistic achievements. The monarchist ideal, as well as political ideologies such as liberalism, Marxism, anarchism, and fascism.

**HIST 4366. LATIN AMERICAN HISTORY: ORIGINS THROUGH INDEPENDENCE. 3 Hours.**

Latin America during the colonial period of Spanish and Portuguese rule. Pre-European civilizations; Iberian backgrounds; conquest of indigenous peoples; development of colonial institutions, economic patterns, social structures, and race relations; independence from Europe.

**HIST 4367. LATIN AMERICAN HISTORY: POST-INDEPENDENCE TO THE PRESENT. 3 Hours.**

The evolution of six Latin American nations during the 19th and 20th centuries. The social, economic, and political development of three social groups in three regions: the Europeanized southern cone area of Argentina, Chile, and Uruguay; the indigenous culture of the Andean mountains in Peru; the African background of Brazil and Cuba.

**HIST 4368. HISTORY OF MEXICO. 3 Hours.**

Mexican history from its pre-Colonial indigenous foundation to the current situation. A social and economic analysis of the major events in Mexican history with emphasis upon the 19th and 20th centuries. The major theme in this class is the growth of Mexican nationalism and its relation to region, religion and ethnicity. Also listed as MAS 4368.

**HIST 4369. HISTORY OF THE CARIBBEAN. 3 Hours.**

A comparative history of the different societies in the Caribbean (including Cuba, Jamaica, and Haiti) with emphasis on the coming of slavery and the consequences of emancipation. Will trace development of emerging new societies from intermingling of Amerindian, African and European elements.

**HIST 4374. AFRICAN HISTORY I. 3 Hours.**

Examines African prehistory, ancient civilizations, religion, gender issues, slavery, and commerce in precolonial Africa. Offered as AAST 4374 and HIST 4374; credit will be granted in only one department.

**HIST 4375. AFRICAN HISTORY II. 3 Hours.**

Africa from the "Scramble for Africa" through the establishment of the various colonial systems, through the beginnings of African nationalism, to the contemporary period. The African Revolution and the development of the independent African states. Offered as AAST 4375 and HIST 4375; credit will be granted in only one department.

**HIST 4376. AFRICAN DIASPORA I. 3 Hours.**

The major developments which have shaped the history of Africans and their descendants in the Atlantic, Mediterranean, and Indian Ocean areas from the earliest times to 1800. Emphasis on the comparative history of Black Diasporic communities; linkages between Africans and their descendants in the Diaspora. Offered as AAST 4376 and HIST 4376; credit will be granted in only one department.

**HIST 4377. AFRICAN DIASPORA II. 3 Hours.**

The major developments which have shaped the history of Africans and their descendants in Latin America, the Caribbean, and North America since 1800. Emphasis on the comparative history of Black Diasporic communities; linkages between Africans and their descendants in the Atlantic Diaspora. Offered as AAST 4377 and HIST 4377; credit will be granted in only one department.

**HIST 4378. WEST AFRICA AND THE ATLANTIC DIASPORA. 3 Hours.**

This course examines the history of West Africa and how this region was integrated into the Atlantic world through the Atlantic slave trade. The course adopts an interdisciplinary approach that integrates traditional classroom instruction with field-based learning in West Africa. This learning method, combined with cultural immersion, challenges students to develop their academic and cross-cultural knowledge and skills. Offered as AAST 4378 and HIST 4378; credit will be granted in only one department.

**HIST 4379. HISTORY OF MODERN CHINA. 3 Hours.**

The Ching dynasty and China's response to the West. Revolution and republic, warlords, and the Japanese occupation during World War II. Civil War and the development of the People's Republic of China.

**HIST 4383. HITLER: HISTORY & IMAGE. 3 Hours.**

Hitler has been vilified, ridiculed, idolized, and mythologized. In this course, we will examine Hitler the historical figure as well as the image of Hitler created through literature, theatre, and cinema.

**HIST 4384. DEMOCRACY AND DICTATORSHIP IN EUROPE. 3 Hours.**

The political landscape of Europe from 1917 to 2000. Topics will include the varying expressions of communism, facism, Nazism, liberal democracy, and authoritarian dictatorship.

**HIST 4388. SELECTED TOPICS IN HISTORY. 3 Hours.**

Subjects of immediate interest in the various fields of history. May be repeated for credit when the topic changes.

**HIST 4391. UNDERGRADUATE CONFERENCE COURSE. 3 Hours.**

Topics assigned on an individual basis covering personal research or study in designated areas with tenure-track/tenured faculty. Course may be repeated for credit once with a change in faculty. Prerequisite: Prior completion of an organized course with the intended conference faculty member, plus prior approval of the instructor and the undergraduate advisor. The faculty member may petition for the student's exemption from these prerequisites.

**HIST 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department.

**HIST 5191. INDEPENDENT STUDY. 1 Hour.**

For masters students pursuing independent research or study under the supervision of a faculty member.

**HIST 5291. INDEPENDENT STUDY. 2 Hours.**

For masters students pursuing independent research or study under the supervision of a faculty member.

**HIST 5301. READING COLLOQUIUM IN 19TH CENTURY U.S. HISTORY. 3 Hours.**

An examination of the historical literature and issues in 19th Century United States history. The specific literature and issues examined will vary with the instructor.

**HIST 5302. READING COLLOQUIUM IN 20TH CENTURY U.S. HISTORY. 3 Hours.**

An examination of the historical literature and issues in 20th Century United States history. The specific literature and issues examined will vary with the instructor.

**HIST 5304. READING COLLOQUIUM IN REGIONAL /TOPICAL U.S. HISTORY. 3 Hours.**

An examination of the historical literature and issues pertaining to a region or a major topic in the history of the U.S. The specific literature and issues examined will vary with the instructor.

**HIST 5310. READING COLLOQUIUM IN ANCIENT AND MEDIEVAL HISTORY. 3 Hours.**

An examination of the historical literature and issues in ancient and medieval history. The specific literature and issues examined will vary with the instructor.

**HIST 5311. READING COLLOQUIUM IN PRE-1800 EUROPEAN / LATIN AMERICAN / AFRICAN HISTORY. 3 Hours.**

An examination of the historical literature and issues in Pre-1800 European/Latin American/African history. The specific literature and issues examined will vary with the instructor.

**HIST 5312. READING COLLOQUIUM IN POST-1800 EUROPEAN / LATIN AMERICAN / AFRICAN HISTORY. 3 Hours.**

An examination of the historical literature and issues in Post-1800 European / Latin American / African history. The specific literature and issues examined will vary with the instructor.

**HIST 5313. READING COLLOQUIUM IN REGIONAL/TOPICAL EUROPEAN/LATIN AMERICAN/AFRICAN HISTORY. 3 Hours.**

An examination of the historical literature and issues pertaining to a region or a major topic in European/Latin American/African history. The specific literature and issues examined will vary with the instructor.

**HIST 5321. RESEARCH SEMINAR IN 19TH CENTURY U.S. HISTORY. 3 Hours.**

A detailed investigation of a major aspect of 19th Century United States history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**HIST 5322. RESEARCH SEMINAR IN 20TH CENTURY U.S. HISTORY. 3 Hours.**

A detailed investigation of a major aspect of 20th Century United States history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**HIST 5324. RESEARCH SEMINAR IN REGIONAL/TOPICAL U.S. HISTORY. 3 Hours.**

A detailed investigation of a major aspect of a region or a major topic in the history of the U.S., involving research and use of historical resources. The particular aspect investigated will vary with the instructor.

**HIST 5330. RESEARCH SEMINAR IN ANCIENT AND MEDIEVAL HISTORY. 3 Hours.**

A detailed investigation of a major aspect of ancient and medieval history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**HIST 5331. RESEARCH SEMINAR IN PRE-1800 EUROPEAN/LATIN AMERICAN/AFRICAN HISTORY. 3 Hours.**

A detailed investigation of a major aspect of Pre-1800 European/Latin American/African history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**HIST 5332. RESEARCH SEMINAR IN POST-1800 EUROPEAN/LATIN AMERICAN/AFRICAN HISTORY. 3 Hours.**

A detailed investigation of a major aspect of Post-1800 European / Latin American / African history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**HIST 5333. RESEARCH SEMINAR IN REGIONAL/TOPICAL EUROPEAN/LATIN AMERICAN/AFRICAN HISTORY. 3 Hours.**

A detailed investigation of a region or a major topic in European / Latin American / African history, involving research and use of historical resources. The particular aspect investigated will vary with the instructor.

**HIST 5339. HISTORICAL THEORY AND METHODOLOGY. 3 Hours.**

An examination of theories of historical knowledge, the history of the discipline, various historical methodologies, and research techniques. Required for all history M.A. and Ph.D. students.

**HIST 5340. ISSUES AND INTERPRETATIONS IN U.S. HISTORY. 3 Hours.**

A critical survey of U.S. historical scholarship from colonial times to the present. Required for all history M.A. students who are emphasizing U.S. history.

**HIST 5341. APPROACHES TO WORLD HISTORY. 3 Hours.**

A critical survey of approaches to the study of global and comparative history.

**HIST 5342. PRINCIPLES OF ARCHIVES AND MUSEUMS I. 3 Hours.**

The historical evolution of archival science, emphasizing the development of the archives profession, archival principles and theories, appraisal and acquisition techniques, the laws affecting archives, programming and outreach, automation, conservation and preservation, and administration of collections.

**HIST 5343. PRINCIPLES OF ARCHIVES AND MUSEUMS II. 3 Hours.**

Training in the methods and techniques of processing archives and historical manuscripts. Focuses on the day-to-day responsibilities of archivists and curators, such as appraising, accessioning, arranging, and describing collections.

**HIST 5345. INTRODUCTION TO PUBLIC HISTORY. 3 Hours.**

An overview of the field of public history focusing on public historians, their work, their relationship to academic historians, their accomplishments, and the ethical principles under which they operate.

**HIST 5347. INTRODUCTION TO TEACHING COLLEGE HISTORY. 3 Hours.**

Course discusses teaching philosophies, techniques and technologies in order to help students become more effective college instructors.

**HIST 5348. TOPICS IN PUBLIC HISTORY. 3 Hours.**

A detailed examination of some aspect of public history (e.g. historical editing, oral history, historic preservation). The particular topic will vary with the instructor.

**HIST 5349. INTRODUCTION TO TRANSATLANTIC HISTORY. 3 Hours.**

Provides overview of the field of Transatlantic history and introduction to historiographical debates.

**HIST 5350. HISTORY OF CARTOGRAPHY. 3 Hours.**

A history of maps and their making and cartographic documentation as a source for understanding historical development. An aspect of the history of science and technology and the history of discovery and exploration.

**HIST 5360. READING COLLOQUIUM IN EARLY TRANSATLANTIC HISTORY. 3 Hours.**

Course topic varies; focuses on topics in transatlantic history prior to 1850.

**HIST 5361. READING COLLOQUIUM IN LATE TRANSATLANTIC HISTORY. 3 Hours.**

Course topic varies; focuses on topics in transatlantic history after 1850.

**HIST 5363. READING COLLOQUIUM IN NATIONAL HISTORIES. 3 Hours.**

Course topic varies; focuses on a chronological period or theme within the history of a single nation-state.

**HIST 5364. READING COLLOQUIUM IN TRANSNATIONAL HISTORY. 3 Hours.**

Course topic varies; focuses on topics in transnational history.

**HIST 5365. READING COLLOQUIUM: TOPICS. 3 Hours.**

Course topic varies; focuses on themes and topics in history.

**HIST 5390. DIRECTED STUDIES FOR MASTERS STUDENTS. 3 Hours.**

Directed study for masters students who have arranged to pursue specific topics of historical inquiry.

**HIST 5391. INDEPENDENT STUDY. 3 Hours.**

For masters students pursuing independent research or study under the supervision of a faculty member.

**HIST 5392. HISTORICAL PERSPECTIVES ON THE HUMANITIES. 3 Hours.**

An historical inquiry into problems and issues of contemporary relevance in the humanistic disciplines. The particular problems and issues investigated will vary with the instructor.

**HIST 5395. NON-THESIS CAPSTONE. 3 Hours.**

Readings in the non-thesis student's final semester, directed by the three-person faculty committee supervising the student's program of work. Required of all non-thesis history M.A. students.

**HIST 5398. THESIS. 3 Hours.**

For thesis history M.A. students.

**HIST 5644. ARCHIVAL/PUBLIC HISTORY INTERNSHIP. 6 Hours.**

Work experience for either Archival or Public History students. Archival Certification: Hands-on experience in archives, records centers, or historical manuscripts repositories. Public History: Placement in a history-oriented position in a private or public agency or organization in the community.

**HIST 5655. PUBLIC HISTORY INTERNSHIP. 6 Hours.****HIST 5691. INDEPENDENT STUDY. 6 Hours.**

For masters students pursuing independent research or study under the supervision of a faculty member.

**HIST 5698. THESIS. 6 Hours.**

For thesis history M.A. students.

**HIST 5998. THESIS. 9 Hours.**

**HIST 6190. DIRECTED STUDIES FOR PhD STUDENTS. 1 Hour.**

Directed study for Ph.D. students who have arranged to pursue specific topics of historical inquiry.

**HIST 6191. INDEPENDENT STUDY. 1 Hour.**

**HIST 6301. EXPLORATION AND CARTOGRAPHY. 3 Hours.**

This colloquium introduces students to the study of the period of European exploration and the mapping of the New World. Required for all history Ph.D. students.

**HIST 6302. MIGRATION AND SETTLEMENT. 3 Hours.**

This colloquium introduces students to the study of migration and subsequent settlement of people from Africa and Europe in North and South America from the fifteenth century to the present time. Required for all history Ph.D. students.

**HIST 6303. REVOLUTIONS AND TRANSFORMATIONS. 3 Hours.**

This colloquium introduces student to the study of the political, economic and cultural revolutions and transformations that occurred within the transatlantic world. Required for all history Ph.D. students.

**HIST 6304. IDENTITIES AND ENCOUNTERS. 3 Hours.**

This colloquium introduces students to the study of cultural and social contacts between people and societies within the transatlantic world as well as the construction of identities that resulted from these contacts. Required for all history Ph.D. students.

**HIST 6321. TRANSATLANTIC HISTORY TO 1800. 3 Hours.**

This seminar allows students to research topics within the field of transatlantic history from its early beginnings in the tenth century to 1800. Required for all history Ph.D. students.

**HIST 6322. TRANSATLANTIC HISTORY POST 1800. 3 Hours.**

This seminar allows students to research topics within the field of transatlantic history from 1800 to the present time. Required for all history Ph.D. students.

**HIST 6323. COLONIALISM AND IMPERIALISM, 1700 - PRESENT. 3 Hours.**

This seminar allows students to research topics within the field of the history of cartography and geography from 1700 to the present time. Required for all history Ph.D. students.

**HIST 6337. INTRODUCTION TO TRANSATLANTIC HISTORY TO 1800. 3 Hours.**

This course introduces students to the relevant historiography of pre-1800 transatlantic history. Required for all history Ph.D. students.

**HIST 6338. INTRODUCTION TO TRANSATLANTIC HISTORY POST 1800. 3 Hours.**

This course introduces students to the relevant historiography of post-1800 transatlantic history. Required for all history Ph.D. students.

**HIST 6360. RESEARCH SEMINAR IN EARLY TRANSATLANTIC HISTORY. 3 Hours.**

Research seminar focuses on primary source research on topics in transatlantic history prior to 1850.

**HIST 6361. RESEARCH SEMINAR IN LATE TRANSATLANTIC HISTORY. 3 Hours.**

Research course focuses on primary source research on topics in transatlantic history after 1850.

**HIST 6363. SEMINAR IN NATIONAL HISTORIES. 3 Hours.**

Topic varies; this is a research seminar that focuses on the history of a given nation-state.

**HIST 6364. SEMINAR IN TRANSNATIONAL HISTORY. 3 Hours.**

Topics vary; this is a research seminar focusing on some aspect of transnational history.

**HIST 6365. SEMINAR: TOPICS. 3 Hours.**

Topics vary; this is a research seminar that will focus on an historical theme or topic.

**HIST 6390. DIRECTED STUDIES FOR PhD STUDENTS. 3 Hours.**

Directed study for Ph.D. students who have arranged to pursue specific topics of historical inquiry.

**HIST 6391. INDEPENDENT STUDY. 3 Hours.**

For history Ph.D. students.

**HIST 6399. DISSERTATION. 3 Hours.**

**HIST 6690. DIRECTED STUDIES FOR PhD STUDENTS. 6 Hours.**

Directed study for Ph.D. students who have arranged to pursue specific topics of historical inquiry.

**HIST 6691. INDEPENDENT STUDY. 6 Hours.**

For history Ph.D. students.

**HIST 6699. DISSERTATION. 6 Hours.**

Dissertation research.

**HIST 6990. DIRECTED STUDIES FOR PhD STUDENTS. 9 Hours.**

Directed study for Ph.D. students who have arranged to pursue specific topics of historical inquiry.

**HIST 6991. INDEPENDENT STUDY. 9 Hours.**

For history Ph.D. students.



**HIST 6999. DISSERTATION. 9 Hours.****HIST 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Honors (HONR)

### COURSES

**HONR 1100. ENRICHMENT SERIES. 1 Hour.**

Provides an introduction and orientation to the Honors College. Designed to assist students in acquiring skills for academic survival, individual success, and pursuit of their Honors degree and career possibilities. Format varies; instruction by both faculty and Honors College student peer counselors.

**HONR 1304. HONORS INDEPENDENT STUDY. 3 Hours.**

Independent study courses are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 2104. HONORS INDEPENDENT STUDY. 1 Hour.**

Independent study topics are arranged on an individual basis. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 2106. HONORS SEMINAR. 1 Hour.**

The Honors Seminar will cover topics of general interdisciplinary interest to students from a wide variety of academic disciplines. Active learning will be stressed with all students expected to both moderate and participate in classroom discussions of seminar topics. Instructors and topics offered will vary. The course may be repeated for credit as topics change.

**HONR 2111. HONORS COMMUNITY SERVICE LEARNING. 1 Hour.**

Intensive course in the history and practice of community service learning (CSL). Readings will include general accounts of active learning, the institutional history of CSL in higher education, and a comparative study of CSL programs across the country. Students will design and implement a CSL project based on their major, and in conjunction with an area non-profit organization. Evaluation will be based on written work on both the readings and the CSL project.

**HONR 2203. HONORS SPECIAL TOPICS. 2 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR 2204. HONORS INDEPENDENT STUDY. 2 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 2300. SEMINAR. 3 Hours.**

Team-taught interdisciplinary course that introduces knowledge and perspectives from the arts, sciences, and humanities. Designed around a theme of current or historical significance. Writing-intensive. Depending on topic, may meet the literature, fine arts/humanities or social/cultural studies requirement of the core curriculum (consult departmental advisor for details).

**HONR 2304. HONORS INDEPENDENT STUDY. 3 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 2403. SPECIAL TOPICS. 4 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR 2404. HONORS INDEPENDENT STUDY. 4 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 2435. HONORS SPECIAL TOPICS. 4 Hours.**

Topics, format and prerequisites to be determined by faculty offering the course. May be repeated for credit as topics change.

**HONR 3103. INDEPENDENT STUDY. 1 Hour.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR 3104. SPECIAL TOPICS. 1 Hour.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR 3203. HONORS INDEPENDENT STUDY. 2 Hours.**

Independent study topics are arranged on an individual basis. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 3204. SPECIAL TOPICS. 2 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR 3303. INDEPENDENT STUDY. 3 Hours.**

Independent study topics are arranged on an individual basis. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 3403. HONORS INDEPENDENT STUDY. 4 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 3404. HONORS SPECIAL TOPICS. 4 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR 3435. HONORS SPECIAL TOPICS. 4 Hours.**

Topics, format and prerequisites to be determined by faculty offering the course. May be repeated for credit as topics change.

**HONR 3504. HONORS SPECIAL TOPICS. 5 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR 3535. HONORS SPECIAL TOPICS. 4 Hours.**

Topics, format and prerequisites to be determined by faculty offering the course. May be repeated for credit as topics change.

**HONR 4000. INDEPENDENT STUDY ABROAD. 0 Hours.**

Individualized research and/or fieldwork outside the U.S. Proposals are solicited each year in the spring for custom-designed projects to be carried out during the summer. Preference will be given to juniors and seniors. This course is particularly recommended for students seeking to enhance their Honors senior projects. Prerequisite: membership in the Honors College and prior approval by the Dean of Honors.

**HONR 4103. ADVANCED SPECIAL TOPICS. 1 Hour.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR 4104. HONORS INDEPENDENT STUDY. 1 Hour.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 4106. HONORS ADVANCED SEMINAR. 1 Hour.**

The Honors Advanced Seminar will cover topics of general interdisciplinary interest to students from a wide variety of academic disciplines. Active learning will be stressed with all students expected to research and prepare seminar presentations and moderate class discussions on assigned seminar topics. Instructors and topics offered will vary. The course may be repeated for credit as topics change. Prerequisite: Junior or Senior status or permission of the instructor.

**HONR 4144. HONORS SERVICE LEARNING OPPORTUNITIES. 1 Hour.**

Credit will be given for supervised service to a community agency. The service must be related to formal coursework and approved by a faculty mentor and a degree plan advisor. Prerequisite: Junior standing or permission of the Honors College Dean. Graded Pass/Fail.

**HONR 4203. ADVANCED SPECIAL TOPICS. 2 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR 4204. HONORS INDEPENDENT STUDY. 2 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 4244. HONORS SERVICE LEARNING OPPORTUNITIES. 2 Hours.**

Credit will be given for supervised service to a community agency. The service must be related to formal coursework and approved by a faculty mentor and a degree plan advisor. Graded Pass/Fail.

**HONR 4300. ADVANCED SEMINAR. 3 Hours.**

Integrates substantive knowledge in the arts, sciences, and humanities around a theme of current or historical significance. May meet the Social/Cultural Studies requirement of the core curriculum.

**HONR 4303. ADVANCED SPECIAL TOPICS. 3 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR 4304. HONORS INDEPENDENT STUDY. 3 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 4310. HONORS STUDY ABROAD. 3 Hours.**

Interdisciplinary course in an out-of-country location around a theme or topic appropriate to the location. Journal, term papers, and/or examinations may be required. Meets the Social/Cultural Studies requirement of the core curriculum.

**HONR 4320. HONORS INTERNSHIP. 3 Hours.**

Supervised employment in student's area(s) of interest. Journal and term paper required. Reserved for students whose major department does not offer an Internship course.

**HONR 4344. HONORS SERVICE LEARNING OPPORTUNITIES. 3 Hours.**

Credit will be given for supervised service to a community agency. The service must be related to formal coursework and approved by a faculty mentor and a degree plan advisor. Graded Pass/Fail.

**HONR 4394. HONORS SENIOR RESEARCH THESIS/CREATIVE PROJECT. 3 Hours.**

A research thesis or creative project and oral presentation are required for the Honors degree. In consultation with the faculty thesis supervisor and the Honors Dean, a program of research and writing will be arranged. Planning for the Honors Thesis/Creative Project should begin early in the student's junior year. For more extensive projects additional credit may be earned. Full details for completing the Honors Research Thesis/Creative Project are provided on the Honors website, <http://www.honors.uta.edu/thesis/>. This course is reserved for departments and programs that do not list dedicated thesis courses in their inventories.

**HONR 4403. HONORS SPECIAL TOPICS. 4 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR 4404. HONORS INDEPENDENT STUDY. 4 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 4435. HONORS SPECIAL TOPICS. 4 Hours.**

Topics, format and prerequisites to be determined by faculty offering the course. May be repeated for credit as topics change.

**HONR 4503. HONORS SPECIAL TOPICS. 5 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR 4504. HONORS INDEPENDENT STUDY. 5 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR 4535. HONORS SPECIAL TOPICS. 5 Hours.**

Topics, format and prerequisites to be determined by faculty offering the course. May be repeated for credit as topics change.

## Honors-Architecture (HONR-AR)

### COURSES

**HONR-AR 2303. HONORS SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-AR 4303. ADVANCED SPECIAL TOPICS. 3 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR-AR 4604. HONOR INDEPENDENT STUDY. 6 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

## Honors-Business (HONR-BU)

### COURSES

**HONR-BU 2303. HONORS SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-BU 3304. SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-BU 4303. ADVANCED SPECIAL TOPICS. 3 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR-BU 4311. LEADER AS COMMUNICATOR. 3 Hours.**

Helps students excel in written and oral communication skills. Assignments include writing short papers, making oral presentations, and learning to critique one another. This course provides a perspective on leadership in formal organizations with emphasis on communication, exercising influence, decision-making, and conflict management. Prerequisite: Admission to the Goolsby Leadership Academy.

**HONR-BU 4312. LEADER ETHICS. 3 Hours.**

Addresses rule-based, consequential, and virtue ethics by examining intentions, actions, and consequences of individual behavior. The course emphasizes the development of character and personal integrity. Prerequisite: Admission to the Goolsby Leadership Academy or permission of the Goolsby Leadership Academy Director.

**HONR-BU 4313. SENIOR EXECUTIVE LEADERSHIP. 3 Hours.**

Course consists of a series of lectures by executives who provide insight into their own unique leadership skills and development. Prerequisite: Admission to the Goolsby Leadership Academy.

**HONR-BU 4314. LEADERSHIP IN CONTEXT. 3 Hours.**

Designed to assist Goolsby Fellows to be competent in an intercultural world. The heart of the course is aimed at appreciating human diversity and variance. Prerequisite: Admission to the Goolsby Leadership Academy or permission of the Goolsby Leadership Academy Director.

**HONR-BU 4315. EXECUTIVE INTERNSHIP. 3 Hours.**

This internship experience places Goolsby Fellows in field settings with executives from the college's Advisory Council and other executive leaders in specialized areas for students. Prerequisite: Admission to the Goolsby Leadership Academy or permission of the Goolsby Leadership Academy Director.

**HONR-BU 4394. HONORS SENIOR RESEARCH THESIS/CREATIVE PROJECT. 3 Hours.**

A research thesis or creative project and oral presentation are required for the Honors degree. In consultation with the faculty thesis supervisor and the Honors Dean, a program of research and writing will be arranged. Planning for the Honors Thesis/Creative Project should begin early in the student's junior year. For more extensive projects additional credit may be earned. Full details for completing the Honors Research Thesis/Creative Project are provided on the Honors website, <http://www.honors.uta.edu/thesis/>. This course is reserved for departments and programs that do not list dedicated thesis courses in their inventories.

## Honors-Education (HONR-ED)

### COURSES

**HONR-ED 3304. SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

## Honors-Engineering (HONR-EN)

### COURSES

**HONR-EN 2303. HONORS SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-EN 3304. SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-EN 4303. ADVANCED SPECIAL TOPICS. 3 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR-EN 4304. HONORS INDEPENDENT STUDY. 3 Hours.**

Independent study topics are arranged on an individual basis with permission of an instructor. Performance may be assessed by oral or written examination, research or review paper as arranged.

## Honors-Liberal Arts (HONR-LA)

### COURSES

**HONR-LA 1301. HONORS COMPOSITION I. 3 Hours.**

Introduction to academic writing, with an emphasis research, synthesis of sources, and argumentation.

**HONR-LA 1302. HONORS COMPOSITION II. 3 Hours.**

A course in academic argumentation in which students learn how to conduct and organize research. The course typically focuses on a particular topic, which will vary by section and be interdisciplinary in nature. Successful completion satisfies the second-semester writing requirement. Prerequisite: membership in the Honors College.

**HONR-LA 2300. SEMINAR. 3 Hours.**

Team-taught interdisciplinary course that introduces knowledge and perspectives from the arts, sciences, and humanities. Designed around a theme of current or historical significance. Writing-intensive. Depending on topic, may meet the literature, fine arts/humanities or social/cultural studies requirement of the core curriculum (consult departmental advisor for details).

**HONR-LA 2303. HONORS SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-LA 3303. INDEPENDENT STUDY. 3 Hours.**

Independent study topics are arranged on an individual basis. Performance may be assessed by oral or written examination, research or review paper as arranged.

**HONR-LA 3304. SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-LA 3310. POLITICAL & COMMUNITY LEADERSHIP. 3 Hours.**

This course examines theories and concepts of leadership in political and community contexts, and processes by which power and authority are exercised to foster political change in one's community. Emphasis is placed on application to actual leadership situations.

**HONR-LA 3404. HONORS SPECIAL TOPICS. 4 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-LA 4303. ADVANCED SPECIAL TOPICS. 3 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

## Honors-Nursing (HONR-NU)

### COURSES

**HONR-NU 2203. HONORS SPECIAL TOPICS. 2 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-NU 3304. SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-NU 3504. HONORS SPECIAL TOPICS. 5 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-NU 4203. ADVANCED SPECIAL TOPICS. 2 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR-NU 4303. ADVANCED SPECIAL TOPICS. 3 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR-NU 4403. HONORS SPECIAL TOPICS. 4 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-NU 4503. HONORS SPECIAL TOPICS. 5 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

## Honors-Science (HONR-SC)

### COURSES

**HONR-SC 1313. LIBERAL ARTS HONORS MATHEMATICS. 3 Hours.**

Topics include the development of the real number system, different orders of infinity, the idea of convergence and how this led to the development of calculus, the concept of a mathematical proof, the conceptual foundations of topology, networks, knot theory, and modern applications of mathematics to the sciences. Crosslisted with MATH 1313.

**HONR-SC 1426. HONORS CALCULUS I. 4 Hours.**

A more rigorous introduction to calculus than that provided by MATH 1426. Assignments include essay questions and problems that involve research on the development, meaning, and history of concepts emphasized in the course. Students are challenged to master more difficult material in a broader disciplinary context. Credit will be given for MATH 1426 OR HONR 1426 but not both.

**HONR-SC 1443. HONORS GENERAL TECHNICAL PHYSICS. 4 Hours.**

This course emphasized the methodology of physics, and is closely integrated with calculus. It introduces modern ideas and theories into introductory physics (as opposed to the traditional PHYS 1443, which covers physics before 1900). The Honors course stresses problem-solving skills over the learning of algorithms. Credit will be given for PHYS 1443 or HONR-SC 1443 but not both.

**HONR-SC 1444. HONORS GENERAL TECHNICAL PHYSICS II. 4 Hours.**

This course emphasized the methodology of physics, and is closely integrated with calculus. It introduces modern ideas and theories into introductory physics (as opposed to the traditional PHYS 1444, which covers physics before 1900). The Honors course stresses problem-solving skills over the learning of algorithms. Credit will be given for PHYS 1444 or HONR 1444 but not both.

**HONR-SC 1451. HONORS CELL & MOLECULAR BIOLOGY. 4 Hours.**

This course is designed for students who seek a challenge beyond that of the traditional introductory BIOL 1441. Advanced concepts are presented and their applications in contemporary society are explored. This is a rigorous lecture course supplemented with a variety of research-related reading and writing assignments. Credit will be given for BIOL 1441 or HONR 1451 but not both.

**HONR-SC 1452. HONORS STRUCTURE AND FUNCTION OF ORGANISMS. 4 Hours.**

This course is designed for students who seek a challenge beyond that of the traditional introductory BIOL 1442. Advanced concepts are presented and their applications in contemporary society are explored. This is a rigorous lecture course supplemented with a variety of research-related reading and writing assignments. Credit will be given for BIOL 1442 or HONR 1452 but not both.

**HONR-SC 1461. HONORS GENERAL CHEMISTRY I. 4 Hours.**

This course is designed for students who seek a challenge beyond that of the traditional introductory CHEM 1441. Many key concepts will not be explained in traditional lecture fashion. Rather, they will be probed by the class while working collaborative exercises. Students will also complete a collaborative digital video project. Credit will be given for CHEM 1441 or HONR 1461 but not both.

**HONR-SC 1462. HONORS GENERAL CHEMISTRY II. 4 Hours.**

This course is designed for students who seek a challenge beyond that of the traditional introductory CHEM 1442. Many key concepts will not be explained in traditional lecture fashion. Rather, they will be probed by the class while working collaborative exercises. Students will also complete a collaborative digital video project. Credit will be given for CHEM 1442 or HONOR 1462 but not both.

**HONR-SC 2303. HONORS SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-SC 2425. HONORS CALCULUS II. 4 Hours.**

A more rigorous introduction to calculus than that provided by MATH 2425. Assignments include essay questions and problems that involve research on the development, meaning, and history of concepts emphasized in the course. Students are challenged to master more difficult material in a broader disciplinary context. Credit will be given for MATH 2425 or HONR 2425 but not both.

**HONR-SC 3304. SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-SC 3305. HONORS SCIENTIFIC AND TECHNICAL WRITING. 3 Hours.**

A more intensive section of BIOL 3305, offering additional reading, writing, and presentation assignments based on classic and influential literature in the biological sciences and greater attention to detail in communicating scientific and technical information efficiently and accurately for specialist audiences. Credit will be given for BIOL 3305 or HONR 3305 but not both.

**HONR-SC 4103. ADVANCED SPECIAL TOPICS. 1 Hour.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR-SC 4303. ADVANCED SPECIAL TOPICS. 3 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

**HONR-SC 4403. HONORS SPECIAL TOPICS. 4 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

## Honors-Social Work (HONR-SW)

### COURSES

**HONR-SW 3304. SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

## Honors-Visual & Performing Arts (HONR-VP)

### COURSES

**HONR-VP 2103. SPECIAL TOPICS. 1 Hour.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-VP 2300. SEMINAR. 3 Hours.**

Team-taught interdisciplinary course that introduces knowledge and perspectives from the arts, sciences, and humanities. Designed around a theme of current or historical significance. Writing-intensive. Depending on topic, may meet the literature, fine arts/humanities or social/cultural studies requirement of the core curriculum (consult departmental advisor for details).

**HONR-VP 2303. HONORS SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-VP 3304. SPECIAL TOPICS. 3 Hours.**

Topics, format, and prerequisites to be determined by faculty offering the courses. May be repeated for credit as topics change.

**HONR-VP 4303. ADVANCED SPECIAL TOPICS. 3 Hours.**

Advanced special topics in Honors. May be repeated for credit as topics change.

## Humanities (HUMA)

## COURSES

### **HUMA 2301. HUMANITIES I. 3 Hours. (TCCN = HUMA 1301)**

An interdisciplinary study of the basic cultural patterns and traditions that inform our thinking. Provides a cross-cultural and cross-disciplinary introduction to the humanities, including literature, history, and philosophy. Credit may not be received for both PHIL 2301 (the predecessor course) and HUMA 2301.

### **HUMA 3301. INTERDISCIPLINARY RESEARCH METHODS. 3 Hours.**

Research methods required for reading and writing across disciplinary lines in the humanities. Background information and reading in authors (for example, A.O. Lovejoy, Josiah Royce, LeRoy Ladurie, and Kenneth Burke) who have taken a wide cultural perspective; bibliographical and research methods; and techniques for writing major term papers and undergraduate theses involving more than one discipline.

### **HUMA 3340. TOPICS IN HUMANITIES. 3 Hours.**

In-depth treatment of an issue or topic in or relevant to the humanities tradition. May be repeated for credit with permission of the department.

### **HUMA 4301. CULTURE AND IDEAS. 3 Hours.**

The way basic ideas of culture have been analyzed and applied in the humanities, recognizing that cultural analysis is not limited to a single discipline or perspective. Authors from the Classical and Renaissance periods who have sought to understand the interrelation of cultural development, the production of cultural artifacts (the fine arts, literary and dramatic arts, history), and philosophy. The work of major cultural analysts in a critical and historical context.

### **HUMA 4302. SOCIAL AND POLITICAL THEORY. 3 Hours.**

Examination of the major social and political theories that have shaped Western thought. Topics may include the concept of the social, the role of the individual, the public/private distinction, and gender relations. Focus on particular theorists as well as issues.

### **HUMA 5300. CONCEPTUAL BASES OF THE HUMANITIES. 3 Hours.**

Introduces students to fundamental concepts, methods, and issues central to the humanities. Particular attention will be given to a variety of epistemological approaches in humanistic inquiry, to theories of interpretation as applied to cultural constructs, and to recent issues and problems in the humanities. Required of all MA candidates in the humanities.

### **HUMA 5303. APPROACHES TO THE STUDY OF CULTURE. 3 Hours.**

Examination of the theories and methods by which culture and society have been studied. Discussion of the relationship among natural scientific, social scientific, and humanistic methodologies. Fulfills Foundation requirement.

### **HUMA 5304. CULTURAL STUDIES. 3 Hours.**

The study of how elements of culture, particularly texts, practices, and material objects, are interconnected with structures of power. Topics may include analyses of cultural studies in various humanities disciplines, theoretical approaches to cultural studies, and the relationship between cultural studies and the traditional humanities disciplines. Fulfills Foundation requirement.

### **HUMA 5306. CRITICISM, LANGUAGE, AND HISTORY. 3 Hours.**

This course examines the ways in which linguistics, literary criticism and history have intersected in 20th century thought. Areas of analysis may include anthropology, historiography, poetics, rhetoric, semiotics, and/or structuralism. Fulfills Foundation requirement.

### **HUMA 5307. TOPICS IN GENDER STUDIES. 3 Hours.**

Analysis of the role of gender studies in the humanities disciplines. Topics may include examination of the methods and conclusions of gender analysis in history, the social sciences, philosophy, or literary criticism. Fulfills Foundation requirement.

### **HUMA 5391. CONFERENCE COURSE IN THE HUMANITIES. 3 Hours.**

### **HUMA 5392. TOPICS IN THE HUMANITIES. 3 Hours.**

Selected topics of interdisciplinary interest. May be repeated for credit when subject matter changes.

### **HUMA 5398. THESIS. 3 Hours.**

The graduate student must be registered for this when in consultation over the thesis with the supervisory committee.

### **HUMA 5698. THESIS. 6 Hours.**

The graduate student must be registered for this course (a) when in consultation over the thesis with the supervisory committee and (b) in the semester or term in which the Master of Arts degree will be conferred.

### **HUMA 6391. READINGS IN THE HUMANITIES. 3 Hours.**

Supervised individual study for students preparing for the comprehensive examination. May be repeated for credit.

## Industrial and Manufacturing Systems Engineering (IE)

### COURSES

#### **IE 1104. INTRODUCTION TO ENGINEERING. 1 Hour. (TCCN = ENGR 1101)**

Introduction to basic engineering concepts. Students will become familiar with engineering and its many sub-fields, ethical responsibilities, creativity and design.

**IE 1105. INTRODUCTION TO INDUSTRIAL ENGINEERING LAB. 1 Hour.**

Introduction to basic engineering concepts. Opportunities are provided to develop skills in oral and written communication, and department-specific material. Case studies are presented and analyzed.

**IE 2000. Undergraduate Research. 0 Hours.**

Sophomore level undergraduate research. May be taken a maximum of three times. Prerequisite: Departmental good standing and permission of instructor.

**IE 2305. COMPUTER APPLICATIONS IN INDUSTRIAL ENGINEERING. 3 Hours.**

An overview of Industrial Engineering concepts and issues important to the design and operation of industrial and service systems. Students will learn the use of software tools developed to enhance the Industrial Engineer's ability such as database management, high level programming languages, electronic spreadsheets, and computer graphics. Prerequisite: IE 1105 or concurrent enrollment.

**IE 2308. ECONOMICS FOR ENGINEERS. 3 Hours.**

Methods used for determining the comparative financial desirability of engineering alternatives. Provides the student with the basic tools required to analyze engineering alternatives in terms of their worth and cost, an essential element of engineering practice. The student is introduced to the concept of the time value of money and the methodology of basic engineering economy techniques. The course will provide the student with the background to enable them to pass the Engineering Economy portion of the Fundamentals of Engineering exam. Prerequisites: MATH 1426 or concurrent enrollment.

**IE 3000. UNDERGRADUATE RESEARCH. 0 Hours.**

Junior level undergraduate research. May be taken a maximum of three times. Prerequisite: Departmental good standing and permission of instructor.

**IE 3301. ENGINEERING PROBABILITY. 3 Hours.**

Topics in engineering that involve random processes. Applications and backgrounds for topics in reliability, inventory systems, and queuing problems, including absolute and conditional probabilities, discrete and continuous random variables, parameter estimation, hypothesis testing, and an introduction to linear regression, experimental design, and analysis of variance. Prerequisite: MATH 2425.

**IE 3312. ECONOMICS FOR ENGINEERS. 3 Hours.**

Tools and methods used for determining the comparative financial desirability of engineering alternatives. Prerequisite: MATH 1426 or concurrent enrollment.

**IE 3314. ENGINEERING RESEARCH METHODS. 3 Hours.**

A continuation of IE 3301. Simple and multiple linear regression analysis, design of experiments, analysis of variance, and quality control statistics. Emphasis on the application of these methods to engineering data, with computerized data analysis. Prerequisite: IE 3301 and MATH 2326.

**IE 3315. OPERATIONS RESEARCH I. 3 Hours.**

Introduction to the major deterministic techniques of operations research and their application to decision problems. Linear programming, integer programming, network analysis, dynamic programming, nonlinear programming. Course software is used. Project required. Prerequisite: IE 3301 or concurrent enrollment and MATH 2326.

**IE 3343. METRICS AND MEASUREMENT. 3 Hours.**

This course presents methods for determining the most effective utilization of effort in the man-machine environment as well as systems and methods to measure enterprise performance. The computer competency evaluation is administered in this course for those students who have not had IE 1105. Prerequisite: MATH 2326, IE 3312 or concurrent enrollment, and IE 3301 or concurrent enrollment.

**IE 4000. UNDERGRADUATE RESEARCH. 0 Hours.**

Senior level undergraduate research. May be taken a maximum of three times. Departmental good standing and permission of instructor.

**IE 4191. SPECIAL PROBLEMS IN INDUSTRIAL ENGINEERING. 1 Hour.**

The investigation of special individual problems in industrial engineering under the direction of a faculty member. Prerequisite: consent of the department chairperson.

**IE 4291. SPECIAL PROBLEMS IN INDUSTRIAL ENGINEERING. 2 Hours.**

The investigation of special individual problems in industrial engineering under the direction of a faculty member. Prerequisite: consent of the department chairperson.

**IE 4300. TOPICS IN INDUSTRIAL ENGINEERING. 3 Hours.**

A study of selected topics in industrial engineering. May be repeated when topics vary. Prerequisite: consent of instructor and undergraduate advisor.

**IE 4302. ENGINEERING ADMINISTRATION AND ORGANIZATION. 3 Hours.**

A survey of administration, control and organization of engineering and research activities. Strategic planning as well as project planning and control are discussed. Prerequisite: accepted in an UTA engineering professional program.

**IE 4303. PRODUCTION AND INVENTORY CONTROL. 3 Hours.**

Fundamental theory and design of systems for the control of production, inventories and their economic interaction, particularly in cases involving uncertainty of demand, of supply availability, and of production rates. Prerequisite: IE 3301 and IE 3315.

**IE 4304. ENTERPRISE SYSTEMS. 3 Hours.**

An extension of Production and Inventory Control (IE 4303), this course covers enterprise resource planning systems (ERP) in manufacturing, E-Commerce and supply chain environments. ERP software and case studies are reviewed. Prerequisite: IE 4303.



**IE 4308. QUALITY SYSTEMS. 3 Hours.**

A comprehensive coverage of modern quality systems techniques to include the design of statistical process control systems, acceptance sampling, and process analysis and design. Prerequisite: IE 3314 or concurrent enrollment.

**IE 4310. INDUSTRIAL AND PRODUCT SAFETY. 3 Hours.**

Scientific, managerial, and legal aspects of safety hazard control and elimination in the industrial workplace. Methods for enhancing product safety. Prerequisite: accepted in an UTA engineering professional program.

**IE 4315. OPERATIONS RESEARCH II. 3 Hours.**

A continuation of IE 3315 to probabilistic techniques of operations research and their application to decision models. Topics include z-transforms, linear difference equations, Markov chains, game theory, decision analysis, queuing theory, and non-quantitative aspects of decisions. Group projects are required. Prerequisite: IE 3301, IE 3315, and MATH 3319 (or concurrent enrollment).

**IE 4318. ENTERPRISE DESIGN. 3 Hours.**

Design, analysis, and modeling of enterprises. Topics include enterprise architectures, structured system modeling methods, enterprise integration, and enterprise transformation. Prerequisite: accepted in an UTA engineering professional program.

**IE 4322. ENTERPRISE SIMULATION. 3 Hours.**

The design and analysis of complex manufacturing and service systems using computer-based discrete event simulation techniques. Topics include an introduction to simulation methods, and the design, construction and analysis of discrete-event simulation models, as well as their computer applications. The course also covers the execution and management of simulation projects and the formal presentation of their findings. Prerequisite: IE 3314 and IE 4315.

**IE 4325. AUTOMATION AND ROBOTICS I. 3 Hours.**

Study of the use of industrial automation and robotics technologies in manufacturing industries. The course introduces the major classes of industrial automation. Issues associated with the successful deployment of automation are presented. Laboratory exercises focus on a practical introduction to various automation technologies. Prerequisite: IE 4303 or concurrent enrollment.

**IE 4339. PRODUCT DEVELOPMENT, PRODUCIBILITY AND RELIABILITY DESIGN. 3 Hours.**

This course covers the product and process development and engineering design process with focus on collaborative design in the enterprise environment. Manufacturing, reliability, testing, logistical and product support considerations are emphasized. Prerequisite: accepted in an UTA engineering professional program.

**IE 4343. FACILITIES PLANNING AND DESIGN. 3 Hours.**

The course covers strategic facilities planning through detailed facilities layout design. Considerations include product flow, space and activity relationships, personnel requirements, material handling, and layout. Traditional and contemporary issues in manufacturing and their impact on facilities design including receiving, shipping, warehousing, and integration with manufacturing and supporting operations are explored. Facilities planning models and the process of evaluating, selecting, preparing, presenting, and implementing the facilities plan are covered. Prerequisite: IE 4303 or concurrent enrollment.

**IE 4344. HUMAN FACTORS ENGINEERING. 3 Hours.**

Study of the interactions between people and their work, workplace, and the environment. Involves identification, measurement, analysis, and evaluation of interactions via human physical and mental capacities and limitations, and social interactions. Prerequisite: IE 3301, IE 3312, and IE 3343.

**IE 4345. KNOWLEDGE AND TECHNOLOGY MANAGEMENT. 3 Hours.**

Review of contemporary issues in knowledge management, knowledge engineering, technology management, and intelligent systems. Topics include knowledge acquisition, intelligent database design, decision support systems, artificial intelligence technologies, designs and tools, and collaborative development. Prerequisite: accepted in an UTA engineering professional program.

**IE 4349. INDUSTRIAL AUTOMATION. 3 Hours.**

Project oriented course focusing on the design, implementation, and operation of technology. An in-depth study of the design and deployment of industrial technology to meet the needs of high-precision, multi-product environments. The laboratory activities associated with the course provide practical experience. Prerequisite: IE 4325.

**IE 4350. INDUSTRIAL ENGINEERING CAPSTONE DESIGN. 3 Hours.**

This course provides an open-ended design experience through the planning and design of an enterprise in which the student must demonstrate the ability to design, develop, implement, and improve integrated systems that include people, materials, information, equipment and energy. Contemporary project management techniques are utilized. The design experience project includes submittal of several written and oral presentations culminating in a written project report and oral presentation at the end of the semester. IE 4350 is the capstone design course and draws on material from the total industrial engineering curriculum. The impact of engineering design on society is discussed. Prerequisite: all required 4000 level IE courses or concurrent enrollment.

**IE 4378. INTRODUCTION TO UNMANNED VEHICLES SYSTEMS. 3 Hours.**

Introduction to UVS (Unmanned Vehicle Systems) such as UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground System) and UMS (Unmanned Maritime System), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. UVS missions could include student competitions sponsored by various technical organizations. This course is team-taught by engineering faculty. Prerequisite: Admission to a professional engineering or science program.

**IE 4379. UNMANNED VEHICLE SYSTEM DEVELOPMENT. 3 Hours.**

Introduction to the technologies needed to create an UVS (Unmanned Vehicle System). Integration of these technologies (embodied as a set of sensors, actuators, computing and mobility platform sub-systems) into a functioning UVS through team work. UVS could be designed to compete in a student competition sponsored by various technical organizations or to support a specific mission or function defined by the instructors. This course is team-taught by engineering faculty. Prerequisite: B or better in IE 4378 and admission to the UVS certificate program.

**IE 4391. SPECIAL PROBLEMS IN INDUSTRIAL ENGINEERING. 3 Hours.**

The investigation of special individual problems in industrial engineering under the direction of a faculty member. Prerequisite: consent of the department chairperson.

**IE 5191. ADVANCED STUDIES IN INDUSTRIAL ENGINEERING. 1 Hour.**

Individually approved research projects and reading courses in industrial engineering. Such individual studies will be graded A, B, C, D, F or X. Subject to the approval of the Graduate Advisor, IE 5191, IE 5291 and IE 5391 may be repeated as the topics change. In addition, work on a thesis substitute will be performed under IE 5391. In this case, IE 5391 is graded P/F/R.

**IE 5291. ADVANCED STUDIES IN INDUSTRIAL ENGINEERING. 2 Hours.**

Individually approved research projects and reading courses in industrial engineering. Such individual studies will be graded A, B, C, D, F or X. Subject to the approval of the Graduate Advisor, IE 5191, IE 5291 and IE 5391 may be repeated as the topics change. In addition, work on a thesis substitute will be performed under IE 5391. In this case, IE 5391 is graded P/F/R.

**IE 5300. TOPICS IN INDUSTRIAL ENGINEERING. 3 Hours.**

A study of selected topics in industrial engineering. May be repeated when topics vary. Prerequisite: consent of instructor and Graduate Advisor.

**IE 5301. ADVANCED OPERATIONS RESEARCH. 3 Hours.**

A survey of quantitative methods to develop modeling and decision-making skills. Topics include linear programming, goal programming, the simplex and dual simplex algorithms, transportation and assignment problems, integer programming, network analysis, nonlinear programming, decision trees, Markov Chains, and queuing theory. Prerequisites: IE 3301 or IE 5317 or equivalent.

**IE 5302. INTRODUCTION TO INDUSTRIAL ENGINEERING. 3 Hours.**

An introduction to the fundamental principles of Industrial Engineering. Topics include Human Factors Engineering, Metrics and Measurement, Production and Inventory Control, Quality Systems, Simulation and Optimization, and Facilities Planning and Design. Prerequisite: Graduate standing.

**IE 5303. QUALITY SYSTEMS. 3 Hours.**

Principles and practices of industrial quality control. Topics include the Deming philosophy, process improvements, statistical process control, process capability analysis and product acceptance. Prerequisite: IE 3301, or IE 5317, or equivalent.

**IE 5304. ADVANCED ENGINEERING ECONOMY. 3 Hours.**

Analysis of capital investments in engineering and technical projects. Topics include decision analysis methods, cash flows, revenue requirements, activity-based analysis, multi-attribute decisions, probabilistic analysis and sensitivity/risk analysis. Prerequisite: graduate standing.

**IE 5305. LINEAR PROGRAMMING. 3 Hours.**

Theory and applications of linear programming including linear programming formulation, the simplex method, duality, revised simplex, general linear programs, infeasibility, the dual simplex method, column generation, and network flow problems. Prerequisite: IE 3315 or IE 5301.

**IE 5306. DYNAMIC OPTIMIZATION. 3 Hours.**

Dynamic optimization methods including dynamic programming, the calculus of variations, and optimal control theory. Emphasis is on the modeling and solution of practical problems using these techniques. Prerequisites: IE 3301 and IE 3315, or IE 5317, or equivalent.

**IE 5307. QUEUEING THEORY. 3 Hours.**

The fundamentals of queueing theory including Markovian birth-death models, networks of queues, and general arrival and service distributions. Prerequisites: IE 3301 or IE 5317, or equivalent.

**IE 5309. STOCHASTIC PROCESSES. 3 Hours.**

The study of probabilistic model building including the fundamentals of both discrete and continuous Markov chains, queueing theory and renewal theory. Prerequisites: IE 3301 or IE 5317, or equivalent.

**IE 5310. PRODUCTION SYSTEMS DESIGN. 3 Hours.**

Methods for the design and analysis of manufacturing and logistics systems. Emphasis is placed on reducing cycle time, increasing throughput, lowering variation, and improving both quality and customer responsiveness through modeling techniques. Prerequisites: IE 5317 or equivalent, IE 5301 or concurrent and IE 5329 or concurrent or equivalent.

**IE 5311. DECISION ANALYSIS. 3 Hours.**

A survey of methods for making optimal decisions. Topics include decision models, formal logic, fuzzy controls, statistical decision theory, game theory, multiobjective decisions, stochastic programming, information theory and qualitative aspects of the decisions. Prerequisites: IE 5301 or concurrent.

**IE 5312. PLANNING AND CONTROL OF ENTERPRISE SYSTEMS. 3 Hours.**

A continuation of IE 5329 covering enterprise resource planning systems (ERP) and other advanced production control techniques. Computer modeling is emphasized. Prerequisite: IE 5329.

**IE 5313. RELIABILITY AND ADVANCED QUALITY CONTROL TOPICS. 3 Hours.**

Includes advanced quantitative topics in reliability design and quality control. Management of reliability and quality control functions are also included. Prerequisites: IE 4308 or IE 5303.

**IE 5314. SAFETY ENGINEERING. 3 Hours.**

Methods to identify, measure, analyze, and evaluate safety hazards in the workplace. Scientific and managerial methods to prevent or control safety hazards. Prerequisite: graduate standing.

**IE 5317. INTRODUCTION TO STATISTICS. 3 Hours.**

Topics include descriptive statistics, set theory, combinatorics, mathematical expectation, probability distributions, confidence interval estimation, regression analysis, analysis of variance, and design of experiments. Prerequisite: MATH 2326 or equivalent and permission of advisor.

**IE 5318. APPLIED REGRESSION ANALYSIS. 3 Hours.**

An in-depth study of one predictor variable followed by the matrix approach to multiple linear regression. Topics include estimation, prediction, analysis of variance, residual analysis, transformations, multicollinearity, model selection, weighted least squares, ridge regression, and robust regression. Prerequisite: IE 3301 or IE 5317 or equivalent.

**IE 5319. ADVANCED STATISTICAL PROCESS CONTROL AND TIME SERIES ANALYSIS. 3 Hours.**

Design of control schemes for statistical monitoring and control of modern manufacturing systems. Topics include charts for process control, effect of autocorrelation on SPC charts, and sampling plans for acceptance inspection. Prerequisite: IE 3301 and IE 5303 or equivalent.

**IE 5320. ENTERPRISE ENGINEERING METHODS. 3 Hours.**

A survey of enterprise engineering methods. Topics include system development methodology, discussion of enterprise architectures, activity modeling, business modeling, activity-based performance analysis, and process improvement. Prerequisite: Graduate standing.

**IE 5321. ENTERPRISE ANALYSIS AND DESIGN. 3 Hours.**

An in-depth study of techniques useful for the analysis and design of the manufacturing enterprise. This course presents an advanced process description technique that is used, with simulation and activity based costing, to facilitate analysis and design. Prerequisites: IE 5320 and IE 5322, or concurrent enrollment.

**IE 5322. SIMULATION AND OPTIMIZATION. 3 Hours.**

An in-depth study of discrete event simulation theory and practice. Optimization and search techniques used in conjunction with simulation experiments are introduced. A commercial simulation software application is used. Prerequisite: IE 5317 or equivalent.

**IE 5326. INDUSTRIAL BIOMECHANICS. 3 Hours.**

The development and application of biomechanical models of physical work tasks, especially manual materials handling and hard-arm work activities. Prerequisite: Graduate Standing.

**IE 5329. PRODUCTION AND INVENTORY CONTROL SYSTEMS. 3 Hours.**

The fundamentals of production and inventory control systems. The economic impacts of fluctuating demand, supply availability and production rates are examined. Prerequisite: graduate standing.

**IE 5330. AUTOMATION AND ADVANCED MANUFACTURING. 3 Hours.**

The design of automated and advanced production processes for manufacturing. Topics include numerical control, robotics, group technology, just-in-time, automated inspection and flexible manufacturing systems. Prerequisite: graduate standing.

**IE 5331. INDUSTRIAL ERGONOMICS. 3 Hours.**

The analysis and design of physical work, workplace, and hand tools using ergonomic principles for enhancing performance, health, and safety. Work refers mainly to whole body and hand-arm activities, while workplace refers to industrial and computerized office environments. Applications focus on people's anthropometric, musculoskeletal and psychological characteristics. Prerequisite: Graduate standing.

**IE 5332. NONLINEAR PROGRAMMING. 3 Hours.**

Methods for nonlinear optimization including classical theory; gradient methods; sequential unconstrained methods; convex programming; genetic algorithms; simulated annealing; and separable, quadratic, and geometric programming. Prerequisite: graduate standing.

**IE 5333. LOGISTICS TRANSPORTATION SYSTEMS DESIGN. 3 Hours.**

The design and analysis of domestic and international transportation systems of people, processes, and technology. Topics include the role of transportation in the extended enterprise, transportation modeling and optimization techniques, value-added supply chain issues, and financial performance measures. Prerequisites: IE 5317 or equivalent, IE 5301 or concurrent, and IE 5329 or concurrent, or equivalent.

**IE 5334. LOGISTICS DISTRIBUTION SYSTEMS DESIGN. 3 Hours.**

The design and analysis of distribution systems of people, processes and technology. The focus is on distribution, warehousing and material handling. Topics include the role of the warehouse in the extended enterprise, warehouse planning, process design, layout, equipment selection, workforce and workplace issues, and financial performance measures. Prerequisites: IE 5317 or equivalent, IE 5301 or concurrent, and IE 5329 or concurrent, or equivalent.

**IE 5335. ADVANCED OCCUPATIONAL ENVIRONMENTAL HYGIENE ENGINEERING. 3 Hours.**

Interaction of workers with physical environmental agents such as heat, cold, noise, vibration, illumination, radiation, and gravity. The design of work and the workplace to control environmental stresses, and their effects on workers' performance, health and safety. Prerequisite: graduate standing.

**IE 5338. HUMAN ENGINEERING. 3 Hours.**

Human structural, physiological, psychological, and cognitive capacities and limitations in the workplace, and their effects on the design of work systems to enhance productivity, and maintain health and safety. Prerequisite: IE 3301 or equivalent, or consent of instructor.

**IE 5339. PRODUCT DESIGN, DEVELOPMENT, PRODUCIBILITY, AND RELIABILITY DESIGN. 3 Hours.**

This course covers product development and engineering design process with a focus on collaborative design. Software, manufacturing, reliability, testing, logistical and product support considerations are emphasized. Prerequisite: graduate standing.

**IE 5342. METRICS AND MEASUREMENT. 3 Hours.**

Work measurement, methods improvements, and performance measurement. A survey of enterprise and management measurement systems is presented. Prerequisite: IE 5317 or equivalent.

**IE 5345. MANAGEMENT OF KNOWLEDGE AND TECHNOLOGY. 3 Hours.**

Review of contemporary issues in knowledge management, databases, decision support systems, and intelligent systems. Topics include knowledge acquisition, intelligent database design, decision support systems, data mining, knowledge transfer, and collaborative development. Prerequisite: graduate standing.

**IE 5346. TECHNOLOGY DEVELOPMENT AND DEPLOYMENT. 3 Hours.**

Review of management issues in developing and implementing new technologies and methodologies into an organization. Topics include technology forecasting, management of technology based projects, technological competitiveness, technology alliances, and collaboration. Prerequisite: graduate standing.

**IE 5350. GRADUATE DESIGN CAPSTONE. 3 Hours.**

Practicum in Industrial Engineering techniques consisting of professional level experience in a relevant company, agency, or institution. This technical experience is directed by a supervising professor and requires the writing of a professional report. Prerequisite: 24 hours of graduate work in Industrial Engineering.

**IE 5351. INTRODUCTION TO SYSTEMS ENGINEERING. 3 Hours.**

This course includes a survey of concepts, principles and processes required to engineer complex systems throughout the life-cycle from concept through disposal. Prerequisite: graduate standing and permission of advisor.

**IE 5352. SYSTEMS ENGINEERING I. 3 Hours.**

A study of systems engineering topics including technical planning and management, supply processes, requirements definition and analysis, functional analysis, and trade-off analysis. Prerequisite IE 5351.

**IE 5353. SYSTEMS ENGINEERING II. 3 Hours.**

A continuation of IE 5352. Topics include risk management, systems design and implementation, acquisition processes, assessment and control, earned value management, technical process management, and enabling products. Prerequisite: IE 5352.

**IE 5354. SYSTEMS ENGINEERING III. 3 Hours.**

A continuation of IE 5353. Topics include system verification, validation and transition to use, specialty engineering, improving SE processes, SE and relationships to international programs, object oriented systems engineering and configuration management. A comprehensive student project is required. Prerequisite IE 5353.

**IE 5378. INTRODUCTION TO UNMANNED VEHICLE SYSTEMS. 3 Hours.**

Introduction to UVS (Unmanned Vehicle Systems) such as UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground System) and UMS (Unmanned Maritime System), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. UVS missions could include student competitions sponsored by various technical organizations. This course is team-taught by engineering faculty. Prerequisite: Permission of instructor.

**IE 5379. UNMANNED VEHICLE SYSTEM DEVELOPMENT. 3 Hours.**

Introduction to the technologies needed to create an UVS (Unmanned Vehicle System). Integration of these technologies (embodied as a set of sensors, actuators, computing and mobility platform sub-systems) into a functioning UVS through team work. UVS could be designed to compete in a student competition sponsored by various technical organizations or to support a specific mission or function defined by the instructors. This course is team-taught by engineering faculty. Prerequisite: Permission of instructor.

**IE 5391. ADVANCED STUDIES IN INDUSTRIAL ENGINEERING. 3 Hours.**

Individually approved research projects and reading courses in industrial engineering. Such individual studies will be graded A, B, C, D, F or X. Subject to the approval of the Graduate Advisor, IE 5191, IE 5291 and IE 5391 may be repeated as the topics change. In addition, work on a thesis substitute will be performed under IE 5391. In this case, IE 5391 is graded P/F/R.

**IE 5398. THESIS. 3 Hours.**

Graded F, R.

**IE 5698. THESIS. 6 Hours.**

Graded P, F, R.

**IE 6197. RESEARCH IN INDUSTRIAL ENGINEERING. 1 Hour.**

Supervised research projects directed toward the dissertation. Graded P, R, F.

**IE 6297. RESEARCH IN INDUSTRIAL ENGINEERING. 2 Hours.**

Supervised research projects directed toward the dissertation. Graded P, R, F.

**IE 6301. ENTERPRISE ARCHITECTURES AND FRAMEWORKS. 3 Hours.**

A survey of enterprise architectures and analysis frameworks that have been proposed for the integration of large complex enterprise systems. Emphasis is placed on state-of-the-art approaches. Prerequisite: IE 5320.

**IE 6302. FACILITIES PLANNING AND DESIGN. 3 Hours.**

Facilities planning through layout design. Product flow, space-activity relationships, personnel requirements, and material handling are considered, as well as receiving, shipping, warehousing, and integration with manufacturing. Facilities planning models are explored. Prerequisite: IE 5317 or equivalent, IE 5301 or concurrent, and IE 5329, or concurrent or equivalent.

**IE 6303. COMBINATORIAL OPTIMIZATION. 3 Hours.**

A survey of problems and algorithms in combinatorial optimization. Topics include integer programming formulation, branch-and-bound and cutting plane algorithms, computational complexity, and polyhedral theory. Prerequisite: IE 5301 or consent of instructor.

**IE 6305. ENGINEERING MANAGEMENT I. 3 Hours.**

The management of the engineering function in high-technology industry with principal emphasis on the historical development of industrial management principles, decision-making and planning. Prerequisite: Graduate standing.

**IE 6306. ENGINEERING MANAGEMENT II. 3 Hours.**

The management of the engineering function in high-technology industry with principal emphasis on human resources and staffing, directing and leading, and controlling. Prerequisite: IE 6305.

**IE 6308. DESIGN OF EXPERIMENTS. 3 Hours.**

Introduction to statistical design and analysis of experiments with applications from engineering, health care and business. Analysis includes analysis of variance, multiple comparisons and model adequacy. Designs include complete factorial, complete block, incomplete block, Latin square, Youden, two-level fractional factorial and hierarchically nested. Prerequisite: IE 5318 or consent of instructor.

**IE 6309. RESPONSE SURFACE METHODOLOGY AND COMPUTER EXPERIMENTS. 3 Hours.**

Empirical model building and process optimization using experimental design and statistical modeling. The first half of the course covers first and second order models and designs, multiresponse experiments and mixture experiments. The second half introduces designs based on Latin hypercubes, orthogonal arrays, and number-based theoretic methods, plus models using kriging, multivariate adaptive regression splines and neural networks. Prerequisite: IE 6308.

**IE 6310. INDUSTRIAL APPLICATIONS. 3 Hours.**

Project oriented course focusing on the requirements and selection criteria for the integration of technology into simple and complex industrial activities. Prerequisite: IE 5330.

**IE 6397. RESEARCH IN INDUSTRIAL ENGINEERING. 3 Hours.**

Supervised research projects directed toward the dissertation. Graded P, R, F.

**IE 6399. DISSERTATION. 3 Hours.**

Graded F, R.

**IE 6697. RESEARCH IN INDUSTRIAL ENGINEERING. 6 Hours.**

Supervised research projects directed toward the dissertation. Graded P, R, F.

**IE 6699. DISSERTATION. 6 Hours.**

Graded F, R, P, W.

**IE 6997. RESEARCH IN INDUSTRIAL ENGINEERING. 9 Hours.**

Supervised research projects directed toward the dissertation. Graded P, R, F.

**IE 6999. DISSERTATION. 9 Hours.**

Graded P, F, R.

**IE 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Information Systems (INSY)

### COURSES

**INSY 2303. INTRODUCTION TO M.I.S. AND DATA PROCESSING. 3 Hours.**

Introduction to business data processing, computer programming, management information systems, and problems involved in business information processing systems. Selected software tools are presented and managerial applications are required. Formerly BUSA 2303; credit will be granted only once.

**INSY 3300. OBJECT-ORIENTED PROGRAMMING. 3 Hours.**

Topics include object-based and object-oriented program design and processing, language fundamentals and applications involving business problems. Prerequisite: INSY 2303.

**INSY 3303. COMPUTER NETWORKS AND DISTRIBUTED COMPUTING. 3 Hours.**

Concepts of networks and distributed data processing. Topics include data communications principles, hardware and software, network architectures, distributed databases, client server computing, applications, and management issues. Formerly INSY 4304; credit will be granted only once. Prerequisite: INSY 2303.

**INSY 3304. DATABASE MANAGEMENT SYSTEMS. 3 Hours.**

Comprehensive coverage of database technology and applications. Data models, query processing (SQL), relational database design, and implementation. Topics covered are hierarchical, network, relational, and object-oriented models, data dictionaries, distributed databases, evaluation and selection of database management systems (DBMS), and data administration. Formerly INSY 4302; credit will be granted only once. Prerequisite: INSY 3300.

**INSY 3305. INFORMATION SYSTEMS ANALYSIS AND DESIGN. 3 Hours.**

This is a survey of the concepts and methods of information systems analysis and design, system development life cycle (SDLC) and methodologies associated with the SDLC. Course covers feasibility analysis, requirements definition, systems design, data design, coding design, programming, and implementation. Prerequisite: INSY 3304 and INSY 4305. INSY 4305 may be taken concurrently.

**INSY 3309. PYTHON PROGRAMMING. 3 Hours.**

Python is a scripting language that is at once powerful and easy to learn. The language has found favor among web developers and game programmers, and is widely used as an introductory programming language. This course aims to use Python to introduce students to programming concepts. Students will gain an appreciation of how Python can be used for solving business problems. In addition, they will be exposed to the fundamentals of game programming. Prerequisite: INSY 2303 or equivalent.

**INSY 3323. DIGITAL TECHNOLOGIES FOR BUSINESS. 3 Hours.**

This course demonstrates how digital technologies can be used in professional environments to improve audio and visual communications. Topics include information systems, databases, e-commerce, systems and software development, multimedia, and information security. Prerequisite: INSY 2303. NOTE: This course will not count for INSY credit for INSY majors. It may be used as a COBA elective.

**INSY 3330. INTRODUCTION TO E-COMMERCE. 3 Hours.**

Examines current and projected developments in electronic commerce. Topics include the information technologies upon which electronic commerce is based, such as the telecommunications infrastructure; new perspectives on space, time and money in business; electronic consumers and advertising; the effect of e-commerce on logistics and supply chain management; electronic financial markets and digital payment mechanisms; marketing through digital storefronts and virtual corporations; new frontiers of business such as electronic auctions and business to business e-commerce; the relationship between e-commerce and successful business strategy; and finally, public policy. Formerly BUSA 3330; credit will be granted only once. Prerequisite: INSY 2303.

**INSY 4191. STUDIES IN INFORMATION SYSTEMS. 1 Hour.**

Advanced studies, on an individual basis, in the various fields of information systems. Prerequisite: Senior standing and permission of instructor. May be repeated for credit with consent of department chair.

**INSY 4291. STUDIES IN INFORMATION SYSTEMS. 2 Hours.**

Advanced studies, on an individual basis, in the various fields of information systems. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**INSY 4305. ADVANCED APPLICATION DEVELOPMENT. 3 Hours.**

Topics include exception and error handling, multithreading, multimedia, files and database access, networks and network applications, collections, and component-based design in the electronic business framework. Prerequisite: INSY 3300.

**INSY 4306. ADVANCED SYSTEMS DEVELOPMENT. 3 Hours.**

This course will address systems development, testing and deployment using Object-oriented approach. Students will learn to develop and use classes, libraries, assemblies, data sources in an integrated development environment. The course will include development of systems using objects, assemblies, forms, files and databases. The emphasis will be on the design, development and deployment of complex applications. Prerequisite: INSY 3305.

**INSY 4308. APPLIED SOFTWARE DEVELOPMENT. 3 Hours.**

Integration of knowledge and abilities gained in prior computer-related courses by the development of a comprehensive system project. Prerequisite: INSY 4305.

**INSY 4310. ADVANCED COMPUTER NETWORKS. 3 Hours.**

An applied study of the problems inherent in the maintenance and management of the heterogeneous networking environments in the modern business enterprise. Emphasis will be placed on acquiring and integrating the practical management/technical skills. The course covers the hardware required for interconnecting networking devices. Prerequisite: INSY 3303.

**INSY 4312. FUNDAMENTALS OF INFORMATION SECURITY. 3 Hours.**

This course provides an introduction to the field of Information Security. It covers terminology, history, management, technology and practice of Information Security. It will address topics in many of the Security Domains specified by ISC2. Prerequisite: INSY 3303.

**INSY 4315. ADVANCED WEB DEVELOPMENT. 3 Hours.**

Concepts and techniques for Web application development. The course will emphasize the use of Web development tools and techniques to develop web applications. Topics include web application development using technologies such as HTML/DHTML/XHTML, client-side scripting, XML/XSL and server-side scripting. Prerequisite: INSY 3300.

**INSY 4325. INFORMATION RESOURCE MANAGEMENT. 3 Hours.**

This course provides a broad managerial view of the challenges and opportunities of deploying and managing Information Technology (IT) resources including an understanding of the influence of IT on business decisions from a senior management perspective. Students will be exposed to emerging trends, challenges, and opportunities in enterprise software development/deployment/architectures, including SOA (service-oriented architecture), cloud-computing, and business intelligence. The role of ERP (enterprise resource planning) systems and hands-on experience with a real-world ERP system will be covered. Prerequisite: INSY 3305. INSY 3305 may be taken concurrently.

**INSY 4331. SEMINAR IN INFORMATION SYSTEMS. 3 Hours.**

Readings and discussion of special topics in information systems. Prerequisite: 60 or 90 credit hours and consent of instructor. May be repeated for credit with consent of department.

**INSY 4391. STUDIES IN INFORMATION SYSTEMS. 3 Hours.**

Advanced studies, on an individual basis, in the various fields of information systems. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**INSY 4393. INFORMATION SYSTEMS INTERNSHIP. 3 Hours.**

Practical training in information systems. Analysis of theory applied to real life situations. May be used as an advanced business elective only; graded on a pass/fail basis. No credit will be given for previous experience or activities. May not be repeated for credit. Prerequisite: Junior standing and consent of department internship advisor.

**INSY 5182. INDEPENDENT STUDIES IN INFORMATION SYSTEMS. 1 Hour.**

Extensive analysis of an information systems topic. Prerequisite: permission of instructor.

**INSY 5199. GRADUATE INFORMATION SYSTEMS INTERNSHIP. 1 Hour.**

Practical training in information systems. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

**INSY 5299. GRADUATE INFORMATION SYSTEMS INTERNSHIP. 2 Hours.**

Practical training in information systems. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

**INSY 5309. OBJECT-ORIENTED BUSINESS PROGRAMMING. 3 Hours.**

Topics include fundamental programming structures, objects and classes, inheritance, and other basic concepts related to OO programming.

**INSY 5331. DATA VISUALIZATION. 3 Hours.**

Investigation of recent advances in data graphics to support business analytics. Concepts include graphical depiction, analysis of data structure and graphical software. Visualization topics would include exploratory analysis of univariate and multivariate data using graphical software, e.g., Lowess Smoothing and Sunflower Plots. Cross-listed with INSY 5331. Prerequisite: BSTAT 5325 or equivalent.

**INSY 5333. INFORMATION TECHNOLOGIES FOR STRATEGIC MANAGEMENT. 3 Hours.**

A nontechnical, managerially-oriented introduction to information technology applications that enhance an organization's competitive effectiveness. Topics include: Executive Information Systems (EIS), Enterprise Resource Planning (ERP), Supply Chain Management (SCM) systems, data warehousing and mining, business intelligence, knowledge management, e-business, and approaches to integrate these technologies with corporate strategic planning and management. Graded A, B, C, D, F, W.

**INSY 5335. APPLIED DATABASE MANAGEMENT. 3 Hours.**

Concepts, tools, and technologies associated with the design, implementation and management of large databases are presented. Topics include data models (with emphasis on E/R model and relational model), database design and implementation, database query language, transaction management, and distributed databases. Recent advances in data management are also discussed. Use of a commercial DBMS is required. Prerequisite: INSY 5309 or approval of MSIS Graduate Advisor.

**INSY 5337. DATA WAREHOUSING AND BUSINESS INTELLIGENCE. 3 Hours.**

This course covers concepts, tools, and technologies associated with the design and implementation of data warehousing (DW) and business intelligence (BI) applications. Topics covered include data warehouse architecture and infrastructure, dimensional modeling, Extraction Transformation and Loading (ETL), On Line Analytical Processing (OLAP), data quality, and planning and implementation of a DW & BI application. The course objectives are met through a combination of lectures, class projects and homework assignments. Hands-on experience in developing and deploying a DW & BI application is provided. Prerequisite: INSY 5335 or consent of graduate advisor.

**INSY 5339. PRINCIPLES OF BUSINESS DATA MINING. 3 Hours.**

This course covers concepts, tools, and technologies associated with the design and implementation of data warehousing (DW) and business intelligence (BI) applications. Topics covered include data warehouse architecture and infrastructure, dimensional modeling, Extraction Transformation and Loading (ETL), On Line Analytical Processing (OLAP), data quality, and planning and implementation of a DW & BI application. The course objectives are met through a combination of lectures, class projects and homework assignments. Hands-on experience in developing and deploying a DW & BI application is provided. Prerequisite: BSTAT 5325 or equivalent. May be taken concurrently.

**INSY 5340. MANAGING THE DIGITAL ENTERPRISE. 3 Hours.**

This course examines a wide variety of topics important to understanding and managing the Digital Enterprise. Topics may include: Internet infrastructure and related technologies; e-business models; security; ethical, legal, global, and social concerns; and managerial and marketing issues.

**INSY 5341. ANALYSIS AND DESIGN. 3 Hours.**

Analysis and design phase of systems development life cycle. Topics include systems survey, functional specification, interface specification, data design, program design, system testing, and implementation. Prerequisite: INSY 5335.

**INSY 5342. ADVANCED SYSTEMS DESIGN. 3 Hours.**

This course provides an understanding of state-of-the-art software development methodologies, including those that are fast emerging. The focus will be on how these new methods differ from traditional practices and what research opportunities they afford to IS researchers. There will be a strong emphasis on technical as well as on socio-technical aspects of software development in the context of these new methodologies. Prerequisite: INSY 5341.

**INSY 5343. DATA COMMUNICATIONS AND NETWORKING. 3 Hours.**

Technological and managerial issues related to design, operation and maintenance of computer networks. Topics include communication architectures and protocols, LANs and WANs, ATM and frame relay, cellular and satellite communication, the World Wide Web, the Internet, and electronic commerce.

**INSY 5347. PRINCIPLES OF INFORMATION SECURITY. 3 Hours.**

Starting with an introduction to Information Security concepts, this course will address security terminology, history, management, technology and practice based on the Security Domains specified by ISC2. The course will address strategies and tools, managerial, technological, legal, ethical and operational issues related to Information Security. Topics in developing Security Blueprint, Incidence Response, Business Continuity planning and Disaster Recovery will be addressed. Prerequisite: INSY 5343.

**INSY 5350. HEALTH CARE INFORMATION SYSTEMS. 3 Hours.**

Addresses issues in the development, integration, and management of health care information systems. Specifically, topics in financial information systems, patient care systems, and health care delivery applications will be discussed. Both case studies and real life applications will be studied. Prerequisite: Cohort HCAD Major.

**INSY 5352. TOPICS IN OBJECT TECHNOLOGY. 3 Hours.**

Coverage of current topics in Object Technology to include the study of object-oriented agents, components, object request Brokers, distributed objects and related implementations of object-oriented software. Also includes the study of design patterns in object-oriented software design. Prerequisite: INSY 5309.

**INSY 5357. ENTERPRISE RESOURCE PLANNING. 3 Hours.**

An introduction to enterprise resource planning (ERP), a business management paradigm that integrates all facets of the business, including planning, manufacturing, sales, finance and marketing. Course will cover both the methodology and practice of ERP using commercial software packages.

**INSY 5360. COMPUTATIONAL TECHNIQUES FOR BUSINESS ANALYTICS. 3 Hours.**

Computer software is the primary analytical tool for business analytics and modern research methods. Data analysts, statisticians, and researchers need technologies and skills using the computer as a tool for structuring and cleaning data sets, creating validation samples, conducting analyses, fitting models, simulating stochastic systems, model validation, and model presentation. Emphasis is placed on the use of data analytic software. Cross-listed with INSY 5360. Prerequisite: BSTAT 5325 or equivalent.

**INSY 5363. INTELLIGENT INFORMATION SYSTEMS. 3 Hours.**

Topics include expert systems, inductive learning, genetic algorithms, neural networks, simulated annealing, etc. Prerequisite: INSY 5309.

**INSY 5373. INFORMATION SYSTEMS PROJECT MANAGEMENT. 3 Hours.**

This course introduces students to the concepts and practices of project management and their importance to improving the success of information technology projects. Distinct aspects or characteristics of IT projects which cause these projects to behave differently in the corporate world than do other, non-technical, projects will be discussed.

**INSY 5375. MANAGEMENT OF INFORMATION TECHNOLOGIES. 3 Hours.**

This course covers topics on the management of information technologies (IT) from the view point of senior managers. Subjects discussed include the strategic role of IT to gain competitive advantage, Internet-based business models, building a lean and agile organization through IT, managing IT security and reliability, evolving models of IT service delivery, such as cloud computing and open source, management of outsourcing, IT governance, and ethical issues in the digital era. In addition to classroom lectures, the course relies heavily on case analysis and discussion to provide a real world perspective of issues related to IT management.

**INSY 5376. BIG DATA ANALYTICS. 3 Hours.**

This course addresses the concepts and principles of Big Data and how Big Data can be used in the Enterprise. The course provides an overview of the fundamental principles of Big Data Analytics and its role in making better decisions and predictions in the organization. The course also covers the Technology, Infrastructure and Applications of Big Data. Concepts of data identification, data cleansing and integration are also addressed. Software and Application requirements of Big Data are addressed and case studies of Big Data Applications are discussed. Prerequisite: INSY 5337 and BSTAT 5325.



**INSY 5377. WEB AND SOCIAL ANALYTICS. 3 Hours.**

This course introduces the concepts, techniques, and tools of collecting and analyzing digital data on how users interface with an organization through the web and social media. The Internet and mobile technologies provide the vast sources of user data that describe or imply their behaviors, experiences, and attitudes. Analyzing these web (click) stream data and social media data serves the purposes of strengthening customer relationship management, improving online marketing (e.g. advertising, recommendation, pricing), and increasing the bottom line. The course will consist of lectures, case studies, hands-on exercises, and projects. Prerequisite: BSTAT 5325 or equivalent.

**INSY 5378. DATA SCIENCE: A PROGRAMMING APPROACH. 3 Hours.**

The world is awash in data and organizations are now trying to discern patterns and predict behaviors - of both consumers and competitors - to gain and sustain a competitive advantage. The unstructured nature of data as well as the myriad sources they come from make it particularly challenging for companies to systematically capture, cleanse, store, and analyze the data. Python is a simple yet powerful language that has a rich ecosystem to facilitate the analysis of such complex data. The aim of this course is to acquaint students with aspects of the Python language that are necessary to effectively function as a "data scientist". In addition to providing a solid foundation in Python programming, the course will cover sentimentality analysis, machine learning, and social network analysis. Techniques for accessing and processing structured and unstructured data will be covered as well.

**INSY 5379. BUSINESS ANALYTICS CAPSTONE PROJECT. 3 Hours.**

This is a hands-on, project-oriented course that gives students an opportunity to engage with the business community and apply their learning to a real-world problem. Students will draw on their repertoire of analytical to develop an appropriate solution to a problem faced by an organization. In addition to preparing a detailed report, students will present their findings to faculty and/or members of the business community. The course places considerable emphasis on problem-solving as well as on written and oral communication skills. Prerequisite: INSY 5339 and ECON 5337 or consent of the advisor.

**INSY 5382. INDEPENDENT STUDIES IN INFORMATION SYSTEMS. 3 Hours.**

Extensive analysis of an information systems topic.

**INSY 5392. SELECTED TOPICS IN INFORMATION SYSTEMS. 3 Hours.**

In-depth study of selected topics in information systems. May be repeated when topics vary.

**INSY 5398. THESIS. 3 Hours.**

Graded F,R,P.

**INSY 5399. GRADUATE INFORMATION SYSTEMS INTERNSHIP. 3 Hours.**

Practical training in information systems. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

**INSY 5698. THESIS. 6 Hours.**

Graded F, R, P.

**INSY 6182. INDEPENDENT STUDY IN INFORMATION SYSTEMS. 1 Hour.**

Doctoral level study of information systems topics. Prerequisite: Doctoral standing.

**INSY 6301. SEMINAR IN RESEARCH FOUNDATIONS. 3 Hours.**

Integrative analysis of research in information systems, including research philosophies and methodologies, contemporary research topics, dissertation research and future directions for information systems research. Prerequisite: Doctoral standing.

**INSY 6306. SEMINAR IN INFORMATION TECHNOLOGIES. 3 Hours.**

Focuses on contemporary technology issues in IS development and deployment. Prerequisite: Doctoral standing and INSY 6301.

**INSY 6307. SEMINAR IN IS MANAGEMENT. 3 Hours.**

Focuses on managerial and organizational issues in IS. Prerequisite: Doctoral standing and INSY 6301.

**INSY 6392. SELECTED TOPICS IN INFORMATION SYSTEMS. 3 Hours.**

Advanced doctoral level topics in Information Systems. May be repeated when topics vary. Prerequisite: Doctoral standing.

## Insurance (INSU)

### COURSES

**INSU 4329. PROPERTY AND CASUALTY RISK MANAGEMENT. 3 Hours.**

Fire, marine, and automobile insurance; business, professional, and personal liability insurance; theft insurance; disability and miscellaneous casualty coverage, surety bonds, rate structures, and multiple line contracts. Prerequisite: 60 credit hours.

**INSU 4330. LIFE AND HEALTH RISK MANAGEMENT. 3 Hours.**

Principles underlying the fields of life and health insurance. Types of life, health, and annuity contracts; determination of premiums; policy provisions, reserve provisions, and legal requirements. Prerequisite: 60 credit hours.

## Interdisciplinary Studies (INTS)

## COURSES

### **INTS 1310. INTRODUCTION TO POPULAR CULTURE. 3 Hours.**

This course will introduce students to the role of popular culture in American society. It examines culture as a process through which people make symbolic meaning out of the world. Since everyone has access to popular culture, it constructs the way that people think about the world around them. The course will explore the creation, production, dissemination, reception and consumption of popular culture.

### **INTS 2301. FOUNDATIONS: IDENTITY, INSTITUTIONS AND IDEOLOGY. 3 Hours.**

This course introduces students to core concepts in social inquiry, difference, and justice through interdisciplinary investigations of social issues. Students will learn about social justice through the dimensions of identity, institutions and ideology.

### **INTS 2388. SPECIAL TOPICS INTERDISCIPLINARY STUDIES. 3 Hours.**

Special topics or problems that lend themselves to an interdisciplinary approach. May be repeated for credit when the topic changes.

### **INTS 3320. SOCIAL JUSTICE THEORY. 3 Hours.**

This course introduces students to various theoretical frameworks for social justice. Students will read texts by major social and humanistic theorists from a wide range of traditions, epistemologies and schools of thought. Prerequisite: Junior standing or permission of the instructor.

### **INTS 4301. INTERDISCIPLINARY RESEARCH PROCESS. 3 Hours.**

This intermediate course examines the theory of interdisciplinarity with special emphasis on the interdisciplinary research process. At the end of the course students will develop a formal research proposal for their senior capstone integrative essay. Prerequisite: INTS 2301 with a grade of C or better.

### **INTS 4388. SPECIAL TOPICS INTERDISCIPLINARY STUDIES. 3 Hours.**

Special topics or problems that lend themselves to an interdisciplinary approach. May be repeated for credit when the topic changes.

### **INTS 4391. INTERDISCIPLINARY SENIOR SEMINAR. 3 Hours.**

The Senior Seminar will examine a particular topic central to social justice. Seminar discussions will require the student to participate in vigorous academic discussion of extensive readings each week. Participation in, and contribution to, the intellectual life of the class will be the main measure of achievement in this class. Prerequisite: Completion of INTS 2301 and INTS 3320 with a grade of C or better.

### **INTS 4392. INTERDISCIPLINARY SENIOR SERVICE LEARNING. 3 Hours.**

This course provides students with an opportunity to gain skills and knowledge through community service. Grounded in the scholarly literature, students will then apply their theoretical knowledge in a real world application, culminating in both an academic and practical experience.

### **INTS 4393. INTERDISCIPLINARY SENIOR THESIS. 3 Hours.**

Students develop an independent thesis paper. In collaboration with INTS faculty, students will be guided through the unique challenges of designing and implementing interdisciplinary research. This course is designed for students who aspire to graduate study, are deeply engaged in a program of academic research, or who wish to produce a thesis that demonstrates their mastery of a field of study, issue, or problem.

### **INTS 4394. INTERDISCIPLINARY SENIOR PROJECT. 3 Hours.**

Students develop a unique research project based upon their individual interests and aspirations. The possibilities are limited only by the student's resourcefulness. Projects will be based upon comprehensive academic research and will result in a substantial product which will be presented to a panel of faculty.

### **INTS 4395. INTERNSHIP. 3 Hours.**

This is a supervised internship program in which students integrate theory with duties at a public or private organization that are relevant to the student's academic/professional goal. The internship must be developed and approved during the semester prior to the start of the course/internship. Students must complete a minimum of 140 hours of supervised work over the semester. No credit will be given for previous experience. This course may not be repeated for credit. Prerequisites: Completion of 12 hours of INTS courses and a minimum overall GPA of 2.7 and permission of Director.

### **INTS 4396. INDEPENDENT STUDY. 3 Hours.**

Independent study for the advanced undergraduate. A close examination of a chosen complex interdisciplinary topic through research and/or reading; format designed by instructor and student. Prerequisite: Permission of the Interdisciplinary Studies Program Director and advising faculty member.

## Interior Design (INTD)

### COURSES

#### **INTD 1101. ACADEMIC SUCCESS SKILLS INTERIOR DESIGN. 1 Hour.**

This is a required course intended to establish a solid overview of the School of Architecture and the interior design program for all first semester UTA students who intend to declare as an interior design major. Topics for the class include: critical thinking, presentation techniques, internships, attendance of exhibitions and lectures, navigating the advising process, portfolio review and techniques, and utilizing the library and other university resources. Other topics may be discussed. This course may be taken only once for credit. Graded P, F.

#### **INTD 1191. CONFERENCE COURSE. 1 Hour.**

Independent study guided by an instructor on a regular basis. May be repeated for credit. Permission of the instructor and the architecture undergraduate advisor required. Restricted to interior design-intended majors.

**INTD 3305. HISTORY OF INTERIOR DESIGN. 3 Hours.**

A historical and analytical review of interior spaces and furnishings with emphasis on the 20th Century. Prerequisite: Concurrent enrollment in INTD 3321 and junior standing in the program.

**INTD 3321. INTERIOR MATERIALS I. 3 Hours.**

The course content includes the identification of interior building materials and their application in the built environment, in addition to documentation of interior finish details. Prerequisite: Junior standing in the program and concurrent enrollment in INTD 3305.

**INTD 3322. INTERIOR MATERIALS II. 3 Hours.**

A course to build student understanding of interior construction. Distribution systems such as power, mechanical, and plumbing will be evaluated with respect to their contribution to a sustainable environment. Building codes affecting fire and life safety, and federal/state laws affecting accessibility will be introduced. Prerequisite: Concurrent enrollment in INTD 3323 and junior standing in the program.

**INTD 3323. LIGHTING DESIGN. 3 Hours.**

An introduction to lighting technologies, equipment and design. Course content emphasizes qualitative and quantitative aspects of architectural lighting. Prerequisite: Concurrent enrollment in INTD 3322 and junior standing in the program.

**INTD 3329. COMPUTER-AIDED DRAWING IN INTERIOR DESIGN. 3 Hours.**

The course is developed to teach the students to set up and control the AutoCAD environment. Prerequisite: Junior standing in program.

**INTD 3343. INTERIOR DESIGN COMMUNICATION III. 3 Hours.**

This is an introductory digital design course that strives to develop visual sensitivity and awareness of the digital environment enabling students to present ideas graphically. This survey course focuses on general exposure to computer visualization software from 2D Vector and 2D Raster based programs to an introduction of basic 3D modeling. Emphasis is placed on the relationship of digital skills and graphic communication of ideas and presentation in both digital and printed media. Prerequisite: Junior standing in the program.

**INTD 3357. BUILDING INFORMATION MODELING & VISUALIZATION. 3 Hours.**

To gain a working knowledge of Building Information Modeling software and advanced 3D modeling software. Prerequisite: ARCH 4356 or INTD 3343 and Junior standing in program. Restricted to Architecture and Interior Design majors.

**INTD 3553. DESIGN STUDIO: INTERIOR DESIGN I. 5 Hours.**

A studio course in planning and design of interior spaces. Attention is drawn to the analysis of space, purpose of use, creative and effective solutions to the stated problems, material and color selection, and presentation skills. The process of developing a concept/idea is highly stressed. Prerequisite: Credit or concurrent enrollment in INTD 3343 or INTD 3345. Junior standing in the program. Restricted to Interior Design majors.

**INTD 3555. DESIGN STUDIO: INTERIOR DESIGN II. 5 Hours.**

A studio course in planning and design of interior spaces. Attention is drawn to the analysis of space, purpose of use, creative and effective solutions to the stated problems, material and color selection, and presentation skills. The process of developing a concept/idea is highly stressed. Prerequisite: Credit or concurrent enrollment in INTD 3343 or INTD 3345. Junior standing in the program. Restricted to Interior Design majors.

**INTD 4191. CONFERENCE COURSE. 1 Hour.**

Independent study guided by an instructor on a regular basis. May be repeated for credit. Prerequisite: permission of instructor. Junior or senior standing in the program. Restricted to Interior Design majors.

**INTD 4195. SELECTED TOPICS IN INTERIOR DESIGN. 1 Hour.**

Studio and lecture course to explore and present selected topics in interior design. May be repeated for credit as topics change. Prerequisite: Permission of the Instructor or the Architecture Undergraduate Advisor. Junior standing in program. Restricted to Interior Design majors.

**INTD 4332. PROFESSIONAL PRACTICE: INTERIOR DESIGN. 3 Hours.**

An overview of professional procedures as practiced in a variety of local interior design firms. Prerequisite: Senior standing in the program. Restricted to Interior Design majors.

**INTD 4344. INTERIOR DESIGN COMMUNICATION IV. 3 Hours.**

An advanced digital design course that builds on the basic computer knowledge and digital graphics developed in the INTD 3343 class and advances the development of digital techniques. The class investigates the digital realm as an environment communicating ideas graphically, analytically, and conceptually. A more extensive digital tool set will be introduced and output will be directed towards both digital presentations and 3D Print technologies. Prerequisite: INTD 3343 or ARCH 3343. Junior standing in the program.

**INTD 4345. ARCHITECTURAL GRAPHICS. 3 Hours.**

Graphic and signage considerations for interior environments. Wayfinding methods will be addressed. Senior standing in the program. Restricted to Interior Design majors but open to Architecture majors as an elective based on space availability.

**INTD 4368. INTERIOR DESIGN AND DETAILING. 3 Hours.**

A studio course in the design and presentation of detailing for interior construction. Basic fabrication techniques are introduced utilizing woodshop and digital fabrication equipment. Prerequisite: INTD 3553 and INTD 3555. Senior standing in the program. Restricted to Interior Design majors but open to Architecture majors as an elective based on space availability.

**INTD 4369. FURNITURE DESIGN AND CONSTRUCTION. 3 Hours.**

A studio course in the design, detailing, and construction of furniture. Prerequisite: INTD 3553 and INTD 3555. Restricted to Interior Design majors but open to Architecture majors as an elective based on space availability.

**INTD 4391. CONFERENCE COURSE. 3 Hours.**

Independent study guided by an instructor on a regular basis. May be repeated for credit. Prerequisite: permission of instructor. Junior or senior standing in the program. Restricted to Interior Design majors.

**INTD 4393. INTERIOR DESIGN INTERNSHIP. 3 Hours.**

Internship under the supervision of a Registered Interior Designer or Architect in an approved Interior Design and/or Architecture office. Prerequisite: Senior standing in the program and permission of the Interior Design Program Director. Students who do not acquire an internship are required to take an approved major advanced elective.

**INTD 4394. DESIGN RESEARCH METHODS AND APPLICATION. 3 Hours.**

Research conducted by undergraduate students that contributes to ongoing faculty research within the Interior Design program or the School of Architecture. Research must be conducted under the supervision of a full-time Interior Design or Architecture faculty member. Prerequisite: Senior standing in the program and permission of the Interior Design Program Director. Open to Architecture majors as an elective based on space availability.

**INTD 4395. SPECIAL TOPICS IN INTERIOR DESIGN. 3 Hours.**

This course addresses areas of special interest to Interior Design studies and gives students an opportunity for a more in-depth exploration of selected topics than is possible within the embedded content of the core course requirements. Prerequisite: Junior standing in the program. Restricted to Interior Design majors but open to Architecture majors as an elective based on space availability.

**INTD 4562. DESIGN STUDIO: INTERIOR DESIGN III. 5 Hours.**

A studio course in planning and design of interior spaces. The course emphasizes large scale projects including programming and furniture systems and fabrication of interior components. Prerequisite: INTD 3553 and INTD 3555. Senior standing in the program. Restricted to Interior Design majors.

**INTD 4563. DESIGN STUDIO: INTERIOR DESIGN IV. 5 Hours.**

A studio course in planning and design of interior spaces. The course emphasizes large scale projects including programming and furniture systems and fabrication of interior components. Prerequisite: INTD 3553 and INTD 3555. Senior standing in the program. Restricted to Interior Design majors.

**INTD 4591. CONFERENCE COURSE. 5 Hours.**

Independent study guided by an instructor on a regular basis. May be repeated for credit. Prerequisite: INTD 3553 and INTD 3555. Permission of Instructor. Senior standing in program. Restricted to Interior Design majors.

**INTD 4595. SELECTED TOPICS IN INTERIOR DESIGN. 5 Hours.**

Studio and lecture courses to explore and present selected topics in interior design. May be repeated for credit as topics change. Prerequisite: permission of the Instructor or the Architecture Undergraduate Advisor. Senior standing in program. Restricted to Interior Design majors. The course may be repeated up to four times as the topics change.

## Introduction to Liberal Arts (COLA)

### COURSES

**COLA 1100. INTRODUCTION TO LIBERAL ARTS. 1 Hour.**

Introduction and orientation to the College of Liberal Arts. Involves academic survival skills, individual success, and career possibilities. Explore new experiences. May be in format with student peer counselors or with faculty instructor. Elective only. Pass-Fail grades awarded.

## Journalism (JOUR)

### COURSES

**JOUR 1345. WRITING FOR MASS MEDIA. 3 Hours. (TCCN = COMM 2309)**

Writing techniques in AP style with practice in research and news writing.

**JOUR 2340. PHOTOJOURNALISM I. 3 Hours. (TCCN = COMM 1316)**

Basic theory and techniques of photojournalism; introduction to electronic digital photography and editing; professional, technical, and aesthetic values. Prerequisite: JOUR 1345 with grade of C or higher.

**JOUR 2346. REPORTING. 3 Hours. (TCCN = COMM 2310)**

Complex journalistic stories with emphasis on ethics, interviewing, and writing of general news stories, features, and specialized stories. Prerequisite: JOUR 1345 with a grade of C or higher.

**JOUR 3341. PHOTOJOURNALISM II. 3 Hours.**

Advanced electronic imaging techniques as applied to newspapers, magazines, and public relations. Prerequisite: JOUR 2340.

**JOUR 3345. NEWS EDITING. 3 Hours.**

The function of the editor and copy editor; extensive practice in newspaper page makeup, headline writing, and copy editing. Prerequisite: JOUR 2346 with a grade of C or higher and MATH 1308 with a grade of C or higher.

**JOUR 4325. SPECIALIZED REPORTING. 3 Hours.**

This course focuses on the unique demands of a specialized form of journalism. Subjects include such topics as sports reporting, business reporting, health and science reporting, travel reporting and writing for new media. Prerequisite: JOUR 2346 with grade of C or higher.

**JOUR 4326. FEATURE WRITING. 3 Hours.**

Nature, function, and structure of articles for magazines and newspapers. Prerequisite: JOUR 2346 with a C or higher (2.0/4.0 scale) and JOUR 3345.

**JOUR 4327. OPINION & PERSUASIVE WRITING. 3 Hours.**

Reading and analysis of the forms of persuasive writing, including editorials, commentaries, reviews, and interpretive articles. Prerequisite: JOUR 2346 with a C or higher (2.0/4.0 scale).

**JOUR 4341. DIGITAL STORYTELLING. 3 Hours.**

Creating multimedia packages in news, illustrative, and narrative formats. Conducting social media journalism. Readings in newsroom practices, law, and ethics of digital communication. Prerequisites: JOUR 2340, JOUR 2346.

**JOUR 4346. PUBLIC AFFAIRS REPORTING. 3 Hours.**

Research in planning and writing techniques required for covering such public affairs news sources as governmental offices, bureaus, and agencies. Experience in covering local government agencies, including agency budgets. Investigative and in-depth methods of news gathering; extensive practice in news writing. Prerequisite: JOUR 3345 with grade of C or higher (or permission).

**JOUR 4391. CONFERENCE COURSE. 3 Hours.**

Topic assigned on an individual basis, covering individual research or study in the designated areas. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: COMM 2315 and 60 or more hours earned and permission of the department.

**JOUR 4393. SPECIAL TOPICS. 3 Hours.**

Special studies in journalism. Topic varies from semester to semester. May be repeated when topics change, for a maximum of nine credit hours. Prerequisite: JOUR 2346 or permission.

**JOUR 4395. PROFESSIONAL INTERNSHIP. 3 Hours.**

Individual research while working with business and industry. Individual conference to be arranged. Prerequisite: COMM 2315, 60 or more hours earned and permission of the department. Graded P/F.

## Kinesiology (KINE)

### COURSES

**KINE 1230. FIRST AID / CPR / AED TRAINING. 2 Hours.**

This course is designed to cover the components of Standard First Aid, Cardio-Pulmonary Resuscitation (CPR) for the Professional Rescuer, and Automated External Defibrillator (AED) training. Certification is possible upon successful course completion. Offered as HEED 1230 and KINE 1230. Students seeking credit in HEED should enroll in HEED 1230 and students seeking credit in KINE should enroll in KINE 1230. Credit will not be granted for both courses.

**KINE 1315. INTRODUCTION TO TEACHING PHYSICAL EDUCATION. 3 Hours.**

This course is an introduction to, and observation of, practices in pedagogical kinesiology. The course is intended for students who will seek certification in the field of physical education. There are no prerequisites for this course.

**KINE 1400. INTRODUCTION TO EXERCISE SCIENCE. 4 Hours.**

Introduction to key concepts concerning the anatomical, biomechanical, and physiological basis of exercise science. Through lecture and laboratory experiences, the student is introduced to cardiovascular responses to training, analysis of human movement, and basic principles of exercise prescription. Credit cannot be given for both KINE 1400 and the combination of courses it replaces: KINE 1124 and KINE 1314.

**KINE 2130. ATHLETIC TRAINING CLINICAL PRACTICUM I. 1 Hour.**

Laboratory and clinical experiences designed to provide students with formal instruction and evaluation in the Entry Level Athletic Training Clinical Proficiencies with an instructional emphasis on preventive and protective taping and wrapping procedures. This course requires the completion of 120 clinical hours under the supervision of an Approved Clinical Instructor (ACI) or Clinical Instructor (CI).

**KINE 2230. INTRODUCTION TO MUSCULOSKELETAL INJURIES. 2 Hours.**

This course is designed to introduce students to the mechanisms of musculoskeletal injury and their associated signs, symptoms, and tissue responses. Students will also be introduced to the basic principles of musculoskeletal assessment. This course is a prerequisite for admission to the Athletic Training Education Program. Prerequisite: KINE 2120, KINE 2320; must be concurrently enrolled in KINE 2130.

**KINE 2301. TEACHING GAMES FOR UNDERSTANDING. 3 Hours.**

The course will provide students with theoretical concepts with which they can design and analyze various short- and long-term plans related to the Teaching Games for Understanding theoretical model. Students will learn various tactical strategies and modification principles for applying learned concepts in instructional settings. The instructor will use expertise from given sports to help students transfer the common themes across the spectrum of the model's category of games. Prerequisite: KINE 1315 and KINE 1400.

**KINE 2302. DANCE AND MOVEMENT ACTIVITIES. 3 Hours.**

This course is designed to enhance the students performance knowledge of skills and strategies in dance and movement activities to acquaint them with effective teaching behaviors appropriate for these activities. Co-requisite: KINE 1315 and KINE 1400.

**KINE 2307. SPORTS AND SOCIETY. 3 Hours.**

This course will examine the bidirectional impact of sport and societal institutions. The class will explore the co-dependent nature of sport and society and attempt to separate fact from fiction to aid in the understanding of the true role of sport as it fits into society. Topics to be addressed include the potentially controversial areas of race, gender, disability, institutional rule violations, and ethics in the contemporary sports arena. This is a lower level elective. Credit cannot be received for this course and KINE 3307.

**KINE 2330. CARE AND PREVENTION OF ATHLETIC INJURIES. 3 Hours.**

An introduction to the profession of Athletic Training. Common sports-related injuries and illnesses will be discussed with an emphasis on the proper methods for prevention, recognition, and immediate care. Offered as HEED 2330 and KINE 2330. Kinesiology majors must take KINE 2330.

**KINE 2420. INTRODUCTION TO ATHLETIC TRAINING. 4 Hours.**

Classroom and laboratory experiences that provide an introduction to the profession of Athletic Training with an emphasis on prevention and immediate care of sports related injuries. Specific topics will include injury prevention techniques; emergency first aid and acute care; superficial application of therapeutic modalities; proper use and fitting of protective equipment; and environmental considerations. Credit cannot be given for KINE 2420 and the combination of courses it replaces: KINE 2320 and KINE 2120.

**KINE 3130. ATHLETIC TRAINING CLINICAL PRACTICUM II. 1 Hour.**

Laboratory and clinical experiences designed to provide students with formal instruction and evaluation in the Entry Level Athletic Training Competencies and Clinical Proficiencies. This course requires the completion of 250 hours of clinical experience performed under the supervision of an Approved Clinical Instructor (ACI) or Clinical Instructor (CI). Prerequisites: BIOL 2457, Athletic Training Majors only or permission of instructor. Corequisite: KINE 3320.

**KINE 3131. ATHLETIC TRAINING CLINICAL PRACTICUM III. 1 Hour.**

Laboratory and clinical experiences that provide students with formal instruction and evaluation in the Entry Level Athletic Training Competencies and Clinical Proficiencies. This course requires the completion of 250 hours of clinical education experience performed under the supervision of an Approved Clinical Instructor (ACI) or Clinical Instructor (CI). Prerequisite: BIOL 2457, Athletic Training Majors only or permission of instructor. Corequisite: KINE 3324.

**KINE 3300. FUNCTIONAL ANATOMY. 3 Hours.**

A study of the musculoskeletal anatomy to include bony landmarks, muscle origin, insertion and action, as well as nerve innervation. Knowledge of the functional anatomy is crucial to the understanding of sports performance, the design of strength training programs, and injury prevention. Prerequisite: BIOL 2457 and KINE 1400.

**KINE 3301. BIOMECHANICS OF HUMAN MOVEMENT. 3 Hours.**

Quantitative and qualitative analyses of human movement. Emphasis is on the application of the principles of human movement, with consideration of functional anatomy, kinesiology and mechanical concepts to exercise, sport, and activities of daily living. Prerequisite: KINE 1400, BIOL 2457 and MATH 1302, or permission of instructor.

**KINE 3302. SPORT AND EXERCISE PSYCHOLOGY. 3 Hours.**

Analysis of exercise and sport activities in terms of psychological skills and strategies. Topics include motivation, arousal regulation, focus, concentration, group cohesion & imagery.

**KINE 3303. ORGANIZATIONAL PRINCIPLES OF EXERCISE AND SPORT ACTIVITIES. 3 Hours.**

An organizational analysis of exercise and sport in terms of participation rules, regulations, and responsibilities. Emphasis on knowledge and understanding of the principles governing the organization and conduct of exercise and sport activities.

**KINE 3304. ADAPTED PHYSICAL EXERCISE & SPORT. 3 Hours.**

Analysis of conditions that impact individuals with special needs. Emphasis on adapted physical education strategies that facilitate the learning of this population. Prior to registration, the student must complete and submit an AISD criminal background check form to the Department of Kinesiology. The form is available in the Department of Kinesiology or can be downloaded from the departmental web site. Prerequisite: KINE 1315, KINE 1400, and KINE 3388.

**KINE 3306. MOTOR INTEGRATION. 3 Hours.**

Principles of motor skill acquisition, performance, and control. Topics include practice strategies, memory, neuromotor functioning, attention, and learning (assessment, transfer & stages). Prerequisite: KINE 1315, and KINE 1400, or permission of instructor.

**KINE 3307. SPORT AND SOCIETY: ISSUES AND DEBATES. 3 Hours.**

This course will examine the bidirectional impact of sport and societal institutions. The class will explore the co-dependent nature of sport and society and attempt to separate fact from fiction to aid in the understanding of the true role of sport as it fits into society. Topics to be addressed include the potentially controversial areas of race, gender, disability, institutional rule violations, and ethics in the contemporary sports arena. This is an upper level elective. Credit cannot be received for this course and KINE 2307.

**KINE 3309. FOUNDATIONS OF RECREATION. 3 Hours.**

Leisure time in our social structure and the agencies which have developed to provide leisure time activities. Program development and leadership skills in the recreation profession.

**KINE 3311. RECREATION AND LEISURE SERVICE. 3 Hours.**

Application of management and organizational principles, objectives, and procedures involved in implementing recreational and leisure service programs.

**KINE 3312. COACHING INVASION GAME PRINCIPLES. 3 Hours.**

The course will provide students with theoretical concepts with which they can design and analyze various short and long-term plans related to invasion games. Students will learn various tactical strategies and modification principles for applying learned concepts in instructional settings. The instructor will use expertise from given sports to help students transfer the common themes across the spectrum of invasion games.

**KINE 3313. COACHING OF NET/WALL GAME PRINCIPLES. 3 Hours.**

The course will provide students with theoretical concepts with which they can design and analyze various short and long-term plans related to net/wall games. Students will learn various tactical strategies and modification principles for applying learned concepts in instructional settings. The instructor will use expertise from given sports to help students transfer the common themes across the spectrum of net/wall games.

**KINE 3315. PHYSIOLOGY OF EXERCISE. 3 Hours.**

Provides the physiology background necessary for an understanding of the acute and chronic effects of exercise on the body. Physiological concepts and their relationship to exercise, sport, and health programs are examined. Laboratory experiences are designed for evaluating physiological responses to exercise. Prerequisite: KINE 1400, BIOL 2457, BIOL 2458, MATH 1302.

**KINE 3320. LOWER EXTREMITY EVALUATION. 3 Hours.**

A study of the common orthopedic and musculoskeletal injuries involving the lower extremities and lumbar spine, with a special emphasis on recognition, evaluation, diagnosis, and initial management. Prerequisite: BIOL 2457, Athletic Training Majors only or permission of instructor. Corequisite: KINE 3130.

**KINE 3324. UPPER EXTREMITY EVALUATION. 3 Hours.**

A study of the common orthopedic and musculoskeletal injuries involving the upper extremities, spine, head, face, abdomen, and thorax, with a special emphasis on recognition, evaluation, diagnosis, and initial management. Prerequisite: BIOL 2457, Athletic Training Majors only or permission of instructor. Corequisite: KINE 3131.

**KINE 3325. UNDERGRADUATE RESEARCH METHODS. 3 Hours.**

Current practices in the conduct of quantitative research, measurement, and evaluation processes applied to programs related to exercise science, pedagogical kinesiology, athletic training and related fields will be examined. Enrolled students will develop and conduct a research project based on their declared discipline. Prerequisite: KINE 1400, KINE 3315, MATH 1302, MATH 1308. Course can be taken concurrently with KINE 3315.

**KINE 3330. PATHOLOGY AND PHARMACOLOGY. 3 Hours.**

Study of acute and chronic illness and their response to, and impact on, physical activity. Discussion of pharmacological agents used in the care of general illnesses and musculoskeletal disorders in the physically active. Prerequisite: BIOL 2458, acceptance into the Athletic Training Education Program or permission of instructor.

**KINE 3333. THERAPEUTIC INTERVENTION II. 3 Hours.**

This course is designed to provide the student with an understanding of upper extremity and low back rehabilitation protocols and the use of electric therapeutic modalities like ultrasound, diathermy, laser, and electric stimulation. Emphasis will be placed on understanding the disablement model and learning how to plan, implement, document, and evaluate programs for the rehabilitation and reconditioning of injuries and illnesses of athletes and others involved with physical activity. Operation of electrical therapeutic modalities and how they can be incorporated into a rehabilitation program will be investigated. The underlying principles and application techniques for each modality, therapeutic exercise progressions, patient clinical goals, legal and safe practice guidelines, and evidence based therapeutic modality science will allow for critical thinking and problem solving in relation to common upper extremity and low back injuries. Both surgical and non-surgical rehabilitation models for the upper extremity and low back will be discussed with a special emphasis on the use of functional progressions. Prerequisites: BIOL 2457 and BIOL 2458. Concurrent enrollment in KINE 4131 is required for all Athletic Training Education Program students.

**KINE 3342. SOCIOLOGY OF THE HUMAN BODY. 3 Hours.**

Drawing from the social sciences, cultural and gender studies, and exercise physiology, this course in body sociology addresses several contemporary issues relating to diet, nutrition and exercise. Specific topics include eating disorders, factory farming, and "body industries" involving weight-loss diets, gyms, fashion, and cosmetic and bariatric surgery. The medical model of bodies is also examined. Also listed as SOCI 3342; credit will not be granted for both KINE 3342 and SOCI 3342.

**KINE 3388. THEORY AND APPLICATION IN MOTOR DEVELOPMENT. 3 Hours.**

A study of motor skill development from infancy to adolescence with emphasis upon motor development theory and aspects that effect motor competence, underlie movement control, and influence change in the acquisition of motor skills. Prior to registration, the student must complete and submit an AISD criminal background check to the Department of Kinesiology. The form is available in the Department of Kinesiology or can be downloaded from the departmental Web site. Prerequisite: KINE 1315 and KINE 1400.

**KINE 4130. ATHLETIC TRAINING CLINICAL PRACTICUM IV. 1 Hour.**

Laboratory and clinical experiences designed to provide students with formal instruction and evaluation in the Entry Level Athletic Training Competencies and Clinical Proficiencies. The instructional emphasis is the development of functional rehabilitation programs for musculoskeletal injuries and common orthopedic surgeries. This course requires the completion of 250 hours of clinical experience performed under the supervision of an Approved Clinical Instructor (ACI) or Clinical Instructor (CI). Prerequisite: BIOL 2457 and BIOL 2458; Athletic Training Majors only or permission of instructor. Corequisite: KINE 4336.

**KINE 4131. ATHLETIC TRAINING CLINICAL PRACTICUM V. 1 Hour.**

Laboratory and clinical experiences designed to provide students with formal instruction and evaluation in the Entry Level Athletic Training Competencies and Clinical Proficiencies. Instructional emphasis is on the selection and clinical application of therapeutic modalities. This course requires the completion of 250 hours of clinical experience performed under the supervision of an Approved Clinical Instructor (ACI) or Clinical Instructor (CI). Prerequisite: BIOL 2457 and BIOL 2458; Athletic Training Majors only or permission of instructor. Corequisite: KINE 3333.

**KINE 4132. ATHLETIC TRAINING CLINICAL PRACTICUM VI. 1 Hour.**

Laboratory and clinical experiences designed to provide students with formal instruction and evaluation in the Entry Level Athletic Training Competencies and Clinical Proficiencies. This course requires the completion of 200 hours of clinical experience performed under the supervision of an Approved Clinical Instructor. Prerequisite: KINE 3130, KINE 3131, KINE 3320, KINE 3324, KINE 3330, KINE 3333, KINE 4130, KINE 4131, KINE 4336, and acceptance into the Athletic Training Education Program or approval of instructor. Must be concurrently enrolled in KINE 4233.

**KINE 4188. CLINICAL HEALTH PROFESSIONS INTERNSHIP. 1 Hour.**

Individualized academic training in an external clinical health professions setting (e.g. hospital, physical therapy clinic, or physician's office) under the direct supervision of a health care professional (MD, PT, OT, PA) Prerequisites: KINE 4315, current CPR certification, proof of sufficient professional liability insurance, and permission of department.

**KINE 4191. CONFERENCE COURSE. 1 Hour.**

Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of department chairperson.

**KINE 4193. PHYSICAL EDUCATION TEACHER CERTIFICATION PRACTICUM. 1 Hour.**

In this course students will be prepared for the TExES PE-EC-12 and PPR- EC-12 exams. The students will take and review the PE content and pedagogy and professional responsibilities practice teaching licensure exams. Through this process teacher candidates will be cleared for official TExES registration and introduced to "team-based" testing and learning theory. Prerequisite: KINE 3304 and KINE 3315. Co-requisite: KINE 4320.

**KINE 4201. ADVANCED TECHNIQUES AND TACTICS OF BASEBALL. 2 Hours.**

Development and analysis of skills, offensive and defensive strategies used in the sport of baseball.

**KINE 4202. ADVANCED TECHNIQUES AND TACTICS OF BASKETBALL. 2 Hours.**

Development and analysis of skills, offensive/defensive strategies used in the sport of basketball.

**KINE 4203. ADVANCED TECHNIQUES AND TACTICS OF FOOTBALL. 2 Hours.**

Development and analysis of skills, offensive and defensive strategies used in the sport of football.

**KINE 4204. ADVANCED TECHNIQUES AND TACTICS OF TRACK AND FIELD. 2 Hours.**

Development and analysis of track and field event techniques and strategies.

**KINE 4205. ADVANCED TECHNIQUES AND TACTICS OF VOLLEYBALL. 2 Hours.**

Development and analysis of skills, offensive and defensive strategies used in the sport of volleyball.

**KINE 4233. ATHLETIC TRAINING ORGANIZATION & ADMINISTRATION. 2 Hours.**

A study of the administrative issues and management theories that may be encountered in athletic training. Special emphasis is placed on the practical application of concepts related to legal liability, facility design and maintenance, documentation, financial management, health insurance, and general day-to-day operations. Prerequisite: KINE 3130, KINE 3131, KINE 3320, KINE 3324, KINE 3330, KINE 3333, KINE 4130, KINE 4131, KINE 4336, and acceptance into the Athletic Training Education Program or approval of instructor.

**KINE 4291. CONFERENCE COURSE. 2 Hours.**

Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of department chairperson.

**KINE 4293. SEMINAR IN ATHLETIC TRAINING. 2 Hours.**

Synthesis of theories and concepts in athletic training. Review of the competencies and proficiencies in athletic training with special emphasis on professional development and the refinement of clinical decision-making. Prerequisite: KINE 3320, KINE 3324, KINE 3330, KINE 3333, KINE 4233, KINE 4336; Athletic Training Majors only.

**KINE 4296. SPECIAL TOPICS IN EXERCISE AND SPORT. 2 Hours.**

Designed to meet the current needs of students. May be repeated for credit when the topic changes.

**KINE 4315. FITNESS ASSESSMENT/PROGRAMMING. 3 Hours.**

Classroom and laboratory experiences provide the student with an opportunity to become familiar with the assessment of physical fitness including graded exercise testing, basic ECG interpretation, body composition, muscular strength and endurance and flexibility. The student will also learn risk factor identification, exercise leadership and prescription. Prerequisite: KINE 3315, KINE 3325, and MATH 1302.

**KINE 4316. FITNESS PROGRAMMING. 3 Hours.**

This course will provide students with practical and theoretical applications of fitness programming. The successful student will acquire a level of proficiency in the development of fitness programs and plans based upon client specific fitness assessment characteristics. Fitness programs shall include, but not be limited to: musculoskeletal symmetry, strength, and flexibility; body composition; cardiovascular endurance, and nutritional recommendations. Additionally, successful students will become proficient in the application of client related historical, nutritional, medical, psychological, and psychosocial factors that impact the development of a properly designed exercise program. Prerequisite: Current CPR certification, MATH 1302, KINE 3300, KINE 3315, and KINE 4315, or permission of instructor.



**KINE 4317. EXERCISE PRESCRIPTION FOR SPECIAL POPULATIONS. 3 Hours.**

This course will discuss the pathophysiology of prevalent cardiovascular, metabolic and pulmonary diseases. Methods of exercise prescription and issues of concern will also be presented for these populations, as well as, low back pain, pregnancy, osteoporosis, cancer, anorexia and bulimia, children, adolescents, teens, older adults, fibromyalgia, multiple sclerosis, and chronic fatigue syndrome. Practical application of leadership skills and hands-on instruction will be addressed in the laboratory portion of this course. Prerequisite: Current CPR certification, MATH 1302, KINE 3300, KINE 3315, KINE 4316, or permission of instructor.

**KINE 4319. FITNESS AND OUTDOOR ADVENTURE ACTIVITIES EDUCATION. 3 Hours.**

The course will provide students with theoretical health-related concepts with which they can design and apply fitness learning into various physical education settings. In addition, this course is designed to introduce students to outdoor and adventure education activities and adventure-based learning. Time will be spent on low element group initiatives and high element adventure activities. Prerequisite: KINE 2302.

**KINE 4320. TEACHING SECONDARY PHYSICAL EDUCATION. 3 Hours.**

Designed to enhance teacher candidates' understanding of curriculum development as it applies to theory of motor learning and the sciences of kinesiology. These progressions are synthesized into a collaborative service-learning project with secondary public school partner(s). Candidates take responsibility for creating, coordinating, and facilitating learning experiences that are developmentally appropriate, motivating, and based on research. Prerequisite: KINE 4321.

**KINE 4321. TEACHING ELEM PHYSICAL EDUCATION. 3 Hours.**

This course is designed to synthesize the sciences of anatomy and physiology, biomechanics, motor integration and motor control with sound pedagogical knowledge into an applied elementary physical education setting. Criminal background check required. Prerequisite: KINE 3304, KINE 3325, KINE 3388 and KINE 4319.

**KINE 4323. MOTOR CONTROL AND LEARNING. 3 Hours.**

Motor Control and Learning principles are essential for future health/rehabilitation professionals, as they will be working with patients that will be LEARNING to use the damaged motor system in a new way to accomplish an environmental goal. Prerequisite: KINE 3325.

**KINE 4329. STRENGTH & CONDITIONING. 3 Hours.**

This course covers the physiology and biomechanics of strength training and conditioning. Additional topics include: testing and evaluation of athletes, resistance training techniques, training program design, and organization administration of a strength training facility. This course is designed to prepare students to take the CSCS, Certified Strength and Conditioning Specialist, certification examination. Prerequisite: KINE 3300, KINE 3315, KINE 3325.

**KINE 4330. PROGRAM DESIGN & ADMINISTRATION. 3 Hours.**

The development and operation of health/wellness programs and facilities will be presented, including: program design and administration, facility design, organizational development, management theory, marketing, financial management, legal issues, strategic planning, and evaluation models. The student will participate in all phases of program and facility development, such as budget development, recruiting and retaining employees and clients, market niche, and conflict resolution. Prerequisite: KINE 3315 and KINE 3325.

**KINE 4331. OBESITY & WEIGHT MANAGEMENT. 3 Hours.**

This course is a review of the scientific literature on the causes and consequences of obesity. Topics include techniques for assessing body composition, factors promoting fat metabolism and deposition, traditional and non-traditional weight-loss programs, and adherence to weight-loss programs. Credit may not be given for both KINE 4317 AND KINE 4331. Prerequisites: KINE 3315 and KINE 3325.

**KINE 4335. GRADED EXERCISE TESTING & PRESCRIPTION. 3 Hours.**

The knowledge and skills necessary for assessment of health history and appraisal, blood pressure, electrocardiogram, cardiovascular fitness and function will be acquired in lecture and laboratory sessions. Various test modalities and protocols will be discussed for health and diseased populations. Prerequisite: BIOL 2457, BIOL 2458, and KINE 3315, KINE 4315, or permission of instructor.

**KINE 4336. THERAPEUTIC INTERVENTION I. 3 Hours.**

This course is designed to provide the student with an understanding of the scientific theory and the basic principles of musculoskeletal rehabilitation and therapeutic modalities. Emphasis will be placed on understanding the disablement model and learning how to plan, implement, document, and evaluate programs for the rehabilitation and reconditioning of injuries and illnesses of athletes and others involved with physical activity. Operation of superficial heating and cooling therapeutic modalities and how manual treatments (e.g., traction, muscle energy and massage) can be incorporated into a rehabilitation program will be investigated. The underlying principles and application techniques for each modality, therapeutic exercise progressions, patient clinical goals, legal and safe practice guidelines, and evidence based therapeutic modality science will allow for critical thinking and problem solving in relation to common lower extremity injuries. Both surgical and non-surgical rehabilitation models for the lower extremity will be discussed with a special emphasis on the use of functional progressions. Prerequisites: BIOL 2457 and BIOL 2458. Concurrent enrollment in KINE 4130 is required for all Athletic Training Education Program students.

**KINE 4350. SPORTS PSYCHOLOGY. 3 Hours.**

The course will provide an overview of the growing field of Sports Psychology, which involves applying psychological science to sports. Topics such as maximizing sports performance, elite performance and personality, motivation techniques in sports, leadership skills in sports, etc., will be covered.

**KINE 4387. EXERCISE SCIENCE PRACTICUM. 3 Hours.**

Academic training within the internal setting of U.T. Arlington's exercise science laboratories. Each student will receive 135 hours of professional practicum experience in a variety of exercise science settings including wellness, physical fitness activity classes, physical fitness theory classes, the physical fitness center, and/or other exercise science settings. Prerequisite: Current CPR certification, KINE 4315, KINE 4316, and permission of instructor.

**KINE 4388. EXERCISE SCIENCE INTERNSHIP. 3 Hours.**

Individualized academic training in an external professional exercise science setting (e.g., hospital, physical therapy, university laboratory) under the direct supervision of an exercise science professional. Prerequisite: KINE 4315, current CPR certification, and proof of sufficient professional liability insurance.

**KINE 4389. FITNESS MANAGEMENT INTERNSHIP. 3 Hours.**

Designed on an individual basis to allow the student to apply academic training in a professional fitness center under the direct supervision of a fitness specialist. Prerequisite: Current CPR certification, KINE 4315 and proof of sufficient professional liability insurance.

**KINE 4390. PRACTICUM IN SPORT PERFORMANCE. 3 Hours.**

Designed on an individual basis as a field experience in the observation of sport performance, and the application of performance principles to sport participation. Students must make application for enrollment prior to October 1 for Spring Semester and prior to April 1 for Fall Semester.

**KINE 4391. CONFERENCE COURSE. 3 Hours.**

Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of department chairperson.

**KINE 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department.

**KINE 4395. INDIVIDUAL STUDY IN EXERCISE AND SPORT. 3 Hours.**

The completion of an existing course on an individual basis as contracted with an approved faculty member. This procedure is limited to emergency situations, and must be identified through the departmental advising process.

**KINE 4396. SPECIAL TOPICS IN EXERCISE AND SPORT. 3 Hours.**

Designed to meet the current needs of students. May be repeated for credit when the topic changes.

**KINE 4400. APPLIED EXERCISE PHYSIOLOGY. 4 Hours.**

Application of physiological principles of training of physical fitness and sport; examination of factors influencing anaerobic and aerobic training methods and their effect on fitness. Physiological responses studied include cardiovascular, neuromuscular, bioenergetics, and extreme environments. Site visits, laboratory experiences and a research project enhance the student's understanding of physiological changes and career paths in exercise science.

Prerequisite: Current CPR certification, KINE 3315, KINE 3325, KINE 4315, MATH 1302 and MATH 1308.

**KINE 4589. FITNESS MANAGEMENT INTERNSHIP. 5 Hours.**

Designed on an individual basis to allow the student to apply academic training in a professional fitness center under the direct supervision of a fitness specialist.

**KINE 4647. ALL-LEVEL TEACHER PREPARATION STUDENT TEACHING FOR PHYSICAL EDUCATION. 6 Hours.**

This supervised course is designed as a culminating field experience of pre-service professional preparation giving an opportunity to practically apply theoretical and pedagogical knowledge in real school settings. Applied experience will be attained in both Elementary and Secondary settings. Criminal background check required. Prerequisite: KINE 1315, KINE 2301, KINE 3304, KINE 3306, KINE 3325, KINE 3388, KINE 4319, KINE 4320, KINE 4321. EDUC 4352, READ 4343, and EDML 4300.

**KINE 4689. FITNESS MANAGEMENT INTERNSHIP. 6 Hours.**

Designed on an individual basis to allow the student to apply academic training in a professional fitness center under the direct supervision of a fitness specialist. Prerequisite: Current CPR certification, KINE 4315, KINE 4316, KINE 4387 (or concurrent enrollment), proof of sufficient professional liability insurance, and permission of instructor.

**KINE 4988. EXERCISE SCIENCE INTERNSHIP. 9 Hours.**

Individualized academic training in an external professional exercise science setting (e.g., hospital, physical therapy, university laboratory) under the direct supervision of an exercise science professional. Prerequisite: KINE 4315, KINE 4316, KINE 4387 (or concurrent enrollment), current CPR certification, proof of sufficient professional liability insurance, and permission of instructor.

**KINE 4989. FITNESS MANAGEMENT INTERNSHIP. 9 Hours.**

Designed on an individual basis to allow the student to apply academic training in a professional fitness center under the direct supervision of a fitness specialist. Prerequisite: Current CPR certification, KINE 4315, KINE 4316, KINE 4387 (or concurrent enrollment), proof of sufficient professional liability insurance, and permission of instructor.

**KINE 5120. ATHLETIC TRAINING CLINICAL I. 1 Hour.**

Clinical experiences performed in an athletic training setting or other health care facility under the supervision of a program approved health care provider.

**KINE 5125. IMMUNOLOGY. 1 Hour.**

This course will include a brief review of the immune system and factors that affect immune function with emphasis on the effect of exercise and stress on muscle and overall immune function. The effect of nutrition and over-training on the immune system and associated syndromes/diseases will also be presented.

**KINE 5130. Clinical Athletic Training II. 1 Hour.**

Clinical experiences in selected health care settings that provide students the opportunity to integrate their knowledge and skills into actual patient care. Emphasis will be placed on the development of clinical decision-making skills. This course requires the completion of 250 hours of clinical experience under the supervision of a program approved clinical preceptor. Prerequisites: KINE 5420, KINE 5220, KINE 5120.

**KINE 5140. Clinical Athletic Training III. 1 Hour.**

Clinical experiences in selected health care settings that provide students the opportunity to integrate their knowledge and skills into actual patient care. Emphasis will be placed on the development of clinical decision-making skills. This course requires the completion of 250 hours of clinical experience under the supervision of a program approved clinical preceptor. Prerequisite: KINE 5130.

**KINE 5150. Clinical Athletic Training IV. 1 Hour.**

Clinical experiences in selected health care settings that provide students the opportunity to integrate their knowledge and skills into actual patient care. Emphasis will be placed on the development of clinical decision-making skills. This course requires the completion of 250 hours of clinical experience under the supervision of a program approved clinical preceptor. Prerequisite: KINE 5140.

**KINE 5160. Clinical Athletic Training V. 1 Hour.**

Clinical experiences in selected health care settings that provide students the opportunity to integrate their knowledge and skills into actual patient care. Emphasis will be placed on the development of clinical decision-making skills. This course requires the completion of 250 hours of clinical experience under the supervision of a program approved clinical preceptor. Prerequisite: KINE 5150.

**KINE 5190. SPECIAL TOPICS IN KINESIOLOGY. 1 Hour.**

In-depth study of selected topics in physical education and exercise science. May be repeated when topics vary. Prerequisite: consent of instructor.

**KINE 5191. INTERNSHIP IN CARDIOPULMONARY REHABILITATION. 1 Hour.**

The student will complete 400 internship hours in an approved Cardiopulmonary rehabilitation setting. The student may take two semesters of KINE 5191 at 200 hours each. The student will be involved in patient/client assessment, training, rehabilitation, risk factor identification and lifestyle management services provided for individuals with or at risk for cardiovascular, pulmonary, and metabolic diseases. In addition the student will observe common cardiac surgeries and diagnostic procedures to better understand the pathophysiology and treatment of cardiovascular, pulmonary and metabolic disease.

**KINE 5192. INTERNSHIP IN GRADED EXERCISE TESTING FOR HIGH RISK POPULATIONS. 1 Hour.**

The student will complete 200 hours of graded exercise testing in an approved hospital or outpatient clinical setting which conducts exercise tests for high risk populations, including clients with suspected cardiopulmonary and metabolic diseases. The student will be exposed to noninvasive (echocardiography and graded exercise testing) and invasive methods used to diagnose cardiopulmonary and metabolic disease, including procedures conducted in cath and nuclear testing laboratories.

**KINE 5193. PHYSIOLOGY OF EXERCISE INTERNSHIP. 1 Hour.**

Individualized academic training in an external professional exercise physiology setting (e.g., physical medicine, athletic training, external laboratory, health/fitness facility, professional teams or sports management) under the direct supervision of an exercise science professional.

**KINE 5194. RESEARCH IN KINESIOLOGY. 1 Hour.**

Individually approved research projects selected from the various areas of Kinesiology.

**KINE 5195. INTERNSHIP IN GRADED EXERCISE TESTING FOR HIGH RISK POPULATIONS. 1 Hour.**

The student will complete 200 hours of graded exercise testing in an approved hospital or outpatient clinical setting which conducts exercise tests for high risk populations, including clients with suspected cardiopulmonary and metabolic diseases. The student will be exposed to noninvasive (echocardiography and graded exercise testing) and invasive methods used to diagnose cardiopulmonary and metabolic disease, including procedures conducted in cath and nuclear testing laboratories.

**KINE 5196. LABORATORY TECHNIQUES IN EXERCISE SCIENCE. 1 Hour.**

A primary objective of this course is to further your understanding of exercise physiology. A second but equally important objective is to enhance your ability for critical thinking on exercise physiology through the scientific process. This includes formation of a research question, hypothesis, designing an experiment, and inferring conclusions from data. Secondary objectives include improving technology skills to assist collecting and analyzing data, and writing and oral communication skills for demonstrating understanding of the physiological principles.

**KINE 5198. THESIS. 1 Hour.****KINE 5220. PREVENTATIVE AND ACUTE CARE TECHNIQUES IN ATHLETIC TRAINING. 2 Hours.**

Classroom and laboratory experiences designed to provide students with formal instruction and evaluation in the prevention and acute care of activity related injuries and illnesses.

**KINE 5290. SPECIAL TOPICS IN KINESIOLOGY. 2 Hours.**

In-depth study of selected topics in physical education and exercise science. May be repeated when topics vary. Prerequisite: consent of instructor.

**KINE 5291. INTERNSHIP IN CARDIOPULMONARY REHABILITATION. 2 Hours.**

The student will complete 400 internship hours in an approved Cardiopulmonary rehabilitation setting. The student may take two semesters of KINE 5191 at 200 hours each. The student will be involved in patient/client assessment, training, rehabilitation, risk factor identification and lifestyle management services provided for individuals with or at risk for cardiovascular, pulmonary, and metabolic diseases. In addition the student will observe common cardiac surgeries and diagnostic procedures to better understand the pathophysiology and treatment of cardiovascular, pulmonary and metabolic disease.

**KINE 5292. SPECIAL TOPICS IN KINESIOLOGY. 2 Hours.****KINE 5293. PHYSIOLOGY OF EXERCISE INTERNSHIP. 2 Hours.**

Individualized academic training in an external professional exercise physiology setting (e.g., physical medicine, athletic training, external laboratory, health/fitness facility, professional teams or sports management) under the direct supervision of an exercise science professional.

**KINE 5294. RESEARCH IN KINESIOLOGY. 2 Hours.**

Individually approved research projects selected from the various areas of Kinesiology.

**KINE 5298. THESIS. 2 Hours.****KINE 5300. RESEARCH METHODS IN KINESIOLOGY. 3 Hours.**

This course is an overview of concepts and procedures necessary for designing, conducting, and analyzing research in Kinesiology from multiple research paradigms. The course will focus on the steps involved in the administration of a research project, including literature review, design, data collection and analysis.

**KINE 5305. APPLIED STATISTICAL PRINCIPLES IN KINESIOLOGY. 3 Hours.**

The course covers descriptive statistics, elementary probability, one- and two-population mean and variance comparisons, ANOVA, simple linear regression, and correlations. In addition, more advanced principles in parametric and non-parametric statistics will be emphasized.

**KINE 5320. ADVANCED PHYSIOLOGY OF EXERCISE. 3 Hours.**

Lecture and laboratory sessions are designed to investigate concepts of energy metabolism, lactate production and accumulation, energy expenditure, excess post exercise oxygen consumption, cardiovascular and temperature regulation, neuromuscular control, aerobic and anaerobic adaptations and ergonomics.

**KINE 5322. METABOLISM & EXERCISE BIOCHEMISTRY. 3 Hours.**

This course will address the regulation of exercise metabolism as well as the distinct biochemical pathways through which energy transduction occurs. This will allow the student to appreciate not only the end result of metabolism, ultimately the production and maintenance of cellular ATP levels, but also the pathways that biological machines use to achieve ATP homeostasis. Calorimetry, respiratory exchange ratio, and substrate utilization during exercise will be assessed as part of the laboratory section of this course.

**KINE 5323. MOTOR CONTROL AND LEARNING. 3 Hours.**

This course advances on fundamental concepts of motor behavior and performance combining theoretical principles to a variety of realistic contexts to provide the basis of skilled behavior. Contemporary research in human motor behavior models is used to identify effective solutions to practical problems and to spark ideas for optimizing development, learning, and control of motor skills.

**KINE 5326. CARDIOCIRCULATORY PHYSIOLOGY OF EXERCISE. 3 Hours.**

The structure and function of the cardiovascular and circulatory system will be studied, as well as, cardiac control, the cardiac cycle, cardiac output, hemodynamics, vascular resistance, arterial-venous oxygen difference and oxygen delivery and consumption. Heat production and thermal control during exercise will also be addressed in lecture and laboratory sessions.

**KINE 5327. PULMONARY PHYSIOLOGY OF EXERCISE. 3 Hours.**

Examines the structure and function of the pulmonary system including mechanics of breathing, lung capacity tests, pulmonary circulation, lung diseases, gas exchange, ventilation, diffusing capacity, acid/base balance, neural and chemical regulation of breathing, and blood flow with respect to rest and exercise values in healthy and diseased populations. Prerequisite: KINE 5320.

**KINE 5328. NEUROMUSCULAR PHYSIOLOGY OF EXERCISE. 3 Hours.**

The structure and function of muscle, including the motor unit, control and integration, central and peripheral modifiers of neuromuscular control and biochemical characteristics of fibers will be studied. These concepts will also be applied to concepts in strength and power development.

**KINE 5329. STRENGTH & CONDITIONING. 3 Hours.**

The course covers the physiology and biomechanics of strength training and conditioning. Additional topics include: testing and evaluation of athletes, resistance training techniques, training program design, and organization administration of a strength training facility. This course is designed to prepare students to take the CSCS certification examination. Prerequisite: current CPR certification, KINE 3300, KINE 3301, KINE 3315, or permission of the instructor.

**KINE 5331. OBESITY & WEIGHT MANAGEMENT. 3 Hours.**

This course is a review of the scientific literature on the causes and consequences of obesity. Topics include techniques for assessing body composition, factors promoting fat metabolism and deposition, traditional and non-traditional weight-loss programs, and adherence to weight-loss programs. Offered as KINE 4331 and KINE 5331. Credit will be granted only once. Prerequisite: KINE 5320 or permission of department.

**KINE 5333. Health Care Administration. 3 Hours.**

A study of the administrative issues and management theories that may be encountered in overseeing an athletic training/sports medicine program. Special emphasis is placed on the practical application of concepts related to legal liability, facility design and maintenance, financial and budget management, common health insurance models, insurance contract negotiation, strategic planning as a means to assess and promote organizational improvement, the impact of organizational structure on the daily operations of a healthcare facility, components of developing and implementing a basic business plan, medical record and documentation systems, federal and state infection control regulations and guidelines, risk management plan development, emergency action planning, and general day to day operations. Prerequisites: KINE 5431, KINE 5434, KINE 5432.

**KINE 5334. Seminar in Athletic Training. 3 Hours.**

Synthesis of theories and concepts in athletic training. Review of the competencies and proficiencies in athletic training with special emphasis on professional development and the refinement of clinical decision-making.

**KINE 5335. GRADED EXERCISE TESTING AND PRESCRIPTION. 3 Hours.**

The knowledge and skills necessary for assessment of health history and appraisal, blood pressure, electrocardiogram, cardiovascular fitness and function will be acquired in lecture and laboratory sessions. Various test modalities and protocols will be discussed for health and diseased populations.

**KINE 5336. ECG INTERPRETATION. 3 Hours.**

Principles of electrocardiography will be explored, with emphasis on interpretation of resting and stress ECGs. Interpretation of dynamic rhythm strips will prepare students to work in cardiac rehabilitation and other allied health professions.

**KINE 5338. EXERCISE PRESCRIPTION FOR SPECIAL POPULATIONS. 3 Hours.**

This course will discuss the pathophysiology of cardiovascular, metabolic and pulmonary diseases. Methods of exercise prescription and issues of concern will also be presented for these populations, as well as, low back pain, pregnancy, osteoporosis, cancer, anorexia and bulimia, children, adolescents, teens, older adults, fibromyalgia, multiple sclerosis, and chronic fatigue syndrome. Practical application of leadership skills and hands-on instruction will be addressed in the laboratory portion of this course.

**KINE 5340. ENVIRONMENTAL PHYSIOLOGY. 3 Hours.**

This course will address the impact of environmental stress (e.g., thermal, gravitational, microgravity, etc.) on the cardiovascular system. Related focus will be given to cardiac function, blood pressure regulation and thermoregulation. Topics will be addressed in lecture and laboratory sessions.

**KINE 5345. SPORT NUTRITION. 3 Hours.**

Overview of nutrients necessary for healthful living and nutritional impact on reducing risk factors of lifestyle diseases. Application of nutrient recommendations for sports and exercise activities, including fluid replacement, sports supplements, and ergogenic aids. In addition, students will construct plans for dietary intake of athletes during training and competition for both endurance and resistance training. Offered as KINE 5345 and KINE 3301. Credit will be granted only once.

**KINE 5350. APPLIED BIOMECHANICS. 3 Hours.**

Application of Newtonian mechanics to human movement analysis. Biomechanical models using three-dimensional video and force plate data will be used to analyze human movement.

**KINE 5389. RESEARCH MANUSCRIPT SUBMISSION. 3 Hours.**

The student will collect scientific data in the Physiology of Exercise laboratories or in a work-related environment under the supervision of a faculty member. The student will analyze the data, write a manuscript, and submit a manuscript for publication in a peer-reviewed journal. This course must be taken in the final semester of graduate work and requires approval of the Graduate Advisor.

**KINE 5390. SPECIAL TOPICS IN KINESIOLOGY. 3 Hours.**

In-depth study of selected topics in physical education and exercise science. May be repeated when topics vary. Prerequisite: consent of instructor.

**KINE 5392. SPECIAL TOPICS IN KINESIOLOGY. 3 Hours.****KINE 5393. PHYSIOLOGY OF EXERCISE INTERNSHIP. 3 Hours.**

Individualized academic training in an external professional exercise physiology setting (e.g., physical medicine, athletic training, external laboratory, health/fitness facility, professional teams or sports management) under the direct supervision of an exercise science professional.

**KINE 5394. RESEARCH IN KINESIOLOGY. 3 Hours.**

Individually approved research projects selected from the various areas of Kinesiology.

**KINE 5396. Research in Athletic Training. 3 Hours.**

Independent research under the supervision of an individual faculty member; may be repeated for credit with consent of Graduate Advisor. Prerequisite: consent of the instructor.

**KINE 5397. INTERNSHIP ATHLETIC TRAINING. 3 Hours.**

Individualized clinical experience in an external athletic training or other medical setting (e.g., physician's office, rehabilitation clinic, professional sports teams) under the direct supervision of a health care professional.

**KINE 5398. THESIS. 3 Hours.****KINE 5420. CONCEPTS IN ATHLETIC TRAINING. 4 Hours.**

Classroom and laboratory experiences that provide an introduction to the profession of Athletic Training with an emphasis on prevention and acute care of activity related injuries and illnesses. Specific topics will include injury prevention strategies; emergency first aid and acute care; superficial application of therapeutic modalities; nutritional considerations; and environmental considerations.

**KINE 5430. ORTHOPEDIC ASSESSMENT I. 4 Hours.**

A study of the common orthopedic injuries involving the lower extremities, with a special emphasis on recognition, evaluation, diagnosis, and initial management. Prerequisites: KINE 5120, KINE 5220, and KINE 5420.

**KINE 5431. Orthopedic Assessment II. 4 Hours.**

A study of the common orthopedic injuries involving the upper extremities, spine, head, and face with a special emphasis on recognition, evaluation, diagnosis, and initial management. Prerequisite: KINE 5430.

**KINE 5432. PATHOPHYSIOLOGY AND PHARMACOLOGY. 4 Hours.**

A study of acute and chronic illnesses and their response to, and impact on, physical activity. Discussion of pharmacological agents used in the care of general illnesses and musculoskeletal disorders in the physically active. Prerequisite: KINE 5430, KINE 5433, KINE 5130.

**KINE 5433. Therapeutic Interventions I. 4 Hours.**

A study of the scientific theory and basic principles of musculoskeletal rehabilitation and therapeutic modalities. Emphasis will be placed on understanding the disablement model and learning how to plan, implement, document, and evaluate programs for the rehabilitation and reconditioning of injuries and illnesses of athletes and others involved with physical activity. Operation of superficial heating and cooling therapeutic modalities and how manual treatments (e.g., traction, muscle energy and massage) can be incorporated into a rehabilitation program will be investigated. The underlying principles and application techniques for each modality, therapeutic exercise progressions, patient clinical goals, legal and safe practice guidelines, and evidence based therapeutic modality science will allow for critical thinking and problem solving in relation to common lower extremity injuries. Both surgical and non-surgical rehabilitation models for the lower extremity will be discussed with a special emphasis on the use of functional progressions. Prerequisites: KINE 5420, KINE 5220, KINE 5120.

**KINE 5434. Therapeutic Interventions II. 4 Hours.**

A study of the upper extremity and low back rehabilitation protocols and the use of electric therapeutic modalities (e.g., ultrasound, diathermy, laser, and electric stimulation). Emphasis will be placed on understanding the disablement model and learning how to plan, implement, document, and evaluate programs for the rehabilitation and reconditioning of injuries and illnesses of athletes and others involved with physical activity. Operation of electrical therapeutic modalities and how they can be incorporated into a rehabilitation program will be investigated. The underlying principles and application techniques for each modality, therapeutic exercise progressions, patient clinical goals, legal and safe practice guidelines, and evidence based therapeutic modality science will allow for critical thinking and problem solving in relation to common upper extremity and low back injuries. Both surgical and non-surgical rehabilitation models for the upper extremity and low back will be discussed with a special emphasis on the use of functional progressions. Prerequisite: KINE 5433.

**KINE 5498. THESIS. 4 Hours.****KINE 5598. THESIS. 5 Hours.****KINE 5694. RESEARCH IN KINESIOLOGY. 6 Hours.**

Individually approved research projects selected from the various areas of Kinesiology.

**KINE 5698. THESIS. 6 Hours.****KINE 5994. RESEARCH IN KINESIOLOGY. 9 Hours.**

Individually approved research projects selected from the various areas of Kinesiology.

## Korean (KORE)

### COURSES

**KORE 1441. BEGINNING KOREAN I. 4 Hours.**

Multimedia immersion in the culture and language of Korea. Designed to enable students to understand and communicate effectively in Korean at the beginning level.

**KORE 1442. BEGINNING KOREAN II. 4 Hours.**

Continuation of Beginning Korean I. Prerequisite: KORE 1441 with a grade of C or better.

**KORE 2301. TOPICS IN LITERATURE IN TRANSLATION. 3 Hours.**

Study of the works of major authors and intellectual trends of a given period or periods. May be repeated for credit as topics or periods vary. KORE 2301 may be taken to fulfill the foreign language literature requirement. Prerequisite: ENGL 1301 and ENGL 1302.

**KORE 2313. INTERMEDIATE KOREAN I. 3 Hours.**

Continued immersion in the culture and language of Korea. Application of strategies and technology in mastering listening, speaking, reading, and writing at the intermediate level. Prerequisite: KORE 1442 with a grade of C or better.

**KORE 2314. INTERMEDIATE KOREAN II. 3 Hours.**

Continuation of Intermediate Korean I. Prerequisite: KORE 2313 with a grade of C or better.

**KORE 3303. KOREAN CONVERSATION I. 3 Hours.**

Practice in oral expression with an emphasis on vocabulary building, listening comprehension, and speaking skills. Of special interest to students who wish to improve their skills in pronunciation, comprehension, and oral expression. Credit will not be granted to native speakers of Korean. However, heritage speakers of Korean may register for the course when they pass the Korean Placement Test administered by the instructor. Prerequisite: KORE 2314 with a grade of C or better.

**KORE 3304. KOREAN CONVERSATION II. 3 Hours.**

Continuation of Korean Conversation I. Students develop conversational skills through the use of readings, film, and other media. Extensive conversation practice allows students to develop upper-intermediate level oral skills. They learn to express abstract ideas through description, comparison, and narration. Credit will not be granted to native speakers of Korean. Heritage speakers of Korean may register for the course with permission of the instructor. Prerequisite: KORE 3303 with a grade of C or better.

**KORE 3310. KOREAN LOCALIZATION AND TRANSLATION I. 3 Hours.**

Introduction to cultural and linguistic issues in the translation of Korean language texts. Students will explore current technologies used in various real-world translation contexts and how to adapt texts, products, and services to the locale for which they are intended. Prerequisite: KORE 2314 or the equivalent with a grade of B or better. May not be repeated for credit.

**KORE 3311. KOREAN LOCALIZATION AND TRANSLATION II. 3 Hours.**

Continued study of cultural and linguistic issues in the translation of Korean and English language texts. Systematic development of advanced skills in localization and computer-aided translation and in using TMX/TBX (international standards for translation memory and terminology exchange) tools. Translation practice, individually and in translation teams, with increasingly longer and more specialized texts. Prepares localization and translation specialists for real-world careers in the language-services industry. May be repeated once. Prerequisite: KORE 3310 with a grade of B or better.

## Landscape Architecture (LARC)

### COURSES

**LARC 4391. CONFERENCE COURSE IN LANDSCAPE ARCHITECTURE. 3 Hours.**

Independent study guided by an instructor on a regular basis. May be repeated for credit. Prerequisite: Permission of the instructor and the Landscape Architecture Program Director.

**LARC 4395. SELECTED TOPICS IN LANDSCAPE ARCHITECTURE. 3 Hours.**

Studio and lecture courses to explore and present selected topics in landscape architecture and design. May be repeated for credit as topics change. Prerequisite: Permission of the Landscape Architecture Program Director.

**LARC 4695. CONFERENCE COURSE IN LANDSCAPE ARCHITECTURE. 6 Hours.**

Studio and lecture courses to explore and present selected topics in landscape architecture and design. Not repeatable for credit. Prerequisite: Permission of the Landscape Architecture Program Director.

**LARC 5191. CONFERENCE COURSE IN LANDSCAPE ARCHITECTURE. 1 Hour.**

Special subjects and issues in landscape architecture that may be studied independently under faculty supervision. May be repeated for credit.

**LARC 5294. MASTERS COMPREHENSIVE EXAMINATION. 2 Hours.**

Must be taken concurrently with Thesis. Directed study, consultation, and comprehensive examination of coursework, leading to and including the thesis. Oral presentation required. Required of all Master of Landscape Architecture students in the semester in which they plan to graduate.

**LARC 5301. SITE PLANNING AND DEVELOPMENT PROCESSES. 3 Hours.**

Presents the processes and practices of site planning and development, including site inventory, analysis, and assessment of potential building sites. Students examine the natural, cultural, and social systems that affect design decisions, as well as the language and literature of landscape architecture.

**LARC 5302. LAND DEVELOPMENT PLANNING. 3 Hours.**

The process of land development planning for landscape architects. Detailed expansion of LARC 5301. Uses case studies in land development planning to instruct students in the environmental, economic, legal, and visual issues associated with the land planning process.

**LARC 5312. History and Theory of Landscape Architecture. 3 Hours.**

Traces landscape planning and design from pre-history through Egyptian, Greek, Roman, Islamic and Medieval gardens to Italian, French, and English landscape approaches, culminating in the mid-19th century. Relates landscape design to societal, cultural, technological and belief systems of each period. Culminates in the contemporary history of the profession from Andrew Jackson Downing to the present day. The growth and development of the profession, professional education, the environmental movement, large scale regional land planning and significant landscape architectural projects of the past century and a half.

**LARC 5313. HISTORY AND THEORY OF LANDSCAPE ARCHITECTURE II. 3 Hours.**

The contemporary history of the profession from Andrew Jackson Downing to present day. The growth and development of the American Society of Landscape Architects (ASLA), professional education, the environmental movement, large scale regional planning, and significant landscape architectural projects of the past century.

**LARC 5320. COMMUNICATIONS FOR LANDSCAPE ARCHITECTS. 3 Hours.**

Primary class for the development of graphic and communication skills in landscape architecture. Provides a method for transferring conceptual ideas into legible graphic presentations. Should be taken concurrently with LARC 5661 Design Studio I.

**LARC 5321. ADVANCED COMMUNICATIONS. 3 Hours.**

Presentation techniques; expansion on graphic thinking and communication presented in LARC 5320.

**LARC 5323. STUDIO TEACHING. 3 Hours.****LARC 5324. LANDSCAPE ARCHITECTURE AND ENVIRONMENTAL ART SEMINAR. 3 Hours.**

Siting and creating works of art; analysis of the creative processes of the two different-yet-related disciplines; case studies of built works. Communication of ideas through environmental media.

**LARC 5330. Plant Identification and Ecology. 3 Hours.**

Examines the design characteristics and horticultural requirements of a broad palette of plants adapted to the North Texas region. Field trips are required to learn the plants at both ornamental gardens and local ecological communities.

**LARC 5331. PLANTING DESIGN. 3 Hours.**

Design applications of plant material. Students apply the design problem-solving approach to the detailed aspects of planting design and complete a progressively-more-difficult series of problems to practice techniques and methods of plant manipulation that encompass both the aesthetic and functional objectives of planting design. Prerequisites: LARC 5330; LARC 5661; LARC 5662.

**LARC 5340. PROFESSIONAL PRACTICE. 3 Hours.**

Ethical, legal, and administrative aspects of the public, private, and academic spectrums of practice in landscape architecture.

**LARC 5341. LANDSCAPE TECHNOLOGY I. 3 Hours.**

Surveying, site grading, storm water management, vertical and horizontal curves and an overview of the construction documentation process employed by landscape architects.

**LARC 5342. LANDSCAPE TECHNOLOGY II. 3 Hours.**

Examines hardscape materials and methods typical to the practice of landscape architecture, through readings, examinations, design detail exercises, and the creation of a complete set of construction documents. Construction site tours are required with area industry professionals. Prerequisites: LARC 5341.

**LARC 5344. PARK AND RECREATION DESIGN AND PLANNING. 3 Hours.**

History, data collection, program formulation, and design principles for public and private park and recreation systems and sites. Includes management objectives, operations and maintenance, and public input as planning components.

**LARC 5350. LANDSCAPE ARCHITECTURE COMPUTER APPLICATIONS. 3 Hours.**

Examines various computer applications currently used in office practice. Computer applications used for office management, site analysis, design development, construction documentation, and cost estimating. Introduction to computer aided design applications and the underlying theories of application.

**LARC 5351. Advanced Computer Aided Design. 3 Hours.**

Focus is on a methodology for designing and illustrating with computer graphics that is very compatible with the design and production workflow of most landscape architecture offices. All work is done in an AutoCAD environment using AutoCAD for modeling and Accurender for rendering still images, interactive panoramas, and both viewpoint and key-frame animations. Photoshop is used for the creation of texture maps, image manipulation and photo-montage. Emphasis is on working intuitively and creatively. Prerequisites: LARC 5350.

**LARC 5368. DESIGN PRACTICUM. 3 Hours.**

An internship program which includes approved work done in a landscape architect's office or one of the related design fields. The purpose of the practicum is to provide students with practical design experience. Students may enroll in LARC 5368 for half-time employment or LARC 5668 for full time employment.

**LARC 5380. RESEARCH METHODS IN LANDSCAPE ARCHITECTURE. 3 Hours.**

Theories of practical research and methods of applying them as they relate to landscape architecture. Includes research program development, data collection and analysis, thesis proposal writing, and research tools and techniques. Emphasis is on qualitative methods. Prerequisites: LARC 5661, LARC 5662.

**LARC 5382. URBAN DESIGN SEMINAR. 3 Hours.**

Advanced presentation and discussion of issues related to contemporary and historic urban design. Students actively present and lead informed discussions on topics such as population density, environmental management, cultural landscapes, land/water intersections, land-use patterns, circulation and legibility, human communities as living organisms, public art, urban form, and urban/rural interchange. Field trips required.

**LARC 5391. CONFERENCE COURSE IN LANDSCAPE ARCHITECTURE. 3 Hours.**

Special subjects and issues in landscape architecture that may be studied independently under faculty supervision. May be repeated for credit.

**LARC 5395. SELECTED TOPICS IN LANDSCAPE ARCHITECTURE. 3 Hours.**

Selected studio or lecture course offerings in specific areas of expertise or interest. Course allows the program the flexibility to address the ever-changing needs of students and the profession by offering courses beyond the scope of the core curriculum. May be repeated for credit.

**LARC 5398. THESIS. 3 Hours.**

Independent research and presentation of findings under the direction of a supervising committee. The findings of the thesis should extend the boundaries of the professional discipline by either presenting new and unique ideas or information, or by interpreting existing knowledge from a different perspective.

**LARC 5623. STUDIO TEACHING PRACTICUM. 6 Hours.**

Students spend one semester as a teaching assistant in the studio sequence under the supervision of the assigned faculty member. They will observe the methods employed in the studio and prepare a comprehensive evaluation of the studio in conjunction with the instructor. The students will oversee one short studio project and evaluate its success or failure based on the criteria learned in LARC 5322 and the goals and objectives of the test project.

**LARC 5660. ENRICHMENT DESIGN STUDIO. 6 Hours.**

Review of the principles and processes of design presented in Design Studios I, II, and III. Provides an opportunity for students with weak design and graphic skills to improve those skills to meet requirements for Design Studio IV. Course can use design competitions as projects.

**LARC 5661. DESIGN STUDIO I. 6 Hours.**

A design course for students with no background in landscape architecture or design. Outlines the site planning and site design decision-making process. Focuses on providing students with the verbal, intellectual, and graphic tools necessary to successfully tackle a design problem and bring it to a schematic level of completion. It is highly recommended that this course be taken concurrently with LARC 5320.



**LARC 5662. DESIGN STUDIO II. 6 Hours.**

A continuation of LARC 5661. Basic design principles and their application to three-dimensional spaces. Examines how humans occupy exterior space and combines this information with the principles of design to create garden scale models. Models are used as a medium for design expression. Landscape character, design simulation, landscape media, landscape context, and human spatial experience are included.

**LARC 5663. DESIGN STUDIO III: SITE PLANNING. 6 Hours.**

Features the process of solving complicated site planning and site design problems. Each phase of the site planning process is examined in detail by undertaking one or more studio problems that involve resolution of issues related to existing site conditions, program development, conceptual design, design development, and design detailing.

**LARC 5664. DESIGN STUDIO IV: ENVIRONMENTAL PLANNING. 6 Hours.**

Expands the student's concept of the environment as a large scale ecologic unit independent of political boundaries. Primary focus is on Geographic Information Systems (GIS); therefore, computer-aided design experience is a prerequisite. Presents a process of solving large scale planning problems through data gathering and information processing techniques commonly used by landscape architects employed in environmental planning.

**LARC 5665. DESIGN STUDIO V: THE URBAN LANDSCAPE. 6 Hours.**

The summary studio of the design sequence. Basic design principles are reiterated and problems are introduced which require interaction with architects, planners, urban designers, developers, or administrators, on complex urban projects. Course often uses design competitions as projects.

**LARC 5668. DESIGN PRACTICUM. 6 Hours.**

An internship program which includes approved work done in a landscape architect's office or one of the related design fields. The purpose of the practicum is to provide students with practical design experience. Students may enroll in LARC 5368 for half-time employment or LARC 5668 for full time employment.

**LARC 5691. CONFERENCE COURSE IN LANDSCAPE ARCHITECTURE. 6 Hours.**

Special subjects and issues in landscape architecture that may be studied independently under faculty supervision. May be repeated for credit.

**LARC 5698. THESIS. 6 Hours.**

Independent research and presentation of findings under the direction of a supervising committee. The findings of the thesis should extend the boundaries of the professional discipline by either presenting new and unique ideas or information, or by interpreting existing knowledge from a different perspective.

**LARC 5998. THESIS. 9 Hours.**

Independent research and presentation of findings under the direction of a supervising committee. The findings of the thesis should extend the boundaries of the professional discipline by either presenting new and unique ideas or information, or by interpreting existing knowledge from a different perspective.

## Latin (LATN)

### COURSES

**LATN 1441. LATIN LEVEL I. 4 Hours. (TCCN = LATN 1411)**

(LATN 1411).

**LATN 1442. LATIN LEVEL II. 4 Hours. (TCCN = LATN 1412)**

Prerequisite: LATN 1441 or equivalent.

**LATN 2313. LATIN LEVEL III. 3 Hours. (TCCN = LATN 2311)**

Prerequisite: LATN 1442 or equivalent.

**LATN 2314. LATIN LEVEL IV. 3 Hours. (TCCN = LATN 2312)**

Prerequisite: LATN 2313 or equivalent.

**LATN 4301. INTENSIVE LATIN FOR READING I. 3 Hours.**

Covers approximately the same material as LATN 1441/LATN 1442 (Levels I and II). Credit will not be granted for both.

**LATN 4302. INTENSIVE LATIN FOR READING II. 3 Hours.**

Covers approximately the same material as LATN 2313 and LATN 2314 (Levels III and IV). Credit will not be granted for both.

**LATN 4335. TOPICS IN LATIN LITERATURE. 3 Hours.**

Close reading of one or more Latin texts, with attention both to grammatical precision and to interpretation. Student should be able to read unaltered Latin. Course may be repeated for credit.

**LATN 4391. CONFERENCE COURSE. 3 Hours.**

Advanced independent study in Latin literature. May be repeated for credit with departmental permission.

**LATN 5301. INTENSIVE LATIN FOR READING I. 3 Hours.**

Covers approximately the same material as LATN 1441 and LATN 1442 (Levels I and II).

**LATN 5302. INTENSIVE LATIN FOR READING II. 3 Hours.**

Covers approximately the same material as LATN 2313 and LATN2314 (Levels III and IV).

**LATN 5391. CONFERENCE COURSE IN LATIN. 3 Hours.**

May be taken only with the permission of the instructor and the Graduate Advisor.

## Leadership Studies (LSHP)

### COURSES

**LSHP 4311. LEADER AS COMMUNICATOR. 3 Hours.**

Helps students excel in written and oral communication skills. Assignments include writing short papers, making oral presentations, and learning to critique one another. This course provides a perspective on leadership in formal organizations with emphasis on communication, exercising influence, decision-making, and conflict management. Prerequisite: Admission to the Goolsby Leadership Academy.

**LSHP 4312. LEADER ETHICS. 3 Hours.**

Addresses rule-based, consequential, and virtue ethics by examining intentions, actions, and consequences of individual behavior. The course emphasizes the development of character and personal integrity. Prerequisite: Admission to the Goolsby Leadership Academy or permission of the Goolsby Leadership Academy Director.

**LSHP 4313. SENIOR EXECUTIVE LEADERSHIP. 3 Hours.**

Course consists of a series of lectures by executives who provide insight into their own unique leadership skills and development. Prerequisite: Admission to the Goolsby Leadership Academy.

**LSHP 4314. LEADERSHIP IN CONTEXT. 3 Hours.**

Designed to assist Goolsby Fellows to be competent in an intercultural world. The heart of the course is aimed at appreciating human diversity and variance. Prerequisite: Admission to the Goolsby Leadership Academy or permission of the Goolsby Leadership Academy Director.

**LSHP 4315. EXECUTIVE INTERNSHIP. 3 Hours.**

This internship experience places Goolsby Fellows in field settings with executives from the college's Advisory Council and other executive leaders in specialized areas for students. Prerequisite: Admission to the Goolsby Leadership Academy or permission of the Goolsby Leadership Academy Director.

## Linguistics (LING)

### COURSES

**LING 2301. INTRODUCTION TO THE STUDY OF HUMAN LANGUAGES. 3 Hours.**

A variety of languages presented as a basis for discussion of topics such as: how languages are alike, and how different; how new languages arise; how human languages are reflections of human beings; how infants and adults acquire languages; how computers relate to human languages.

**LING 2351. E-LANGUAGES. 3 Hours.**

Human languages can be spoken or written, but today much of our language use is also transmitted through electronic devices. This course looks at aspects of language as reflected in the use of the technologies of modern life. Topics may include the language used in texting, chat, machine tools for recognizing print and speech, and computer translators.

**LING 2371. LANGUAGE IN A MULTICULTURAL USA. 3 Hours.**

This multiculturalism course examines the relationship of language in the U.S.A. to race, ethnicity, class, religion and gender. Topics typically covered include African American English, Spanish-English bilingualism and code-switching, Texas English, Asian language communities, and American Sign Language and Deaf culture. Additional topics vary.

**LING 3301. TOPICS IN LINGUISTICS. 3 Hours.**

Covers issues related to language and linguistics. Topics may include language and film/literature/pop culture, endangered languages, speech synthesis, applied linguistics, or other topics determined by instructor. May be repeated for credit when content changes. No prerequisites.

**LING 3311. INTRODUCTION TO LINGUISTIC SCIENCE. 3 Hours.**

This course introduces students to the field of linguistics, the systematic study of human language. Drawing on data from a range of languages, it will examine the sound patterns of language (phonetics and phonology), words and word formation (morphology), sentence structure (syntax), meaning (semantics), and language in context (pragmatics). Emphasis will be placed on methods of linguistic analysis to solve problems in phonology, morphology, syntax, and semantics. Additional topics may include language acquisition; linguistic variation; and/or historical/comparative linguistics.

**LING 3330. PHONETICS AND PHONOLOGY. 3 Hours.**

Human speech sounds from both physiological and cognitive perspectives; the range of speech sounds in language and the patterning of such sounds within particular language systems. Prerequisite: LING 3311.

**LING 3340. GRAMMAR AND MORPHOLOGY. 3 Hours.**

Grammatical patterns found in languages of the world, including the structure and distribution of words, phrases, clauses, sentences, and larger units. Prerequisite: LING 3311.

**LING 3345. CRITICAL REASONING IN LINGUISTICS. 3 Hours.**

A survey of formal logical approaches used to describe and explain natural language phenomena. Topics include the fundamentals of logical representation and argumentation, the effective use of inductive and deductive reasoning, and the construction of more complex linguistic arguments. Prerequisites: LING 3311 and either PHIL 1301 or PHIL 3321.

**LING 3366. TOPICS IN RACE/ETHNICITY AND LANGUAGE IN THE U.S.. 3 Hours.**

Either an intensive focus within one racial/ethnic group or a comparison between two or more groups. Focus may include language in the U.S. as it pertains to one (or more) of these communities: African Americans, Mexican Americans and Latinos/as, Native Americans, and/or Asian Americans. May be repeated for credit as course content changes.

**LING 4301. PHONOLOGICAL THEORY I. 3 Hours.**

(Also taught as LING 5320). Principles governing sound systems in human languages. Prerequisite: LING 3330.

**LING 4303. FORMAL SYNTAX. 3 Hours.**

Explores the grammatical structures characteristic of human language by analyzing data from diverse languages within the theoretical framework of formal syntax. (Also taught as LING 5330. Credit will be granted only once for LING 4303 or LING 5330.) Prerequisite: LING 3340.

**LING 4317. SOCIOLINGUISTICS. 3 Hours.**

(Also taught as LING 5310). Language in its social context, including linguistic variation, address and reference, speech levels, bilingualism, code switching, speech acts, conversation analysis, and language and gender. Prerequisite: LING 3311.

**LING 4318. LANGUAGE AND GENDER. 3 Hours.**

The role of language in the expression and creation of gender identities. Gender differences in language structure and use, women's and men's language in other cultures, the acquisition of gendered ways of speaking, and sexism in language. Offered as LING 4318 and WOMS 4318; formerly offered as LING 4392/WOMS 4392; credit will be granted only once. Prerequisite: LING 3311.

**LING 4320. HISTORICAL AND COMPARATIVE LINGUISTICS. 3 Hours.**

(Also taught as LING 5314). Language development and change; the comparative method and its use in linguistic reconstruction; laws of language change. Prerequisite: LING 3311.

**LING 4326. BILINGUALISM. 3 Hours.**

This course introduces students to issues related to bilinguals and bilingualism. The areas that will be covered include different types of bilinguals/bilingualism, bilingual education, the cognitive benefits (or disadvantages) of being a bilingual, and language processing in bilinguals. (Also offered as LING 5326. Credit will be granted only once for LING 4326 or LING 5326.) Prerequisite: LING 3311.

**LING 4327. SECOND LANGUAGE ACQUISITION. 3 Hours.**

Processes of first and second language acquisition, their similarities and differences, language disorders, language perception and production, and implications of language acquisition research for linguistic theory and language teaching. Prerequisite: LING 3311.

**LING 4330. CORPUS LINGUISTICS. 3 Hours.**

Applications of ways in which computer science and linguistics inform each other. Corpus linguistics focuses on how computers can be used to both obtain the data that we examine and to provide the tools we use for analysis. Includes readings, practical experience with several different software programs, and using sources of online corpora. Prerequisite: LING 3311.

**LING 4334. MORPHOLOGY. 3 Hours.**

A theoretical and typological investigation into the nature of word-structure and word-formation processes in human languages. Prerequisite: LING 4301 or LING 4303.

**LING 4335. LANGUAGE UNIVERSALS & LINGUISTIC TYPOLOGY. 3 Hours.**

Consideration of universals in human language, their explanation and description, and language types. Prerequisite: LING 4301.

**LING 4345. SEMANTICS. 3 Hours.**

Considers meaning with respect to how humans form concepts in terms of semantic features, categorization, prototype imaging, cultural scenes, scripting and coherence within world views. Prerequisite: LING 3340.

**LING 4347. PRAGMATICS. 3 Hours.**

Analysis of how context and form interact with meaning. Topics may include deixis, reference, speech acts, presupposition, implicature, information structure and intonation. Prerequisite: LING 3311.

**LING 4353. TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE. 3 Hours.**

Presentation and critique of methodologies of teaching English to speakers of other languages, with emphasis on teaching techniques of aural comprehension; speaking, reading, and writing skills; testing, language laboratory, and linguistic-cultural differences. (Also taught as LING 5301. Credit will be granted only once for LING 4353 or LING 5301.) Prerequisite: LING 3311.

**LING 4354. METHODS AND MATERIALS TO TEACH ENGLISH AS A SECOND OR FOREIGN LANGUAGE. 3 Hours.**

Systematic study of the application of linguistic theory and findings; emphasis on pedagogical strategies, materials, and tests; attention to current and past research and practices. (Also taught as LING 5302. Credit will be granted only once for LING 4354 or LING 5302.) Prerequisite: LING 3311 and LING 4353.

**LING 4360. NON-WESTERN LINGUISTIC STRUCTURES. 3 Hours.**

Study of a selected non-Western language, language family or language area based on descriptive linguistic analysis. May be repeated once for credit as the topic varies. Prerequisite: LING 3330 and LING 3340.

**LING 4362. LANGUAGE DOCUMENTATION. 3 Hours.**

The course discusses fundamental issues that are part of language documenting and description. These include project design, research ethics and intellectual property, researcher and community rights and responsibilities, world language ecology, technology and software, archiving issues, grant-writing fundamentals, and related issues that form best practices for language documentation projects. (Also offered as LING 5362. Credit will be granted only once for LING 4362 or LING 5362.) Prerequisite: LING 3311.

**LING 4363. LANGUAGE ENDANGERMENT AND REVITALIZATION. 3 Hours.**

This course examines language endangerment and what it means for a language to become endangered, and studies language revitalization. Case studies are presented where communities seek to maintain the number of speakers or revive the language. (Also offered as LING 5363. Credit will be granted only once for LING 4363 or LING 5363.) Prerequisite: LING 3311.

**LING 4370. HISTORY OF LINGUISTICS. 3 Hours.**

Surveys the recent history of the field of linguistics and familiarizes students with the key figures and theories in recent linguistic history, with special attention to the development and emergence of generative theories of syntax, semantics, and phonology. Prerequisite: LING 3330 and LING 3340 and either LING 4301 or LING 4303.

**LING 4389. TOPICS IN LINGUISTICS. 3 Hours.**

Current topics in linguistics research. May be repeated if topic changes. Prerequisite: Either LING 3330, LING 3340, or LING 4317, and permission of undergraduate advisor.

**LING 4391. CONFERENCE COURSE IN LINGUISTICS. 3 Hours.**

Independent study in the preparation of a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: Either LING 3311, LING 3330, or LING 3340, and permission of undergraduate advisor.

**LING 4395. INTERNSHIP. 3 Hours.**

Internship (paid or unpaid) supervised by a faculty internship coordinator, with the student performing duties related to the academic curriculum of linguistics and/or TESOL. Students are required to submit an approved academic project related to the work performed. May be repeated with the approval of the Undergraduate Advisor. Prerequisite: LING 4327 and LING 4354.

**LING 5100. THESIS WRITING SEMINAR. 1 Hour.**

Techniques for researching and writing a thesis/dissertation in linguistics. Required of all students who have elected the Thesis or Thesis Substitute degree option in Linguistics. Prerequisite: completion of at least 9 hours of LING courses.

**LING 5110. TESOL PRACTICUM. 1 Hour.**

In observing ESOL classes or in teaching learners of ESOL, the student demonstrates ability to apply the principles presented in the TESOL Certificate coursework. Prerequisite: LING 5302 and LING 5305 and permission of instructor.

**LING 5190. CONFERENCE COURSE IN LINGUISTICS. 1 Hour.**

Graded P/F. Prerequisite: Permission of instructor.

**LING 5300. LINGUISTIC ANALYSIS. 3 Hours.**

This course introduces students to the field of linguistics, the systematic study of human language. Drawing on data from a range of languages, it will examine the sound patterns of language (phonetics and phonology), words and word formation (morphology), sentence structure (syntax), meaning (semantics), and language in context (pragmatics). Emphasis will be placed on methods of linguistic analysis to solve problems in phonology, morphology, syntax, and semantics. May not be used to fulfill M.A. or Ph.D. degree requirements in linguistics.

**LING 5301. TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE. 3 Hours.**

Presentation and critique of methodologies of teaching English to speakers of other languages, with emphasis on techniques of teaching aural comprehension; speaking, reading, and writing skills; attention to testing, language laboratory, and linguistic-cultural differences.

**LING 5302. METHODS AND MATERIALS FOR TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE. 3 Hours.**

Systematic study of the application of linguistic theory and findings; emphasis on pedagogical strategies, materials, and tests; attention to current and past research and practices. Prerequisite: LING 5301.

**LING 5303. CONTRASTIVE ANALYSIS AND ERROR ANALYSIS IN THE TEACHING OF ENGLISH AS A SECOND OR FOREIGN LANGUAGE. 3 Hours.**

A study of contrastive analysis and error analysis as means of defining student problems and progress; emphasis on current research; application to specific problems and contexts. Prerequisite: LING 5300 and LING 5301.

**LING 5304. PEDAGOGICAL GRAMMAR OF ENGLISH. 3 Hours.**

Grammaticality, variation, and acceptability applied to teaching English as a second or foreign language. Problems of description; means of application; adaptation to current pedagogical methods. Prerequisite: LING 5300 and LING 5301.

**LING 5305. SECOND LANGUAGE ACQUISITION. 3 Hours.**

Study of the processes of first and second language acquisition, their similarities and differences, language disorders, language perception and production, and implications of language acquisition research for linguistic theory and language teaching. Prerequisite: LING 5300 or permission of instructor.

**LING 5306. TESOL CURRICULUM DESIGN. 3 Hours.**

Systematic presentation of elements in development, management and evaluation of TESOL programs. Attention to needs analysis, syllabus design, materials selection and adaptation, teaching and evaluation in language curriculum design. Prerequisite: LING 5301.

**LING 5307. PEDAGOGICAL PHONOLOGY OF ENGLISH. 3 Hours.**

A study of the sound system of English. Topics include segmental phonemes, stress, length, intonation and variation at the lexical and utterance levels. Application to teaching English as a second or foreign language. Problems of description; means of application; adaptation to current pedagogical methods. Prerequisite: LING 5300 and LING 5301.

**LING 5310. SOCIOLINGUISTICS. 3 Hours.**

The study of language and social context (made up of society and individuals). Content includes language as a social phenomenon, theoretical perspectives on relationship between language, society and individuals, basic concepts in sociolinguistics; and may include topics in macro- and micro-sociolinguistics such as multilingualism, language planning and standardization, linguistic variation, code switching, conversational analysis, and language and gender.

**LING 5311. SOCIOLINGUISTICS OF SOCIETY. 3 Hours.**

The study of macro-sociolinguistics, including topics such as multilingualism, language standardization and planning, literacy, language dominance, maintenance and death, language and identity, diglossia, and pidgins and creoles. Prerequisite: LING 5310.

**LING 5312. LANGUAGE AND GENDER. 3 Hours.**

The role of language in the expression and creation of gender identities. Gender differences in language structure and use, men's and women's languages in other cultures, the acquisition of gendered ways of speaking, and sexism in language. Prerequisite: LING 5310.

**LING 5313. TOPICS IN SOCIOLINGUISTICS. 3 Hours.**

Selected topics relating the scientific methodologies of linguistics to larger concerns of society and culture including cognition, motivation, description and analysis. May be repeated for credit when topic changes. Prerequisite: LING 5310.

**LING 5314. HISTORICAL AND COMPARATIVE LINGUISTICS. 3 Hours.**

The study of language development and change; comparative method and its use in linguistic reconstruction; laws of language change. Prerequisite: LING 3330 or permission of instructor.

**LING 5320. PHONOLOGICAL THEORY. 3 Hours.**

Explores the principles governing sound systems in human languages. Prerequisite: LING 3330 or permission of instructor.

**LING 5321. ADVANCED PHONOLOGICAL THEORY. 3 Hours.**

A continuation of LING 5320. Topics include autosegmental analysis, lexical phonology, metrical phonology and phonological feature geometry. May be repeated for credit when topic changes. Prerequisite: LING 5320.

**LING 5322. LABORATORY PHONOLOGY. 3 Hours.**

An investigation into the physical properties of human speech. Students will gain hands-on experience with computer-assisted speech analysis. No prior computer experience is assumed. Prerequisite: LING 5320.

**LING 5326. BILINGUALISM. 3 Hours.**

This course introduces students to issues related to bilinguals and bilingualism. The areas that will be covered include different types of bilinguals/bilingualism, bilingual education, the cognitive benefits (or disadvantages) of being a bilingual, and language processing in bilinguals. Prerequisite: LING 5300.

**LING 5328. PSYCHOLINGUISTICS. 3 Hours.**

This course will introduce students to psycholinguistics, or the study of the cognitive processes involved in the acquisition, comprehension, and production of language. The class will focus mainly on language perception and production by native speakers, but will also address issues related to bilingual/second language processing. Prerequisite: LING 5300.

**LING 5330. FORMAL SYNTAX. 3 Hours.**

Explores the grammatical structures characteristic of human language by analyzing data from diverse languages within the theoretical framework of formal syntax. Prerequisite: LING 3340 or permission of instructor.

**LING 5331. ADVANCED FORMAL SYNTAX. 3 Hours.**

A continuation of LING 5330. Investigates theoretical controversies in formal syntax and provides extensive opportunity for application in linguistic field work. Prerequisite: LING 5330.

**LING 5334. MORPHOLOGY. 3 Hours.**

A theoretical and typological investigation into the nature of word-structure and word-formation processes in human languages. Prerequisite: LING 5320 or LING 5330.

**LING 5335. LANGUAGE UNIVERSALS AND LINGUISTIC TYPOLOGY. 3 Hours.**

Consideration of universals in human language, their explanation and description, and language types. Prerequisite: LING 5330.

**LING 5345. SEMANTICS. 3 Hours.**

Considers meaning with respect to how humans form concepts in terms of semantic features, categorization, prototype imaging, cultural scenes, scripting and coherence within world views. Prerequisite: LING 3340 or permission of instructor.

**LING 5346. TOPICS IN APPLIED LINGUISTICS. 3 Hours.****LING 5347. PRAGMATICS. 3 Hours.**

Analysis of how context and form interact with meaning. Topics may include deixis, reference, speech acts, presupposition, implicature, information structure and intonation.

**LING 5350. TEXT ANALYSIS. 3 Hours.**

Methods of charting and analyzing texts to reveal the systematic contributions of pragmatic choices to their organization and meaning. Prerequisite: LING 3340.

**LING 5360. NON-WESTERN LINGUISTIC STRUCTURES. 3 Hours.**

Study of a selected non-Western language, language family or language area based on descriptive linguistic analysis. May be repeated once for credit as the topic varies. Prerequisite: LING 3330 and LING 3340.

**LING 5361. READINGS IN NON-WESTERN LINGUISTIC STRUCTURES. 3 Hours.**

May not be used to fulfill the non-Western language requirement.

**LING 5362. LANGUAGE DOCUMENTATION. 3 Hours.**

The course discusses fundamental issues that are part of language documenting and description. These include project design, research ethics and intellectual property, researcher and community rights and responsibilities, world language ecology, technology and software, archiving issues, grant-writing fundamentals, and related issues that form best practices for language documentation projects. Prerequisite: LING 5300.

**LING 5363. LANGUAGE ENDANGERMENT AND REVITALIZATION. 3 Hours.**

This course examines language endangerment and what it means for a language to become endangered, and studies language revitalization. Case studies are presented where communities seek to maintain the number of speakers or revive the language. Also offered as LING 4363. Credit will be granted only once for LING 4363 or LING 5363. Prerequisite: LING 5300.

**LING 5370. HISTORY OF LINGUISTICS. 3 Hours.**

Surveys the recent history of the field of linguistics and familiarizes students with the key figures and theories in recent linguistic history, with special attention to the development and emergence of generative theories of syntax, semantics, and phonology. Prerequisite: LING 5320 or LING 5330.

**LING 5371. SURVEY OF THEORIES IN APPLIED LINGUISTICS. 3 Hours.**

A comparison and contrast of various linguistic theories, with consideration of their implications for application to real-world problems involving language. Prerequisite: LING 5305.

**LING 5372. READINGS IN LINGUISTICS. 3 Hours.**

May be repeated for credit when topic changes. Prerequisite: LING 5330.

**LING 5380. FIELD METHODS. 3 Hours.**

The principles, techniques and practical aspects of linguistic field research. The course includes extensive practice in eliciting data (phonological, morpho-syntactic, textual and lexical) directly from a native speaker, as well as in managing, analyzing and describing the data obtained. Course may be repeated for credit when topic changes. Prerequisite: LING 5300. Permission of the Graduate Advisor.

**LING 5381. CORPUS LINGUISTICS. 3 Hours.**

Applications of ways in which computer science and linguistics inform each other. Corpus linguistics focuses on how computers can be used to both obtain the data that we examine and to provide the tools we use for analysis. Includes readings, practical experience with several different software programs, and using sources of online corpora.

**LING 5391. CONFERENCE COURSE IN LINGUISTICS. 3 Hours.****LING 5392. THESIS SUBSTITUTE. 3 Hours.****LING 5393. TESOL TEACHING AND OBSERVATION. 3 Hours.**

In teaching learners of ESOL and observing ESOL classes, the student demonstrates ability to apply the principles presented in the M.A. TESOL coursework. Prerequisite: LING 5302 and LING 5305 and permission of instructor.

**LING 5395. GRADUATE INTERNSHIP. 3 Hours.**

Employment (paid or unpaid) supervised by a faculty internship coordinator, with the student performing duties related to the academic curriculum of linguistics and/or TESOL. Students are required to submit an approved academic project related to the work performed. May be repeated with approval of Graduate Advisor.

**LING 5398. THESIS. 3 Hours.****LING 5698. THESIS. 6 Hours.****LING 5998. THESIS. 9 Hours.****LING 6191. RESEARCH IN LINGUISTICS. 1 Hour.**

Prerequisite: permission of instructor.

**LING 6199. DISSERTATION. 1 Hour.****LING 6291. RESEARCH IN LINGUISTICS. 2 Hours.**

Prerequisite: permission of instructor.

**LING 6300. PROFESSIONAL WRITING SEMINAR. 3 Hours.**

Prerequisite: Completion of at least 9 hours of LING courses.

**LING 6360. DISCOURSE THEORY SEMINAR. 3 Hours.**

Prerequisite: permission of instructor.

**LING 6380. FIELD METHODS SEMINAR. 3 Hours.**

Second part of field methods sequence. Prerequisite: LING 5380.

**LING 6381. RESEARCH DESIGN AND STATISTICS. 3 Hours.**

Practical training in methodologies and analytical techniques common in linguistic research. Topics include qualitative vs. quantitative data analysis, questionnaire design and administration, laboratory protocol, field protocol, population sampling, statistical analysis, and research ethics.

**LING 6390. LINGUISTICS SEMINAR. 3 Hours.**

Course may be repeated for credit when topic changes. Prerequisite: permission of instructor.

**LING 6391. RESEARCH IN LINGUISTICS. 3 Hours.**

Prerequisite: permission of instructor.

**LING 6392. SEMINAR IN PHONETICS AND PHONOLOGY. 3 Hours.**

In-depth investigation of research into a specialized area of phonetics and/or phonology. Course registrants will develop original research focusing on topic at-hand, with results exchanged through discussion, presentations/reports, and/or papers. Prerequisites: LING 5321 or permission of the instructor.

**LING 6393. SEMINAR IN SYNTAX. 3 Hours.**

In-depth investigation of research into a specialized area of syntax. Course registrants will develop original research focusing on topic at-hand, with results exchanged through discussion, presentations/reports, and/or papers. Prerequisites: LING 5331 or permission of instructor.

**LING 6394. SEMINAR IN SEMANTICS AND PRAGMATICS. 3 Hours.**

In-depth investigation of research into a specialized area of meaning: semantics and/or pragmatics. Course registrants will develop original research focusing on topic at-hand, with results exchanged through discussion, presentations/reports, and/or papers. Prerequisites: LING 5345 or LING 5347 or permission of instructor.

**LING 6395. SEMINAR IN SECOND LANGUAGE ACQUISITION. 3 Hours.**

In-depth investigation of research into a specialized area of second language acquisition. Course registrants will develop original research focusing on topic at-hand, with results exchanged through discussion, presentations/reports, and/or papers. Prerequisites: LING 5305 or permission of the instructor.

**LING 6399. DISSERTATION. 3 Hours.****LING 6491. RESEARCH IN LINGUISTICS. 4 Hours.**

Prerequisite: permission of instructor.

**LING 6591. RESEARCH IN LINGUISTICS. 5 Hours.****LING 6691. RESEARCH IN LINGUISTICS. 6 Hours.**

Prerequisite: Permission of instructor.

**LING 6699. DISSERTATION. 6 Hours.****LING 6999. DISSERTATION. 9 Hours.****LING 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Literacy Studies (LIST)

### COURSES

**LIST 4191. CONFERENCE COURSE. 1 Hour.**

Independent study in the preparation of a project in a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: Consent of instructor.

**LIST 4291. CONFERENCE COURSE. 2 Hours.**

Independent study in the preparation of a project in a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: Consent of instructor.

**LIST 4326. SECONDARY READING. 3 Hours.**

This course focuses on the scope of reading instruction in the secondary schools and the processes and skills for reading. Students explore programs, trends, and issues related to secondary reading instruction along with comprehension and word study instruction, the integration of reading with writing and oral communication, selection of print materials competency, and an examination of visual literacy and the media.

**LIST 4343. CONTENT AREA READING AND WRITING. 3 Hours.**

Explores methods of teaching reading, writing, and study skills across the curriculum in grades 4-12. Emphasis on text structure and the differences between narrative and expository text, graphic organizers for text structure, the reading/writing process as applied to informational text. Classroom adaptations for culturally and linguistically diverse populations in the content areas will also be addressed.

**LIST 4373. LITERACY LEARNING FOR EC-6 STUDENTS: READING AND WRITING. 3 Hours.**

Balanced literacy approach to teaching with an emphasis on reading and writing. Theoretical models, principles of teaching reading and writing using a variety of instructional strategies, the role of phonemic awareness, effective program organization, assessment, and classroom management.

**LIST 4374. LITERACY LEARNING FOR EC-6 STUDENTS: LITERATURE AND LANGUAGE. 3 Hours.**

Comprehensive approach to literacy instruction. Emphasis on using genres of children's literature to promote language and literacy development. Instructional models and techniques for using children's literature across the curriculum. Use of appropriate media and non-print materials, selection and evaluation of literature, and strategies for stimulating and expanding children's response to literature.

**LIST 4376. ASSESSMENT IN LITERACY LEARNING. 3 Hours.**

Examines a variety of formal and informal literacy assessment tools and techniques. Also focuses on diagnostic procedures for identifying literacy learning strengths and needs. Students will apply reading and writing assessment and instructional strategies with children.

**LIST 4378. TEACHING , READING, WRITING, AND LITERATURE IN THE MIDDLE LEVEL GRADES. 3 Hours.**

Theory and practice in the teaching of the English language arts for the middle level, including various instructional approaches to reading, writing, listening, and speaking; motivating student readers and writers, the teaching of work level skills, vocabulary and comprehension, strategies for various writing modes, purposes, and audiences; strategies for developing rereading, revision and editing skills, basic components of assessment. Integration of literature suitable for the middle level; selection and evaluation of appropriate fiction, nonfiction, and poetry for instruction, as well as literature-based instructional methods. This course involves a two-hour lecture and two-hour application of lecture and two-hour application of lecture/theory. The two-hour application of lecture/theory will require students to spend time in a 4-8 classroom during normal school hours.

**LIST 4390. SELECTED TOPICS IN LITERACY. 3 Hours.**

An examination of different topics related to literacy. This seminar may be repeated for credit as the topic changes.

**LIST 4391. CONFERENCE COURSE. 3 Hours.**

Independent study in the preparation of a project in a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: Consent of instructor.

**LIST 5191. INDEPENDENT RESEARCH IN READING. 1 Hour.**

Individual or small group research project on a literacy-related topic agreed upon between student(s) and instructor. May be repeated for credit with permission.

**LIST 5291. INDEPENDENT RESEARCH IN READING. 2 Hours.**

Individual or small group research project on a literacy-related topic agreed upon between student(s) and instructor. May be repeated for credit with permission.

**LIST 5316. LITERACY PRACTICUM I. 3 Hours.**

This practicum is intended for entering in the M.Ed. with Literacy Emphasis who plan to teach reading and writing and become literacy coaches/certified Reading Specialists in K-12 schools. The course introduces the national Reading Specialist Standards and offers an overview of the program. The course combines an introduction to the theory, research, and knowledge in the field of literacy with application through field experiences in schools and classrooms. Students begin their program portfolio focused on the national Reading Specialist Standards. Graded F,P,W. Prerequisite: This course should be taken in the first or second semester of a student's program.

**LIST 5317. LITERACY PRACTICUM II. 3 Hours.**

This practicum is intended as the capstone experience for students in the M.Ed. with Literacy Emphasis who plan to teach reading and writing and become literacy coaches/certified Reading Specialists in K-12 schools. The course provides an opportunity to synthesize the theory and research related to literacy that has been presented in the program, to explore literacy program development and the implementation of technology in literacy programs, and to participate in professional leadership options. Students apply theory/research through field experiences in a professional setting. Students must complete their program portfolio focused on the national Reading Specialist Standards. Graded A,B,C,D,F,P,W. Prerequisite: LIST 5316 and at least 8 additional courses in the M.Ed. with Literacy Emphasis.

**LIST 5325. UNDERSTANDING LITERACY RESEARCH. 3 Hours.**

Designed as an introduction and exploration of literacy research. Provides the opportunity to read broadly in the area of literacy research to become aware of current trends in literacy research. Emphasizes the tools for critically consuming literacy research and utilizing existing research in personal examinations of literacy topics and questions. Course must be taken prior to LIST 5385.

**LIST 5326. PRE-ADOLESCENT & ADOLESCENT LITERACY. 3 Hours.**

Focuses on literacy theory, research, and practice as it relates to pre-adolescents and adolescents. Addresses sociocultural, cognitive, linguistic, psychological, and developmental influences on literacy. Explores the development of curricular designs for teaching reading/language arts in middle and secondary schools including reading, writing, oral communication, literature, and digital literacy.

**LIST 5345. CONTENT AREA READING AND WRITING. 3 Hours.**

Explores methods of teaching reading, writing, and study skills in content area subjects. Emphasis on text structure and the difference between narrative and expository text, graphic organizers for text structure, the reading/writing process as applied to informational text. Classroom adaptations for culturally and linguistically diverse populations in the content areas also will be addressed.



**LIST 5346. TEACHING THE WRITING PROCESS. 3 Hours.**

Current research and theory on the writing process, how children develop as writers, the teacher's role, the learning environment, and motivation, assessment, and evaluation in writing.

**LIST 5350. LITERACY ASSESSMENT. 3 Hours.**

Formal and informal assessment of student literacy learning, and diagnosis of student literacy learning strengths and needs.

**LIST 5353. LITERATURE FOR CHILDREN AND YOUNG ADULTS. 3 Hours.**

Selection, evaluation, and use of current literature published for children and young adults.

**LIST 5354. MULTICULTURAL LITERATURE FOR CHILDREN. 3 Hours.**

Study of literature for children and young adults which reflects the culture and experiences of African-Americans, Asian-Americans, Mexican-Americans, and Native Americans, among others. Consideration of selection guidelines, evaluation of literary quality as well as cultural authenticity and teaching applications, including adaptations for culturally and linguistically diverse populations.

**LIST 5361. LANGUAGE LEARNING: EDUCATIONAL PERSPECTIVES. 3 Hours.**

Deals with the relationship between first and second language acquisition and literacy, dialect, linguistics, culture; nature and definition of language; overview of linguistic science and language with pedagogical applications.

**LIST 5362. LITERACY INSTRUCTION IN ESL/BILINGUAL SETTINGS. 3 Hours.**

Translation of theory into practice stressing various methods and techniques for teaching ESL/bilingual students with emphasis on techniques for oral language development, reading and writing. A comparison/contrast of the various methods, their specifics, and when and how to use them for various instructional objectives as well as the relationship of language development, culture, and conceptual processes to language teaching.

**LIST 5373. FOUNDATIONS OF LITERACY LEARNING IN EC-6 CLASSROOMS. 3 Hours.**

Balanced literacy approach to literacy instruction in EC-6 classrooms with an emphasis on reading and writing including the critical areas of: phonics, phonemic awareness, word study, fluency, and comprehension. In addition, the course examines various theoretical models of reading along with the principles of teaching reading and writing using a variety of instructional strategies, effective program organization, assessment, and classroom management.

**LIST 5381. NATIONAL WRITING PROJECT PART I. 3 Hours.**

An intensive institute in which teachers learn ways to improve student writing abilities by improving their own teaching and learning of writing. Students participate in an intensive literature review related to the area of writing instruction. Graded A,B,C,D,F,W. Prerequisite: Students must apply and be invited to participate in this course. Concurrent enrollment in LIST 5382.

**LIST 5382. NATIONAL WRITING PROJECT PART II. 3 Hours.**

An intensive institute in which teachers learn ways to improve student writing abilities by improving their own teaching and learning of writing. For this part of the workshop, students build on their literature review by writing a research proposal and developing research-based writing instruction. In addition, professional development training for classroom teachers is provided. Graded A,B,C,D,F,P,W. Prerequisite: Students must apply and be invited to participate in this course. Concurrent enrollment in LIST 5381.

**LIST 5383. WRITING FOR PROFESSIONAL PUBLICATION. 3 Hours.**

This course focuses instructor and peer interaction as students conduct literacy-related research, analyze data, write up the results, and disseminate their completed study to a professional journal. A comprehensive study of professional journals and their requirements for submission is included in this course. Graded A,C,D,F,P,W. Prerequisite: LIST 5385 or program advisor approval.

**LIST 5384. ADVANCED PEDAGOGY OF WRITING. 3 Hours.**

This course focuses on strategies for teaching prewriting, drafting, revising, editing, and publishing through writing workshop, literature focus units, and thematic units as well as through the content areas. Both writing assessment with rubrics and evaluation with portfolios are studied. Students compose both expository and expressive pieces as well as design and micro teach mini lessons and a web-based integrated writing unit. Graded A,B,C,D,F,P,W. Prerequisite: LIST 5346 or LIST 5381 and LIST 5382.

**LIST 5385. DESIGNING LITERACY RESEARCH. 3 Hours.**

This course is designed to build on the LIST 5325, Understanding Literacy Research, by providing an exploration of the process for quantitative, mixed methods or qualitative research design. Includes an examination of various research designs related to language and literacy development including models such as case studies, ethnography, observations and interviews. Students are lead through the research process including forming a theoretical epistemology, formulating research questions, reviewing literature, selecting methods of data collection, interpretation and analysis of data and writing a research proposal. Students will be expected to complete this research focus in the program capstone experience, LIST 5317. This course should immediately precede LIST 5317. Prerequisite: LIST 5325.

**LIST 5390. SELECTED TOPICS IN READING. 3 Hours.**

An examination of different topics each semester, with a focus on subjects related to reading, writing, oral language, and literacy.

**LIST 5391. INDEPENDENT RESEARCH IN READING. 3 Hours.**

Individual or small group research project on a literacy-related topic agreed upon between student(s) and instructor. May be repeated for credit with permission.

## Literacy Studies (LISTIR)

**COURSES****LISTIR 5391. INDEPENDENT RESEARCH IN READING. 3 Hours.**

Individual or small group research project on a literacy-related topic agreed upon between student(s) and instructor. May be repeated for credit with permission.

**Management (MANA)****COURSES****MANA 2302. COMMUNICATIONS IN ORGANIZATIONS. 3 Hours.**

This course focuses on the development of interpersonal business communication skills in the following areas: group communication, written communication (collaborative writing and business letters, memorandums and reports), oral communication (business presentation, meetings and interviews), and listening. The following topics are also addressed: verbal and nonverbal communication, dyadic and organizational communications, communication roles and relationships, small-group communication, communication networks, and the diagnosis and improvement of organizational communications. MANA 2302 will satisfy the cultural and social studies requirement in the College of Business Administration.

**MANA 3318. MANAGING ORGANIZATIONAL BEHAVIOR. 3 Hours.**

This course is an introduction to the factors that influence individual and group behavior in organizations. Emphasizing findings from the field of organizational behavior, topics covered include: individual differences and diversity, social information processing, work attitudes, stress, work motivation, power and influence, negotiation, teams, leadership, and organizational research. Prerequisite: 60 credit hours.

**MANA 3319. MANAGEMENT PROCESS THEORY. 3 Hours.**

Fundamentals of the management process; principles and techniques for all organizations. The basic functions of management: planning, organizing, directing, and controlling. Social responsibilities, political influences, and ethical considerations as they affect the management of organizations. Coverage of international business, production, communications, and decision-making in terms of management activities. Prerequisite: 60 credit hours.

**MANA 3320. HUMAN RESOURCE MANAGEMENT. 3 Hours.**

Process of effective management of human resources and those elements essential to such a process. The objectives of an adequate personnel program. Effective planning, recruitment, selection, training. Employee compensation and the nature of pay and its relative importance. The nature of union-management relationships. The impact of organized labor upon personnel management. Prerequisite: 60 credit hours.

**MANA 3325. ENTREPRENEURSHIP AND VENTURE MANAGEMENT. 3 Hours.**

The fundamentals of identifying the need for and organizing a small business. Role and characteristics of the entrepreneur and problems of venture initiation. New venture creation and its management through the first two/three years of operation. Prerequisite: 60 credit hours.

**MANA 4191. STUDIES IN MANAGEMENT. 1 Hour.**

Advanced studies, on an individual basis, in the various fields of management. Prerequisite: Senior standing and permission of instructor. May be repeated for credit with consent of department chair.

**MANA 4291. STUDIES IN MANAGEMENT. 2 Hours.**

Advanced studies, on an individual basis, in the various fields of management. Prerequisite: Senior standing and permission of instructor. May be repeated for credit with consent of department chair.

**MANA 4320. LABOR RELATIONS. 3 Hours.**

This course addresses the critical issues in personnel and industrial relations. Application of behavioral science principles and concepts to problems of employee benefits and services, wage and salary administration, union and management relations, collective bargaining, and related personnel maintenance problems. Prerequisite: MANA 3318 and MANA 3320.

**MANA 4321. INTERNATIONAL MANAGEMENT. 3 Hours.**

With greater globalization of economies and industries, managers are being increasingly challenged to manage organizations within a global context. This course seeks to provide students with the skills, knowledge and sensitivity required to be successful managers in organizations and organizational units within a multinational environment. Topics covered include the analysis of environmental forces, the characteristics of international strategies and the importance of organizational design and strategic control in the management of multinational enterprises. Prerequisite: 60 credit hours.

**MANA 4322. ORGANIZATIONAL STRATEGY. 3 Hours.**

An integrative learning experience that focuses on the role of top management in integrating an organization's internal functional activities and external environmental forces. Emphasis is placed on defining economic, technological, ethical, political, and social factors affecting an organization and their consideration in setting goal, strategies, and operating policies. This course serves as the capstone offering for the business major. Prerequisite: ACCT 2301 and ACCT 2302, BUSA/STAT/BSTAT 3321, ECON 2305 and ECON 2306, FINA 3313, MANA 3318, and MARK 3321.

**MANA 4325. LEADERSHIP IN ORGANIZATIONS. 3 Hours.**

This course provides a managerial perspective on leadership in formal organizations. Emphasis is placed on team-building, exercising influence, decision-making, and conflict management. Prerequisite: MANA 3318.

**MANA 4326. DIVERSITY IN ORGANIZATIONS. 3 Hours.**

This course examines the implications of employee diversity in organizations, an issue of increasing importance. It includes study of the changing demographics of workers, including multiple demographic groups and areas of difference important to organizational treatment and outcomes. This course examines research on treatment, access, and customer discrimination. Legislation related to diversity is also reviewed. This course also provides suggestions for individuals and organizations to increase opportunities and outcomes for workers of all backgrounds. Prerequisite: Junior standing.

**MANA 4328. HUMAN RESOURCE STAFFING AND PERFORMANCE MANAGEMENT. 3 Hours.**

Covers the areas of employee selection and performance management systems. Topics include: recruitment strategies, methods of selection, development and validation of selection and employee appraisal instruments, and implementation of performance management processes. Prerequisite: MANA 3318 and MANA 3320.

**MANA 4330. TEAM MANAGEMENT. 3 Hours.**

This course examines the critical input, process and outcomes variables in the design of and maintenance of highly effective work teams. Topics include: team composition, team norms, team decision-making strategies, intra-team and inter-team conflict, team building, management of effective work teams, and team-based organizational structures. Prerequisite: MANA 3318.

**MANA 4331. SEMINAR IN MANAGEMENT. 3 Hours.**

Readings and discussion of special topics in management. Prerequisite: Junior or senior standing and consent of instructor. May be repeated for credit with consent of department chair.

**MANA 4338. SMALL BUSINESS ANALYSIS. 3 Hours.**

The course focuses on increasing the effectiveness of new ventures and small business operations. The integration of knowledge and application of theories across functional areas are stressed. Prerequisite: MANA 3325.

**MANA 4339. DIRECTED STUDIES IN ENTREPRENEURSHIP. 3 Hours.**

Seminar that exposes students to unique challenges facing new businesses in their efforts to survive and grow. Students interact with members of the local entrepreneurial community. Prerequisite: 60 credit hours.

**MANA 4340. BUSINESS AND SOCIETY. 3 Hours.**

Explores the roles of business organizations and their relationships with individuals, governments, and other businesses from the perspectives of ethics, ideology, and corporate responsibility. Prerequisite: 60 credit hours.

**MANA 4341. NEGOTIATIONS AND CONFLICT RESOLUTION. 3 Hours.**

This course is designed to better understand the nature of conflict and its resolution through persuasion, collaboration, and negotiation. Students will learn theories of interpersonal and organizational conflict and its resolution as applied to personal, corporate, historical, and political contexts. Students will assess their own styles, skills, and values, and develop techniques to better resolve disputes, achieve objectives, and exert influence. Prerequisite: MANA 3318.

**MANA 4342. COMPENSATION AND BENEFITS MANAGEMENT. 3 Hours.**

This course is an introduction to compensation and benefits administration. Attention will be given to the means by which compensation equity is achieved in organizations. Topics covered include job analysis and design, job evaluation, development, the use of wage and salary surveys, and benefit policies and practices. The benefits part of the course will include a discussion of public and private benefit programs and pension plans. Prerequisite: MANA 3318 and MANA 3320.

**MANA 4343. TRAINING AND DEVELOPMENT. 3 Hours.**

This course provides students with a practical approach to training employees in the business environment. Components of training design, including needs assessment, objectives, and evaluation and control of the training and development function. Prerequisite: MANA 3318 and MANA 3320.

**MANA 4391. STUDIES IN MANAGEMENT. 3 Hours.**

Advanced studies, on an individual basis, in the various fields of management. Prerequisite: Senior standing and permission of instructor. May be repeated for credit with consent of department chair.

**MANA 4393. MANAGEMENT INTERNSHIP. 3 Hours.**

Practical training in management. Analysis of theory applied to real life situations. May be used as an advanced business elective only; graded on a pass/fail basis. No credit will be given for previous experience or activities. May not be repeated for credit. Prerequisite: Junior standing and consent of department internship advisor.

**MANA 5182. INDEPENDENT STUDIES IN MANAGEMENT. 1 Hour.**

Extensive analysis of a management topic.

**MANA 5199. GRADUATE MANAGEMENT INTERNSHIP. 1 Hour.**

Practical training in management. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**MANA 5299. GRADUATE MANAGEMENT INTERNSHIP. 2 Hours.**

Practical training in management. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**MANA 5312. MANAGEMENT. 3 Hours.**

Basic exploration of organizations in their environments. The elementary tools of management, which include: organizational objectives, social responsibility and ethics, policies, plans, and decision making; the design of organizations and jobs; the production and technology aspects of organization; the elements of leadership, behavior, and communication; and the elements of control and performance evaluation.

**MANA 5320. ORGANIZATIONAL BEHAVIOR. 3 Hours.**

Systematic study of behavioral problems in the complex organization. Analyzes the interaction of environmental and internal factors and their effects upon organizational behavior. The course is placed within the context of the organization process. Prerequisite: MANA 5312.

**MANA 5321. COMPLEX ORGANIZATIONS. 3 Hours.**

Provides the foundation for an in-depth knowledge of several important theories of management and organization. Attention to study of organizations, organizational effectiveness, comparative analysis of organizations, and the organization and its environment. Relates empirical findings and theoretical hypotheses with applied management concepts. Prerequisite: MANA 5312.

**MANA 5322. COMPENSATION & REWARD SYSTEMS. 3 Hours.**

Management of compensation systems in business and other organizations; concepts models and practices related to wage and salary levels and structures; perceived equitable pay; individual performance appraisal, rewards and satisfaction; benefits and employee services.

**MANA 5323. TRAINING AND DEVELOPMENT. 3 Hours.**

Examines the components of training systems. Topics include assessing training needs and establishing objectives, developing training programs, selecting appropriate training techniques, and evaluating training outcomes.

**MANA 5324. TEAM AND GROUP BEHAVIOR. 3 Hours.**

A study in team and group dynamics, critical processes and practices. Topics include team composition and development, problem solving strategies and performance, conflict management, leadership process and work team strategies.

**MANA 5325. LABOR & EMPLOYEE RELATIONS. 3 Hours.**

Examines union-management relations and considers the structure and functioning of the economic and social forces of importance at the policy level within both the firm and the union. Also considers non-union employee relationships.

**MANA 5326. ORGANIZATION DEVELOPMENT AND CHANGE. 3 Hours.**

This graduate seminar is taught as a field research practicum in which students use the organizational diagnosis model of Harry Levinson to develop information about the functioning of an organizational system. Recommendations for interventions and change at the individual, group, and organizational levels are considered in interaction with business leaders. Client organizations have included Chaparral Steel Company, AT&T, American Airlines, SiemensDematic, and EDS. Qualitative interview and quantitative questionnaire data collection and feedback methods are emphasized along with archival and observational data.

**MANA 5327. HUMAN RESOURCE LAW. 3 Hours.**

Coverage of statutory and case law in the employment setting. Emphasis placed on employment discrimination, compensation and benefits law; government agencies which administer and enforce employment laws are also reviewed. Prerequisite: MANA 5340.

**MANA 5329. HR METRICS AND ANALYTICS. 3 Hours.**

Research design, data collection, and hypothesis testing applied to human resource management. The class focuses on basic statistics, quantitative decision-making, and data presentation skills using Human Resource metrics and analytics examples. Prerequisite: BSTAT 5325 or STAT 5325 with a grade of B or higher.

**MANA 5330. NEGOTIATIONS & CONFLICT MANAGEMENT. 3 Hours.**

This course focuses on developing students negotiating skills in a variety of contexts. Throughout the course students will diagnose negotiation situations, strategize and plan for negotiations, and learn how to engage in more effective negotiations. The course also focuses on developing interpersonal conflict resolution skills and strategies.

**MANA 5331. MANAGEMENT OF MULTINATIONAL ENTERPRISES. 3 Hours.**

Focuses on the international dimensions of strategy and organization and provides a framework for formulating strategies in an increasingly complex global economy. The course seeks to provide students with an understanding of the cultural, political, competitive, technological, legal, and demographic environments in which multinational firms operate. It then examines the nature of global competition by exploring the characteristics of global industries and strategies that have been successful in an international context. Also covered are issues related to organizational design and strategic control in the management of multinational enterprises.

**MANA 5332. MANAGING DIVERSITY IN ORGANIZATIONS. 3 Hours.**

Examines implications of employee diversity in organizations, including human resource and organizational behavior issues related to aspects of diversity. Includes study of the changing demographics of workers, effects of diversity on organizational performance, and ways of effectively managing in organizations having applicants, employees, and customers from diverse backgrounds. Research on diversity issues is examined, as are process of stereotyping and myths and misperceptions about diversity issues. Legislation related to diversity is also reviewed.

**MANA 5333. INNOVATION AND SUSTAINABILITY MANAGEMENT. 3 Hours.**

Innovation and Sustainability motivates students to understand how entrepreneurs in start-up and corporate environments identify, assess, and commercialize innovations with sustainability in mind. Using case studies, experiential exercises, and field research, students will consider how innovations across a broad range of emerging technologies will meet the market, financial, and environmental demands of a diverse set of current and future stakeholders. Students will have an opportunity to put learning into practice by analyzing their own innovations or an innovations arising from either university research, an existing company, or a current employer.

**MANA 5334. ORGANIZATION CONSULTING & RESEARCH. 3 Hours.**

Explores internal and external consulting to business organizations. Emphasis on the management of the change process through the stages of data gathering, diagnosis, analysis, and recommendation.

**MANA 5336. STRATEGIC MANAGEMENT. 3 Hours.**

Strategic management uses a general management perspective in addressing issues related to the formulation and implementation of corporate and business level strategy. The course involves developing the ability to identify issues, evaluate strategic options and understand the organizational process by which strategies get formed and executed. It builds on the knowledge gained in functional area courses and uses case studies and projects to improve students' analytical and decision-making skills. Prerequisite: Must be taken in last semester or with permission of the Graduate Advisor.

**MANA 5337. ETHICS AND THE BUSINESS ENVIRONMENT. 3 Hours.**

Uses a strategic perspective to examine ethics, government and the world economy, and how they may affect relationships between business organizations and other institutions of our society. Particular attention is paid to issues such as leadership, technology, and internationalization concordant with the breadth requirements of the UTA MBA plus public policy concerns involving the natural environment, gender and minority issues. Course activities will include class discussion and analysis of societal dilemmas, contemporary cases and current news stories.

**MANA 5338. CAREERS & MANAGING IN A CHANGING ENVIRONMENT. 3 Hours.**

Presents practical and theoretical perspectives on careers and managing in a changing work environment. Includes self assessment, career plan development, informational interviews, readings and exercises designed to lead to a better understanding of managing self and others.

**MANA 5339. ENTREPRENEURSHIP. 3 Hours.**

New venture opportunity assessment, formation, and development in startup and corporate environments. Students will understand the role of entrepreneurship in the economy and the attributes of entrepreneurial behavior. Students will learn how to assess the market and financial feasibility of a new venture as well as understand how to use equity and debt financing, how to select between starting up, franchising, or buying a business, how to lead the growing company, and how to address family business dilemmas. The cornerstone of the course will be a feasibility assessment project that leads to a business plan for a new venture of the student's choice. For the project, students can explore either an original new venture idea, an already existing venture concept (for example, a franchise), or a new business opportunity in need of assessment for an existing firm or their current employer.

**MANA 5340. STRATEGIC HUMAN RESOURCE MANAGEMENT. 3 Hours.**

Emphasizes strategic perspective of modern human resource management theory and practice. Topics include human resource planning, staffing, training and development, compensation, performance appraisal, and labor and employee relations.

**MANA 5341. STAFFING AND PERFORMANCE MANAGEMENT. 3 Hours.**

This course covers employee recruitment, selection and performance appraisal. Topics include: recruitment strategies and methods, methods of employee selection, performance planning, development and validation of appraisal instruments, implementation and conduct of performance appraisal, and performance feedback and counseling.

**MANA 5342. PREVENTIVE STRESS MANAGEMENT. 3 Hours.**

Examines the organizational demands that cause stress. Identifies the psychophysiology of the stress response and the individual/organizational costs of distress. Emphasis is placed on the principles and methods of preventive stress management, such as social support, exercise, and the relaxation response.

**MANA 5344. Evidence-Based Management. 3 Hours.**

Evidence-based management is the process of translating principles and findings based on best evidence into organizational practice. This class covers the organizational and interpersonal sides of data and information. You will develop the skills and knowledge necessary to use data and analytics to inform management practice and make better decisions. Through case examples and classroom discussion you will learn skills in internal consulting, issue selling, data interpretation and presentation. While the focus is on the practical application of business intelligence, the skills learned in this course will allow all managers to make evidence based decisions through data collection, analysis and presentation.

**MANA 5350. EFFECTIVE LEADERSHIP. 3 Hours.**

This graduate course uses self-assessment testing with feedback, case studies, selected readings, and guest lectures from successful leaders and top executive coaches to create a learning laboratory for mature and motivated graduate students of leadership.

**MANA 5382. INDEPENDENT STUDIES IN MANAGEMENT. 3 Hours.**

Extensive analysis of a management topic.

**MANA 5392. SELECTED TOPICS IN MANAGEMENT. 3 Hours.**

In-depth study of selected topics in management. May be repeated when topics vary.

**MANA 5398. THESIS. 3 Hours.**

Thesis MANA 5398 graded R (Research) or F only. Prerequisite: STAT 5325 and approval of Graduate Advisor.

**MANA 5399. INTERNSHIP 5399 GRADUATE LEVEL. 3 Hours.**

Internship for Master's level course.

**MANA 5698. THESIS. 6 Hours.****MANA 6182. INDEPENDENT STUDIES IN MANAGEMENT. 1 Hour.**

Extensive analysis of a management topic.

**MANA 6282. INDEPENDENT STUDIES IN MANAGEMENT. 2 Hours.**

Extensive analysis of a management topic.

**MANA 6318. SEMINAR IN ORGANIZATIONAL THEORY. 3 Hours.**

Advanced study in the theory and research of organizations.

**MANA 6328. SEMINAR IN BUSINESS POLICY. 3 Hours.**

Advanced study in the theory and research bases of business policy and strategic management.

**MANA 6329. ADVANCED RESEARCH METHODS. 3 Hours.**

In-depth coverage of selected topics in the design of research and analysis of data; topics include philosophy of science, theory of measurement, complex experimental and quasi-experimental designs.

**MANA 6338. SEMINAR IN ORGANIZATIONAL BEHAVIOR. 3 Hours.**

Advanced study in the theory and research of organizational behavior.

**MANA 6348. SEMINAR IN PERSONNEL/HUMAN RESOURCE MANAGEMENT. 3 Hours.**

Advanced study in employee selection, performance appraisal, compensation, training and development, human resource policy and strategy, and other areas of human resource management.

**MANA 6382. INDEPENDENT STUDIES IN MANAGEMENT. 3 Hours.**

Extensive analysis of a management topic.

**MANA 6390. ADVANCED TOPICS IN MANAGEMENT. 3 Hours.**

In-depth study of selected topics in management. May be repeated when topics vary.

**MANA 6392. RESEARCH IN ADMINISTRATION. 3 Hours.**

Independent research under supervision of a faculty member.

## Management Sciences (MASI)

### COURSES

**MASI 5182. INDEPENDENT STUDIES IN MANAGEMENT SCIENCES. 1 Hour.**

Extensive analysis of a management sciences topic.

**MASI 5199. GRADUATE MANAGEMENT SCIENCES INTERNSHIP. 1 Hour.**

Practical training in management science. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

**MASI 5282. INDEPENDENT STUDIES IN MANAGEMENT SCIENCES. 2 Hours.**

Extensive analysis of a management sciences topic.

**MASI 5299. GRADUATE MANAGEMENT SCIENCES INTERNSHIP. 2 Hours.**

Practical training in management science. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

**MASI 5332. ADVANCED DATA COLLECTION. 3 Hours.**

Surveys, audits, samples and experimental designs contrasted and compared as a basis for statistical inference. Emphasis is on the integration of techniques common to differing areas of business research. Prerequisite: STAT 5325.

**MASI 5382. INDEPENDENT STUDIES IN MANAGEMENT SCIENCES. 3 Hours.**

Extensive analysis of a management sciences topic.

**MASI 5399. GRADUATE MANAGEMENT SCIENCES INTERNSHIP. 3 Hours.**

Practical training in management science. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

**MASI 6309. MULTIVARIATE STATISTICAL METHODS. 3 Hours.**

Focuses on methods of analyzing mean and covariance structures. Topics include commonly applied multivariate methods such as multiple analysis of variance, repeated measures, discriminant analysis, profile analysis, canonical correlations, and factor analytic methods. The use of matrix algebra and available computer packages will be stressed. Prerequisite: Doctoral standing and BSTAT 5325.

## Marketing (MARK)

### COURSES

**MARK 3321. PRINCIPLES OF MARKETING. 3 Hours.**

The marketing function of the firm from the standpoint of the decision-maker. The marketing variables of products, channels, prices, and promotion as related both to the profitability of the firm and to customer satisfaction. The economic, legal, social, and international implications of marketing actions. Prerequisite: 60 credit hours and ECON 2306.

**MARK 3322. PROFESSIONAL SELLING. 3 Hours.**

Presents sales principles and skills required by today's professional salesperson, with emphasis on the business-to-business selling environment. Students will enhance development of a variety of skills that will serve for a lifetime. These lifetime skills include the following: communication skills, critical thinking, building relationships with customers, and ethical decision making. Prerequisites: MARK 3321 with a grade of C or better and junior standing.

**MARK 3323. INTEGRATED MARKETING COMMUNICATION. 3 Hours.**

A managerial approach to coordinating all promotional activities including direct marketing, advertising, sales promotion, personal selling, public relations, publicity, and packaging, to produce a unified, market-focused message. Message development, placement and timing are examined within the context of the role each type of promotion plays in marketing strategy development. Additional topics examined include media definition and analysis, the communication process, legal and ethical considerations, and budgeting. Prerequisite: MARK 3321 with grade of C or better.

**MARK 3324. BUYER BEHAVIOR. 3 Hours.**

The psychological and sociological aspects of both industrial and consumer buyer behavior. Motivation, cognition, and learning. Personality characteristics, the study of personal needs, and symbolism, as interrelated with formation of marketing strategy. From a sociological point of view, the emphasis is on group behavior and its effect on marketing decision theory. Prerequisite: MARK 3321 with a grade of C or better.

**MARK 3325. INTERNET MARKETING. 3 Hours.**

Students use theoretical investigation and case analysis to develop skills and strategies necessary for effectiveness in marketing via the internet. Includes marketing via e-mail, Web site strategies, and creation of an internet marketing plan. Prerequisite: MARK 3321 with a grade of C or better.

**MARK 4191. STUDIES IN MARKETING. 1 Hour.**

Advanced studies, on an individual basis, in the various fields of marketing. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**MARK 4291. STUDIES IN MARKETING. 2 Hours.**

Advanced studies, on an individual basis, in the various fields of marketing. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**MARK 4303. RETAIL AND SERVICE MARKETING. 3 Hours.**

The role of retailing and services in our economic system. Retail management functions such as inventory management, pricing, merchandising, advertising, and sales promotion. Understanding the unique characteristics of services. Creating service marketing strategies and solving service marketing problems. Prerequisite: MARK 3321 with grade of C or better.

**MARK 4308. MANAGEMENT AND LEADERSHIP OF THE SALES FORCE. 3 Hours.**

This course covers topics ranging from strategic solutions to tactical sales. It focuses on sales management and leadership targeted toward implementation of complex sales solutions. The course concerns sales managers' roles of planning and executing go-to-market strategy. Hiring, motivation, decision-making, conflict/negotiation strategies, coaching, ethical decision making, and retaining a high-performance team are examined in an interpersonal context with a focus on expanding and retaining long-term profitable customer relations as vital to the impact on firm performance. Prerequisites: MARK 3321 and MARK 3322 with grades of C or better, and junior standing.

**MARK 4310. MOBILE MARKETING. 3 Hours.**

This course is an introduction to the study of mobile marketing and technology from the standpoint of the decision-maker (both consumer and firm). Students will 1) learn the role of mobile marketing (what it is, and equally, what it is not), and 2) establish a fundamentally sound base of business concepts to build upon. Upon completion, students will be able to understand 1) how consumers utilize mobile technology, 2) the impact of mobile on the decision-making process, and 3) how to integrate mobile marketing and technology with existing marketing practices. Prerequisite: MARK 3321 with grade of C or better.

**MARK 4311. MARKETING RESEARCH. 3 Hours.**

Designed to make students intelligent users of marketing research data. The interrelationship between marketing research and marketing management. Methods and techniques used to generate primary data in commercial marketing research. Design of research projects, methods for generating primary data, sampling of human populations, experimental design, and data analysis. Prerequisite: MARK 3321 with a grade of C or better and BSTAT 3321.

**MARK 4320. PRODUCT AND BRAND STRATEGY. 3 Hours.**

This course is about creating new products via real life exposure to product design and prototyping; managing existing brands strategically during their growth, maturity and decline stages; and strategic management of product lines and product extensions. Prerequisite: MARK 3321 with a grade of C or better.

**MARK 4322. ADVANCED MARKETING MANAGEMENT AND STRATEGY. 3 Hours.**

A capstone course designed to help the student develop his/her ability to apply knowledge and analytical skills acquired in the marketing and business curricula. The importance of a structured planning process in formulating and implementing marketing strategies is emphasized. Prerequisite: MARK 3321, MARK 3324 and MARK 4311 with grades of C or better, and 90 credit hours.

**MARK 4325. INTERNATIONAL MARKETING. 3 Hours.**

Explores the techniques of entering the international marketplace. Explains the impact of sociocultural, economic, technological, governmental, and demographic factors on the international marketing mix. Prerequisite: MARK 3321 with a grade of C or better.

**MARK 4331. SEMINAR IN MARKETING. 3 Hours.**

Readings and discussion of special topics in marketing. Prerequisite: Junior or senior standing and consent of instructor. May be repeated for credit with consent of department chair.

**MARK 4335. MULTICULTURAL MARKETING. 3 Hours.**

This course involves readings and discussion of topics related to multicultural marketing. The primary focus will be on how to apply the principles of marketing to identify and reach the growing ethnic subcultures in the U.S. population. Careful consideration will be given to the historical context and ethical implications of these marketing activities. Practical aspects of business development will also be emphasized. Prerequisite: MARK 3321 with a grade of C or better.

**MARK 4391. STUDIES IN MARKETING. 3 Hours.**

Advanced studies, on an individual basis, in the various fields of marketing. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**MARK 4393. MARKETING INTERNSHIP. 3 Hours.**

Practical training in marketing. Analysis of theory applied to real life situations. May be used as an advanced business elective only; graded on a pass/fail basis. No credit will be given for previous experience or activities. May not be repeated for credit. Prerequisite: Junior standing and consent of department internship advisor.

**MARK 5142. ADVANCED TOPICS IN MARKETING RESEARCH. 1 Hour.**

Presentation and analysis of cutting edge topics in marketing research.

**MARK 5182. INDEPENDENT STUDIES IN MARKETING. 1 Hour.**

Extensive analysis of a marketing topic.

**MARK 5199. GRADUATE MARKETING INTERNSHIP. 1 Hour.**

Practical training in marketing. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**MARK 5282. INDEPENDENT STUDIES IN MARKETING. 2 Hours.**

Extensive analysis of a marketing topic.

**MARK 5299. GRADUATE MARKETING INTERNSHIP. 2 Hours.**

Practical training in marketing. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**MARK 5311. MARKETING. 3 Hours.**

Survey of activities involved in marketing. Emphasis is on developing a managerial point of view in planning and evaluating marketing decisions of the firm. Analyzes decisions with respect to products, price, channel, and promotional variables and considers questions relating to cost efficiency, demand, social responsibility and regulations.

**MARK 5320. BUYER BEHAVIOR. 3 Hours.**

Marketing begins and ends with the customer. This course introduces students to the study of consumer behavior. It is taught from the perspective of a marketing consultant who requires knowledge of consumer behavior in order to create, implement, and evaluate effective marketing strategies for clients. The course examines many concepts and theories from the behavioral sciences and analyzes their value in crafting marketing strategies. The course combines lecture and discussion of research based literature, both of which are aimed at providing an in-depth understanding of customer marketplace behavior with a focus on application to consumption and marketing decision making situations. Prerequisite: MARK 5311.

**MARK 5326. INTEGRATED MARKETING COMMUNICATION. 3 Hours.**

A managerial approach to coordinating all promotional activities, including direct marketing, advertising, sales promotion, personal selling, public relations, publicity and packaging to produce a unified market-focused message. Message development, placement and timing are examined within the context of the role each type of promotion plays in marketing strategy development. Additional topics examined include media definition and analysis, the communication process, legal and ethical considerations, and budgeting. Prerequisite: MARK 5311.

**MARK 5327. RESEARCH FOR MARKETING DECISIONS. 3 Hours.**

Overview of information needs of the marketing decision-maker. Emphasis on methods and techniques that may be employed for the collection and analysis of primary data. Major topics include design of research projects, generating primary data, questionnaire design, samplings for survey research, experimental design, controlling data collection, and data analysis. Prerequisites: MARK 5311 and STAT 5301.

**MARK 5328. PRODUCT MANAGEMENT. 3 Hours.**

Management of the firm's product or service offerings. Topics include new product development, new product screening, evaluation of existing products, product line and mix analysis, product abandonment decisions, the brand manager's role, the new product planning department, and others. Emphasis on the development of meaningful criteria for decision-making in the product area and on the development of information systems to suggest, screen, and monitor products. Prerequisite: MARK 5327.

**MARK 5329. SALES AND SALES MANAGEMENT. 3 Hours.**

Examines the skills required for successful personal selling and sales management in today's world, with emphasis on industrial markets. Discusses the links between business trends and the resulting need for new approaches to the sales management challenges of planning, implementing, and evaluating a sales program. Special topics include the strategic importance of the sales force, customer/supplier partnering, multi-function collaboration, technology's role in altering traditional customer-access channels, the organization of the sales function for profitability vs. revenue, and the development of effective major account strategies.



**MARK 5330. SERVICES MARKETING MANAGEMENT. 3 Hours.**

Examines conceptual frameworks and management practices particularly relevant to organizations in service industries, including health care, education, financial services, retailing, non-profit organizations, and others in which the core product is a service instead of a good. The course examines many concepts and theories from the service marketing industry and analyzes their value in crafting marketing strategies. Emphasis is on problem solving unique to these types of organizations. Prerequisite: MARK 5311.

**MARK 5331. INTERNATIONAL MARKETING. 3 Hours.**

Management of marketing in international business. Includes marketing research, pricing, promotion, and distribution in the international environment. Examines marketing problems arising from various degrees of foreign involvement (exports, licensing, foreign subsidiaries). Prerequisite: MARK 5311.

**MARK 5332. BUSINESS-TO-BUSINESS MARKETING. 3 Hours.**

Marketing strategies for businesses targeting other businesses. Included are frameworks for analysis of marketing opportunities. Business-to-business e-commerce is examined. Prerequisite: MARK 5311.

**MARK 5334. STRATEGIC INTERNET MARKETING. 3 Hours.**

Through theoretical investigation, brainstorming, and case analysis, students develop the skills and strategies that are necessary for effective marketing via electronic media. With particular emphasis on Internet-based media, topics include developing an online corporate identity, online market research, interactive and database Web site strategies, creating and maintaining Web site content, proactive marketing tactics, analysis of Web site statistics, measuring online marketing results, and development of a strategic Internet marketing plan. Prerequisite: MARK 5311.

**MARK 5335. RETAILING, FRANCHISING, AND ENTREPRENEURSHIP. 3 Hours.**

Course offers exposure to elements of retail management, franchising, and entrepreneurship, including planning, promotion, pricing, and merchandising. Prerequisite: MARK 5311.

**MARK 5337. MARKETING INFORMATION MANAGEMENT. 3 Hours.**

Course focuses on various types of marketing data bases and computer-based research systems designed for the collection, storage, usage, and reporting of disaggregated data. Topics include single-source data, geodemographics, and micro-merchandising systems. Case studies and data analysis projects are utilized. Prerequisite: MARK 5327 or equivalent.

**MARK 5338. QUALITATIVE RESEARCH. 3 Hours.**

Examines the nature of qualitative research and its growing value to the marketing research community. The role of focus group interviewing, types of focus groups and their conduct are extensively explored. Other topics include depth interviewing, projective techniques, observational research, the delphi method, environmental forecasting and futuring. Prerequisite: MARK 5327.

**MARK 5340. MARKETING STRATEGY. 3 Hours.**

A case course designed to give the student an opportunity to utilize the managerial and analytical tools that he or she has acquired. Uses case studies which require a realistic diagnosis of company problems, development of alternative courses of action, and the formulation of specific recommendations. Prerequisite: MARK 5311 and six hours of advanced marketing coursework.

**MARK 5341. ADVANCED TOPICS IN MARKETING RESEARCH I. 3 Hours.**

As the marketing research industry evolves the scale requirements for industry participants change. This course offers the student introduction to a variety of qualitative topics and includes hands-on experience with appropriate software. The pedagogy includes lectures and presentations from experts in each of the topics. Typical topics include: -text mining -neuro-marketing -focus groups -depth interviews -projective techniques. Prerequisite: Consent of Program Director.

**MARK 5342. ADVANCED TOPICS IN MARKETING RESEARCH II. 3 Hours.**

This companion course to MARK 5341 focuses on quantitative topics in marketing research. Typical topics include geographical information systems, non-parametric statistics, data mining, measurement issues and questionnaire design and neuro-marketing. Prerequisite: consent of Program Director.

**MARK 5343. ADVANCED RESEARCH ANALYSIS I. 3 Hours.**

Focuses on problems of data analysis in marketing research. Introduces the concept of multivariate data and emphasizes application of core statistical techniques including factor analysis, multiple regression, discriminant analysis and logistic regression. Also covered are cluster analysis and ratings based conjoint analysis. Application of statistical software is stressed including interpretation of statistical output. Prerequisite MARK 5327 or equivalent.

**MARK 5344. ADVANCED RESEARCH ANALYSIS II. 3 Hours.**

Advanced Research Analysis II - Continues from MARK 5343 on problems of data analysis in marketing research. Advanced multivariate applications include MANOVA (Multivariate analysis of variance), multidimensional scaling and correspondence analysis, choice based conjoint studies, confirmatory factor analysis, and structural equations modeling. Application of appropriate statistical software is emphasized including the interpretation of statistical outputs. Prerequisite: MARK 5343.

**MARK 5382. INDEPENDENT STUDIES IN MARKETING. 3 Hours.**

Extensive analysis of a marketing topic.

**MARK 5396. MARKETING RESEARCH INTERNSHIP I. 3 Hours.**

The internship involves part-time or full-time training and work experience in a company approved by the MSMR program advisor.

**MARK 5397. MARKETING RESEARCH INTERNSHIP II. 3 Hours.**

This is a continuation of Internship I and involves part-time or full-time work experience in a company approved by the MSMR program advisor. The student will be assigned primary responsibility for at least one marketing research project during Internship I or II. At the completion of the course, the student will present a research paper to the MSMR faculty.

**MARK 5398. THESIS. 3 Hours.**

Prerequisite: STAT 5325 and approval of Graduate Advisor.

**MARK 5399. GRADUATE MARKETING INTERNSHIP. 3 Hours.**

Practical training in marketing. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**MARK 5698. THESIS. 6 Hours.**

Prerequisite: STAT 5325 and approval of Graduate Advisor.

**MARK 6302. CONSUMER BEHAVIOR I. 3 Hours.**

Study of current thought and research underlying individual and group marketplace behavior. Theories from the behavioral sciences are applied to consumer behavior from descriptive, predictive and normative perspectives. Topics include consumer knowledge, attitude theory, persuasion, affect, and social influence. The course draws from the literature in marketing, psychology, and behavioral economics. The course will enable students to conceptualize, operationalize, and develop research ideas.

**MARK 6303. CONSUMER BEHAVIOR II. 3 Hours.**

This course complements the Consumer Behavior I doctoral seminar. Building on a portion of that seminar, the course focuses on a few topics (e.g. automaticity in consumer behavior, consumer choice processes) that have the following characteristics: 1) the topics are the subjects of emerging research in consumer behavior, 2) students can gain an in-depth understanding of the theoretical underpinnings of these topics, and 3) the materials are such that students can develop innovative research projects on marketing and consumer behavior related to the topics covered in the class. Prerequisite MARK 6302.

**MARK 6305. MARKETING MODELS I. 3 Hours.**

Study of basic models of market and consumer behavior with particular attention to the use of classical statistical methods such as ordinary and generalized least squares, factor analysis, discriminant analysis and correspondence analysis, cluster analysis, and canonical correlation. Applications include perceptual mapping, multiattribute modeling, conjoint analysis, and product planning models. Prerequisite: STAT 5325.

**MARK 6310. MARKETING STRATEGY AND MANAGEMENT. 3 Hours.**

Examination of the latest research and thought in marketing and business strategy. Topics include marketing programming; product, price, promotion, and distribution decisions, marketing audits, and the design, implementation and evaluation of marketing strategies and tactics. An objective of the course is the development of innovative research ideas on marketing strategy related to the topics covered in the class.

**MARK 6311. MARKETING STRATEGY AND MANAGEMENT II. 3 Hours.**

In increasingly global and competitive markets, sustainable competitive advantage takes on increasing importance. Further, in many industries, product differentiation no longer provides a decisive edge over competition. This course complements the Marketing Strategy and Management I doctoral seminar. Building on a portion of that seminar, the course focuses on a few topics ( e.g. transformation of a product-centric organization to a customer centric organization, organizational change, organizational agility, and technology-enabled relationship management) that will allow students to examine areas of emerging research in marketing strategy, gain an in-depth understanding of the theoretical underpinnings of the selected topics, and develop innovative research projects on marketing strategy related to the topics covered in the class. Prerequisite MARK 6310.

**MARK 6327. ADVANCED MARKETING RESEARCH METHODS. 3 Hours.**

Major topics include design of research projects, generating primary data, questionnaire design, sampling for survey research, experimental design, controlling data collection, and data analysis. Coverage of scientific techniques for collecting and analyzing data; includes research paradigms, measurement, and design. Emphasis on theory and application of survey research including classical test theory, item response theory, sampling, questionnaire construction, validity and reliability assessment and data reduction.

**MARK 6331. ADVANCED GLOBAL MARKETING THEORY. 3 Hours.**

Examines the antecedents and consequences of global marketing. Includes the politics of global marketing, emerging global strategies, the latest concepts of market entry and development, and global marketing performance and evaluation.

**MARK 6390. TOPICS IN MARKETING. 3 Hours.**

Advanced doctoral level work in special topics in marketing. May be repeated when topics vary.

**MARK 6392. INDEPENDENT STUDY IN MARKETING. 3 Hours.**

Doctoral level analysis of marketing topic.

## Materials Science and Engineering (MSE)

### COURSES

**MSE 3300. MATERIALS SCIENCE. 3 Hours.**

Physical, mechanical, electrical, optical, magnetic, thermal and chemical properties of metals, semiconductors, ceramics, polymers, composites, and aggregates and the relationships between these properties and the electronic, crystal, micro and macro-structures of the materials. Prerequisites: CHEM 1442 or CHEM 1465; PHYS 1444.

**MSE 3324. STRUCTURE & MECHANICAL BEHAVIOR OF MATERIALS. 3 Hours.**

Crystal structure and defects in materials. Diffusion, phase diagrams and phase transformations in metallic systems. The inter relationships between processing, structure, and properties of engineering materials with emphasis on the mechanical behavior of metals, polymers, and composite materials. Prerequisites: C or better in each of the following, CHEM 1465 (or CHEM 1441 and CHEM 1442), MAE 2312 (or concurrent enrollment), and PHYS 1444.

**MSE 4191. ADVANCED PROBLEMS IN MATERIALS SCIENCE & ENGINEERING. 1 Hour.**

The investigation of special individual problems in materials science and engineering under the direction of a faculty member. Prerequisite: consent of the head of the department.

**MSE 4291. ADVANCED PROBLEMS IN MATERIALS SCIENCE & ENGINEERING. 2 Hours.**

The investigation of special individual problems in materials science and engineering under the direction of a faculty member. Prerequisite: consent of the head of the department.

**MSE 4310. POLYMER MATERIALS SCIENCE. 3 Hours.**

Intermolecular forces of attraction in high polymers, polymer synthesis, morphology and order in crystalline polymers, mechanics of amorphous polymers, time-dependent mechanical behavior, transitional phenomena, mechanical behavior of semicrystalline polymers. Prerequisite: MSE 3300 or MAE 2321.

**MSE 4315. INTRODUCTION TO COMPOSITES. 3 Hours.**

Composite classification, laminate coding, fabrication, processing and properties of composite laminates, point stress analysis and failure prediction of composite laminates, material allowable, issues in composite structural design. Also offered as MAE 4315. Prerequisite: MAE 1312 and MAE 2312; plus one of MSE 3300 or MSE 3324 or MAE 3324; and one of MAE 2322 or CE 2311.

**MSE 4320. NANOSCALE MATERIALS. 3 Hours.**

Introduction to the synthesis and characterization of nano-materials. Fundamental concepts of surface physics and chemistry. Survey of electronic, biological and biomedical applications. The materials presented include semiconductor and metal thin films, nanoparticles and nanowires, carbon fullerenes and nanotubes, and organic nanoparticles. Prerequisite: MSE 3300 or MSE 2321.

**MSE 4336. ADVANCED MECHANICAL BEHAVIOR OF MATERIALS. 3 Hours.**

Concept of stress and strain, theory of plasticity; elementary dislocation theory. Deformation of single crystals; strengthening mechanisms like solid solution strengthening, and precipitation hardening. Fracture mechanics; microscopic aspects of fracture, fatigue, and creep of materials; design and processing of materials for improved mechanical properties. Also offered as MAE 4336. Prerequisite: MSE 3324 or MAE 3324; MAE 2312.

**MSE 4337. FATIGUE OF ENGINEERING MATERIALS. 3 Hours.**

Cyclic deformation, fatigue crack initiation and growth in ductile solids. Application of fracture mechanics to fatigue. Mechanisms of crack closure. Variable and multiaxial fatigue and corrosion fatigue. Fatigue of brittle solids. Prerequisite: MSE 3324 or MAE 3324.

**MSE 4338. FAILURE ANALYSIS. 3 Hours.**

Theory and practice of techniques for determining modes of failure and fracture of engineering materials. Also offered as MAE 4338. Prerequisite: MSE 3324 or MAE 3324.

**MSE 4339. FRACTURE MECHANICS. 3 Hours.**

Theory and applications of fracture mechanics. Stress analysis of cracks, crack-tip plasticity, fatigue crack growth, and stress corrosion cracking. Applicability to materials selection, structural design, failure analysis, and structural reliability. Also offered as MAE 4339. Prerequisite: MSE 3324 or MAE 3324; MAE 2312.

**MSE 4343. NANOBIO TECHNOLOGY. 3 Hours.**

The objective of this course is to provide students with the fundamental principles of physical and biological sciences at the nanoscale and the basic concepts of applying such interdisciplinary principles to develop new technologies for improving human life and health. The first part of this course introduces the fundamental principles of physics, chemistry, and biology at the nanoscale and the basic techniques to generate, manipulate, and characterize man-made and nature's nanomaterials and systems. The second part of this course covers the state-of-the-art applications of nanobiotechnology, with emphasis on biomedical applications. Prerequisite: PHYS 1444 and (CHEM 1441 or CHEM 1465).

**MSE 4353. FUNDAMENTALS OF SUSTAINABLE ENERGY. 3 Hours.**

Basic concepts and applications of energy generation and storage. Topics cover a broad spectrum of sustainable energy technologies, including thermal, tide, solar, biomass, wind and electrochemical devices, with emphasis on fundamentals in materials and engineering. Prerequisite: PHYS 1444 and (CHEM 1441 or CHEM 1465).

**MSE 4354. SOLID STATE ELECTRONIC DEVICES. 3 Hours.**

Fundamentals and applications of modern electronic devices. Topics include electrical properties of semiconductors, p-n junctions, field-effect transistors, bipolar junction transistors, and integrated circuits. Prerequisites: PHYS 1444 and (CHEM 1441 or CHEM 1465).

**MSE 4355. MATERIALS FOR ENERGY. 3 Hours.**

The course aims to introduce concepts and design of advanced materials for sustainable energy generation and storage systems. It will cover polymer electrolyte materials, metallic nanoparticles, semiconductors, and nano-fabrication in clean energy conversion, energy storage, fuel cells, photovoltaic cells, and other emerging energy harvesting and storage. Prerequisite: PHYS 1444 and (CHEM 1441 or CHEM 1465).

**MSE 4359. FAILURE ANALYSIS AND RELIABILITY ENGINEERING. 3 Hours.**

The basic scope of this course is to understand 1) various types of failure modes in engineering materials, 2) contributing factors to those failures and 3) analysis and detection methods employed in the relevant industries. The failure of engineering materials under discussion includes those by mechanical, electrical and chemical load. Specific cases of discussion include materials for structural as well as microelectronics applications. Also discussed will be the method of statistical analysis and its modeling. Prerequisite: PHYS 1444 and (CHEM 1441 or CHEM 1465).

**MSE 4390. SPECIAL TOPICS IN MATERIALS SCIENCE & ENGINEERING. 3 Hours.**

Special topics pertinent to the field of materials science and engineering, such as electrical, optical, and magnetic properties of materials, will vary from semester to semester depending on the availability of faculty. May be repeated, provided that topics are different. Prerequisite: prior approval by the MSE undergraduate advisor.

**MSE 4391. ADVANCED PROBLEMS IN MATERIALS SCIENCE & ENGINEERING. 3 Hours.**

The investigation of special individual problems in materials science and engineering under the direction of a faculty member. Prerequisite: consent of the head of the department.

**MSE 5141. TRANSMISSION ELECTRON MICROSCOPY LAB. 1 Hour.**

Specimen preparation. Operation of the transmission electron microscope. Beam alignment and rotation calibration. Bright field and dark field imaging. Weak beam imaging. Examination of defects.

**MSE 5190. SPECIAL TOPICS IN MATERIALS SCIENCE AND ENGINEERING. 1 Hour.**

May be repeated for credit when topic changes.

**MSE 5191. ADVANCED STUDIES IN MATERIALS SCIENCE AND ENGINEERING. 1 Hour.**

Topics selected from various areas of materials science and engineering. Work performed as a thesis substitute normally will be accomplished under the course number MSE 5391, with prior approval of the Committee on Graduate Studies.

**MSE 5192. MASTER'S COMPREHENSIVE EXAMINATION. 1 Hour.**

Directed study, consultation, and comprehensive examination over coursework leading to the Master of Engineering degree in Materials Science and Engineering. Required of all Master of Engineering students in the semester they plan to graduate.

**MSE 5193. SEMINAR IN MATERIALS SCIENCE AND ENGINEERING. 1 Hour.**

Selected topics in materials science and engineering presented by faculty, students, and invited lecturers.

**MSE 5290. SPECIAL TOPICS IN MATERIALS SCIENCE AND ENGINEERING. 2 Hours.**

May be repeated for credit when topic changes.

**MSE 5291. ADVANCED STUDIES IN MATERIALS SCIENCE AND ENGINEERING. 2 Hours.**

Topics selected from various areas of materials science and engineering. Work performed as a thesis substitute normally will be accomplished under MSE 5391, with prior approval of the Committee on Graduate Studies.

**MSE 5292. MASTER'S COMPREHENSIVE EXAMINATION. 2 Hours.**

Comprehensive examination over coursework and research project leading to the Master of Science degree with thesis substitute option. Required for such students in the semester they plan to graduate.

**MSE 5300. INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING. 3 Hours.**

Physical, mechanical, electrical, optical, magnetic, thermal, and chemical properties of metals, semiconductors, ceramics, polymers, composites, and aggregates and the relationships between these properties and the electronic, crystal, micro- and macro-structures of the materials.

**MSE 5304. ANALYSIS OF MATERIALS. 3 Hours.**

Theoretical understandings and practical applications of various characterization techniques to materials analysis, ranging from x-rays and electron diffraction, x-ray spectroscopy, and surface topography, are discussed. Practice of these techniques in lab class typically includes SEM spectroscopy, powder diffraction, Laue diffraction, and the double crystal x-ray diffraction.

**MSE 5305. SOLID STATE PHYSICS AND THERMODYNAMICS OF MATERIALS. 3 Hours.**

Fundamentals of Solid State Physics and principles of classical thermodynamics and statistical thermodynamics.

**MSE 5310. DISLOCATION THEORY. 3 Hours.**

Theory of dislocations and their reactions and interactions in crystalline materials developed and extended into a basic understanding of mechanical properties of crystalline materials.

**MSE 5312. MECHANICAL BEHAVIOR OF MATERIALS. 3 Hours.**

Concepts of stress and strain, theory of plasticity. Elementary dislocation theory. Deformation of single crystals. Strengthening mechanisms like solid solution strengthening, precipitation hardening, etc. Elementary concepts in fracture mechanics. Microscopic aspects of fracture, fatigue, and creep of materials.

**MSE 5314. FRACTURE MECHANICS. 3 Hours.**

Theory and applications of linear elastic fracture mechanics. Topics include stress analysis of cracks, crack-tip plasticity, fatigue and stress corrosion. Applicability to materials selection, failure analysis and structural reliability reviewed.

**MSE 5315. FATIGUE OF ENGINEERING MATERIALS. 3 Hours.**

Cyclic deformation, fatigue crack initiation and growth in ductile solids. Application of fracture mechanics to fatigue. Mechanisms of crack closure. Variable and multiaxial fatigue and corrosion fatigue. Fatigue of brittle solids.

**MSE 5316. TRIBOLOGY AND LUBRICATION. 3 Hours.**

The course provides a comprehensive understanding of the Tribology and Lubrication process in materials. This course will employ theoretical and practical examples. Mechanism of coating deposition for tribological, oxidation and corrosion protection are also examined.

**MSE 5320. NANOSCALE MATERIALS. 3 Hours.**

Introduction to the synthesis, properties and applications of inorganic thin films and nanoparticles.

**MSE 5321. PHASE TRANSFORMATIONS OF MATERIALS. 3 Hours.**

The theory of homogeneous and heterogeneous transformations, nucleation and growth, martensitic transformations, heat treatment and control of microstructure.

**MSE 5330. CORROSION. 3 Hours.**

Quantitative application of electrochemical principles to corrosion reactions. Effects of metallurgical factors and environmental conditions on oxidation, erosion, and cracking discussed along with materials selection.

**MSE 5331. FERROELECTRIC DEVICES. 3 Hours.**

Crystallography and its relation to ferroelectrics, effects of crystal symmetry on crystal properties, isotropic and anisotropic properties, matrix and tensor representation of physical properties, transformation of axes, principal axes of tensor, crystal properties in matrix notation, matrix method, electrostatics, thermodynamics of electrification, origin of spontaneous polarization, ferroelectric materials, fabrication of ceramics and in depth discussion of representative ferroelectric, electrostrictive, dielectric and piezoelectric devices. Fabrication and characterization of piezoelectric actuator. Prerequisite: permission of instructor.

**MSE 5333. MAGNETIC PROPERTIES OF MATERIALS. 3 Hours.**

Classical and quantum mechanical understandings of magnetic properties of materials. Specific applications of these properties to various devices are discussed.

**MSE 5334. OPTICAL PROCESSES IN SOLID MATERIALS. 3 Hours.**

Basic understanding of optical response of materials based on classical and quantum models. Particular focus on all phenomena involving light in semiconductors and their optoelectronic applications. Optical properties of solid materials with reduced dimensionality such as thin films and quantum wells and dots. Prerequisite: MSE 5405 or permission of instructor.

**MSE 5336. ELECTRICAL PROPERTIES OF MATERIALS. 3 Hours.**

Advanced discussion of electronic structure, transport mechanisms in metals, semiconductors and superconductors, with applications to materials used in various electronic devices.

**MSE 5339. Failure Analysis and Reliability Engineering. 3 Hours.**

The basic scope of this course is to understand 1) various types of failure modes in engineering materials, 2) contributing factors to those failures and 3) analysis and detection methods employed in the relevant industries. The failure of engineering materials under discussion includes those by mechanical, electrical and chemical load. Specific cases of discussion include materials for structural as well as microelectronics applications. Also discussed will be the method of statistical analysis and its modeling.

**MSE 5341. TRANSMISSION ELECTRON MICROSCOPY IN MATERIALS SCIENCE. 3 Hours.**

Crystallography, stereographic projections, and reciprocal lattice. Specimen preparation in transmission electron microscopy. Dynamical and kinematical theories of electron diffraction. Interpretation of diffraction patterns and transmission electron micrographs. Use of the transmission electron microscope.

**MSE 5343. NANOBIO TECHNOLOGY. 3 Hours.**

The objective of this course is to provide students with the fundamental principles of physical and biological sciences at the nanoscale and the basic concepts of applying such interdisciplinary principles to develop new technologies for improving human life and health. The first part of this course introduces the fundamental principles of physics, chemistry, and biology at the nanoscale and the basic techniques to generate, manipulate, and characterize man-made and nature's nanomaterials and systems. The second part of this course covers the state-of-the-art applications of nanobiotechnology, with emphasis on biomedical applications.

**MSE 5345. CERAMIC MATERIALS. 3 Hours.**

Crystal structure of ceramic materials. Phase equilibria in ceramic materials. The processing of ceramics and ceramic matrix composites. Strengthening mechanisms and mechanical properties of ceramics and ceramic matrix composites including flexure, tensile, fracture toughness, fatigue, and creep.

**MSE 5346. ADVANCED POLYMER CHEMISTRY. 3 Hours.**

Polymer synthesis and reactions including condensation, free-radical, ionic, and coordination polymerizations; principles of polymerization including thermodynamics and kinetic considerations; physical characterizations including determinations of absolute molecular weights, relative molecular weights, morphology, glass transitions, and polymer crystallinity; relationships between macromolecular structure, properties, and uses of polymeric materials. Also offered as MSE 5346. Prerequisite: CHEM 2321 and CHEM 2322 or permission of instructor.

**MSE 5347. POLYMER MATERIALS SCIENCE. 3 Hours.**

Intermolecular forces of attraction in high polymers, polymer synthesis, morphology and order in crystalline polymers, mechanics of amorphous polymers, time-dependent mechanical behavior, transitional phenomena, mechanical behavior of semicrystalline polymers.

**MSE 5348. FUNDAMENTALS OF COMPOSITES. 3 Hours.**

Fundamental relationships between the mechanical and hygrothermal behavior and the composition of multiphase media; failure criteria. Also offered as ME 5315.

**MSE 5349. ADVANCED COMPOSITES. 3 Hours.**

Review of current state-of-the-art applications of composites: composite structural analysis; structural properties, damage characterization and failure mechanisms; stiffness loss due to damage, notched sensitivity; delamination; impact; fatigue characteristics; composite material testing; material allowables; characteristics of composite joints. Also offered as ME 5349 and MSE 5349. Credit will be granted only once. Prerequisite: ME 5348 or MSE 5348 or AE 5315 or consent of the instructor.

**MSE 5351. CURRENT TOPICS IN NANOTECHNOLOGY. 3 Hours.**

Review and discussion of the latest advances in the field of nanoscale science and technology. Topics include molecular electronics, chemical and biological sensors, synthesis of nanoscale materials, carbon nanotubes, nanowires, nanoparticles, atom-wires, self-assembled monolayers, nanoscale composite materials and techniques for observing and manipulating atoms and molecules.

**MSE 5352. SOLAR ENERGY MATERIALS AND DEVICES. 3 Hours.**

Fundamental principles of photovoltaic devices and solar energy materials used for the devices. Topics include thermodynamics of solar energy conversion, carrier generation and recombination, the solid-state device physics of p-n junction under illumination, various state-of-the-art photovoltaic materials, simulation of photovoltaic devices, and solar module technologies.

**MSE 5353. FUNDAMENTALS OF SUSTAINABLE ENERGY. 3 Hours.**

Basic concepts and applications of energy generation and storage. Topics cover a broad spectrum of sustainable energy technologies, including thermal, tide, solar, biomass, wind and electrochemical devices, with emphasis on fundamentals in materials & engineering.

**MSE 5354. SOLID STATE ELECTRONIC DEVICES. 3 Hours.**

Fundamentals and applications of modern electronic devices. Topics include electrical properties of semiconductors, p-n junctions, field-effect transistors, bipolar junction transistors, and integrated circuits.

**MSE 5355. Materials for Energy. 3 Hours.**

The course aims to introduce concepts and design of advanced materials for sustainable energy generation and storage systems. It will cover polymer electrolyte materials, metallic nanoparticles, semiconductors, and nano-fabrication in clean energy conversion, energy storage, fuel cells, photovoltaic cells, and other emerging energy harvesting and storage.

**MSE 5390. SPECIAL TOPICS IN MATERIALS SCIENCE AND ENGINEERING. 3 Hours.**

May be repeated for credit when topic changes.

**MSE 5391. ADVANCED STUDIES IN MATERIALS SCIENCE AND ENGINEERING. 3 Hours.**

Topics selected from various areas of materials science and engineering. Work performed as a thesis substitute normally will be accomplished under MSE 5391, with prior approval of the Committee on Graduate Studies.

**MSE 5392. Research Project in Materials Science and Engineering I. 3 Hours.**

Research course with credit granted according to work performed. The student will have to put together a research plan for the semester with approval of his/her dissertation advisor. End of semester requirement is a written report of research performed with results and discussion. A presentation at the end of the semester on research progress may be required.

**MSE 5393. Research Project in Materials Science and Engineering II. 3 Hours.**

Research course with credit granted according to work performed. The student will have to put together a research plan for the semester with approval of his/her dissertation advisor. End of semester requirement is a written report of research performed with results and discussion. A presentation at the end of the semester on research progress may be required. Prerequisite: MSE 5392.

**MSE 5394. Master's Research Project in Materials Science and Engineering I. 3 Hours.**

The student will carry out a hands-on project under a guidance of his/her supervising professor. The student will need to provide a written project report. At the end of semester, the student will present his/her project results to MSE faculty members and students. The MSE faculty members will decide the grade.

**MSE 5395. Master's Research Project in Materials Science and Engineering II. 3 Hours.**

The student will carry out a hands-on project under a guidance of his/her supervising professor. The student will need to provide a written project report. At the end of semester, the student will present his/her project results to MSE faculty members and students. The MSE faculty members will decide the grade. Prerequisite: MSE 5394.

**MSE 5398. THESIS. 3 Hours.****MSE 5405. PHYS THERMO MAT. 4 Hours.****MSE 5698. THESIS. 6 Hours.****MSE 5998. THESIS. 9 Hours.****MSE 6196. MSE INTERNSHIP. 1 Hour.**

For students participating in internship programs. May be repeated for credit.

**MSE 6197. ADVANCED STUDIES IN MATERIALS SCIENCE AND ENGINEERING. 1 Hour.**

May be repeated for credit.

**MSE 6198. RESEARCH IN MATERIALS SCIENCE AND ENGINEERING. 1 Hour.**

Individually approved research projects in materials science and engineering. May be repeated for credit.

**MSE 6298. RESEARCH IN MATERIALS SCIENCE AND ENGINEERING. 2 Hours.**

Individually approved research projects in materials science and engineering. May be repeated for credit.

**MSE 6396. MSE INTERNSHIP. 3 Hours.**

For students participating in internship programs. May be repeated for credit.

**MSE 6397. ADVANCED STUDIES IN MATERIALS SCIENCE AND ENGINEERING. 3 Hours.**

May be repeated for credit.

**MSE 6398. RESEARCH IN MATERIALS SCIENCE AND ENGINEERING. 3 Hours.**

Individually approved research projects in materials science and engineering. May be repeated for credit.

**MSE 6399. DISSERTATION. 3 Hours.****MSE 6696. MSE INTERNSHIP. 6 Hours.**

For students participating in internship programs. May be repeated for credit.

**MSE 6698. RESEARCH IN MATERIALS SCIENCE AND ENGINEERING. 6 Hours.**

Individually approved research projects in materials science and engineering. May be repeated for credit.

**MSE 6699. DISSERTATION. 6 Hours.****MSE 6996. MSE INTERNSHIP. 9 Hours.**

For students participating in internship programs. May be repeated for credit.

**MSE 6998. RESEARCH IN MATERIALS SCIENCE AND ENGINEERING. 9 Hours.**

Individually approved research projects in materials science and engineering. May be repeated for credit.

**MSE 6999. DISSERTATION. 9 Hours.****MSE 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Mathematical Sciences (MSCI)

### COURSES

**MSCI 6399. DISSERTATION. 3 Hours.****MSCI 6699. DISSERTATION. 6 Hours.****MSCI 6999. DISSERTATION. 9 Hours.****MSCI 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Mathematics (MATH)

### COURSES

**MATH 0302. FUNDAMENTALS OF ALGEBRA. 3 Hours.**

Basic algebraic operations, linear equations and inequalities, polynomials, rational expressions, factoring, exponents and radicals, and quadratic equations. Credit in this course does not fulfill any degree requirement.

**MATH 1301. CONTEMPORARY MATHEMATICS. 3 Hours.**

This course covers material in a traditional algebra course together with real-world applications of mathematics. It develops problem-solving and critical thinking skills. Topics include the mathematics of dimensional analysis, mathematical logic, population growth, optimization, voting theory, number theory, graph theory, relations, functions, probability, statistics, and finance. The use of mathematical software and calculators is required. See course syllabus for details. Credit may be received for only one of MATH 1301, MATH 1302, or MATH 1315.

**MATH 1302. COLLEGE ALGEBRA. 3 Hours. (TCCN = MATH 1314)**

This course is designed as preparation for higher level mathematics courses. Topics include the study of linear, quadratic, polynomial, rational, radical absolute value, logarithmic, and exponential functions, relations and inequalities; graphs, basic characteristics, and operations on functions; real and complex zeros of functions; graphing techniques; systems of equations and matrices. The use of mathematical software and calculators is required. See course syllabus for more details. Non-STEM (Science-Technology-Engineering-Mathematics) majors should enroll in MATH 1301, and Business majors should enroll in MATH 1315. Credit may be received for only one of MATH 1301, MATH 1302, or MATH 1315.

**MATH 1303. TRIGONOMETRY. 3 Hours. (TCCN = MATH 1316)**

Trigonometric functions, radian measure, solution of triangles, graphs of trigonometric functions, trigonometric identities and equations, and complex numbers. This course is not intended for Science majors. The Math Aptitude Test (MAT) is required to register for this course. See <http://www.uta.edu/math/pages/main/mpt.htm> for test details.

**MATH 1304. TRIG. 3 Hours.****MATH 1308. ELEMENTARY STATISTICAL ANALYSIS. 3 Hours. (TCCN = MATH 1342)**

Descriptive statistics, relationships between variables, interpretation of data and graphs, rudiments of probability, elementary statistical models, hypothesis testing, inference, and estimation.

**MATH 1313. LIBERAL ARTS HONORS MATHEMATICS. 3 Hours.**

Topics include the development of the real number system, different orders of infinity, the idea of convergence and how this led to the development of calculus, the concept of a mathematical proof, the conceptual foundations of topology, networks, and knot theory, and modern applications of mathematics to the sciences.

**MATH 1315. COLLEGE ALGEBRA FOR ECONOMICS & BUSINESS ANALYSIS. 3 Hours. (TCCN = MATH 1324)**

This course covers material in a traditional algebra course with emphasis on business and financial applications. Topics include linear equations, systems of linear equations, systems of linear inequalities, linear programming, mathematics of finance, elements of matrix algebra, logic and probability. Credit may be received for only one of MATH 1301, MATH 1302, or MATH 1315.

**MATH 1316. MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS. 3 Hours. (TCCN = MATH 1325)**

Presents some of the mathematical tools that are useful in the analysis of business and economic problems. Topics are: compound interest, annuities, differential and integral calculus. Prerequisite: C or better in MATH 1315 or MATH 1302.

**MATH 1319. FORTRAN PROGRAMMING AND COMPUTER LITERACY. 3 Hours.**

Computing techniques using the Fortran programming language. Word processing, spreadsheets, e-mail, Internet access, library search. This course will satisfy both the computer programming and computer literacy requirements for math majors. Prerequisite: MATH 1323 or MATH 1426 or concurrent registration.

**MATH 1322. PRECALCULUS I. 3 Hours.**

This is the first semester of a two-semester sequence to prepare students for the study of calculus. An emphasis will be placed on introducing vocabulary, notation, and concepts encountered in calculus. Topics include: a review of fundamental algebra concepts, equations, inequalities, functions, graphs, polynomial functions, rational functions, systems of equations, exponential functions, and logarithmic functions. The Math Aptitude Test (MAT) is required to register for this course. See <http://www.uta.edu/math/pages/main/mpt.htm> for test details.

**MATH 1323. PRECALCULUS II. 3 Hours.**

This is the second semester of a two semester sequence to prepare students for the study of calculus. An emphasis will be placed on introducing vocabulary, notation and concepts that are basic to the study of first year calculus. Course topics include: right angle trigonometry, unit circle trigonometry, trigonometric identities, trigonometric functions and their graphs, trigonometric equations, and topics from analytic geometry. Prerequisite: C or better in MATH 1322 or the Math Aptitude Test (MAT) is required to register for this course. See <http://www.uta.edu/math/pages/main/mpt.htm> for test details.

**MATH 1324. ALGEBRA AND TRIGONOMETRY. 3 Hours.**

A fast-paced summary study of the topics of MATH 1302 and MATH 1303. This course is not intended for calculus track students; those students should take MATH 1322 and MATH 1323. Credit cannot be received for MATH 1324 and MATH 1302 or MATH 1303. The Math Aptitude Test (MAT) is required to register for this course. See <http://www.uta.edu/math/pages/main/mpt.htm> for test details.

**MATH 1325. ANALYTIC GEOMETRY. 3 Hours. (TCCN = MATH 1348)**

Vectors, lines in two dimensions, circles, conics, transformation of coordinates, polar coordinates, parametric equations, and the solid analytic geometry of vectors, lines, planes, cylinders, spherical and cylindrical coordinates. The Math Aptitude Test (MAT) is required to register for this course. See <http://www.uta.edu/math/pages/main/mpt.htm> for test details.

**MATH 1327. ARCHITECTURAL CALCULUS. 3 Hours.**

Topics from Calculus I and II that are pertinent to architecture. Prerequisite: Major or intended major in Architecture and C or better in Math 1325. This course will not substitute for Math 1426.



**MATH 1330. ARITHMETICAL PROBLEM SOLVING. 3 Hours.**

This is a course in small and large group problem solving, with emphasis on reasoning and writing. Topics include problem solving, sets, operations and relations, arithmetic, place value and bases, propositional logic, fractions, number theory, number systems and estimation. Prerequisite: C or better in MATH 1302 and enrollment as an education major.

**MATH 1331. GEOMETRICAL INFERENCE AND REASONING. 3 Hours.**

A discovery-oriented exploration of two- and three-dimensional geometry, with emphasis on reasoning and writing. Topics include constructions, polygons, tessellations, polyhedra, symmetry, rigid motions in the plane, measurement, and discovering theorems. Prerequisite: C or better in MATH 1330 and enrollment as an education major.

**MATH 1332. FUNCTIONS, DATA, AND APPLICATIONS. 3 Hours.**

An exploration of interpreting data, using cooperative groups, spreadsheets and mathematical models. Topics include graphs, applications to economics and natural sciences, function concepts, counting principles, and basic probability and statistics. Prerequisite: C or better in MATH 1330 and enrollment as an education major.

**MATH 1421. CONSOLIDATED PRECALCULUS. 4 Hours.**

A one-semester coverage of the topics of MATH 1322 and MATH 1323. This course is intended for calculus track students who are unable to qualify for MATH 1426 (Calculus I) but are able to address the necessary prerequisites in one semester. Credit cannot be received for MATH 1421 and MATH 1322 or MATH 1323. Permission of a math undergraduate advisor is required.

**MATH 1426. CALCULUS I. 4 Hours. (TCCN = MATH 2413)**

Concepts of limit, continuity, differentiation and integration; applications of these concepts. Prerequisite: C or better in MATH 1323 or MATH 1421 or the Math Aptitude Test (MAT) is required to register for this course. See <http://www.uta.edu/math/pages/main/mpt.htm> for test details.

**MATH 2326. CALCULUS III. 3 Hours. (TCCN = MATH 2315)**

Partial differentiation, multiple integrals (with applications), line integrals, Green's Theorem, surface integrals, Stokes' Theorem, divergence theorem. Prerequisite: C or better in MATH 2425 or HONR-SC 2425.

**MATH 2330. FUNCTIONS AND MODELING. 3 Hours.**

Students engage in explorations and lab activities designed to strengthen and expand their knowledge of the topics found in secondary mathematics. Students collect data and explore a variety of situations that can be modeled using linear, exponential, polynomial, and trigonometric functions. Activities are designed to have them take a second, deeper look at topics they should have been exposed to previously; illuminate the connections between secondary and college mathematics; illustrate good, as opposed to typically poor, sometimes counterproductive, uses of technology in teaching; illuminate the connections between various areas of mathematics; and engage them in serious (i.e., non-routine) problem solving, problem-based learning, and applications of mathematics. While there is some discussion of how the content relates to secondary mathematics instruction, the course primarily emphasizes mathematics content knowledge and content connections, as well as applications of the mathematics topics covered. Prerequisite: C or better in MATH 2425 and acceptance into UTeach Arlington.

**MATH 2350. MATHEMATICAL MODELING IN ECOLOGY. 3 Hours.**

An introductory course in modeling techniques in biology with emphasis on construction and interpretation of models in ecology and epidemiology. Computational tools will allow students to work with mathematical models based on difference and differential equations. The goals of this course will include teaching programming skills and illustrating how biological knowledge is used in this computational approach. Offered as BIOL 2350 and MATH 2350. Credit will be granted only once. Prerequisite: C or better in BIOL 1441 and MATH 1426 or HONR-SC 1426.

**MATH 2425. CALCULUS II. 4 Hours. (TCCN = MATH 2414)**

Applications of integration, techniques of integration, parametric equations, polar coordinates, sequences, series vectors, dot product, cross product, planes and quadric surfaces. Prerequisite: C or better in MATH 1426 or HONR-SC 1426.

**MATH 3300. INTRODUCTION TO PROOFS. 3 Hours.**

Techniques for constructing proofs for various propositions. The propositions chosen exhibit properties of functions, relations, sets, cardinality, and other ideas in mathematics. An axiomatic approach to some areas in mathematics. Oral presentations of proofs are required. Prerequisite: Math major or math intended major. B or better in MATH 1426 or HONR-SC 1426; OR C or better in MATH 2425 or HONR-SC 2425.

**MATH 3301. FOUNDATIONS OF GEOMETRY. 3 Hours.**

A development of the foundations of geometry. Prerequisite: C or better in MATH 2425 or HONR-SC 2425.

**MATH 3302. MULTIVARIATE STATISTICAL METHODS. 3 Hours.**

Topics in multivariate data analysis with applications in various areas of interest, including multiple regression, analysis of experimental designs, covariate adjustment, non-linear regression and the use of standard multivariate statistical packages. Prerequisite: C or better in MATH 3316 or STATS 3316 or MATH 3351 or BIOL 3351 or consent of the instructor.

**MATH 3303. MATHEMATICAL GAME THEORY. 3 Hours.**

Two-person zero-sum games, solving matrix games by linear programming, two-person non-zero sum games, noncooperative n-person games, Nash equilibrium points and refinements, cooperative n-person games, core, Shapley value, and other concepts of solution. Applications to cost allocation, fair division, and voting power. Prerequisite: C or better in MATH 3330 or MATH 3319, or consent of the instructor.

**MATH 3304. LINEAR OPTIMIZATION APPLICATIONS. 3 Hours.**

An introduction to basic methods of optimization with applications to optimal resource application, minimal cost allocation and interpersonal decision making in noncooperative and cooperative environments. Includes simplex method, duality, zero sum games, transportation and assignment. Prerequisite: C or better in MATH 3330 or MATH 3319.

**MATH 3307. ELEMENTARY NUMBER THEORY. 3 Hours.**

Various topics in elementary number theory. Divisibility, congruences, quadratic reciprocity, and multiplicative functions. Prerequisite: 2.0 or better in nine hours of college mathematics.

**MATH 3313. INTRODUCTION TO PROBABILITY. 3 Hours.**

Basic concepts in probability, random variables, probability distributions, functions of random variables, moment generating functions, central limit theorem and its role in statistics, joint probability functions and joint probability density functions, joint cumulative distribution functions, conditional and marginal probability distributions, covariance and correlation coefficients, transformation and order statistics. Prerequisite: C or better in MATH 2326.

**MATH 3314. DISCRETE MATHEMATICS. 3 Hours.**

An introduction into discrete structures. Propositional calculus, sets and operations, functions, induction, counting, relations and matrices, equivalences and partial orders, graphs and shortest path algorithms, trees and minimal spanning trees, tree traversal, elements of boolean algebra. Prerequisite: C or better in MATH 1426 or HONR-SC 1426.

**MATH 3315. MATHEMATICAL MODELS. 3 Hours.**

Methods for solving, by means of mathematics, problems which occur in other disciplines such as physics, engineering, biology, and economics. Basic mathematical tools are chosen from areas such as optimization, probability, differential equations, and computer-oriented mathematics. Problems arising in other disciplines or industrial applications are emphasized. Subject matter will depend on the instructor. Prerequisite: C or better in MATH 2326, or permission of instructor.

**MATH 3316. STATISTICAL INFERENCE. 3 Hours.**

A comprehensive study of basic statistical methods. Topics include descriptive statistics, numeracy, report writing, basic probability, experimental design and analysis. Prerequisite: C or better in 6 hours from the following: MATH 1302, MATH 1308, MATH 1322, MATH 1323, MATH 1330, MATH 1331, MATH 1332, MATH 1421, MATH 1426, MATH 2425, MATH 2326, MATH 3300, MATH 3307, MATH 3314, MATH 3319, or MATH 3330; HONR-SC 1426, HONR-SC 2425.

**MATH 3318. DIFFERENTIAL EQUATIONS. 3 Hours.**

Ordinary differential equations with emphasis on the solutions and analysis of first and higher order differential equations drawn from fields of physics, chemistry, geometry, and engineering. Prerequisite: C or better in MATH 2326 or concurrent registration.

**MATH 3319. DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA. 3 Hours.**

Introductory course with emphasis on solution techniques. Ordinary differential equations, vector spaces, linear transformations, matrix/vector algebra, eigenvectors, Laplace Transform, and systems of equations. Math majors will not receive credit for this course. Prerequisite: C or better in MATH 2326 or concurrent enrollment.

**MATH 3321. ABSTRACT ALGEBRA I. 3 Hours.**

Groups including Lagrange's Theorem, Cauchy's Theorem, the homomorphism theorems, and symmetric groups. Prerequisite: C or better in MATH 3300 and MATH 3330.

**MATH 3330. INTRODUCTION TO MATRICES AND LINEAR ALGEBRA. 3 Hours.**

Solving systems of linear equations, matrix operations, determinants, vector spaces, linear transformation, orthogonality, Gram-Schmidt process, projections, and eigenvalues and eigenvectors. Prerequisite: C or better in MATH 1426 or HONR-SC 1426. MATH 2425 is strongly encouraged.

**MATH 3335. ANALYSIS I. 3 Hours.**

Real numbers, sequences, series, limits of functions, continuity. Prerequisite: Grade of C or better in both MATH 2326 and MATH 3300.

**MATH 3345. NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS. 3 Hours.**

Numerical solutions of nonlinear equations, numerical integration and differentiation, polynomial interpolation, solutions of linear systems, and an introduction to spline functions. C or better in MATH 2326, and C or better in one of MATH 3330 or MATH 3319.

**MATH 3350. DYNAMICAL SYSTEMS IN BIOLOGY. 3 Hours.**

An introductory course in the existence and properties of solutions of differential and difference equations, qualitative analysis methods, and numerical solutions of differential equations using finite-difference methods. Offered as BIOL 3350 and MATH 3350: credit will be granted only once. Prerequisite: C or better in BIOL/MATH 2350 or consent of the instructor.

**MATH 3351. PROBABILITY AND RANDOM PROCESSES IN BIOLOGY. 3 Hours.**

Introduction to random processes arising in biological modeling. Topics include introduction to probability, Poisson processes, birth-death processes, Markov chains, and Markov processes. Course taught as BIOL 3351 and MATH 3351; credit will be granted only once. Prerequisite: C or better in BIOL 3350 or MATH 3350 or consent of the instructor.

**MATH 4093. Undergraduate Research. 0 Hours.**

Undergraduate research experiences under supervision of faculty. Students are expected to disseminate research findings by poster or oral presentations in meetings or conferences. Students are also expected to participate in other activities as directed by the grant-funded Research Program Director.

**MATH 4150. SEMINAR IN MATHEMATICAL BIOLOGY. 1 Hour.**

Formulation and definition of interdisciplinary research problems in Mathematical Biology, the formulation and execution of strategies of solution, and the presentation of results. Research under faculty supervision and mentorship involving collaboration within a small group. Prerequisite: Consent of the instructor.

**MATH 4180. ORAL COMMUNICATION OF MATHEMATICS. 1 Hour.**

This course trains students in giving effective oral presentations of mathematics and topics involving mathematics. Students will give presentations to the class and evaluate the presentations of their classmates. Topics may be chosen from mathematics and science journals at a level suitable for undergraduates, from books and articles on the history and development of mathematics, or from previous course material.

**MATH 4191. SPECIAL TOPICS IN MATHEMATICS. 1 Hour.**

Special topics in mathematics are assigned to individuals or small groups. Faculty members closely supervise the projects and assign library reference material. Small groups will hold seminars at suitable intervals. May be repeated for credit. Prerequisite: senior standing and written permission of the instructor and department chair.

**MATH 4291. SPECIAL TOPICS IN MATHEMATICS. 2 Hours.**

Special topics in mathematics are assigned to individuals or small groups. Faculty members closely supervise the projects and assign library reference material. Small groups will hold seminars at suitable intervals. May be repeated for credit. Prerequisite: senior standing and written permission of the instructor & department chair.

**MATH 4303. INTRODUCTION TO TOPOLOGY. 3 Hours.**

A first course in topology from the axiomatic point of view. Prerequisite: C or better in MATH 3335.

**MATH 4311. STOCHASTIC MODELS AND SIMULATION. 3 Hours.**

A study of processes, whose outcomes are governed by chance, through a combination of lectures and computer lab sessions. Experiments include random number generation, coin tossing and other games of chance, random walks, Markov Chains, Poisson processes, birth-death processes, branching processes, and Brownian Motion. A foundation for modeling random phenomena in sciences, engineering and business. Prerequisite: C or better in MATH 2326 and knowledge of basic probability (MATH 3313/STATS 3313 or MATH 3351/BIOL 3351 or equivalent), or consent of instructor.

**MATH 4312. PROBABILITY. 3 Hours.**

Basic probability theory, random variables, expectation, probability models, generating functions, transformations of random variables, limit theory. Prerequisite: C or better in MATH 3313/STATS 3313.

**MATH 4313. APPLICATIONS OF MATHEMATICAL STATISTICS. 3 Hours.**

A continuation of MATH 3313. Sampling distributions, estimation of parameters, confidence intervals, testing of hypotheses, linear regression, linear time series models, moving average, autoregressive and/or autoregressive integrated moving average (ARIMA) models, estimation, data analysis and forecasting with time series models and forecast errors and confidence intervals. Prerequisite: C or better in MATH 3313 or STATS 3313.

**MATH 4314. ADVANCED DISCRETE MATHEMATICS. 3 Hours.**

Finite automata, Turing machines, formal languages, graph theory, combinatorial optimization, complexity of algorithms, P versus NP, and decidable versus undecidable problems. Prerequisite: C or better in MATH 3314.

**MATH 4318. MATHEMATICAL METHODS FOR SCIENCES. 3 Hours.**

Infinite series: complex variables; determinants; matrices; tensor analysis; Fourier analysis; differential equations; special functions. Prerequisite: C or better in MATH 3318 or MATH 3319 and eight hours in the discipline of appropriate department.

**MATH 4320. ADVANCED DIFFERENTIAL EQUATIONS. 3 Hours.**

The existence and properties of solution of differential equations. Prerequisite: C or better in MATH 3318 or MATH 3319.

**MATH 4321. ABSTRACT ALGEBRA II. 3 Hours.**

Rings and field theory, including polynomial rings and field extensions. Prerequisite: C or better in MATH 3321.

**MATH 4322. INTRODUCTION TO COMPLEX VARIABLES. 3 Hours.**

An introduction to the theory of functions of a complex variable and also an introduction to applications including uses of the residue theory, contour integration and conformal mapping. Prerequisite: C or better in MATH 2326.

**MATH 4324. INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS. 3 Hours.**

Methods of solutions of selected elliptic, parabolic, and hyperbolic partial differential equations with reference to physical applications. Prerequisite: C or better in MATH 3318 or MATH 3319.

**MATH 4334. ADVANCED MULTIVARIABLE CALCULUS. 3 Hours.**

Topics include properties of limits of mappings, continuity of mappings, derivatives of mappings, and integrals of mappings from n-dimensional Euclidean space to m-dimensional Euclidean space. Prerequisite: C or better in MATH 3335, and MATH 3330.

**MATH 4335. ANALYSIS II. 3 Hours.**

Differentiation, integration, and selected topics in sequences and series of functions and metric spaces. Prerequisite: C or better in MATH 3335.

**MATH 4345. NUMERICAL ANALYSIS & COMPUTER APPLICATIONS II. 3 Hours.**

Numerical solutions for ordinary differential equations, boundary value problems, minimizations of multivariate functions, and methods of least squares. Prerequisite: C or better in MATH 3345.

**MATH 4350. PRECALCULUS FOR MID-LEVEL MATHEMATICS TEACHERS. 3 Hours.**

This course serves to bridge the gap between algebra and calculus for middle level teachers. It will develop a firm understanding of the concept of function, how to graphically represent various functions, analyze their behavior and create new functions from old. Functions will be used to model real-life situations. The course will focus on the essential elements of precalculus, as given by the TEKS. It will develop the foundations for functions and explore functions as a unifying theme. This includes transformations, inverses, and solving equations. These foundational ideas will be explored and applied to specific functions, including exponential, logarithmic, power, polynomial, rational, and trigonometric functions. There will be an emphasis on multiple representations of mathematical ideas: verbal, concrete, pictorial, tabular, symbolic and graphical. Throughout, the mathematical connections between precalculus and school mathematics will be highlighted. Prerequisite: C or better in MATH 1302, MATH 1308, MATH 1330, MATH 1331 and MATH 1332. This course does not count toward a degree in mathematics.

**MATH 4351. CALCULUS FOR MID-LEVEL MATHEMATICS TEACHERS. 3 Hours.**

This course serves to introduce the basic concepts of calculus to middle level teachers. The primary goal is to help teachers develop a fundamental understanding of the key mathematical ideas in calculus in order to broaden their mathematical perspective and gain insight into the topics in the middle level curriculum which are related and foundational to its development. Participants will develop conceptual knowledge of the processes of differentiation and integration, and understanding of their applications and an understanding of the relationship between the two processes. Prerequisite: C or better in MATH 4350. This course does not count toward a degree in mathematics.

**MATH 4381. MATHEMATICS RESEARCH. 3 Hours.**

Formulation and definition of research problems, the formulation and execution of strategies of solution, and the presentation of results. Prerequisite: consent of instructor. Recommendation by other faculty encouraged.

**MATH 4391. SPECIAL TOPICS IN MATHEMATICS. 3 Hours.**

Special topics in mathematics are assigned to individuals or small groups. Faculty members closely supervise the projects and assign library reference material. Small groups will hold seminars at suitable intervals. May be repeated for credit. Prerequisite: senior standing and written permission of the instructor & department chair.

**MATH 4392. ADVANCED TOPICS IN MATHEMATICS. 3 Hours.**

Varies from semester to semester. New developments in mathematics, in-depth study of a topic not covered in other courses, or a special faculty expertise made available to undergraduates. May be repeated for credit as topic varies. Prerequisite: permission of instructor.

**MATH 4393. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year the student must complete a thesis or a project under the direction of a faculty member in the math department. Prerequisite: enrollment in the University Honors College and written permission of the instructor and chair.

**MATH 4394. UNDERGRADUATE RESEARCH EXPERIENCES. 3 Hours.**

Research under faculty supervision and mentorship involving collaboration within a small group. The topic varies from semester to semester, is determined by the faculty teaching the course, and is announced in advance. The course promotes active learning based on inquiry, development of higher-order thinking skills, and meaningful scientific research. Prerequisite: consent of instructor.

**MATH 5191. SEMINAR FOR TEACHING ASSISTANTS. 1 Hour.**

This course is mandatory for all mathematics graduate teaching assistants. Students will be instructed on classroom procedures and strategies and will be required to deliver lectures under the supervision of math faculty. The purpose is to develop students to be effective lecturers. Admittance to this course is restricted to Math TAs.

**MATH 5300. INTRODUCTION TO SCIENTIFIC COMPUTING. 3 Hours.**

Introduction to scientific computing utilizing algorithmic languages and operating environment such as Fortran, MATLAB, C, and C++ and UNIX (LINUX) operating system. Prerequisite: consent of the instructor.

**MATH 5302. FUNDAMENTALS OF MATHEMATICAL SCIENCES I. 3 Hours.**

Matrices and operators, linear spaces, multivariable calculus, dynamical systems, applications. Prerequisites: MATH 3318 and MATH 3330 or consent of the instructor.

**MATH 5303. FUNDAMENTALS OF MATHEMATICAL SCIENCES II. 3 Hours.**

Wave propagation, potential theory, complex variables, transform techniques, perturbation techniques, diffusion, applications. Prerequisite: MATH 5302 or consent of the instructor.

**MATH 5304. GENERAL TOPOLOGY. 3 Hours.**

Introduction to fundamentals of general topology. Topics include product spaces, the Tychonoff theorem, Tietzes Extension theorem, and metrization theorems. Prerequisite: MATH 4304 or MATH 4335.

**MATH 5305. STATISTICAL METHODS. 3 Hours.**

Topics include descriptive statistics, numeracy, and report writing; basic principles of experimental design and analysis; regression analysis; data analysis using the SAS package. Prerequisite: consent of the instructor.

**MATH 5307. MATHEMATICAL ANALYSIS I. 3 Hours.**

Elements of topology, real and complex numbers, limits, continuity, and differentiation, functions of bounded variation, Riemann-Stieltjes integrals. Prerequisite: MATH 4335 or consent of Graduate Advisor.

**MATH 5308. MATHEMATICAL ANALYSIS II. 3 Hours.**

Analysis in  $\mathbb{R}^n$ , limits, continuity, Jacobian, extremum problems, multiple integrals, sequences and series of functions, Lebesgue integral. Prerequisite: MATH 5307 or consent of Graduate Advisor.

**MATH 5310. MATHEMATICAL GAME THEORY. 3 Hours.**

Two person null sum games. Bimatrix games and Nash equilibrium points. Noncooperative games, existence theorem. Cooperative games, core, Shapley value, the nucleolus. Cost allocation. Market games. Simple games and voting. Prerequisite: MATH 5330.

**MATH 5311. APPLIED PROBABILITY AND STOCHASTIC PROCESSES. 3 Hours.**

Topics include conditional expectations, law of large numbers and central limit theorem, stochastic processes, including Poisson, renewal, birth-death, and Brownian motion. Prerequisite: MATH 3313 or equivalent.

**MATH 5312. MATHEMATICAL STATISTICS I. 3 Hours.**

Basic probability theory, random variables, expectation, probability models, generating functions, transformations of random variables, limit theory. Prerequisite: MATH 5307 or concurrent registration or consent of instructor.

**MATH 5313. MATHEMATICAL STATISTICS II. 3 Hours.**

Theories of point estimation (minimum variance unbiased and maximum likelihood), interval estimation and hypothesis testing (Neyman-Pearson and likelihood ratio tests), regression analysis and Bayesian inference. Prerequisite: MATH 5312/STATS 5312.

**MATH 5314. EXPERIMENTAL DESIGN. 3 Hours.**

This course covers the classical theory and methods of experimental design, including randomization, blocking, one-way and factorial treatment structures, confounding, statistical models, analysis of variance tables and multiple comparisons procedures. Prerequisite: MATH 5305/STATS 5305 or MATH 5355/STATS 5355 or permission of instructor.

**MATH 5315. GRAPH THEORY. 3 Hours.**

Algorithms for problems on graphs. Trees, spanning trees, connectedness, fundamental circuits. Eulerian graphs and Hamiltonian graphs. Graphs and vector spaces, matrices of a graph. Covering and coloring. Flows. Prerequisite: MATH 3314.

**MATH 5316. COMBINATORIAL OPTIMIZATION. 3 Hours.**

Shortest paths. Minimum weight spanning trees and matroids. Matchings and optimal assignment. Connectivity. Flows in networks, applications. Prerequisite: MATH 3314.

**MATH 5317. REAL ANALYSIS FOR THE MATHEMATICAL SCIENCES. 3 Hours.**

Lebesgue measure and integration on  $\mathbb{R}^n$ . Study of LP spaces. Abstract measure and integration. Prerequisite: MATH 5308.

**MATH 5318. FUNDAMENTALS OF STOCHASTIC ANALYSIS. 3 Hours.**

General properties of stochastic processes, processes with independent increments, martingales, limit theorems including invariance principle, Markov processes, stochastic integral, stochastic differential. Prerequisite: MATH 5308.

**MATH 5319. PROBABILITY THEORY. 3 Hours.**

Probability spaces, random variables, filtrations, conditional expectations, martingales, strong law of large numbers, ergodic theorem, central limit theorem, Brownian motion and its properties. Prerequisite: MATH 5308.

**MATH 5320. APPLIED DIFFERENTIAL EQUATIONS. 3 Hours.**

Fundamentals of the theory of systems of ordinary differential equations: existence, uniqueness, and continuous dependence of solutions on data; linear equations, stability theory and its applications, periodic and oscillatory solutions. Prerequisite: MATH 5307 and MATH 5333.

**MATH 5321. APPLIED PARTIAL DIFFERENTIAL EQUATIONS. 3 Hours.**

General first order equations. Basic linear theory for elliptic, hyperbolic, and parabolic second order equations, including existence and uniqueness for initial and boundary value problems. Prerequisites: MATH 5307 and MATH 5333.

**MATH 5322. COMPLEX VARIABLES I. 3 Hours.**

Fundamental theory of analytic functions, residues, conformal mapping and applications. Prerequisite: MATH 5307.

**MATH 5325. ALGEBRAIC NUMBER THEORY. 3 Hours.**

Field extensions, number fields and number rings, ramification theory, class groups, elliptic curves and their group structure, applications to Fermat's last theorem. Prerequisite: MATH 3321.

**MATH 5326. ALGEBRAIC TOPOLOGY. 3 Hours.**

Fundamental groups, covering space, singular homology, relative homology, Mayer-Vietoris sequence, Betti numbers, Euler characteristic. Prerequisites: MATH 3321, MATH 3335.

**MATH 5327. FUNCTIONAL ANALYSIS I. 3 Hours.**

Introduction to Hilbert and Banach spaces: Hahn-Banach, Banach-Steinhaus, and closed graph theorems. Riesz representation theorem and bounded linear operators in Hilbert space. Prerequisite: MATH 5308.

**MATH 5328. FUNCTIONAL ANALYSIS II. 3 Hours.**

The theory of distributions and Sobolev spaces, with applications to differential equations. Compact operators and Fredholm theory. Spectral theory for unbounded operators. Prerequisite: MATH 5327.

**MATH 5329. Homological Algebra. 3 Hours.**

Projective and injective modules, projective and injective resolutions, Hom and tensor, the language of category theory, derived functors, Ext and Tor, complexes.

**MATH 5330. ALGEBRAIC GEOMETRY. 3 Hours.**

Theory of ideals in polynomial rings, Nullstellensatz, Hilbert's basis theorem, computation in polynomial rings, affine and projective varieties, singular and smooth points on varieties. Prerequisite: MATH 4321.

**MATH 5331. ABSTRACT ALGEBRA I. 3 Hours.**

Zorn's Lemma, groups, including free groups and dihedral groups. Rings including factorization, localization, rings of polynomials, and formal power series. An introduction to modules. Prerequisite: MATH 3321.

**MATH 5332. ABSTRACT ALGEBRA II. 3 Hours.**

Modules, including free, projective, and injective. Exact sequences and tensor products of modules. Chain conditions, primary decomposition, Noetherian rings and modules. Prerequisite: MATH 5331.

**MATH 5333. LINEAR ALGEBRA AND MATRICES. 3 Hours.**

Vector spaces, their sums, linear (in)dependence, bases, linear maps and their matrices, change of basis, inner-products, adjoints, diagonalization, eigenvectors and generalized eigenvectors, eigenvalues, Jordan form, characteristic and minimal polynomials, dual vector spaces, bilinear and quadratic forms. Prerequisite: MATH 3330 or consent of instructor.

**MATH 5334. DIFFERENTIAL GEOMETRY. 3 Hours.**

Introduction to the theory of curves and surfaces in three dimensional Euclidean space. Prerequisite: MATH 4334 or MATH 4335.

**MATH 5336. CONCEPTS AND TECHNIQUES IN NUMBER THEORY. 3 Hours.**

Topics include mathematical induction, fundamental theorem of arithmetic, inequalities, special sequences and sums, divisibility properties, greatest common divisor, division and Euclidean algorithm, properties of congruence and Diophantine equations.

**MATH 5337. CONCEPTS AND TECHNIQUES IN CALCULUS. 3 Hours.**

Topics studied include limits, continuity, differentiation, integration, numerical approximations, applications and Taylor series.

**MATH 5338. NUMERICAL ANALYSIS I. 3 Hours.**

Solution of equations including linear and nonlinear systems, interpolation and approximation, spline, numerical differentiation and quadrature. Prerequisite: MATH 2425 or consent of the instructor.

**MATH 5339. NUMERICAL ANALYSIS II. 3 Hours.**

Rigorous treatment of numerical aspects of linear algebra and numerical solution of ordinary differential equations, boundary value problems, introduction to numerical solution of partial differential equations. Prerequisite: MATH 5338 or consent of the instructor.

**MATH 5340. CONCEPTS AND TECHNIQUES IN DISCRETE MATHEMATICS. 3 Hours.**

Topics include functions, mathematical induction, principles of counting, combinatorics, sequences and recurrence relations, and finite graph theory.

**MATH 5341. CONCEPTS AND TECHNIQUES IN GEOMETRY. 3 Hours.**

Selected materials from geometry.

**MATH 5342. CONCEPTS AND TECHNIQUES IN ALGEBRA. 3 Hours.**

Selected materials from algebra.

**MATH 5343. CONCEPTS AND TECHNIQUES IN PROBABILITY AND STATISTICS. 3 Hours.**

Consideration of (1) exploring data: descriptive statistics of situations involving one and two variables; (2) anticipating patterns: probability and simulation; (3) design of experiments and planning a study; (4) statistical inference: confirming models. Use of a graphing calculator and other appropriate technology.

**MATH 5344. MATHEMATICS-SPECIFIC TECHNOLOGIES. 3 Hours.**

Focus on use of current mathematics-specific technologies for enhancing mathematical understanding and mathematics teaching. May include use of Geometer's Sketchpad, Fathom, graphing calculators and computer algebra systems.

**MATH 5345. CONCEPTS AND TECHNIQUES IN ANALYSIS. 3 Hours.**

Selected materials from analysis including concepts and topics consistent with precalculus and elementary calculus. Prerequisite: MATH 5337 or consent of the instructor.

**MATH 5346. CONCEPTS AND TECHNIQUES IN PROBLEM SOLVING. 3 Hours.**

A study of the application of various heuristics and general problem strategies in mathematics, with application to the teaching and learning of secondary school and college-level mathematics. Topics include analyzing, classifying, and modifying tasks, assessment of problem solving, and implementing problem solving in the classroom. Assignments require interaction in secondary school or college field settings.

**MATH 5347. CONCEPTS AND TECHNIQUES IN MATHEMATICAL MODELING WITH APPLICATIONS. 3 Hours.**

Topics studied include algebraic, graphical, geometrical and numerical techniques to model and solve applied problems.

**MATH 5348. ADVANCED ALGEBRA IN SECONDARY SCHOOL MATHEMATICS. 3 Hours.**

Major concepts of second-year algebra applied to the teaching and learning of secondary school mathematics. Topics include relations, algebraic, tabular, verbal and geometric representations of functions, transformations, including applications involving systems of equations and inequalities.

**MATH 5350. APPLIED MATHEMATICS I. 3 Hours.**

Development of models arising in the natural sciences and in engineering. Emphasis will be on the mathematical techniques and theory needed to analyze such models; these include aspects of the theory of differential and integral equations, boundary value problems, theory of distributions and transforms. Prerequisites: MATH 5307 and MATH 5333.

**MATH 5351. APPLIED MATHEMATICS II. 3 Hours.**

Continuation of MATH 5350; models arising in the physical sciences whose analysis includes such topics as the theory of operators in a Hilbert space, variational principles, branching theory, perturbation and stability analysis. Prerequisite: MATH 5350.

**MATH 5352. CONCEPTS AND TECHNIQUES IN PRECALCULUS. 3 Hours.**

Topics include functions (transcendental, inverse, parametric, polar, transformations), asymptotic behavior, conics, sequences, complex numbers.

**MATH 5353. APPLIED LINEAR MODELS. 3 Hours.**

The course covers, at an operational level, three topics: 1) the univariate linear model, including a self-contained review of the relevant distribution theory, basic inference methods, several parameterizations for experimental design and covariate-adjustment models and applications, and power calculation; 2) the multivariate linear model, including basic inference (e.g. the four forms of test criteria and simultaneous methods), applications to repeated measures experiments and power calculation; and 3) the univariate mixed model, including a discussion of the likelihood function and its maximization, approximate likelihood inference, and applications to complex experimental designs, missing data, unbalanced data, time series observations, variance component estimation, random effects estimation, power calculation and a comparison of the mixed model's capabilities relative to those of the classical multivariate model. Knowledge of the SAS package is required. Prerequisite: MATH 5358/STATS 5358 (Regression Analysis) or equivalent.

**MATH 5354. CATEGORICAL DATA ANALYSIS. 3 Hours.**

This course covers classical methods for analyzing categorical data from a variety of response/factor structures (univariate or multivariate responses, with or without multivariate factors), based on several different statistical rationales (weighted least squares, maximum likelihood and randomization-based). Included are logistic regression, multiple logit analysis, mean scores analysis, observer agreement analysis, association measures, methods for complex experimental designs with categorical responses and Poisson regression. The classical log-linear model for the association structure of multivariate responses is briefly reviewed. Randomization-based inference (e.g. Mantel-Haenzel) is discussed as well. The necessary distribution theory (multinomial, asymptotics of weighted least squares and maximum likelihood) are discussed at an operational level. Knowledge of the SAS package is required. Prerequisite: MATH 5358/STATS 5358 (Regression Analysis).

**MATH 5355. STATISTICAL THEORY FOR RESEARCH WORKERS. 3 Hours.**

Designed for graduate students not majoring in mathematics. Topics include basic probability theory, distributions of random variables, point estimation, interval estimation, testing hypotheses, regression, and an introduction to analysis of variance. Graduate credit not given to math majors. Prerequisite: calculus MATH 1426/MATH 2425/MATH 2326 or permission of instructor.

**MATH 5356. APPLIED MULTIVARIATE STATISTICAL ANALYSIS. 3 Hours.**

Statistical analysis for data collected in several variables, topics including sampling from multivariate normal distribution, Hotelling's  $T^2$ , multivariate analysis of variance, discriminant analysis, principal components, and factor analysis. Prerequisite: MATH 5312/STATS 5312 or consent of instructor.

**MATH 5357. SAMPLE SURVEYS. 3 Hours.**

A comprehensive account of sampling theory and methods, illustrations to show methodology and practice, simple random sampling, stratified random sample, ratio estimates, regression estimates, systematic sampling, cluster sampling, and nonsampling errors. Prerequisite: MATH 5312/STATS 5312 or consent of instructor.

**MATH 5358. REGRESSION ANALYSIS. 3 Hours.**

A comprehensive course including multiple linear regression, non-linear regression and logistic regression. Emphasis is on modeling, inference, diagnostics and application to real data sets. The course begins by developing a toolbox of methods via a sequence of guided homework assignments. It culminates with projects based on consulting-level data analysis problems involving stratification, covariate adjustment and messy data sets. Some knowledge of the SAS package is required. Prerequisites: MATH 5305/STATS 5305, basic knowledge of matrices.

**MATH 5359. SURVIVAL ANALYSIS. 3 Hours.**

This course covers analysis of lifetime data, which has applications to actuarial science and health fields. Topics include the survivor function, hazard function, censoring, parametric regression models (e.g. the weibull), nonparametric regression models (e.g. the Cox proportional hazards model), categorical survival data methods, competing risks and methods for multivariate survival data. Knowledge of the SAS package is required. Prerequisites: MATH 5358/STATS 5358 (Regression Analysis) and preferably MATH 5313/STATS 5313. (Students without 5313 can still succeed if they have some basic calculus-based probability, such as MATH 3313).

**MATH 5361. APPLIED CALCULUS OF VARIATION. 3 Hours.**

Functionals, variation, extremization, Euler's equation, direct and indirect approximation methods; applications to mechanics and control theory. Prerequisite: MATH 5302.

**MATH 5362. MATHEMATICS OF LINEAR PROGRAMMING. 3 Hours.**

The simplex method and the revised simplex method. Linear algebra for polyhedra and polytopes. Duality theory. Sensitivity analysis. Applications to transportation problems, network flow problems, matrix-games and scheduling problems. Integer programming. Quadratic programming. Prerequisite: MATH 3330.

**MATH 5363. OSCILLATIONS AND WAVES. 3 Hours.**

Development of methods and results related to phenomena in nature that exhibit oscillatory motion; mathematical techniques include Fourier series, ordinary and partial differential equations, and the theory of almost periodic functions. Prerequisite: MATH 3318.

**MATH 5364. INTRODUCTION TO MATHEMATICAL CONTROL THEORY. 3 Hours.**

Systems in science, engineering, and economics and their mathematical description by means of functional equations (ordinary, partial, integral, delay-type). Basic properties of various classes of systems: observability, controllability, stability, and oscillating systems; optimal control problems and applications. Prerequisite: MATH 3318 or MATH 4320.

**MATH 5365. BIOMATHEMATICS. 3 Hours.**

Mathematical techniques used in modeling such as perturbation theory, dimensional analysis, Fourier analysis, and differential equations. Applications to morphogenetics, population dynamics, compartmental systems, and chemical kinetics.

**MATH 5366. INTRODUCTION TO NEURAL AND COGNITIVE MODELING. 3 Hours.**

Principles of neural network modeling; application of these principles to the simulation of cognitive processes in both brains and machines; models of associative learning, pattern recognition, and classification. Prerequisite: consent of instructor.

**MATH 5370. PROBLEM SOLVING IN K-8 MATHEMATICS. 3 Hours.**

A study of the nature and aspects of problem solving in mathematics, with application to the teaching and learning of K-8 mathematics. Topics include deconstructing and modifying tasks, assessment of problem solving, and the roles of representation, conjecture & proof, and technology in problem solving. Assignments require interaction in K-8 field settings. Prerequisite: graduate standing.

**MATH 5371. APPLIED NUMERICAL LINEAR ALGEBRA. 3 Hours.**

Numerical solutions of linear algebraic systems, least squares problems, and eigenvalue problems; LU and QR decompositions, Schur and Singular Value decompositions, Gaussian elimination, QR algorithm, and Krylov subspace iterations for large and sparse linear algebra problems. Prerequisites: MATH 3330 or consent of the instructor.

**MATH 5372. OPTIMIZATION METHODS & NUMERICAL SOLUTIONS OF NONLINEAR EQUATIONS. 3 Hours.**

Unconstrained and constrained optimization, solutions of nonlinear system of equations; Newton and quasi-Newton methods, secant methods and variations, nonlinear least squares problems. Prerequisite: MATH 5308 or consent of the instructor.

**MATH 5373. NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS. 3 Hours.**

Numerical methods for approximating solutions of initial value problems, boundary value problems, including linear multistep methods, Runge-Kutta methods, shooting methods. Prerequisite: MATH 5300, MATH 3319 or consent of instructor.

**MATH 5374. NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS. 3 Hours.**

Numerical methods for elliptic, parabolic, hyperbolic, mixed, and systems of partial differential equations; finite difference methods, finite element methods, spectral methods. Prerequisite: MATH 5373 or consent of instructor.

**MATH 5375. CONSTRUCTING WHOLE NUMBER AND OPERATIONS IN K-8 MATHEMATICS. 3 Hours.**

A study of the interaction between the structure of place-value numeration systems and the nature of the four arithmetic operations. The development of traditional and alternative computational arithmetic algorithms from conceptual and concrete models for operations, viewed through the lens of alternative numeration systems and research on children's mathematical thinking. Assignments require interaction in K-8 field settings. Prerequisite: graduate standing.

**MATH 5376. CONSTRUCTING RATIONAL NUMBER AND OPERATIONS IN K-8 MATH. 3 Hours.**

The meanings and representations of rational numbers, and the development of computations on rational numbers from algorithms for whole numbers, including concrete models for operations on fractions and decimals. Discussion of research on the learning and teaching of operations on rational numbers. Also, divisibility tests and factoring. Assignments require interaction in K-8 field settings. Prerequisite: MATH 5375.

**MATH 5377. ALGEBRAIC THINKING IN K-8 MATHEMATICS. 3 Hours.**

A study of the practice of making and justifying generalizations in K-8 mathematics, including field properties of operations, modular arithmetic (with applications to odd/even), relations and equivalence relations, the introduction and use of variables and unknowns, and the influence of representations on the form of mathematical arguments. Assignments require interaction in K-8 field settings. Prerequisite: MATH 5375.

**MATH 5378. GEOMETRY CONCEPTS IN K-8 MATHEMATICS. 3 Hours.**

Major concepts of geometry applied to the teaching and learning of K-8 mathematics. Topics include dimension, development of definitions, meanings of angle, geometric comparison relations, notions of center, and non-Euclidean geometries. Assignments require interaction in K-8 field settings. Prerequisite: graduate standing.

**MATH 5379. MEASUREMENT CONCEPTS IN K-8 MATHEMATICS. 3 Hours.**

The development of measurement concepts as applied to the teaching and learning of K-8 mathematics. Topics include the development and properties of standard and nonstandard units, notions of size, decomposing space, relationships between boundaries and interiors, the algebra of units, measuring time, and notions of heaviness. Assignments require interaction in K-8 field settings. Prerequisite: graduate standing.

**MATH 5380. SEMINAR. 3 Hours.**

Current topics in mathematics, may be repeated for credit twice. Prerequisite: consent of instructor.



**MATH 5391. SPECIAL TOPICS IN MATHEMATICS. 3 Hours.**

Topics in mathematics assigned individual students or small groups. Faculty members closely supervise the students in their research and study. In areas where there are only three hours offered, the special topics may be used by students to continue their study in the same area. Graded P/F/R. Prerequisite: permission of instructor.

**MATH 5392. SELECTED TOPICS IN MATHEMATICS. 3 Hours.**

May vary from semester to semester depending upon need and interest of the students. May be repeated for credit. Prerequisite: permission of Graduate Advisor.

**MATH 5395. SPECIAL PROJECT. 3 Hours.**

Graded P/F/R. Prerequisite: permission of Graduate Advisor.

**MATH 5398. THESIS. 3 Hours.**

MATH 5398 Graded R/F only; MATH 5698 graded P/F/R. Prerequisite: permission of Graduate Advisor.

**MATH 5399. RESEARCH IN MATHEMATICS. 3 Hours.**

Faculty directed individual study and research. May be repeated for credit. Graded P/F/R/W only. Prerequisite: permission of instructor.

**MATH 5698. THESIS. 6 Hours.**

Graded P/F/R. Prerequisite: permission of Graduate Advisor.

**MATH 5699. RESEARCH IN MATHEMATICS. 6 Hours.**

Faculty directed individual study and research. May be repeated for credit. Graded P/F/R/W only. Prerequisite: permission of instructor.

**MATH 5999. RESEARCH IN MATHEMATICS. 9 Hours.**

Faculty directed individual study and research. May be repeated for credit. Graded P/F/R/W only. Prerequisite: permission of instructor.

**MATH 6180. SEMINAR FOR PROFESSIONAL DEVELOPMENT OF PhD STUDENTS IN SPECIAL PROJECTS. 1 Hour.**

This seminar class is for Ph.D. students enrolled in special University projects. Topics include a survey of new Math, Science, Technology and Engineering advancements, Ph.D. students professional development and mentoring. Prerequisite: Prior approval of Project Director.

**MATH 6313. TOPICS IN PROBABILITY AND STATISTICS. 3 Hours.**

May be repeated for credit when the content changes.

**MATH 6353. GENERALIZED LINEAR MODELS. 3 Hours.**

This course covers modern methods for analyzing Bernoulli, multinomial and count data. It begins with a development of generalized linear model theory, including the exponential family, link function and maximum likelihood. Second is a discussion of the case of models for independent observations. Next is a discussion of models for repeated measures, based on quasi-likelihood methods. These include models (such as Markov chains) for categorical time series. Next is a treatment of models with random effects. Finally is a discussion of methods for handling missing data. Knowledge of the SAS package is required. Prerequisites: MATH 5358/STATS 5358 (Regression Analysis) and preferably MATH 5313/STATS 5313. (Students without 5313 can still succeed but must deal with the slightly higher mathematical level of this course.).

**MATH 6356. TIME SERIES ANALYSIS. 3 Hours.**

This course covers classical methods of time series analysis, for both the time and frequency domains. For covariance stationary series, these include ARIMA modeling and spectral analysis. For nonstationary series, they include methods for detrending and filtering. Also included is a treatment of multivariate series, as well as a discussion of the Kalman filter state-space model. Knowledge of the SAS package is required. Prerequisites: MATH 5358/STATS 5358 (Regression Analysis) and MATH 5313/STATS 5313.

**MATH 6357. NONPARAMETRIC STATISTICS. 3 Hours.**

This is a survey of classical nonparametric methods for inference in standard observational settings (one-sample, two-sample, k-samples and the univariate linear model), and includes a development of U-statistics, rank statistics and their asymptotic distribution theory. The mathematical level is fairly high. Prerequisite: MATH 5313/STATS 5313.

**MATH 6391. SPECIAL TOPICS IN MATHEMATICS. 3 Hours.**

Faculty directed individual study and research. May be repeated for credit when the content changes.

**MATH 6399. DISSERTATION. 3 Hours.**

Prerequisite: admission to candidacy for the Doctor of Philosophy degree in mathematics.

**MATH 6699. DISSERTATION. 6 Hours.**

Prerequisite: admission to candidacy for the Doctor of Philosophy degree in mathematics.

**MATH 6999. DISSERTATION. 9 Hours.**

Prerequisite: admission to candidacy for the Doctor of Philosophy degree in mathematics.

**MATH 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Mathematics Education (MAED)

### COURSES

**MAED 5351. WHOLE NUMBERS, RATIONAL NUMBERS, & OPERATIONS. 3 Hours.**

In this course students engage in activities and problem solving on concepts related to whole numbers, rational numbers and operations. Students in the course will learn to utilize research-based, problem-based teaching methods to promote K-12 student understanding. Students will experience how K-12 students learn these concepts as they themselves engage in computation and problem solving activities transferrable to classroom practice. In this course, students will engage in experiences to learn and teach their K-12 students on using numbers, number systems and their structure, operations and algorithms, quantitative reasoning, and technology.

**MAED 5352. PATTERNS & ALGEBRA. 3 Hours.**

This course engages students in problem-based teaching and curriculum development to help children learn problem solving and critical thinking with an emphasis on patterns, relations, functions, algebraic reasoning, analysis, and technology. The course incorporates research shown effective in helping children develop necessary skills for algebraic reasoning as a foundation for higher level mathematics learning.

**MAED 5353. PROBABILITY & STATISTICS. 3 Hours.**

In this course students will engage in learning experiences and readily usable curricula for teaching K-12 students concepts of probability and statistics, their applications, and technology. Students will examine K-12 student learning and research-based practices that best help them understand these mathematical concepts and that will promote their development of probabilistic reasoning abilities.

**MAED 5354. PROBLEM SOLVING. 3 Hours.**

In this course, students experience and practice innovative curricula for teaching and learning problem solving. Students engage in hands-on activities and apply various problem solving techniques, using mathematical processes to reason mathematically, to solve mathematical problems, to make mathematical connections within and outside of mathematics, and to communicate mathematically. Students learn to identify relevant and irrelevant variables in problems and work through problems to arrive at meaningful solutions. Students examine research on ways to help K-12 students become effective problem solvers as transferrable to other mathematics topics and subjects across the curriculum.

**MAED 5355. CONCEPTUAL GEOMETRY. 3 Hours.**

In this course students will experience and incorporate active learning curricula that utilize a variety of manipulative materials, diagrams, models, and pictures to study geometry and spatial reasoning. The students will learn effective, research-based practices for teaching geometry and examine ways to best help K-12 students build geometric and spatial understandings as a foundation for later, more complex abstract visualizations.

**MAED 5356. MEASUREMENT. 3 Hours.**

This course focuses on inquiry-based, problem-based curricula that help K-12 students learn concepts of measurement including units of measure, standardization, and error. Students will learn to use teaching techniques that will promote K-12 students' understanding as well as the application of measurement concepts to other subjects and to everyday life experiences.

## Mechanical Engineering (ME)

### COURSES

**ME 5010. AUTOMOTIVE ENGINEERING PRACTICUM. 0 Hours.**

Practical design experience as full member of automotive design competition team. Prerequisite: Permission of Director for the Arnold E. Petsche Center for Automotive Engineering.

**ME 5101. GRADUATE SEMINAR. 1 Hour.**

The purpose is to acquaint graduate students with ongoing research at UTA, and outside in academia and industry. Seminars are given by graduate students of the department based on their ongoing research. Seminars are also given by external speakers from academia, industry and government.

**ME 5191. PROJECT STUDIES IN MECHANICAL ENGINEERING. 1 Hour.**

May be repeated for credit as topics change. Project work performed under a non-thesis degree will normally be accomplished under this course number, with prior approval of the Committee on Graduate Studies. May be graded pass/fail.

**ME 5291. PROJECT STUDIES IN MECHANICAL ENGINEERING. 2 Hours.**

May be repeated for credit as topics change. Work performed as a thesis substitute will normally be accomplished under this course number, with prior approval of the Committee on Graduate Studies. Maybe graded P/F.

**ME 5303. CLASSICAL METHODS OF CONTROL SYSTEMS ANALYSIS AND SYNTHESIS. 3 Hours.**

Equip the student with familiarity of significant tools of the control engineer. Topics covered include controllers and their effect on system performance and stability, block diagram algebra, stability and analysis, system performance definition, root locus, frequency techniques, and state variable methods. Digital simulation tools for design and simulation of control systems. Demonstration of controller design and performance in the laboratory. Also offered as AE 5303. Credit will be granted only once.

**ME 5305. DYNAMIC SYSTEMS MODELING. 3 Hours.**

To equip the student with the capability of determining the necessary equations for distributed and lumped parameter modeling of mixed physical system types including mechanical, fluid, electrical, and thermal components. Models are formulated for computer simulation and analysis for systems with deterministic and stochastic inputs. Topics of random vibration and system identification are included. Also offered as AE 5305. Credit will be granted only once.

**ME 5306. FLUID POWER CONTROL. 3 Hours.**

Mathematical models for hydraulic and pneumatic control components and systems including hydraulic pumps, motors, and spool valves. The application of electrohydraulic and hydromechanical servomechanisms for position and velocity control are treated. Theory supported by laboratory demonstrations and experiments.

**ME 5307. OPTIMAL CONTROL OF DYNAMIC SYS. 3 Hours.**

Linear and nonlinear optimization methods; optimal control; continuous time Riccati equation; bang-bang control; singular arcs; differential inclusions; collocation techniques; design of optimal dynamic system trajectories. Also offered as ME 5335.

**ME 5310. FINITE ELEMENT METHODS. 3 Hours.**

Finite element method in the study of the static response of complex structures and of continua; applications to field problems; analytical methods emphasized, and digital computer application undertaken. Also offered as AE 5310. Credit will be granted only once.

**ME 5311. STRUCTURAL DYNAMICS. 3 Hours.**

Natural frequencies; forced and random response of complex structural systems studied through the use of the finite element method; computational aspects of these problems discussed, and digital computer applications undertaken. Also offered as AE 5311. Credit will be granted only once.

**ME 5312. CONTINUUM MECHANICS. 3 Hours.**

Study of the underlying physical and mathematical principles relating to the behavior of continuous media; interrelationships between fluid and solid mechanics. Also offered as AE 5312. Credit will be granted only once.

**ME 5313. FLUID DYNAMICS. 3 Hours.**

Basic conservation laws, flow kinematics, special forms of the governing equations, two-dimensional potential flows, surface waves and some exact solutions of viscous incompressible flows. Also offered as ME 5313.

**ME 5314. FRACTURE MECHANICS IN STRUCTURAL DESIGN. 3 Hours.**

Linear elastic fracture mechanics, general yielding fracture mechanics, damage tolerance and durability design, fail safe and safe life design criteria, analysis of fatigue crack growth, residual strength analysis. Also offered as AE 5314. Credit will be granted only once.

**ME 5315. FUNDAMENTALS OF COMPOSITES. 3 Hours.**

Fundamental relationships between the mechanical and hygrothermal behavior and the composition of multiphase media; failure criteria. Also offered as AE 5315 and MSE 5348. Credit will be granted only once.

**ME 5316. THERMAL CONDUCTION. 3 Hours.**

Fundamental laws, initial and boundary conditions, basic equations for isotropic and anisotropic media, related physical problems and steady and transient temperature distributions in solid structures.

**ME 5317. CONVECTION HEAT TRANSFER. 3 Hours.**

Equations of motion of viscous fluids are reviewed and the energy equations are introduced. Exact and approximate solutions are made for forced convective problems with non-isothermal and unsteady boundaries. Free convection and combined free- and forced-convection problems are solved.

**ME 5318. RADIATIVE HEAT TRANSFER. 3 Hours.**

General equations of radiative transfer derived and solved for special problems, and the elements of atomic, molecular, and continuum radiation are introduced.

**ME 5319. ADVANCED FINITE ELEMENT METHODS. 3 Hours.**

Continuation of ME 5310. Modeling of large systems, composite and incompressible materials, substructuring, mesh generation, solids applications, nonlinear problems. Also offered as AE 5319. Prerequisite: ME 5310 or equivalent.

**ME 5321. ADVANCED CLASSICAL THERMODYNAMICS. 3 Hours.**

Fundamentals of thermodynamics reviewed. Different treatments of principles studied, compared and formal relationships developed and applied to chemical, magnetic, electric and elastic systems.

**ME 5322. ADVANCED STRUCTURAL DYNAMICS. 3 Hours.**

Normal mode method for undamped and proportionally damped systems, component mode synthesis, generally damped systems, complex modes, effect of design modification on system response. Prerequisite: ME 5311 or equivalent.

**ME 5325. COMBUSTION. 3 Hours.**

Fundamental treatment of problems involving simultaneous occurrence of chemical reaction and transfer of heat, mass and momentum. Topics include kinetically controlled combustion phenomena; diffusion flames in liquid fuel combustion; combustion of solids; combustion of gaseous fuel jets; flames in premixed gasses. Also offered as ME 5325.

**ME 5331. ANALYTIC METHODS ENGINEERING. 3 Hours.**

Introduction to advanced analytic methods in engineering. Methods include multivariable calculus and field theory, Fourier series, Fourier and Laplace Transforms. Also offered as ME 5331. Prerequisite: Undergraduate degree in engineering, physics, or mathematics.

**ME 5332. ENGINEERING ANALYSIS. 3 Hours.**

Introduction to partial differential equations and complex variable theory with application to modeling of physical systems. Also offered as AE 5332. Credit will be granted only once.

**ME 5335. OPTIMAL CONTROL OF DYNAMIC SYSTEMS. 3 Hours.**

Linear and nonlinear optimization methods; optimal control; continuous time Ricatti equation; bang-bang control; singular arcs; differential inclusions; collocation techniques; design of optimal dynamic system trajectories. Also offered as AE 5335. Credit will be granted only once.

**ME 5336. OPTIMAL ESTIMATION OF DYNAMIC SYSTEMS. 3 Hours.**

Kalman filter design and implementation. Optimal filtering for discrete-time and continuous-time dynamical systems with noise. Wiener filtering. State-space determination. Prerequisite: introductory systems or identification course is desirable. Also offered as AE 5336 and EE 6327. Credit will be granted only once.

**ME 5337. INTRODUCTION TO ROBOTICS. 3 Hours.**

An overview of industrial robots and applications to traditional and emerging applications. Coordinate systems and homogeneous transformations, kinematics of manipulators; motion characteristics and trajectories; dynamics and control of manipulators; actuation and design issues. Programming of industrial robotic manipulators in the laboratory. Also offered as AE 5337. Credit will be granted only once.

**ME 5338. ANALYTICAL AND COMPUTATIONAL DYNAMICS. 3 Hours.**

The course focuses on developing the equations of motion for dynamic systems composed of multiple, connected and unconnected, rigid bodies using Kane's method and the Lagrangian approach. The resulting model is used to simulate and visualize the predicted motion. Topics include: kinematics, Euler parameters, kinematic constraints, virtual work, the calculus of variations, energy, momentum, contact, impact, and checking functions. Also offered as AE 5338. Credit will be granted only once.

**ME 5339. STRUCTURAL ASPECTS OF DESIGN. 3 Hours.**

Emphasis on determination of stresses and prediction of failure in machine and structural components; stress-strain relations in elastic and plastic regions; static failure and failure criteria; contact stress; notched sensitivity, strain-fatigue life relationship' characteristics of cracks in structural components. Also offered as AE 5339. Credit will be granted only once.

**ME 5340. AUTOMOTIVE ENGINEERING. 3 Hours.**

Introduction to automotive engine types and performance, drive train modeling and vehicle loading characteristics, fueling requirements, fuel injection systems, tire characteristics and modeling, suspension characteristics and handling, braking systems and requirements. Course taught through lecture, student presentations and student design projects.

**ME 5341. CONTROL SYSTEM COMPONENTS. 3 Hours.**

The components and hardware used in electronic, hydraulic, and pneumatic control systems; techniques of amplification, computation, compensation, actuation, and sensing; modeling of multiport systems as well as servo systems analysis. Pulse modulated systems. Prerequisite: Undergraduate introductory control course in Mechanical Engineering or equivalent or ME 5303 or equivalent. Also offered as AE 5341. Credit will be granted only once.

**ME 5342. GAS DYNAMICS. 3 Hours.**

Review of fundamental compressible flow theory, method of characteristics for perfect gases, the Rankine-Hugoniot conditions, linearized flow theory. Also offered as ME 5342.

**ME 5343. TWO-PHASE FLOW AND BOILING HEAT TRANSFER. 3 Hours.**

This is to introduce significant progress in phase change heat transfer and two-phase flow. Boiling heat transfer will be followed by the study of pressure drop and heat transfer in the pipes of two-phase flow. Boiling heat transfer includes pool boiling, forced convection boiling, and critical heat flux. Also selected topics by the instructor (heat pipe, condensation, Helmholtz wave instability, etc.) Also offered as AE 5343. Credit will be granted only once.

**ME 5344. VISCOUS FLOWS. 3 Hours.**

Navier-Stokes equations and Prandtl's boundary layer approximations; laminar and turbulent boundary layers including internal and external flows. Also offered as AE 5344. Credit will be granted only once.

**ME 5345. NUMERICAL HEAT TRANSFER. 3 Hours.**

Discussion of numerical methods for conduction and convection heat transfer problems including introduction to various computational techniques suitable for digital computers. Finite difference method is emphasized. Also offered as AE 5345. Credit will be granted only once.

**ME 5346. COOLING OF ELECTRONIC PACKAGES. 3 Hours.**

This course deals with the development and application of analytical models of thermal phenomena occurring in electronic equipment. The calculation of heat loads and temperature fields using different cooling techniques. Includes parameter evaluation and design studies.

**ME 5347. HEAT EXCHANGER DESIGN. 3 Hours.**

Design procedures, system evaluations and design parameters in heat exchangers. Heat exchanger configurations; student design projects.

**ME 5348. INTRODUCTION TO ALTERNATIVE ENERGY SYSTEMS. 3 Hours.**

The course introduces: Principles and thermodynamics applied to fuel cell-based power generation systems; materials and manufacturing methods of two common fuel cells and their stacks; modeling, analysis, and design of fuel cells and various reformers; and design issue of balance of plants such as steam management systems.

**ME 5349. ADVANCED COMPOSITES. 3 Hours.**

Review of current state-of-the-art applications of composites; structural properties; structure analysis; damage characterization and failure mechanism; notched sensitivity; delamination; fatigue characteristics; composite material testing; characteristics of composite joints. Also offered as MSE 5349 and AE 5325. Prerequisite: ME 5348, MSE 5348, or AE 5315, or consent of instructor.

**ME 5351. PRINCIPLES OF SOUND AND VIBRATION CONTROL. 3 Hours.**

Fundamental principles of sound and vibration control will be developed. The coupling of mechanical vibrations to unwanted acoustic radiation will be examined using time domain analysis, frequency domain (spectral) analysis and correlation techniques. Standard control methods, including active vibration suppression, will be covered.

**ME 5352. FUNDAMENTALS IN ELECTRONIC PACKAGING. 3 Hours.**

An introductory treatment of electronic packaging, from single chip to multichip, including materials, electrical design, thermal design, mechanical design, package modeling and simulation, processing considerations, reliability, and testing.

**ME 5353. APPLICATION OF COMPUTATIONAL TECHNIQUES TO ELECTRONIC PACKAGING. 3 Hours.**

This course will develop the student's capability to characterize the heat performance of electronic cooling devices by using "Commercial Computational Heat Transfer Codes (IDEAS ESC, Icepack, Flotherm, CFDace, ...)." In addition, the use of MacroFlow, a network based model, for system-level thermal design for electronics cooling will be presented. A number of industry-related problems ranging from first-level packages through system-level packages would be analyzed. At the end of the class, a student is expected to formulate and model complex industry-based problems using the commercial CFD codes. There will be frequent industry speakers on specific projects being studied in the class.

**ME 5354. FAILURES AND THEIR PREVENTION IN ELECTRONIC PACKAGES. 3 Hours.**

A comprehensive overview of the fundamental causes for failures in electronic assemblies which include the printed wiring board, package, and second-level assemblies. Failure detection techniques and methodologies, key failure analysis techniques used will be discussed.

**ME 5355. MECHANICAL FAILURE OF ELECTRONIC PACKAGES. 3 Hours.**

Failure analysis, fatigue of electronic packages, fracture and creep behavior of solders. Mechanical properties of substrate materials. Electromigration and failure mechanisms.

**ME 5356. CHIPSCALE PACKAGING. 3 Hours.**

Overview of area array packaging with special emphasis on the maturing chip-scale packaging technology. Topics covered will include the design concepts of this technology, the materials related aspects, the manufacturing processes, and their reliability in a variety of applications.

**ME 5358. Racecar Engineering. 3 Hours.**

This course intended for Formula SAE team members and other interested students to develop new systems or analyze concepts for the Formula SAE or Formula Electric racecar and related equipment. The students will form teams and perform research and development on projects related to automotive or racecar engineering.

**ME 5359. Applied Automotive Engineering. 3 Hours.**

The purpose of this course is to gain practical experience in the design and fabrication of parts or systems for automotive applications. The student must write a proposal, give a public oral presentation, and prepare a formal final report. The student must have attained full team member status in a student design competition team. Prerequisites: permission of Director of the Arnold E. Petsche Center for Automotive Engineering.

**ME 5360. MULTIDISCIPLINARY INVERSE DESIGN AND OPTIMIZATION. 3 Hours.**

For a new design of any realistic device to be competitive, it must satisfy a number of often conflicting requirements, objectives, and constraints. This course offers a variety of basic concepts and methodologies for inverse design and optimization with practical applications in fluid mechanics, heat transfer, elasticity, and electromagnetism. Also offered as ME 5360.

**ME 5363. INTRODUCTION TO ROTORCRAFT ANALYSIS. 3 Hours.**

History of rotorcraft. Behavior of the rotor blade in hover and forward flight. Rotor configurations, dynamic coupling with the fuselage, elastic and aeroelastic effects. Also offered as ME 5363.

**ME 5364. INTRODUCTION TO AERODYNAMICS OF ROTORCRAFT. 3 Hours.**

Practical aerodynamics of rotors and other components of rotorcraft. Introduction to performance, handling qualities, and general flight mechanics related to rotorcraft design, test, and certification requirements. Emphasis is on rotorcraft mission capabilities as defined by the customer. Also offered as AE 5364. Credit will be granted only once.

**ME 5365. INTRODUCTION TO HELICOPTER AND TILTROTOR SIMULATION. 3 Hours.**

Dynamic and aerodynamic modeling of rotorcraft elements using vector mechanics, linear algebra, calculus and numerical methods. Special emphasis on rotors, aerodynamic interference, proper axis system representation, model assembly methods and trimming. Also offered as ME 5365.

**ME 5366. FUEL CELLS AND APPLICATIONS. 3 Hours.**

The course introduces: Principles and thermodynamics applied to fuel cell-based power generation systems; materials and manufacturing methods of two common fuel cells and their stacks; modeling, analysis, and design of fuel cells and various reformers; and design issue of balance of plants such as steam management systems.

**ME 5374. NONLINEAR SYSTEMS ANALYSIS AND CONTROLS. 3 Hours.**

Nonlinear systems; phase plane analysis; Poincare-Bendixon theorems; nonlinear system stability; limit cycles and oscillations; center manifold theorem, Lyapunov methods in control; variable structure control; feedback linearization; backstepping techniques. Also offered as AE 5374. Credit will be granted only once.

**ME 5378. INTRODUCTION TO UNMANNED VEHICLE SYSTEMS. 3 Hours.**

Introduction to UVS (Unmanned Vehicle Systems) such as UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground System) and UMS (Unmanned Maritime System), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. UVS missions could include student competitions sponsored by various technical organizations. This course is team-taught by engineering faculty. Also offered as MAE 4378 and ME 5378.

**ME 5379. UNMANNED VEHICLE SYSTEM DEVELOPMENT. 3 Hours.**

Introduction to the technologies needed to create an UVS (Unmanned Vehicle System). Integration of these technologies (embodied as a set of sensors, actuators, computing and mobility platform sub-systems) into a functioning UVS through team work. UVS could be designed to compete in a student competition sponsored by various technical organizations or to support a specific mission or function defined by the instructors. This course is team-taught by engineering faculty. Also offered as MAE 4379 and ME 5379. Prerequisite: B or better in MAE 4378 or AE 5378 or ME 5378 and admission to the UVS certificate program.

**ME 5380. DESIGN OF DIGITAL CONTROL SYSTEMS. 3 Hours.**

Difference equations, z- and w- transforms, discrete TF (Transfer Function). Discrete equivalence (DE) to continuous TF. Aliasing & Nyquist sampling theorem. Design by DE, root locus in z- plane & Youla parameterization. Discrete state- space model, minimality after sampling, pole placement, Moore-Kimura method, linear quadratic regulator, asymptotic observer. Computer simulation and/or laboratory implementation Prerequisite: undergraduate level controls course or equivalent. Also offered as AE 5380, EE 5324. Credit will be granted only once.

**ME 5381. BOUNDARY LAYERS. 3 Hours.**

An introductory course on boundary layers. The coverage emphasizes the physical understanding and the mathematical foundations of boundary layers, including applications. Topics covered include laminar and turbulent incompressible and compressible boundary layers, and an introduction to boundary layer transition. Also offered as AE 5381. Credit will be granted only once.

**ME 5390. SPECIAL TOPICS IN MECHANICAL ENGINEERING. 3 Hours.**

To provide formal instruction in special topics pertinent to Mechanical Engineering from semester to semester depending on the availability of faculty. May be repeated provided topics differ.

**ME 5391. ADVANCED STUDIES IN MECHANICAL ENGINEERING. 3 Hours.**

May be repeated for credit as topics change. Project work performed under a non-thesis degree will normally be accomplished under this course number, with prior approval of the Committee on Graduate Studies.

**ME 5398. THESIS. 3 Hours.**

Thesis.

**ME 5698. THESIS. 6 Hours.**

Thesis Prerequisite: GRAD ME thesis major.

**ME 5998. THESIS. 9 Hours.**

Thesis Prerequisite: GRAD ME thesis major.

**ME 6196. MECHANICAL ENGINEERING INTERNSHIP. 1 Hour.**

For students participating in internship programs. May be repeated for credit. Requires prior approval of ME Graduate Advisor.

**ME 6197. RESEARCH IN MECHANICAL ENGINEERING. 1 Hour.**

May be repeated for credit.

**ME 6297. RESEARCH IN MECHANICAL ENGINEERING. 2 Hours.**

May be repeated for credit.

**ME 6299. DISSERTATION. 2 Hours.**

Prerequisite: Admission to candidacy for the Doctoral of Philosophy degree.

**ME 6310. ADVANCED FINITE ELEMENT METHODS. 3 Hours.**

Modeling of large systems, composite and incompressible materials, substructuring, mesh generation, solids applications, nonlinear problems. Also offered as ME 6310.

**ME 6311. ADVANCED STRUCTURAL DYNAMICS. 3 Hours.**

Normal mode method for undamped and proportionally damped systems, component mode synthesis, generally damped systems, complex modes, effect of design modification on system response. Also offered as ME 6311. Prerequisite: ME 5311, AE 5311 or equivalent.

**ME 6315. ADVANCED COMPOSITES. 3 Hours.**

Review of current state-of-the-art applications of composites: composite structural analysis; structural properties, damage characterization and failure mechanism; stiffness loss due to damage, notched sensitivity; delamination; impact; fatigue characteristics; composite material testing; material allowables; characteristics of composite joints. Also offered as ME 6315 and MSE 5349. Prerequisite: ME 5315, AE 5315 or MSE 5348 or equivalent.

**ME 6316. ADVANCED ROBOTICS. 3 Hours.**

Advanced design concepts such as application of optimization technique and analytical approaches such as 3-D homogeneous matrix method will be introduced. Structural dynamics and control strategy for both rigid and flexible manipulators will be studied.

**ME 6337. COMPUTER AIDED DESIGN. 3 Hours.**

Role of graphics; image representation, batch and interactive computing, methods of automated mathematical model generation, mainframe and microcomputing in engineering design. Application in mechanical, structural, thermal, controls areas of mechanical engineering.

**ME 6344. HEAT TRANSFER IN TURBULENT FLOW. 3 Hours.**

Introduction to heat transfer in turbulent boundary layers including internal and external flows, turbulence structure, the Reynolds analogy, van Driest hypothesis, high and low Prandtl number two equation model, effects of surface roughness on heat transfer. Also offered as AE 6344. Credit will be granted only once.

**ME 6345. TURBULENCE. 3 Hours.**

Physical, numerical and theoretical aspects of turbulence. Review of the conservation equations for incompressible flow. Statistical descriptions pertaining to fluid mechanics. Classical description of turbulence via Reynolds averaging is developed with emphasis on homogeneous, isotropic turbulence. Application to free and wall-bounded flows. Modeling and simulation, including direct numerical simulation, classical turbulence modeling, PDF methods and large eddy simulation. Familiarity with vector or tensor notation is expected. Prerequisite: An advanced course in fluid mechanics (AE 5313/ME 5313) or continuum mechanics (AE 5312/ME 5312).

**ME 6397. RESEARCH IN MECHANICAL ENGINEERING. 3 Hours.**

May be repeated for credit.

**ME 6399. DISSERTATION. 3 Hours.**

May be repeated for credit.

**ME 6697. RESEARCH IN MECHANICAL ENGINEERING. 6 Hours.**

May be repeated for credit.

**ME 6699. DISSERTATION. 6 Hours.**

Prerequisite: Admission to candidacy for the Doctor of Philosophy degree.

**ME 6997. RESEARCH IN MECHANICAL ENGINEERING. 9 Hours.**

May be repeated for credit.

**ME 6999. DISSERTATION. 9 Hours.**

Admission to candidacy for the Doctor of Philosophy degree.

**ME 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Mechanical and Aerospace Engineering (MAE)

### COURSES

**MAE 1104. INTRODUCTION TO ENGINEERING. 1 Hour.**

Introduction to basic engineering concepts. Students will become familiar with engineering and its many sub-fields, ethical responsibilities, creativity, and design.

**MAE 1105. INTRODUCTION TO MECHANICAL AND AEROSPACE ENGINEERING. 1 Hour.**

Introduction to basic engineering concepts. Opportunities are provided to develop skills in oral and written communication and department specific material. Case studies are presented and analyzed. Prerequisite: C or better in each of the following, MAE 1104 (or concurrent enrollment) and MATH 1302 or MATH 1322 (or concurrent enrollment) or MATH 1323 (or concurrent enrollment) or MATH 1426 (or concurrent enrollment).

**MAE 1312. ENGINEERING STATICS. 3 Hours. (TCCN = ENGR 2301)**

A study of forces and force systems, resultants and components of force systems, forces due to friction, conditions of equilibrium, forces acting on members of trusses and frame structures, centroids and moments of inertia. Vector and index notation introduced. Prerequisite: C or better in each of the following, MATH 1426 (or HONR-SC 1426) and PHYS 1443.

**MAE 1351. ENGINEERING GRAPHICS AND INDUSTRIAL PRACTICES. 3 Hours.**

Foundational course in modern graphical engineering communication. Introductory technical sketching and 2D CAD. Projections and views. Engineering drawings per ASME Y14 standards; geometric dimensioning and tolerancing. 3D solid modeling using feature-based, associative and parametric techniques for part and assembly design. Prerequisite: C or better in MATH 1322 (or concurrent enrollment) or C or better in MATH 1323 (or concurrent enrollment) or C or better in MATH 1426 (or concurrent enrollment).

**MAE 2000. UNDERGRADUATE RESEARCH. 0 Hours.**

Sophomore level undergraduate research. Prerequisite: Departmental good standing and permission of instructor. Prerequisite: Departmental good standing and permission of instructor. May be taken a maximum of 3 times.

**MAE 2010. AUTOMOTIVE ENGINEERING PRACTICUM I. 0 Hours.**

Practical design experience as full team member of automotive design competition team. Prerequisite: Permission of Director of the Arnold E. Petsche Center for Automotive Engineering.

**MAE 2312. SOLID MECHANICS. 3 Hours.**

The relationship between stresses and strains in elastic bodies and the tension, compression, shear, bending, torsion, and combined loadings which produce them. Deflections and elastic curves, shear and bending moment diagrams for beams, and column theory. Prerequisite: C or better in MAE 1312.

**MAE 2314. FLUID MECHANICS I. 3 Hours.**

Fundamental concepts of fluid mechanics leading to the development of both the integral and differential forms of the basic conservation equations. Application of the integral conservation equations to engineering problems in fluid dynamics including buoyancy and other hydrostatics problems. Dimensional analysis and similitude are also discussed. Prerequisite: C or better in each of the following, MAE 2323, MAE 2360, MAE 3360, and MAE 3310 (or concurrent enrollment).

**MAE 2315. FLUID DYNAMICS. 3 Hours.**

Introduction to Fluid Dynamics and low speed aerodynamics; fluid properties; dimensional analysis; conservation equations in integral and differential form; viscous flow; potential flow theory, air foil and finite wing theory. Prerequisites: C or better in each of the following, MAE 2323, MAE 3309 (or concurrent enrollment) or MAE 3310 (or concurrent enrollment), and MAE 3360 (or concurrent enrollment).

**MAE 2323. DYNAMICS. 3 Hours. (TCN = ENGR 2302)**

The relation between forces acting on particles, systems of particles and rigid bodies, and the changes in motion produced. Review of kinematics and vector analysis, Newton's Laws, energy methods, methods of momentum, inertia tensor and Euler's equations of motion. Prerequisite: C or better in each of the following, MAE 1312 and MATH 2425 (or HONR-SC 2425).

**MAE 2360. NUMERICAL ANALYSIS & PROGRAMMING. 3 Hours.**

Utilization of digital computers in mechanical and aerospace engineering. Computational algorithms and their representation in FORTRAN, C, and Matlab. Introduction to linear algebra and numerical methods. Prerequisite: C or better in MATH 2425 (or HONR-SC 2425) (or concurrent enrollment).

**MAE 2381. EXPERIMENTAL METHODS AND MEASUREMENTS. 3 Hours.**

Introduction to data analysis, incorporating statistics and probability, design and planning of engineering experiments for error prediction and control. Measurement and instrumentation, basic instruments, their calibration and use. Prerequisite: C or better in each of the following, MAE 1351 and MATH 2425 (or HONR-SC 2425).

**MAE 3000. UNDERGRADUATE RESEARCH. 0 Hours.**

Junior level undergraduate research. Prerequisite: Departmental good academic standing and permission of instructor. May be taken a maximum of 3 times.

**MAE 3181. MATERIALS AND STRUCTURES LAB. 1 Hour.**

Experiments to study materials behavior and deformation of structural elements common to aerospace vehicles. Prerequisite: C or better in each of the following, MAE 2381 and MAE 3315 (or concurrent enrollment).

**MAE 3182. AERODYNAMICS AND FLUIDS LAB. 1 Hour.**

Wind tunnel experiments to study flow phenomena of aerodynamics interest, including scale testing of airfoils, wings, and aircraft. Prerequisite: C or better in each of the following, MAE 2381 and MAE 3303 (or concurrent enrollment).

**MAE 3183. MEASUREMENTS LABORATORY II. 1 Hour.**

Fundamental measurement techniques and experimental data analysis in mechanical engineering in the fields of thermal, fluid, structures, design, and dynamic systems. Introduction to sensor calibration, digital data acquisition, uncertainty analysis, and report writing. Prerequisite: C or better in each of the following, MAE 2381, MAE 3314, and MAE 3319.

**MAE 3242. MECHANICAL DESIGN I. 2 Hours.**

The overall nature of design as a process is presented along with various models, methods, techniques, and tools for the various phases of the process provide the student with an excellent understanding of how to design. Students learn to design mechanical components based on stress/deflection and the associated failure theories. Prerequisite: C or better in each of the following: MAE 2312, MAE 2323, and MAE 3324.

**MAE 3303. AERODYNAMICS OF COMPRESSIBLE FLOWS. 3 Hours.**

Adiabatic and isentropic flows; normal and oblique shockwaves; Prandtl-Meyer flows; expansion waves; compressible flow nozzles, diffusers, and wind tunnels; thin-airfoil and small-perturbation theory; design principles for supersonic vehicles and wind tunnels; methods of characteristics. Prerequisite: C or better in each of the following, MAE 2315, MAE 3309 (or MAE 3310), and MAE 3360.



**MAE 3304. ASTRONAUTICS I. 3 Hours.**

Introduction to astronautics, the solar system, and the two-body problem. Orbit shaping and orbit transfers. Patched conic approximations for interplanetary transfers. Introduction to the three-body problem and relative motion. Rigid spacecraft equation of motion. Active and passive attitude stabilization techniques for spacecraft. Prerequisite: C or better in each of the following: MAE 2323, MAE 2360, and MAE 3360.

**MAE 3306. FLIGHT PERFORMANCE & STABILITY. 3 Hours.**

Introduction to aircraft performance and the assessment of aircraft stability and control characteristics. Performance topics covered include cruise, climbing, gliding and turn flights, range and endurance. Stability and controlled topics covered include longitudinal, lateral and directional stability and control. Prerequisite: C or better in MAE 3303.

**MAE 3309. THERMAL ENGINEERING. 3 Hours.**

Basic concepts and definitions, properties of pure substance, work and heat, first law of thermodynamics, second law of thermodynamics, entropy, and introduction to conductive, convective, and radiative transfer. Prerequisite: C or better in each of the following, CHEM 1465 (or concurrent enrollment) or CHEM 1441 and CHEM 1442 (or concurrent enrollment); MATH 2425 (or HONR-SC 2425) and PHYS 1444.

**MAE 3310. THERMODYNAMICS I. 3 Hours.**

Basic concepts and definitions, properties of pure substance, work and heat, first law of thermodynamics, second law of thermodynamics, entropy, thermodynamics of gases, vapors, and liquids in various nonflow and flow processes, and irreversibility and availability. Prerequisite: C or better in each of the following, CHEM 1465 (or concurrent enrollment) or CHEM 1441 and CHEM 1442 (or concurrent enrollment); MAE 1312 (or concurrent enrollment), MATH 2425 (or HONR-SC 2425), and PHYS 1444.

**MAE 3311. THERMODYNAMICS II. 3 Hours.**

Availability, power, refrigeration and heat pump cycles (both gas and vapor), property relations and equations of state, ideal gas mixtures, mixtures of gases and vapors, psychrometrics, adiabatic flame temperature, thermochemical equilibrium, and compressible flow. Emphasis is on applying these topics to thermal systems design. Prerequisite: C or better in each of the following, MAE 2314 (or concurrent enrollment) and MAE 3310.

**MAE 3314. HEAT TRANSFER. 3 Hours.**

Topics cover the fundamental laws of heat and mass transfer, including steady and unsteady conduction, forced and free convection, and radiation as well as heat transfer in phase change. Applications of heat transfer to thermal systems design are included. Prerequisite: C or better in each of the following, MAE 2314 and MAE 3310.

**MAE 3315. AEROSPACE STRUCTURAL STATICS. 3 Hours.**

Overview of aircraft basic structural elements and materials; introduction to elasticity; equations of equilibrium; constitutive equations of isotropic solids; bending and torsion analysis of thin-walled beams; flexure shear of thin-walled beams with stringer reinforcement; introduction to fatigue and fracture analysis; failure criteria; energy method to find strain energy release rate; elastic column buckling. Prerequisite: C or better in MAE 2312.

**MAE 3316. AEROSPACE STRUCTURAL DYNAMICS. 3 Hours.**

Harmonic and periodic motion including both damped and undamped free and forced vibration. Single- and multi-degree-of-freedom discrete systems. Vibration of continuous systems. Introduction of finite element method for structural dynamics. Prerequisite: C or better in each of the following, MAE 2312, MAE 2323, MAE 3360, and MATH 3330.

**MAE 3318. KINEMATICS AND DYNAMICS OF MACHINES. 3 Hours.**

The motion and interaction of linkage and mechanisms. Fundamental concepts of kinematics and dynamics applied to the determination of degree of freedom mechanisms and forces acting on joints of mechanisms. Specific mechanisms and applications such as multi-body mechanisms, linkage synthesis, cam design, and balancing. Prerequisite: C or better in MAE 2323.

**MAE 3319. DYNAMIC SYSTEMS MODELING AND SIMULATION. 3 Hours.**

Introduction to modeling and prediction of behavior of engineering systems. Analytic and numerical simulation, state-space differential equations, and Laplace transform methods. Effects of physical characteristics of system elements on system design and dynamic performance. Prerequisite: C or better in each of the following, MAE 3314 (or concurrent enrollment), EE 2320, and MATH 3330.

**MAE 3324. STRUCTURE & MECHANICAL BEHAVIOR OF MATERIALS. 3 Hours.**

Crystal structure and defects in materials. Diffusion, phase diagrams and phase transformations in metallic systems. The inter relationships between processing, structure, and properties of engineering materials with emphasis on the mechanical behavior of metals, polymers, and composite materials. Prerequisites: C or better in each of the following, CHEM 1465 (or CHEM 1441 and CHEM 1442), MAE 2312 (or concurrent enrollment), and PHYS 1444.

**MAE 3344. INTRODUCTION TO MANUFACTURING ENGINEERING. 3 Hours.**

Introduction to casting, forming, machining, and joining processes for metals and nonmetals. Prerequisite: C or better in each of the following, MAE 2312 and MAE 3324.

**MAE 3360. ENGINEERING ANALYSIS. 3 Hours.**

Mathematical analysis with emphasis on solution techniques and engineering applications. Topics include: ordinary differential equations (ODE), Laplace Transform, numerical solutions of ODE, boundary value problems, Fourier series, Sturm-Liouville problem and vector calculus. Prerequisite: C or better in each of the following, MATH 2326 and MAE 2360 (or concurrent enrollment).

**MAE 3405. FLIGHT DYNAMICS. 4 Hours.**

Derivation of equation of motion (EOM) of a flight vehicle. Trimmed flight condition analysis based on the nonlinear EOM. Linearization of EOM for a given trimmed flight condition. State-space and transfer-function representations of the linear EOM. Aircraft stability and dynamic performance analysis based on the linear EOM. Prerequisite: C or better in each of the following, MAE 3306 (or concurrent enrollment) and MATH 3330.

**MAE 4000. UNDERGRADUATE RESEARCH. 0 Hours.**

Senior level undergraduate research. Prerequisite: Departmental good academic standing and permission of instructor. May be taken a maximum of 3 times.

**MAE 4010. AUTOMOTIVE ENGINEERING PRACTICUM II. 0 Hours.**

Practical design experience as full team member of automotive design competition team. Prerequisite: Permission of Director of the Arnold E. Petsche Center for Automotive Engineering.

**MAE 4188. DESIGN PROJECT LABORATORY II. 1 Hour.**

The design project from MAE 4287 continued. The design is finalized, a physical model (prototype) is manufactured and tested. Redesign and retest is accomplished as desired. The final design is documented by written report and oral presentation. Exit survey forms and exit essays must be submitted to complete the requirements of this course. Prerequisite: C or better in MAE 4287.

**MAE 4191. SPECIAL PROBLEMS IN MECHANICAL AND AEROSPACE ENGINEERING. 1 Hour.**

Special problems in mechanical and aerospace engineering for students of senior standing.

**MAE 4287. DESIGN PROJECT I. 2 Hours.**

Team engineering approach to a design project that integrates engineering knowledge from several courses. Problem definition and creative synthesis of prospective design solutions. Engineering proposals, feasibility studies, trade-off studies, systems models and analysis, decision making, and engineering reports and presentations. Professionalism, ethics, and societal impact issues. Prerequisite: C or better in MAE 4344 (or concurrent enrollment) and must be within two calendar semesters of graduation (possibly including an 11-week summer session). MAE 4287 and MAE 4188 must be taken in consecutive semesters.

**MAE 4291. SPECIAL PROBLEMS IN MECHANICAL AND AEROSPACE ENGINEERING. 2 Hours.**

Special problems in mechanical and aerospace engineering for students of senior standing.

**MAE 4301. SPECIAL TOPICS IN MECHANICAL AND AEROSPACE ENGINEERING. 3 Hours.**

Topics will vary from semester to semester depending on student interest and the availability of faculty. May be repeated, provided topics are different. Prior approval by the student's advisor required. Prerequisite: Vary by topic.

**MAE 4304. ASTRONAUTICS II. 3 Hours.**

The restricted three-body problem, the n-body problem, and approximations. Interplanetary transfers. Design considerations for both manned and unmanned interplanetary vehicles. Prerequisite: C or better in MAE 3304.

**MAE 4307. FINITE ELEMENT METHODS. 3 Hours.**

Static response of complex structures and continua; application to field problems; mesh generation; error estimation and adaptive refinement. Prerequisite: C or better in MAE 3242.

**MAE 4310. INTRODUCTION TO AUTOMATIC CONTROL. 3 Hours.**

Block diagram algebra, transfer functions, and stability criteria. The use of transient response, frequency response, and root locus techniques in the performance analysis, evaluation, and design of dynamic systems. Prerequisite: C or better in each of the following, MAE 3319 (or MAE 3405), and EE 2320.

**MAE 4312. CONTROL SYSTEMS COMPONENTS. 3 Hours.**

The components used in mechanical, electronic, and fluid power control systems are studied. Modeling and performance analysis are used to help in the understanding of system behavior. Prerequisite: C or better in MAE 4310.

**MAE 4313. FLUID MECHANICS II. 3 Hours.**

A continuation of MAE 2314, consisting of a study of boundary-layer flows, inviscid incompressible flow, compressible flow, aerodynamic surfaces, and turbomachinery. Prerequisite: C or better in each of the following, MAE 2314 and MAE 3310.

**MAE 4314. MECHANICAL VIBRATIONS. 3 Hours.**

Harmonic and periodic motion including both damped and undamped free and forced vibration. Single and multi-degree-of-freedom discrete systems. Vibration of continuous systems. Introduction of finite element method for structural dynamics. Prerequisite: C or better in each of the following, MAE 2312, MAE 2323, MAE 3360, and MATH 3330.

**MAE 4315. INTRODUCTION TO COMPOSITES. 3 Hours.**

Composite classification, laminate coding, fiber and weight fractions of composite lamina; lamina constitutive equations; structural characteristics of [A], [B], [D] matrices; lamination theory; thermal and moisture induced load and moment; lamina stress analysis and failure prediction; issues in composite structural design. Prerequisite: C or better in MAE 2312 (or CE 2313).

**MAE 4320. HYDRAULIC AND PNEUMATIC SYSTEMS. 3 Hours.**

The fundamentals of fluid mechanics as applied to hydraulic and pneumatic hardware. Mathematical models of pumps, motors, pistons, accumulators, valves, and transmission lines. Design and analysis procedures for implementing total fluid power systems with high operating efficiencies and adequate dynamic response characteristics. Theory is supported by laboratory demonstrations. Prerequisite: C or better in each of the following, MAE 2314, MAE 4310, and MAE 3310.

**MAE 4321. AIR-BREATHING ENGINE PROPULSION. 3 Hours.**

First course of a two semester sequence for students interested in aerospace propulsion. Development of thrust and efficiency relations, cycle analysis for ramjet, turbojet, and turbofan engines, component design and performance analysis, off-design performance analysis. Prerequisite: C or better in MAE 3303 (or MAE 3311).

**MAE 4322. ROCKET PROPULSION. 3 Hours.**

Examines chemical, nuclear, and electrical propulsion concepts. Development of design and performance analysis methods. Flight performance of rocket powered vehicles. Prerequisite: C or better in MAE 3303 (or MAE 3311).

**MAE 4323. ENERGY CONVERSION. 3 Hours.**

Thermodynamics as applied to thermo-mechanical systems such as power cycles, engines, turbines, refrigeration, and air-conditioning systems. Prerequisite: C or better in each of the following, MAE 3311 and MAE 3314.

**MAE 4327. HEATING, VENTILATION, AND AIR CONDITIONING. 3 Hours.**

Application of engineering sciences to design of heating, venting, and air conditioning (HVAC) systems. Humidification and dehumidification, psychrometric charts, heat load, cooling load, degree-days, comfort zones, and air distribution systems. Prerequisite: C or better in each of the following, MAE 3311 and MAE 3314.

**MAE 4331. DESIGN FOR MANUFACTURING. 3 Hours.**

Manufacturing methods and operations. The interaction between design and manufacturing stressed in terms of drawing specifications versus process capability and tolerances, including standards applications and redesign for producibility. Prerequisite: C or better in MAE 3242 (or MAE 3344).

**MAE 4336. ADVANCED MECHANICAL BEHAVIOR OF MATERIALS. 3 Hours.**

Concept of stress and strain; elementary dislocation theory. Deformation of single crystals; strengthening mechanisms like solid solution strengthening, and precipitation hardening. Fracture mechanics; microscopic aspects of fracture, fatigue, and creep of materials; design and processing of materials for improved mechanical properties. Prerequisite: C or better in each of the following, MAE 2312 and MAE 3324.

**MAE 4338. FAILURE ANALYSIS. 3 Hours.**

Theory and practice of techniques for determining modes of failure and fracture of engineering materials. Prerequisite: C or better in each of the following, MAE 2312 and MAE 3324.

**MAE 4339. FRACTURE MECHANICS. 3 Hours.**

Theory and applications of fracture mechanics. Stress analysis of cracks, crack-tip plasticity, fatigue crack growth, and stress corrosion cracking. Applicability to materials selection, structural design, failure analysis, and structural reliability. Prerequisite: C or better in MAE 3242.

**MAE 4342. MECHANICAL DESIGN II. 3 Hours.**

Analysis for the design and manufacture of basic mechanical elements, and their role in the design of machines. A brief review of relevant topics including stress/deflection, failure theories, and contact stress is initially conducted. It is then extended to the design of fundamental mechanical components including shafts, gears, springs, bearings, fasteners, and clutches/brakes. Prerequisite: C or better in each of the following, MAE 3242 and MAE 3318 (or concurrent enrollment).

**MAE 4344. COMPUTER-AIDED ENGINEERING. 3 Hours.**

A study of the principles of computer-aided engineering in mechanical and aerospace engineering. Applications in mechanical, structural, and thermal systems. Prerequisite: C or better in each of the following, MAE 3242, MAE 3314 (or concurrent enrollment), and MAE 3318.

**MAE 4345. INTRODUCTION TO ROBOTICS. 3 Hours.**

Overview of industrial robots. Study of principles of kinematics, dynamics, and control as applied to industrial robotic systems; robotic sensors and actuators; path planning; programming of industrial robot in the laboratory; survey of robotic applications in various modern and traditional fields; and guidelines to robot arm design and selection. Prerequisite: C or better in, MAE 3318 (or EE 4314).

**MAE 4347. HEAT EXCHANGER DESIGN. 3 Hours.**

Design procedure system evaluation; design parameters in heat exchangers. The course considers various heat exchanger configurations and includes student design projects. Prerequisite: C or better in MAE 3314.

**MAE 4348. COOLING OF ELECTRONIC PACKAGES. 3 Hours.**

The calculation of heat loads and temperature fields using different cooling techniques. Includes parameter evaluation and design studies. Prerequisite: C or better in, MAE 3314 (or MAE 3309).

**MAE 4350. AEROSPACE VEHICLE DESIGN I. 3 Hours.**

Analysis and design of an aerospace system such as a complete flight vehicle, a propulsion system, a structural system, or a control system; market analysis, operating studies, mission specification, civil and military certification requirements; design process, methods and tools; configuration concept selection, integration of design disciplines (aerodynamics, performance, flight mechanics, structures, cost, systems, etc.). Prerequisite: C or better in each of the following, MAE 3306 (or concurrent enrollment) and MAE 3405 (or concurrent enrollment).

**MAE 4351. AEROSPACE VEHICLE DESIGN II. 3 Hours.**

Analysis, design, and synthesis of an aerospace system such as a complete flight vehicle, a propulsion system, a structural system, or a control system; market analysis, operating studies, mission specification, civil and military certification requirements; design process, methods and tools; configuration concept selection, integration of individual design disciplines (aerodynamics, performance, flight mechanics, structures, cost, systems, etc.). Also included will be economic, environmental, sustainability, manufacturability, safety, social and political considerations. Formal written and oral reports are required. Exit survey forms and exit essays must be submitted to complete the requirements of this course. Prerequisite: C or better in MAE 4350.

**MAE 4352. SPACE VEHICLE AND MISSION DESIGN. 3 Hours.**

Space vehicle design; influence of space environment, astrodynamics, and atmospheric reentry. Space vehicle sub system design; propulsion, attitude determination and control, structural design, thermal control, power and telecommunications. Investigation into mission design concepts and considerations. Prerequisite: C or better in each of the following, MAE 2323 and MATH 2326.

**MAE 4357. AUTOMOTIVE ENGINEERING. 3 Hours.**

Introduction to automotive engine types and performance, drive train modeling and vehicle loading characteristics, fueling requirements, fuel injection systems, tire characteristics and modeling, suspension characteristics and handling, braking systems and requirements. Course taught through lecture, student presentations and student design projects. Prerequisite: C or better in each of the following, MAE 3360 (or MATH 3319) and MAE 2312 (or EE 3446).

**MAE 4358. RACECAR ENGINEERING. 3 Hours.**

This course is intended for Formula SAE team members and other interested students to develop new systems or analyze concepts for the Formula SAE or Formula Electric racecar and related equipment. The students will form teams and perform research and development on projects related to automotive or racecar engineering. Prerequisites: C or better in each of the following, MAE 3360 (or MATH 3319) and MAE 2312 (or EE 3446).

**MAE 4378. INTRODUCTION TO UNMANNED VEHICLE SYSTEMS. 3 Hours.**

Introduction to UVS (Unmanned Vehicle Systems) such as UAS (Unmanned Aircraft Systems), UGS (Unmanned Ground System) and UMS (Unmanned Maritime System), their history, missions, capabilities, types, configurations, subsystems, and the disciplines needed for UVS development and operation. UVS missions could include student competitions sponsored by various technical organizations. This course is team-taught by engineering faculty. Also offered as AE 5378 and ME 5378. Prerequisite: Admission to a professional engineering or science program.

**MAE 4379. UNMANNED VEHICLE SYSTEM DEVELOPMENT. 3 Hours.**

Introduction to the technologies needed to create an UVS (Unmanned Vehicle System). Integration of these technologies (embodied as a set of sensors, actuators, computing and mobility platform sub-systems) into a functioning UVS through team work. UVS could be designed to compete in a student competition sponsored by various technical organizations or to support a specific mission or function defined by the instructors. This course is team-taught by engineering faculty. Also offered as AE 5379 and ME 5379. Prerequisite: B or better in MAE 4378 and admission to the UVS certificate program.

**MAE 4391. SPECIAL PROBLEMS IN MECHANICAL AND AEROSPACE ENGINEERING. 3 Hours.**

Special problems in mechanical and aerospace engineering for students of senior standing.

## Mexican American Studies (MAS)

### COURSES

**MAS 1131. ISSUES IN COLLEGE ADJUSTMENT. 1 Hour.**

Faculty, staff and Peer Academic Leaders in group discussion will communicate academic survival information, analyze potential academic and social problems, and assist in implementing individualized corrective measures. Special sections for Maverick Scholars Freshman Interest Groups, students on probation, students exploring majors, and student athletes will require permission to register. Elective only; does not count as a part of the professional certification requirements. Pass-fail grades will be awarded. For entering freshmen or entering transfer students.

**MAS 2300. INTRODUCTION TO MEXICAN AMERICAN STUDIES. 3 Hours.**

A multidisciplinary introduction to the Mexican American/Latino experience. Emphasis on history, culture, and contemporary socioeconomic and policy issues. Required for completion of the Mexican American Studies minor.

**MAS 3310. LATINOS IN THE UNITED STATES. 3 Hours.**

Examines the Latino experience in the U.S. from an interdisciplinary perspective. Discusses the commonalities and cultural differences among various Latino groups, and focuses on important contemporary Latino issues such as education, employment, family and gender, identity, immigration, and politics.

**MAS 3312. LATIN AMERICAN CULTURE AND CIVILIZATION. 3 Hours.**

An interdisciplinary introduction to Latin American society, history and culture. Prerequisite: SPAN 2314 with a grade of C or better. Offered as MAS 3312 and SPAN 3312; credit will be granted for either MAS or SPAN.

**MAS 3314. THE LATINA EXPERIENCE. 3 Hours.**

A course on the social, cultural, and economic experiences of women of Latin American origin in the United States, with special emphasis on Mexican-origin women.

**MAS 3317. MEXICAN POLITICS AND U.S.-MEXICO RELATIONS. 3 Hours.**

Current economic and political systems of Mexico and relevant issues in U.S.-Mexico relations. Trade, immigration, economic dependency, energy, contraband, and other topics. Offered as MAS 3317 and POLS 3317; credit will be given in only one department.

**MAS 3319. HUMAN BEHAVIOR AND DIVERSE POPULATIONS. 3 Hours.**

Introduction to theoretical, practical, and policy issues related to diverse populations. Historical, political, and socioeconomic forces are examined that maintain discriminatory and oppressive values, attitudes, and behaviors in society and in all levels of organizational behavior. Prerequisite: SOCW 2311, SOCW 2313. Offered as AAST 3317 and SOCW 3317; credit will be granted in only one department.

**MAS 3330. CULTURAL DIVERSITY AND IDENTITY. 3 Hours.**

The ways identity is constructed in contemporary societies in an increasingly complex and multicultural world. Ethnic, racial, gender, and class identities. How and when identity is asserted and assigned, and how it can both draw boundaries and forge ties between peoples. Formerly listed as ANTH 2350. Credit cannot be given for both ANTH 2350 and ANTH 3330. Also listed as MAS 3330; credit cannot be granted for both ANTH 3330 and MAS 3330. Offered as AAST 3330 and ANTH 3330; credit will be granted in only one department.

**MAS 3337. RACIAL & ETHNIC GROUPS IN US. 3 Hours.**

Compares the immigration, acculturation, and adjustment processes of various racial/ethnic groups in the U.S. Examines historical and contemporary discrimination in relation to the social conditions of racial/ethnic minority groups in the U. S. Topics include classical and contemporary theory; individualistic, cultural, and structural arguments about social arrangements; and conflict among majority and minority groups. Prerequisite: SOCI 1311. Credit will not be granted for both SOCI 3337 and SOCI 4310 or for MAS 3337 and MAS 4310. Offered as AAST 3337 and SOCI 3337; credit will be granted in only one department.

**MAS 3346. MEXICAN AMERICAN LITERATURE. 3 Hours.**

Offers an introduction to Mexican American literature or focuses on a particular genre, period or topic. May be repeated for credit as course content changes when taken as ENGL 3346. May only be taken once for credit as MAS 3346.

**MAS 3347. TOPICS IN MULTICULTURAL LITERATURES. 3 Hours.**

Either an intensive focus within one tradition or a comparison between two or more traditions. Topics may include Asian-American literature, the American Indian novel, the Harlem Renaissance, Jewish-American literature, Mexican-American and American Indian literatures, or African American literature. May be repeated for credit as course content changes. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore with a grade of A. Offered as ENGL 3347 and MAS 3347; credit will be granted in only one department, and credit for MAS 3347 will be granted only once.

**MAS 3348. LATINO IMMIGRATION TO THE U.S.. 3 Hours.**

Examines Latino immigration from the perspective of sociocultural anthropology. Focuses on how anthropologists have studied Mexican and other Latino immigrants, and discusses contemporary issues such as transnational communities, gender and immigration, citizenship, and immigrants' politics. The course seeks to familiarize students with the largest immigrant community in the U.S. through ethnographic case studies.

**MAS 3352. THE SOUTHWEST. 3 Hours.**

A multicultural history of the southwestern United States from pre-Columbian times to the present. Cultural adaptation to environment; cultural contact and conflict; political, social, and economic change. Also listed as MAS 3352; credit will be granted only once.

**MAS 3363. TEXAS TO 1850. 3 Hours.**

Multicultural heritage of Texas from pre-Colombian period to early statehood. Cultural contact; social, economic, and political change. Completion of either HIST 3363 or HIST 3364 is recommended for those planning to teach in Texas schools. Also listed as MAS 3363; credit will be granted only once.

**MAS 3368. MEXICAN AMERICAN HISTORY. 3 Hours.**

The role of the Mexican American in the cultural and historical development of the United States with special emphasis on the Southwest. Offered as HIST 3368 & MAS 3368; credit will be granted only once.

**MAS 3369. HISTORY OF LATINO RELIGIONS. 3 Hours.**

Treats selected aspects of Christianity and other religious expression to show their impact on identity formation, gender roles, politics and other aspects of Latino incorporation into American society. Offered as HIST 3369 and MAS 3369; credit will be granted only once.

**MAS 3380. RACE, CRIME, AND JUSTICE. 3 Hours.**

An examination of race in the context of the criminal justice system. Emphasis is on social construction of crime; and the treatment of racial minorities as victims and offenders by law enforcement, courts, and corrections. Offered as CRCJ 3380 and MAS 3380; credit will be granted only once. Offered as AAST 3380 and CRCJ 3380; credit will be granted in only one department.

**MAS 4313. TOPICS IN HISPANIC CULTURE. 3 Hours.**

Among the topics are Spanish or Latin American music, television, radio, film, and literature as culture. May be repeated for credit as topic changes. Prerequisite: SPAN 3315 with a grade of C or better. Offered as MAS 4313 and SPAN 4313; credit will be given for MAS 4313 or SPAN 4313 but not both in a given semester.

**MAS 4315. TOPICS IN CONTEMPORARY LATIN-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT. 3 Hours.**

Topics may include: Latin-American literature and culture of Modernism, modern Latin-American literature and culture, or any particular movement, genre, work or author from Modernism to the present. May be repeated for credit when content changes. Prerequisite: SPAN 3315 with a grade of C or better. Offered as MAS 4315 and SPAN 4315; credit will be given for MAS 4315 or SPAN 4315 but not both in a given semester.

**MAS 4317. CHICANO LITERATURE. 3 Hours.**

Mexican-American literature, with special attention to its social, cultural, and linguistic background. Offered as MAS 4317 and SPAN 4317; credit will be given for MAS 4317 or SPAN 4317 but not both in a given semester. Prerequisite: SPAN 3315 with a grade of C or better.

**MAS 4318. MEXICAN LITERATURE. 3 Hours.**

Studies in Mexican fiction, poetry, drama, and literary essay. Offered as MAS 4318 and SPAN 4318; credit will be given for MAS 4318 or SPAN 4318 but not both in a given semester. Prerequisite: SPAN 3315 with a grade of C or better.

**MAS 4319. POLITICS OF MEXICAN AMERICANS. 3 Hours.**

The influence of Mexican-American politics on United States government and policies with special attention given to organizational development, participation in political parties, leadership, ideology, the Chicano Movement, current issues, and relations with other ethnic groups. Offered as MAS 4319 and POLS 4319; credit will be given in only one department.

**MAS 4327. WOMEN IN HISPANIC LITERATURE. 3 Hours.**

Considers women as characters in and writers of Hispanic literature. Includes the analysis of themes, language, and how the writings of women often give voice to lesser-known aspects of culture. Also listed as SPAN 4327. Credit cannot be given for both.

**MAS 4350. TOPICS IN MEXICAN AMERICAN STUDIES. 3 Hours.**

Subjects of interest in Mexican American and Latino studies. May be repeated for credit when topic changes.

**MAS 4352. U.S. IMMIGRATION POLICY AND THE AMERICAN DREAM. 3 Hours.**

Focus on American identity through the examination of immigration to the United States, past and present, and the evolution of U.S. immigration policy. Topics include U.S. attitudes and policy responses to European, Asian, and Latin American immigration and to the incorporation of the descendants of African slaves and Native Americans. Emphasis on the decline of the melting pot idea and the incorporation of recent immigrants. Offered as MAS 4352 and POLS 4352. Credit will be granted only once.

**MAS 4360. CONFERENCE COURSE. 3 Hours.**

Permission of the director of the Center for Mexican American Studies required. Topics for research or study in designated areas assigned in consultation with course instructor.

**MAS 4368. HISTORY OF MEXICO. 3 Hours.**

Mexican history from its pre-Colonial indigenous foundation to the current situation. A social and economic analysis of the major events in Mexican history with emphasis upon the 19th and 20th centuries. The major theme in this class is the growth of Mexican nationalism and its relation to region, religion and ethnicity. Also listed as MAS 4368.

**MAS 4370. CAPSTONE MEXICAN AMERICAN STUDIES. 3 Hours.**

In consultation with the course instructor, students will design a research project or an internship that will integrate their previous course work into a capstone experience in either the applied or the cultural studies stream of the Mexican American Studies minor.

**MAS 4391. CONFERENCE COURSE. 3 Hours.**

Permission of the director of the Center for Mexican American Studies required. Topics for research or study in designated areas assigned in consultation with course instructor.

## Military Science (MILS)

### COURSES

**MILS 0180. LEADERSHIP LAB. 1 Hour.**

A practical laboratory of applied leadership and skills. Student-planned, -organized and -conducted training, oriented toward leadership development. Laboratory topics include marksmanship, small unit tactics, multi-tiered programs focused on individual skill levels. Uniform and equipment provided. Concurrent enrollment in appropriate Military Science course (MILS 1141, MILS 1142, MILS 2251, MILS 2252, MILS 3341, MILS 3342, MILS 4341, MILS 4342, MILS 2291 and/or MILS 4391) required. Prerequisite: permission from the Professor of Military Science (PMS). May be repeated for credit.

**MILS 1141. FOUNDATIONS OF LEADERSHIP. 1 Hour.**

Fundamental concepts of leadership in a profession in both classroom and outdoor laboratory environments. The study of time management skills, basic drill and ceremony, physical fitness, repelling, leadership reaction course, first aid, making presentations and marksmanship. Concurrent enrollment in MILS 0180 leadership lab and mandatory participation in independent physical fitness training, plus optional participation in a weekend field training exercise.

**MILS 1142. INTRODUCTION TO LEADERSHIP. 1 Hour.**

Application of principles of leadership through participation in physically and mentally challenging exercises with upper division ROTC students. Course focuses on communication skills, organizational ethics, and study and time management techniques. Concurrent enrollment in MILS 0180 leadership lab and mandatory participation in individual physical fitness training, plus optional participation in a weekend field training exercise.

**MILS 2251. INDIVIDUAL/TEAM DEVELOPMENT. 2 Hours.**

Application of ethics-based leadership skills and fundamentals of ROTC's Leadership Development Program. Develop skills in oral presentations, concise writing, event planning, coordination of group efforts, advanced first aid, land navigation, and military tactics. Concurrent enrollment in MILS 0180 leadership lab and mandatory participation in individual physical fitness training, plus optional participation in a weekend field training exercise.

**MILS 2252. INDIVIDUAL/TEAM MILITARY TACTICS. 2 Hours.**

Introduction to individual and team aspects of military tactics in small unit operations. Includes use of radio communications, making safety assessments, movement techniques, planning for team safety/security, and pre-execution checks. Concurrent enrollment in MILS 0180 leadership lab and mandatory participation in individual physical fitness training, plus optional participation in a weekend field training exercise.

**MILS 2291. CONFERENCE COURSE. 2 Hours.**

Independent study. Designed to supplement the military science curricula by a student's concentrated study in a narrower field of military skill or subject matter. May be repeated for credit. Does not count for PE credit. Prerequisite: permission of the Professor of Military Science (PMS).

**MILS 2343. LEADERSHIP TRAINING CAMP (LTC). 3 Hours.**

A rigorous five-week summer camp conducted at an Army post, stresses leadership, initiative and self-discipline. No military obligation incurred. Completion of MILS 2343 qualifies a student for entry into the Advanced Course. Three different cycles offered during the summer, but spaces are limited by the Army. Candidates can apply for a space any time during the school year prior to the summer. Open only to students who have not taken all four of MILS 1141, MILS 1142, MILS 2251, and MILS 2252, and who pass an ROTC physical examination. P/F grade only.

**MILS 3341. LEADERSHIP I. 3 Hours.**

Development of ability to evaluate situations, plan and organize training, learn military tactics, review case studies in leadership management and develop teaching and briefing skills. Concurrent enrollment in MILS 0180 mandatory. Prerequisite: permission of the Professor of Military Science (PMS).

**MILS 3342. LEADERSHIP II. 3 Hours.**

Practical application of squad and platoon leadership in tactical situations; operation of small unit communications systems. Development of the leaders' ability to express themselves, analyze military problems, and prepare and deliver logical solutions. Demanding physical fitness training and performance-oriented instruction, in preparation for Summer Field Training. Concurrent enrollment in MILS 0180 mandatory. Prerequisite: permission of the Professor of Military Science (PMS).

**MILS 3443. LEADER DEVELOPMENT AND ASSESSMENT COURSE. 4 Hours.**

A five-week off-campus field training course stressing the practical application of leadership management, with emphasis on tactical and technical military field skills. Open only to students who have successfully completed MILS 3341 and MILS 3342, P/F grade only.

**MILS 3495. NURSING ADVANCED SUMMER TRAINING. 4 Hours.**

Seven-week off-campus internship at a major U.S. Army hospital for ROTC nursing students. A nursing practicum with the focus on providing the student with hands-on experience which integrates clinical, interpersonal, and leadership knowledge and skills. Practical experience and familiarization with Army nursing in a variety of clinical tasks in the areas of medical-surgical nursing, pediatrics, obstetrics, and, in some cases, intensive care in ICUs. May be used for partial credit for NURS 3647 or NURS 3347 with prior arrangement and approval of the Dean of Nursing.

**MILS 4341. ADVANCED LEADERSHIP I. 3 Hours.**

Stresses leadership qualities necessary for Command and Staff functions and operations. Plan and conduct meetings, briefings and conferences. Introduction to the Army Logistical System and the Personnel Management System. Preparation of after-action reports. Plan and conduct physical training programs. Concurrent enrollment in MILS 0180 mandatory. Prerequisite: permission of the Professor of Military Science (PMS).

**MILS 4342. ADVANCED LEADERSHIP II. 3 Hours.**

Provides students with a basic working knowledge of the Military Justice System with emphasis on company-level actions and requirements, including Law of Land Warfare. Examines the ethical standards, professional roles, responsibilities, and uniqueness of the profession of officership. Concurrent enrollment in MILS 0180 mandatory. Prerequisite: permission of the Professor of Military Science (PMS).

**MILS 4391. CONFERENCE COURSE. 3 Hours.**

Independent study on an individual basis on current topics in military science. Performance will be assessed by oral examination, written test, or research paper as arranged. May be repeated for credit. Prerequisite: permission of the Professor of Military Science (PMS).

## Modern Languages (MODL)

### COURSES

**MODL 1441. TOPICS IN MODERN LANGUAGE LEVEL I. 4 Hours. (TCCN = CZEC 1411)**

(Chinese, etc.). This course parallels the 1441 courses in FREN 1441, GERM 1441, RUSS 1441, and SPAN 1441.

**MODL 1442. TOPICS IN MODERN LANGUAGE LEVEL II. 4 Hours. (TCCN = CZEC 1442)**

(Chinese, etc.). This course parallels the 1442 courses in FREN 1442, GERM 1442, RUSS 1442, and SPAN 1442.

**MODL 2313. TOPICS IN MODERN LANGUAGE LEVEL III. 3 Hours. (TCCN = CZEC 2311)**

(Chinese, etc.). This course parallels the 2313 courses in FREN 2313, GERM 2313, RUSS 2313, and SPAN 2313.

**MODL 2314. TOPICS IN MODERN LANGUAGE LEVEL IV. 3 Hours. (TCCN = CZEC 2312)**

(Chinese, etc.). This course parallels the 2314 courses in FREN 2314, GERM 2314, RUSS 2314, and SPAN 2314 .

**MODL 2391. INDEPENDENT STUDY. 3 Hours.**

Independent study; consultation with instructor on a regular basis. May be repeated for credit.

**MODL 3301. TOPICS IN COMPARATIVE LANGUAGES, CULTURE, AND LITERATURES. 3 Hours.**

Comparisons of language and language/culture issues across languages and/or time. Topics may include folklore across cultures, comparison of language and cultural production (e.g., international film and international feminism). May be counted toward fulfilling core curriculum requirement in literature or culture. May be repeated for credit when content changes. No prerequisites.

**MODL 3310. LOCALIZATION & TRANSLATION I. 3 Hours.**

Introduction to cultural and linguistic issues in the translation of language texts. Students will explore current technologies used in various real-world translation contexts and how to adapt texts, products, and services to the locale for which they are intended. Prerequisite: ARAB 2314, CHIN 2314, PORT 2314, or MODL 2314 with a grade of C or better.

**MODL 3311. LOCALIZATION & TRANSLATION II. 3 Hours.**

Continued study of cultural and linguistic issues in the translation of foreign language and English language texts. Systematic development of advanced skills in localization and computer-aided translation and in using TMX/TBX (international standards for translation memory and terminology exchange) tools. Translation practice, individually and in translation teams, with increasingly longer and more specialized texts. Prepares localization and translation specialists for real-world careers in the language-services industry. May be repeated once. Prerequisites: MODL 3310 with a grade of B or better.

**MODL 3391. INDEPENDENT STUDY. 3 Hours.**

Independent study; consultation with instructor on a regular basis. May be repeated for credit.

**MODL 4391. INDEPENDENT STUDY. 3 Hours.**

Independent study; consultation with instructor on a regular basis. May be repeated for credit.

**MODL 5300. HISTORY OF THE FRENCH LANGUAGE. 3 Hours.**

Development of the French language from its earliest forms to the present. Required for the MA in MODL with French concentration.

**MODL 5301. MODERN LANGUAGES FOR GRADUATE READING. 3 Hours.**

An intensive one-semester course designed for Ph.D. candidates and other graduate students to fulfill departmental foreign language requirements. Sections may be offered in French, German, Russian, or other applicable or appropriate languages. Does not fulfill any graduate degree requirements.

**MODL 5302. TOPICS ACROSS THE LANGUAGES. 3 Hours.**

This topic course varies in focus and will be taught by in-house faculty or visiting scholars. Taught in English, it will consider issues to cultural and literary concerns across the languages. Possible course offerings include: From Novel to Film, History and/as Literature, Propaganda as Literature, The History and Aesthetics of Film, The Other in Literature and Culture, Freud and the Literary Imagination, and Modernism.

**MODL 5304. CURRENTS IN EUROPEAN AND LATIN AMERICAN LITERATURES AND THOUGHT. 3 Hours.**

An examination of the mainstream genres and movements in European and Latin American literatures from 1600 to the present. Taught in English. Required for MA students in Modern Languages. May not be repeated for credit.

**MODL 5305. METHODS OF MODERN LANGUAGE TEACHING. 3 Hours.**

Methods of Modern Language Teaching is an applied linguistics course for modern language professionals, focusing on the application of research and theory in linguistics and second language acquisition to the classroom setting. May include specific methods, language learning strategies, cooperative language learning, component and performance skills, and intercultural communication.

**MODL 5306. L2 ACQUISITION. 3 Hours.****MODL 5307. TOPICS IN SECOND LANGUAGE ACQUISITION. 3 Hours.**

May include topics in the areas of second language acquisition, methodologies, culture, and disciplines related to second language acquisition. May be repeated for credit as topics change.

**MODL 5308. TECHNOLOGY AND LANGUAGE INSTRUCTION. 3 Hours.**

Presentation and critique of research regarding the use of electronic media in language instruction; emphasis on computer and video, with attention to the application of research findings to the language classroom.

**MODL 5309. TRANSLATION THEORY. 3 Hours.**

Provides an introduction to basic concepts and offers a general conceptual framework for the study of translation theory. Students acquire the tools to identify, analyze and resolve translation problems while developing a rational approach to translation. (Following the completion of this course, students are encouraged to enroll in FREN 5309, GERM 5309 or SPAN 5309, Practicum in Translation.).

**MODL 5310. THEORIES OF LITERATURE AND CULTURE. 3 Hours.**

Readings, analyses, and applications of recent literary and cultural theories. Particular attention to how such theories may serve to focus or refocus literature as cultural production. Required for the M.A. in French, German, and Spanish.

**MODL 5391. CONFERENCE. 3 Hours.**

## Music (MUSI)

### COURSES

**MUSI 0101. MARCHING BAND. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0102. WIND SYMPHONY. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0103. SYMPHONIC WINDS. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0104. A CAPPELLA CHOIR. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0105. WOMEN'S CHORUS. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.



**MUSI 0106. CHAMBER SINGERS. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0108. UNIVERSITY SINGERS. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0109. KEYBOARD ENSEMBLE. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0110. WOODWIND ENSEMBLE. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0111. BRASS CHOIR. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0112. JAZZ ORCHESTRA. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0114. PERCUSSION ENSEMBLE. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0115. MUSICAL THEATRE / OPERA LAB. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director. By audition only.

**MUSI 0116. JAZZ ENSEMBLE. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0117. TROMBONE CHOIR. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0118. MARCHING PERCUSSION. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0119. TRUMPET ENSEMBLE. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0120. FRENCH HORN ENSEMBLE. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0121. COLOR GUARD. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0122. JAZZ COMBO. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0123. VOCAL JAZZ. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0124. FLUTE CHOIR. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0125. SAX CHOIR. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0126. STRING QUARTET. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0127. TUBA ENSEMBLE. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0128. ORCHESTRA. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0130. SYMPHONIC BAND. 1 Hour.**

The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 0171. ELECTIVE PERFORMANCE. 1 Hour.**

For students who desire elective private instruction in strings, woodwinds, brass, keyboard, voice, or percussion. May be repeated eight times for credit.

**MUSI 0174. SECONDARY KEYBOARD. 1 Hour.**

For music majors whose degree option requires secondary piano, organ, or harpsichord. A jury is required to receive credit. May be repeated for credit. Prerequisite: MUSI 2181 or faculty approval.

**MUSI 0175. SECONDARY VOICE. 1 Hour.**

For music majors whose degree option requires secondary voice. A jury is required to receive credit. May be repeated for credit.

**MUSI 1101. JAZZ LISTENING. 1 Hour.**

Develop intelligent listening habits with regard to standard small and large jazz ensemble repertoire. Students are exposed to influential recordings by performers such as Miles Davis, John Coltrane, Charlie Parker, etc. Open to all students; required of jazz studies majors. Topics change each semester.

**MUSI 1103. HIGH BRASS CLASS. 1 Hour. (TCCN = MUSI 1168)**

Open to music majors only. Emphasis on pedagogical techniques for teaching the trumpet and French horn. Lectures and playing opportunities will provide information concerning the teaching of embouchure, tonguing, tonal and technical development to beginning students.

**MUSI 1104. WOODWIND CLASS I. 1 Hour. (TCCN = MUSI 1166)**

Open to music majors only. Emphasis on pedagogical techniques for teaching the clarinet and flute. Lectures and playing opportunities will provide information concerning the teaching of embouchure, tonguing, tonal and technical development to beginning students.

**MUSI 1105. VOICE CLASS. 1 Hour. (TCCN = MUSI 1183)**

Open to music majors only. A practical study of the physiology of the voice with emphasis on vocal technique, sound production, the changing voice, and limited repertoire.

**MUSI 1106. LOW BRASS CLASS. 1 Hour. (TCCN = MUSI 2168)**

Open to music majors only. Emphasis on pedagogical techniques for teaching the trombone and euphonium/tuba. Lectures and playing opportunities will provide information concerning the teaching of embouchure, tonguing, tonal and technical development to beginning students.

**MUSI 1107. WOODWIND CLASS II. 1 Hour. (TCCN = MUSI 1167)**

Open to music majors only. Emphasis on pedagogical techniques for teaching the saxophone, oboe and bassoon. Lectures and playing opportunities will provide information concerning the teaching of embouchure, tonguing, tonal and technical development to beginning students.

**MUSI 1140. PRIVATE LESSONS IN VOICE-MUSICAL THEATRE. 1 Hour.**

This sequence of courses is required of students who are pursuing the BFA in Musical Theatre. These courses are open to music majors only with the written approval of the Music Department Chair and may not be used as substitute voice lessons for those students pursuing a Bachelor of Music degree. Prerequisite: Open to Musical Theatre majors only or by permission of the Music Department Chair.

**MUSI 1141. PRIVATE LESSONS IN VOICE-MUSICAL THEATRE. 1 Hour.**

This sequence of courses is required of students who are pursuing the BFA in Musical Theatre. These courses are open to music majors only with the written approval of the Music Department Chair and may not be used as substitute voice lessons for those students pursuing a Bachelor of Music degree. Prerequisite: MUSI 1140. Open to Musical Theatre majors only or by permission of the Music Department Chair.

**MUSI 1142. PRIVATE LESSONS IN PIANO. 1 Hour.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair.

**MUSI 1143. PRIVATE LESSONS IN PIANO. 1 Hour.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair. Prerequisite: MUSI 1142.

**MUSI 1154. PRIVATE LESSONS IN JAZZ PIANO. 1 Hour.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair.

**MUSI 1155. PRIVATE LESSONS IN JAZZ PIANO. 1 Hour.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair. Prerequisite: MUSI 1154.

**MUSI 1180. FUNCTIONAL PIANO I. 1 Hour. (TCCN = MUSI 1181)**

Required of and limited to music majors who are not piano majors or concentrates. The aim is to develop keyboard skills necessary to use the piano as a tool in teaching, composing, improvising, and performing.

**MUSI 1181. FUNCTIONAL PIANO II. 1 Hour. (TCCN = MUSI 1182)**

Required of and limited to music majors who are not piano majors or concentrates. The aim is to develop keyboard skills necessary to use the piano as a tool in teaching, composing, improvising, and performing. A continuation of MUSI 1180. Prerequisite: MUSI 1180.

**MUSI 1185. SIGHTSINGING AND EAR TRAINING I. 1 Hour. (TCCN = MUSI 1116)**

(MUSI 1116). Techniques of melodic and rhythmic sightsinging and procedures of dictation.

**MUSI 1186. SIGHTSINGING AND EAR TRAINING II. 1 Hour. (TCCN = MUSI 1117)**

A continuation of MUSI 1185 using more difficult materials. Prerequisite: MUSI 1185.

**MUSI 1240. PRIVATE LESSONS IN VOICE. 2 Hours.**

This sequence of courses is required of music majors whose concentration is voice. These courses are open to non-music majors only with written approval of the Music Department chair.

**MUSI 1241. PRIVATE LESSONS IN VOICE. 2 Hours.**

This sequence of courses is required of music majors whose concentration is voice. These courses are open to non-music majors only with written approval of the Music Department chair.

**MUSI 1242. PRIVATE LESSONS IN PIANO. 2 Hours.**

This sequence of courses is required of music majors whose concentration is piano. These courses are open to non-music majors only with the written approval of the Music Department chair.

**MUSI 1243. PRIVATE LESSONS IN PIANO. 2 Hours.**

This sequence of courses is required of music majors whose concentration is piano. These courses are open to non-music majors only with the written approval of the Music Department chair. Prerequisite: MUSI 1242.

**MUSI 1244. PRIVATE LESSONS IN STRINGS. 2 Hours.**

This sequence of courses meets the requirements of music majors whose concentration is strings. These courses are open to non-music majors only with written approval of the Music Department chair.

**MUSI 1245. PRIVATE LESSONS IN STRINGS. 2 Hours.**

This sequence of courses meets the requirements of music majors whose concentration is strings. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1244.

**MUSI 1246. PRIVATE LESSONS IN WOODWINDS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is woodwinds. These courses are open to non-music majors only with written approval of the Music Department chair.

**MUSI 1247. PRIVATE LESSONS IN WOODWINDS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is woodwinds. These courses are open to non-music majors only with written approval of the Music Department chair.

**MUSI 1248. PRIVATE LESSONS IN BRASS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is brass. These courses are open to non-music majors only with written approval of the Music Department chair.

**MUSI 1249. PRIVATE LESSONS IN BRASS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is brass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1248.

**MUSI 1250. PRIVATE LESSONS IN PERCUSSION. 2 Hours.**

This sequence of courses is required of music majors whose concentration is percussion. These courses are open to non-music majors only with written approval of the Music Department chair.

**MUSI 1251. PRIVATE LESSONS IN PERCUSSION. 2 Hours.**

This sequence of courses is required of music majors whose concentration is percussion. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1250.

**MUSI 1252. PRIVATE LESSONS IN JAZZ BASS. 2 Hours.**

This sequence of courses meets the requirements of jazz studies majors whose concentration is jazz bass. These courses are open to non-music majors only with written approval of the Music Department chair.

**MUSI 1253. PRIVATE LESSONS IN JAZZ BASS. 2 Hours.**

This sequence of courses meets the requirements of jazz studies majors whose concentration is jazz bass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1252.

**MUSI 1257. PRIVATE LESSONS IN ORGAN. 2 Hours.**

This sequence of courses is required of music majors whose concentration is organ. These courses are open to non-music majors only with written approval of the Music Department chair.

**MUSI 1258. PRIVATE LESSONS IN ORGAN. 2 Hours.**

This sequence of courses is required of music majors whose concentration is organ. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1257.

**MUSI 1267. PRIVATE LESSONS IN HARPSICHORD. 2 Hours.**

This sequence is required of music majors whose concentration is harpsichord. These courses are open to non-music majors only with written approval of the music department chair.

**MUSI 1268. PRIVATE LESSONS IN HARPSICHORD. 2 Hours.**

This sequence is required of music majors whose concentration is harpsichord. These courses are open to non-music majors only with written approval of the music department chair. Prerequisite: MUSI 1267.

**MUSI 1300. MUSIC APPRECIATION. 3 Hours. (TCCN = MUSI 1306)**

Open to all students as fine arts elective, designed to develop intelligent listening and enjoyment of music. Provides an opportunity to increase the student's cultural experience and vocabulary.

**MUSI 1301. ELEMENTS OF MUSIC. 3 Hours. (TCCN = MUSI 1301)**

Basic musical notation, harmony, and theory for non-music majors as a fine arts elective.

**MUSI 1302. JAZZ APPRECIATION. 3 Hours.**

The development of American jazz from its African and European roots to the present. Open to all students of the University as a fine arts elective.

**MUSI 1304. HISTORY OF ROCK MUSIC. 3 Hours.**

Open to all students as fine arts elective. Explores the history and evolution of rock music emphasizing musical style and social context, from rhythm and blues through the present.

**MUSI 1325. THEORY AND HARMONY I. 3 Hours. (TCCN = MUSI 1311)**

Scales, intervals, triads, and part writing with primary triads. Prerequisite: Open to music majors or faculty approval.

**MUSI 1326. THEORY AND HARMONY II. 3 Hours. (TCCN = MUSI 1312)**

Part writing including all diatonic triads, seventh chords, and traditional non-chord tones. Prerequisite: MUSI 1325.

**MUSI 2101. BRASS SURVEY. 1 Hour.**

Open to music majors in the All-level Instrumental Option (orchestra emphasis) and All-level Choral Option only. Emphasis on pedagogical techniques for teaching brass instruments. Lectures and playing opportunities will provide information concerning the teaching of embouchure, tonguing, tonal and technical development to beginning students.

**MUSI 2102. WOODWIND SURVEY. 1 Hour.**

Open to music majors in the All-level Instrumental Option (orchestra emphasis) and All-level Choral Option only. Emphasis on pedagogical techniques for teaching woodwind instruments. Lectures and playing opportunities will provide information concerning the teaching of embouchure, tonguing, tonal and technical development to beginning students.

**MUSI 2103. STRING CLASS. 1 Hour. (TCCN = MUSI 1190)**

Open to music majors only. A practical study of the string instruments of the orchestra with emphasis on bowing techniques, articulation, performance of scales, and limited repertoire.

**MUSI 2104. PERCUSSION CLASS. 1 Hour. (TCCN = MUSI 1188)**

(MUSI 1188). Open to music majors only. A practical study of the percussion instruments of the band and orchestra with emphasis on rudimental techniques and performance of limited repertoire.

**MUSI 2112. INTRODUCTION TO MUSIC PEDAGOGY. 1 Hour.**

Comprehensive survey of instrumental, choral and elementary music through lecture and research pertaining to professional responsibilities and career opportunities.

**MUSI 2140. PRIVATE LESSONS IN VOICE-MUSICAL THEATRE. 1 Hour.**

This sequence of courses is required of students who are pursuing the BFA in Musical Theatre. These courses are open to music majors only with the written approval of the Music Department Chair and may not be used as substitute voice lessons for those students pursuing a Bachelor of Music degree. Prerequisite: MUSI 1141. Open to Musical Theatre majors only or by permission of the Music Department Chair.

**MUSI 2141. PRIVATE LESSONS IN VOICE-MUSICAL THEATRE. 1 Hour.**

This sequence of courses is required of students who are pursuing the BFA in Musical Theatre. These courses are open to music majors only with the written approval of the Music Department Chair and may not be used as substitute voice lessons for those students pursuing a Bachelor of Music degree. Prerequisite: Music 2140. Open to Musical Theatre majors only or by permission of the Music Department Chair.

**MUSI 2142. PRIVATE LESSONS IN PIANO. 1 Hour.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair. Prerequisite: MUSI 1143.

**MUSI 2143. PRIVATE LESSONS IN PIANO. 1 Hour.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair. Prerequisite: MUSI 2142.

**MUSI 2154. PRIVATE LESSONS IN JAZZ PIANO. 1 Hour.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair. Prerequisite: MUSI 1155.

**MUSI 2155. PRIVATE LESSONS IN JAZZ PIANO. 1 Hour.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair. Prerequisite: MUSI 2154.

**MUSI 2180. FUNCTIONAL PIANO III. 1 Hour. (TCCN = MUSI 2181)**

Required of and limited to music majors who are not piano majors or concentrates. The aim is to develop keyboard skills necessary to use the piano as a tool in teaching, composing, improvising, and performing. A continuation of MUSI 1181. Prerequisite: MUSI 1181.

**MUSI 2181. FUNCTIONAL PIANO IV. 1 Hour. (TCCN = MUSI 2182)**

Required of and limited to music majors who are not piano majors or concentrates. The aim is to develop keyboard skills necessary to use the piano as a tool in teaching, composing, improvising, and performing. A continuation of MUSI 2180. Prerequisite: MUSI 2180.

**MUSI 2185. SIGHTSINGING AND EAR TRAINING III. 1 Hour. (TCCN = MUSI 2116)**

A continuation of MUSI 1186 using moderately complex melodies and rhythms in more than one part. Prerequisite: MUSI 1186.

**MUSI 2186. SIGHTSINGING AND EAR TRAINING IV. 1 Hour. (TCCN = MUSI 2117)**

A continuation of MUSI 2185 using complex melodies and dictation in four parts. Prerequisite: MUSI 2185.

**MUSI 2222. DEVELOPMENTAL PRIVATE LESSONS. 2 Hours.**

Continued work in technique and repertoire to meet the requirements of the sophomore barrier.

**MUSI 2227. COMPOSITION TECHNIQUES. 2 Hours.**

An introduction to contemporary music designed to acquaint students with composition styles and techniques through written assignments. Required for music majors with emphasis in Composition, Theory, and Music/Media. Prerequisite: C or better in MUSI 2325.

**MUSI 2240. PRIVATE LESSONS IN VOICE. 2 Hours.**

This sequence of courses is required of music majors whose concentration is voice. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1241.

**MUSI 2241. PRIVATE LESSONS IN VOICE. 2 Hours.**

This sequence of courses is required of music majors whose concentration is voice. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2240.

**MUSI 2242. PRIVATE LESSONS IN PIANO. 2 Hours.**

This sequence of courses is required of music majors whose concentration is piano. These courses are open to non-music majors only with the written approval of the Music Department chair. Prerequisite: MUSI 1243.

**MUSI 2243. PRIVATE LESSONS IN PIANO. 2 Hours.**

This sequence of courses is required of music majors whose concentration is piano. These courses are open to non-music majors only with the written approval of the Music Department chair. Prerequisite: MUSI 2242.

**MUSI 2244. PRIVATE LESSONS IN STRINGS. 2 Hours.**

This sequence of courses meets the requirements of music majors whose concentration is strings. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1245.

**MUSI 2245. PRIVATE LESSONS IN STRINGS. 2 Hours.**

This sequence of courses meets the requirements of music majors whose concentration is strings. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2244.

**MUSI 2246. PRIVATE LESSONS IN WOODWINDS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is woodwinds. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1247.

**MUSI 2247. PRIVATE LESSONS IN WOODWINDS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is woodwinds. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2246.

**MUSI 2248. PRIVATE LESSONS IN BRASS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is brass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1249.

**MUSI 2249. PRIVATE LESSONS IN BRASS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is brass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2248.

**MUSI 2250. PRIVATE LESSONS IN PERCUSSION. 2 Hours.**

This sequence of courses is required of music majors whose concentration is percussion. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1251.

**MUSI 2251. PRIVATE LESSONS IN PERCUSSION. 2 Hours.**

This sequence of courses is required of music majors whose concentration is percussion. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2250.

**MUSI 2252. PRIVATE LESSONS IN JAZZ BASS. 2 Hours.**

This sequence of courses meets the requirements of jazz studies majors whose concentration is jazz bass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 1253.

**MUSI 2253. PRIVATE LESSONS IN JAZZ BASS. 2 Hours.**

This sequence of courses meets the requirements of jazz studies majors whose concentration is jazz bass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2252.

**MUSI 2257. PRIVATE LESSONS IN ORGAN. 2 Hours.**

This sequence of courses is required of music majors whose concentration is organ. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2252.

**MUSI 2258. PRIVATE LESSONS IN ORGAN. 2 Hours.**

This sequence of courses is required of music majors whose concentration is organ. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2257.

**MUSI 2267. PRIVATE LESSONS IN HARPSICHORD. 2 Hours.**

This sequence is required of music majors whose concentration is harpsichord. These courses are open to non-music majors only with written approval of the music department chair. Prerequisite: MUSI 1268.

**MUSI 2268. PRIVATE LESSONS IN HARPSICHORD. 2 Hours.**

This sequence is required of music majors whose concentration is harpsichord. These courses are open to non-music majors only with written approval of the music department chair. Prerequisite: MUSI 2267.

**MUSI 2300. MUSICAL TRADITIONS OF THE WORLD. 3 Hours.**

The music of Asia, Africa, and Oceania and the native traditions of the Americas; the role of music in the world's societies and non-Western music systems. Open to all students as a fine arts or liberal arts elective.

**MUSI 2301. MUSIC IN FILM. 3 Hours.**

A study of the history, compositional styles and impact of music in films during the 20th century. Open to all students as a fine arts or liberal arts elective.

**MUSI 2302. MUSIC LITERATURE. 3 Hours. (TCCN = MUSI 1308)**

An introduction to music literature of various style periods with an emphasis on reading orchestral scores.

**MUSI 2325. THEORY AND HARMONY III. 3 Hours. (TCCN = MUSI 2311)**

Modulation, chromatic part writing, and harmonic analysis. Prerequisite: MUSI 1326.

**MUSI 2326. THEORY AND HARMONY IV. 3 Hours. (TCCN = MUSI 2312)**

Harmonic, linear, and formal analysis of 19th- and 20th-century compositional techniques. Prerequisite: MUSI 2325.

**MUSI 3101. ITALIAN AND FRENCH DICTION. 1 Hour.**

A guide to correct pronunciation of Italian and French in vocal music.

**MUSI 3103. VOCAL PEDAGOGY. 1 Hour.**

A basic survey of the science of voice culture and the skills and knowledge needed to teach healthy, effective vocal production in school and/or private studio. Prerequisite: MUSI 2241.

**MUSI 3104. VOCAL COACHING. 1 Hour.**

Advanced instruction in diction, interpretation, and style for singers and collaborative instrumentalists. This course is designed as a supplement to applied lessons for advanced students. Permission of instructor required.

**MUSI 3125. JAZZ THEORY. 1 Hour.**

Basic musical concepts relating to the jazz idiom such as scales, harmonies, styles, etc. Prerequisite: MUSI 1325 or faculty approval.

**MUSI 3127. COMPUTER COMPOSITION I. 1 Hour.**

Course designed to meet the needs of students desiring to become composers or teachers of composition. Prerequisite: MUSI 1326 and MUSI 3394.

**MUSI 3128. COMPUTER COMPOSITION II. 1 Hour.**

Course designed to meet the needs of students desiring to become composers or teachers of composition. Prerequisite: MUSI 3127.

**MUSI 3140. PRIVATE LESSONS IN VOICE-MUSICAL THEATRE. 1 Hour.**

This sequence of courses is required of students who are pursuing the BFA in Musical Theatre. These courses are open to music majors only with the written approval of the Music Department Chair and may not be used as substitute voice lessons for those students pursuing a Bachelor of Music degree. Prerequisite: MUSI 2141. Open to Musical Theatre majors only or by permission of the Music Department Chair.

**MUSI 3141. PRIVATE LESSONS IN VOICE-MUSICAL THEATRE. 1 Hour.**

This sequence of courses is required of students who are pursuing the BFA in Musical Theatre. These courses are open to music majors only with the written approval of the Music Department Chair and may not be used as substitute voice lessons for those students pursuing a Bachelor of Music degree. Prerequisite: MUSI 3140. Open to Musical Theatre majors only or by permission of the Music Department Chair.

**MUSI 3180. FUNCTIONAL JAZZ PIANO. 1 Hour.**

Develops basic jazz piano techniques necessary to use the keyboard as a tool in jazz education, composition, and improvisation. Required of all jazz studies majors. Offered fall odd years only. Prerequisite: C or better in MUSI 2181.

**MUSI 3191. SECONDARY LESSONS IN STRINGS. 1 Hour.**

Open only to music majors in the All-Level Instrumental (Orchestra Emphasis) Program. Applied instruction in the fundamentals and techniques specific to string instruments. Taken twice; may not repeat study in any one instrument.

**MUSI 3200. MARCHING BAND TECHNIQUES. 2 Hours.**

Open to music majors only. A detailed study of the theory and history of marching band presentations.

**MUSI 3211. EARLY CHILDHOOD MUSIC. 2 Hours.**

Musical characteristics of children, folksong and composed literature, performance activities, song analysis, and techniques for reading and writing music. Open to music majors only. Prerequisite: MUSI 2186, MUSI 2326, C or better in MUSI 2112, and completion of the Music Education Barrier.

**MUSI 3212. JAZZ TECHNIQUES. 2 Hours.**

A study of jazz techniques as they apply to solo and ensemble performance.

**MUSI 3213. INSTRUMENTAL MATERIALS AND TECHNIQUES I. 2 Hours.**

A study of literature, music selection, rehearsal planning, sound production, and performance practices for beginning and intermediate instrumental ensembles. Prerequisite: MUSI 2186, MUSI 2326, C or better in MUSI 2112, MUSI 4308, and completion of the Music Education Barrier.

**MUSI 3214. CHORAL MATERIALS AND TECHNIQUES I. 2 Hours.**

A study of literature, music selection, rehearsal planning, vocal production, and performance practices for beginning and intermediate choral ensembles. Offered every fall odd year. Prerequisite: MUSI 2186, MUSI 2326, C or better in MUSI 2112, and completion of the Music Education Barrier.

**MUSI 3225. JAZZ IMPROVISATION I. 2 Hours.**

The melodic and harmonic foundations of contemporary jazz solo performance. Prerequisite: MUSI 3125 or faculty approval.

**MUSI 3226. JAZZ IMPROVISATION II. 2 Hours.**

A continuation of Jazz Improvisation I. This course explores advanced techniques of contemporary jazz solo performance. Prerequisite: MUSI 3225.

**MUSI 3239. APPLIED INSTRUCTION ON A SECONDARY INSTRUMENT. 2 Hours.**

Open to music majors only. Applied instruction that covers the fundamentals and techniques specific to a secondary instrument.

**MUSI 3240. PRIVATE LESSONS IN VOICE. 2 Hours.**

This sequence of courses is required of music majors whose concentration is voice. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2241.

**MUSI 3241. PRIVATE LESSONS IN VOICE. 2 Hours.**

This sequence of courses is required of music majors whose concentration is voice. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 3240.

**MUSI 3242. PRIVATE LESSONS IN PIANO. 2 Hours.**

This sequence of courses is required of music majors whose concentration is piano. These courses are open to non-music majors only with the written approval of the Music Department chair. Prerequisite: MUSI 2243.

**MUSI 3243. PRIVATE LESSONS IN PIANO. 2 Hours.**

This sequence of courses is required of music majors whose concentration is piano. These courses are open to non-music majors only with the written approval of the Music Department chair. Prerequisite: MUSI 3242.

**MUSI 3244. PRIVATE LESSONS IN STRINGS. 2 Hours.**

This sequence of courses meets the requirements of music majors whose concentration is strings. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2245.

**MUSI 3245. PRIVATE LESSONS IN STRINGS. 2 Hours.**

This sequence of courses meets the requirements of music majors whose concentration is strings. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 3244.

**MUSI 3246. PRIVATE LESSONS IN WOODWINDS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is woodwinds. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2247.

**MUSI 3247. PRIVATE LESSONS IN WOODWINDS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is woodwinds. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 3246.

**MUSI 3248. PRIVATE LESSONS IN BRASS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is brass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2249.

**MUSI 3249. PRIVATE LESSONS IN BRASS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is brass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 3248.

**MUSI 3250. PRIVATE LESSONS IN PERCUSSION. 2 Hours.**

This sequence of courses is required of music majors whose concentration is percussion. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2251.

**MUSI 3251. PRIVATE LESSONS IN PERCUSSION. 2 Hours.**

This sequence of courses is required of music majors whose concentration is percussion. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 3250.

**MUSI 3252. PRIVATE LESSONS IN JAZZ BASS. 2 Hours.**

This sequence of courses meets the requirements of jazz studies majors whose concentration is jazz bass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2253.

**MUSI 3253. PRIVATE LESSONS IN JAZZ BASS. 2 Hours.**

This sequence of courses meets the requirements of jazz studies majors whose concentration is jazz bass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 3252.

**MUSI 3254. PRIVATE LESSONS IN JAZZ PIANO. 2 Hours.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair. Prerequisite: MUSI 2143 and MUSI 2155.

**MUSI 3255. PRIVATE LESSONS IN JAZZ PIANO. 2 Hours.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair. Prerequisite: MUSI 3254.

**MUSI 3257. PRIVATE LESSONS IN ORGAN. 2 Hours.**

This sequence of courses is required of music majors whose concentration is organ. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 2258.

**MUSI 3258. PRIVATE LESSONS IN ORGAN. 2 Hours.**

This sequence of courses is required of music majors whose concentration is organ. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 3257.

**MUSI 3267. PRIVATE LESSONS IN HARPSICHORD. 2 Hours.**

This sequence is required of music majors whose concentration is harpsichord. These courses are open to non-music majors only with written approval of the music department chair. Prerequisite: MUSI 2268.

**MUSI 3268. PRIVATE LESSONS IN HARPSICHORD. 2 Hours.**

This sequence is required of music majors whose concentration is harpsichord. These courses are open to non-music majors only with written approval of the music department chair. Prerequisite: MUSI 3267.

**MUSI 3294. APPLIED PEDAGOGY. 2 Hours.**

A study of teaching techniques as they apply to studio or class instruction in applied music. Specific areas of study will change from semester to semester. May be repeated for credit. Prerequisite: Faculty approval.

**MUSI 3295. PIANO PEDAGOGY. 2 Hours.**

Open to music majors only. Teaching methods of beginning level private and class instruction. Prerequisite: Faculty approval.

**MUSI 3300. MUSIC HISTORY I. 3 Hours.**

The music of western civilization from ancient times to 1750. Prerequisite: MUSI 2326 or faculty approval.

**MUSI 3301. MUSIC HISTORY II. 3 Hours.**

The music of western civilization from 1750 to the present. Prerequisite: MUSI 2326 or faculty approval.

**MUSI 3302. FORM AND ANALYSIS. 3 Hours.**

Structure and analysis of the major forms of music literature. Prerequisite: MUSI 2326 and a passing grade on the Music Theory Barrier.

**MUSI 3303. COUNTERPOINT. 3 Hours.**

Overview of modal counterpoint; detailed study of harmonic counterpoint including canon, invention, and fugue. Prerequisite: MUSI 2326 and a passing grade on the Music Theory Barrier.

**MUSI 3305. MUSIC FOR CHILDREN. 3 Hours.**

A study of musical activities and the role of music in childhood. Includes music fundamentals, folk song literature, and musical characteristics of children. Cannot be counted toward a Bachelor of Music Degree.



**MUSI 3308. INSTRUMENTAL CONDUCTING I. 3 Hours.**

Open to music majors only. A practical study of basic instrumental conducting and score reading techniques. Prerequisites: MUSI 2186, MUSI 2326 and successful completion of the sophomore barrier.

**MUSI 3309. CHORAL CONDUCTING I. 3 Hours.**

Open to music majors only. A practical study of the technical and expressive skills required of choral conductors, as well as the development of score study techniques and error detection skills necessary to successfully conduct choral ensembles. Offered every fall even year. Prerequisites: MUSI 2186, MUSI 2326 and successful completion of the sophomore barrier.

**MUSI 3317. SINGING FOR THE ACTOR. 3 Hours.**

An applied study of the vocal apparatus, vocal placement, the voice/body relationship, character, working with text, phrasing, and auditioning as they relate to singing in musical theatre for the Broadway or West End theatre. Emphasis is placed on integrating singing and acting skills. Prerequisites: THEA 1307, THEA 2352 and permission of faculty. Same as offering THEA 3317; may not be repeated and credit will only be granted in one department.

**MUSI 3326. POST-TONAL ANALYSIS. 3 Hours.**

Study of pitch, harmony, rhythm, & form in music from Debussy to the present. Prerequisite: MUSI 2326, passing grade on the theory barrier exam.

**MUSI 3350. PRIVATE LESSONS IN VOICE. 3 Hours.**

Courses meet the requirements of performance majors in voice. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3351. Prerequisite: MUSI 2241.

**MUSI 3351. PRIVATE LESSONS IN VOICE. 3 Hours.**

Courses meet the requirements of performance majors in voice. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3351. Prerequisite: MUSI 3350.

**MUSI 3352. PRIVATE LESSONS IN PIANO. 3 Hours.**

Courses meet the requirements of performance majors in piano. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3353. Prerequisite: MUSI 2243.

**MUSI 3353. PRIVATE LESSONS IN PIANO. 3 Hours.**

Courses meet the requirements of performance majors in piano. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3353. Prerequisite: MUSI 3352.

**MUSI 3354. PRIVATE LESSONS IN STRINGS. 3 Hours.**

These courses meet the requirements of performance majors in strings. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3355. Prerequisite: MUSI 2245.

**MUSI 3355. PRIVATE LESSONS IN STRINGS. 3 Hours.**

These courses meet the requirements of performance majors in strings. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3355. Prerequisite: MUSI 3354.

**MUSI 3356. PRIVATE LESSONS IN WOODWINDS. 3 Hours.**

These courses meet the requirements of performance majors in woodwinds. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3357. Prerequisite: MUSI 2247.

**MUSI 3357. PRIVATE LESSONS IN WOODWINDS. 3 Hours.**

These courses meet the requirements of performance majors in woodwinds. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3357. Prerequisite: MUSI 3356.

**MUSI 3358. PRIVATE LESSONS IN BRASS. 3 Hours.**

These courses meet the requirements of performance majors in brass. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3359. Prerequisite: MUSI 2249.

**MUSI 3359. PRIVATE LESSONS IN BRASS. 3 Hours.**

These courses meet the requirements of performance majors in brass. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3359. Prerequisite: MUSI 3358.

**MUSI 3360. PRIVATE LESSONS IN PERCUSSION. 3 Hours.**

These courses meet the requirements of performance majors in percussion. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3361. Prerequisite: MUSI 2251.

**MUSI 3361. PRIVATE LESSONS IN PERCUSSION. 3 Hours.**

These courses meet the requirements of performance majors in percussion. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3361. Prerequisite: MUSI 3360.

**MUSI 3367. PRIVATE LESSONS IN ORGAN. 3 Hours.**

These courses meet the requirements of performance majors in organ. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3368. Prerequisite: MUSI 2258.

**MUSI 3368. PRIVATE LESSONS IN ORGAN. 3 Hours.**

These courses meet the requirements of performance majors in organ. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3368. Prerequisite: MUSI 3367.

**MUSI 3377. PRIVATE LESSONS IN HARPSICHORD. 3 Hours.**

These courses meet the requirements of performance majors in harpsichord. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3378. Prerequisite: MUSI 2268.

**MUSI 3378. PRIVATE LESSONS IN HARPSICHORD. 3 Hours.**

These courses meet the requirements of performance majors in harpsichord. Performance of a junior (half) recital is the minimum requirement for completion of MUSI 3378. Prerequisite: MUSI 3377.

**MUSI 3390. SCHENKERIAN ANALYSIS. 3 Hours.**

An introduction to the methods of Schenkerian analysis and harmonic reduction. Seminar designed to meet the needs of students desiring to become theorists or teachers of theory. Prerequisite: Theory majors (grades of B or better in MUSI 2186, MUSI 2325, and MUSI 2326, and a passing grade on the Music Theory barrier exam); all other degree options (grades of C or better in MUSI 2186, MUSI 2326, and a passing grade on the Music Theory barrier exam).

**MUSI 3391. ADVANCED SONATA THEORY. 3 Hours.**

An in-depth examination of sonata form drawing on the concepts of Caplin's formal functions and Hepokoski and Darcy's sonata theory, including intensive writing and analysis assignments. Seminar designed to meet the needs of students desiring to become theorists or teachers of theory. Prerequisite: Grade of C or better MUSI 3390.

**MUSI 3392. COMPOSITION I. 3 Hours.**

Individual instruction designed to meet the needs of students desiring to become composers or teachers of composition. Prerequisite: B or better in MUSI 2227, MUSI 2325, MUSI 2326, and MUSI 2186 and a passing grade on the Music Theory barrier exam.

**MUSI 3393. COMPOSITION II. 3 Hours.**

Individual instruction designed to meet the needs of students desiring to become composers or teachers of composition. A continuation of MUSI 3392. Prerequisite: MUSI 3392.

**MUSI 3394. DIGITAL MUSIC TECHNOLOGY. 3 Hours.**

An introduction to the computer and to its use in the field of music. Topics include basic computer operation, information-management software, computer-assisted instruction in music, and music notation and sequencing software, MIDI (Musical Instrument Digital Interface).

**MUSI 3395. JAZZ COMPOSITION. 3 Hours.**

An introduction to jazz composition, focusing on no more than four distinct melodic voices plus rhythm section. Functional and non-functional harmonic and melodic techniques are explored. Prerequisite: MUSI 3226 or permission of instructor and successful completion of the jazz barrier exam.

**MUSI 4101. GERMAN AND ENGLISH DICTION. 1 Hour.**

A guide to correct pronunciation of German and English in vocal music.

**MUSI 4102. VOCAL LITERATURE. 1 Hour.**

Survey of major solo vocal works from the Classical Era to the present. Prerequisite: MUSI 2241 or permission of instructor.

**MUSI 4111. ORCHESTRAL EXCERPTS. 1 Hour.**

Study of orchestral excerpts for individual instruments. Topics will vary by semester. May be repeated for credit. Permission of instructor required.

**MUSI 4128. ADVANCED AUDIO RECORDING. 1 Hour.**

Further study and practical studio work for students who have successfully completed the required recording techniques sequence utilizing Studio 301 in an independent study format. Prerequisite: MUSI 4326.

**MUSI 4140. PRIVATE LESSONS IN VOICE-MUSICAL THEATRE. 1 Hour.**

This sequence of courses is required of students who are pursuing the BFA in Musical Theatre. These courses are open to music majors only with the written approval of the Music Department Chair and may not be used as substitute voice lessons for those students pursuing a Bachelor of Music degree. Prerequisite: MUSI 3141. Open to Musical Theatre majors only or by permission of the Music Department Chair.

**MUSI 4191. CONFERENCE COURSE. 1 Hour.**

Special problems in music. Topic may change from semester to semester. May be repeated for credit. Prerequisite: Consent of the instructor or chair of the department.

**MUSI 4205. ADVANCED FUNCTIONAL PIANO. 2 Hours.**

Concentrated study of keyboard skills which include: sightreading, transposition, harmonization, and open score reading. Prerequisite: MUSI 2181 or faculty approval.

**MUSI 4211. ELEMENTARY MUSIC. 2 Hours.**

Focus on perception as it relates to children's development and participation in music through singing and playing instruments. Prerequisite: MUSI 3211.

**MUSI 4213. INSTRUMENTAL MATERIALS AND TECHNIQUES II. 2 Hours.**

A study of literature, music selection, rehearsal planning, sound production, and performance practices for intermediate and advanced instrumental ensembles. Prerequisite: MUSI 3213 or faculty approval.

**MUSI 4214. CHORAL MATERIALS AND TECHNIQUES II. 2 Hours.**

A study of literature, music selection, rehearsal planning, vocal production, and performance practices for intermediate and advanced choral ensembles. Offered every Spring even year. Prerequisite: MUSI 3214 or faculty approval.

**MUSI 4216. STRATEGIES AND ASSESSMENT IN MUSIC PEDAGOGY. 2 Hours.**

Open to music education majors only. Current trends in music education will be examined. Topics include behavior management, learning styles, students with special needs, exceptional students, and examination of major learning theories and principles of cognitive, social, emotional, physical and aesthetic development. This course will also examine a variety of assessment techniques that are used in a music classroom. Assessment tools such as rubrics, rating scales, National Standards, TEKS, TAKS, and TEXES will be examined and implemented into lesson planning. Prerequisite: C or better in MUSI 2112 and admission into the College of Education.

**MUSI 4217. MUSIC PEDAGOGY FIELD-BASED EXPERIENCE. 2 Hours.**

Supervised and directed professional practice in local schools. The student will be assigned to a public school site for five hours per week. Weekly seminars are required. Field-based experience must be taken the semester immediately preceding student teaching residency.

**MUSI 4225. ADVANCED JAZZ IMPROVISATION. 2 Hours.**

A continuation of Jazz Improvisation II. This course explores advanced techniques of contemporary jazz solo performance. Prerequisite: MUSI 3226 and successful completion of the jazz barrier exam.

**MUSI 4240. PRIVATE LESSONS IN VOICE. 2 Hours.**

This sequence of courses is required of music majors whose concentration is voice. These courses are open to non-music majors only with written approval of the Music Department chair. Performance of a senior (half) recital is required for completion of this course for all students in the concentration Bachelor of Music in Preparation for Teacher Certification. Prerequisite: MUSI 3241.

**MUSI 4241. PRIVATE LESSONS IN VOICE. 2 Hours.**

This sequence of courses is required of music majors whose concentration is voice. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 4240.

**MUSI 4242. PRIVATE LESSONS IN PIANO. 2 Hours.**

This sequence of courses is required of music majors whose concentration is piano. These courses are open to non-music majors only with the written approval of the Music Department chair. Performance of a senior (half) recital is required for completion of this course for all students in the concentration Bachelor of Music in Preparation for Teacher Certification. Prerequisite: MUSI 3243.

**MUSI 4243. PRIVATE LESSONS IN PIANO. 2 Hours.**

This sequence of courses is required of music majors whose concentration is piano. These courses are open to non-music majors only with the written approval of the Music Department chair. Prerequisite: MUSI 4242.

**MUSI 4244. PRIVATE LESSONS IN STRINGS. 2 Hours.**

This sequence of courses meets the requirements of music majors whose concentration is strings. These courses are open to non-music majors only with written approval of the Music Department chair. Performance of a senior (half) recital is required for completion of this course for all students in the concentration Bachelor of Music in Preparation for Teacher Certification. Prerequisite: MUSI 3245.

**MUSI 4245. PRIVATE LESSONS IN STRINGS. 2 Hours.**

This sequence of courses meets the requirements of music majors whose concentration is strings. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 4244.

**MUSI 4246. PRIVATE LESSONS IN WOODWINDS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is woodwinds. These courses are open to non-music majors only with written approval of the Music Department chair. Performance of a senior (half) recital is required for completion of this course for all students in the concentration Bachelor of Music in Preparation for Teacher Certification. Prerequisite: MUSI 3247.

**MUSI 4247. PRIVATE LESSONS IN WOODWINDS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is woodwinds. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 4246.

**MUSI 4248. PRIVATE LESSONS IN BRASS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is brass. These courses are open to non-music majors only with written approval of the Music Department chair. Performance of a senior (half) recital is required for completion of this course for all students in the concentration Bachelor of Music in Preparation for Teacher Certification. Prerequisite: MUSI 3249.

**MUSI 4249. PRIVATE LESSONS IN BRASS. 2 Hours.**

This sequence of courses is required of music majors whose concentration is brass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 4248.

**MUSI 4250. PRIVATE LESSONS IN PERCUSSION. 2 Hours.**

This sequence of courses is required of music majors whose concentration is percussion. These courses are open to non-music majors only with written approval of the Music Department chair. Performance of a senior (half) recital is required for completion of this course for all students in the concentration Bachelor of Music in Preparation for Teacher Certification. Prerequisite: MUSI 3251.

**MUSI 4251. PRIVATE LESSONS IN PERCUSSION. 2 Hours.**

This sequence of courses is required of music majors whose concentration is percussion. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 4250.

**MUSI 4252. PRIVATE LESSONS IN JAZZ BASS. 2 Hours.**

This sequence of courses meets the requirements of jazz studies majors whose concentration is jazz bass. These courses are open to non-music majors only with written approval of the Music Department chair. Performance of a senior (half) recital is required for completion of this course for all students in the concentration Bachelor of Music in Preparation for Teacher Certification. Prerequisite: MUSI 3253.

**MUSI 4253. PRIVATE LESSONS IN JAZZ BASS. 2 Hours.**

This sequence of courses meets the requirements of jazz studies majors whose concentration is jazz bass. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 4252.

**MUSI 4254. PRIVATE LESSONS IN JAZZ PIANO. 2 Hours.**

This sequence of courses is required of and limited to music majors with jazz option for whom the principal instrument is piano. These courses are open to non-music majors only with written permission of the Music Department Chair. Prerequisite: MUSI 3255.

**MUSI 4257. PRIVATE LESSONS IN ORGAN. 2 Hours.**

This sequence of courses is required of music majors whose concentration is organ. These courses are open to non-music majors only with written approval of the Music Department chair. Performance of a senior (half) recital is required for completion of this course for all students in the concentration Bachelor of Music in Preparation for Teacher Certification. Prerequisite: MUSI 3258.

**MUSI 4258. PRIVATE LESSONS IN ORGAN. 2 Hours.**

This sequence of courses is required of music majors whose concentration is organ. These courses are open to non-music majors only with written approval of the Music Department chair. Prerequisite: MUSI 4257.

**MUSI 4267. PRIVATE LESSONS IN HARPSICHORD. 2 Hours.**

This sequence is required of music majors whose concentration is harpsichord. These courses are open to non-music majors only with written approval of the music department chair. Performance of a senior (half) recital is required for completion of this course for all students in the concentration Bachelor of Music in Preparation for Teacher Certification. Prerequisite: MUSI 3268.

**MUSI 4268. PRIVATE LESSONS IN HARPSICHORD. 2 Hours.**

This sequence is required of music majors whose concentration is harpsichord. These courses are open to non-music majors only with written approval of the music department chair. Prerequisite: MUSI 4267.

**MUSI 4280. SPECIAL TOPICS IN MUSIC. 2 Hours.**

Special studies in music. Topics will vary from semester to semester. May be repeated for credit when topics vary.

**MUSI 4291. CONFERENCE COURSE. 2 Hours.**

Special problems in music. Topic may change from semester to semester. May be repeated for credit. Prerequisite: Consent of the instructor or chair of the department.

**MUSI 4300. JAZZ PERSPECTIVES. 3 Hours.**

Open to music majors only. An in-depth study of the history, literature, and styles of the jazz idiom. Prerequisite: Successful completion of the jazz barrier exam.

**MUSI 4301. ORCHESTRATION. 3 Hours.**

Scoring for strings, woodwinds, brass, percussion, and voice as related to orchestra, band, and choir. Prerequisite: MUSI 2186, MUSI 2326 and a passing grade on the Music Theory Barrier.

**MUSI 4302. JAZZ ARRANGING. 3 Hours.**

Arranging in the jazz and commercial idioms with emphasis on the large jazz ensemble. Prerequisite: MUSI 3125 and MUSI 3225 or consent of the instructor and successful completion of the jazz barrier exam.

**MUSI 4303. ADVANCED STRING CLASS. 3 Hours.**

Open to music majors only. An advanced study of orchestral string instruments with emphasis on advanced technique and pedagogy. Prerequisite: MUSI 3191.

**MUSI 4308. INSTRUMENTAL CONDUCTING II. 3 Hours.**

Open to music majors only. A study of advanced conducting techniques, including score reading, rehearsal techniques, ensemble concepts, articulations and musical style. Prerequisite: MUSI 3308.

**MUSI 4309. CHORAL CONDUCTING II. 3 Hours.**

Open to music majors only. Application of the technical and expressive aspects of choral conducting, score study techniques, error detection skills, and rehearsal planning and implementation techniques in a laboratory-conducting situation. Offered every spring odd year. Prerequisite: MUSI 3309.

**MUSI 4323. BUSINESS OF MUSIC. 3 Hours.**

A study of the structure of the music business and relationships among occupations in the industry. Topics include publishing, copyright licensing, artist management, the record industry, music in film and broadcasting, and career development and planning.

**MUSI 4324. HISTORY OF MUSICAL THEATRE. 3 Hours.**

A historical survey of American theatre music from the colonial period to the present. Open to all students as a fine arts elective.

**MUSI 4325. RECORDING TECHNIQUES II. 3 Hours.**

Students will continue to learn recording engineering through audio analysis, recording practice, and audio theory. Signal processing, analog tape techniques, mastering, and studio business will be discussed. Students will work independently on jazz and pop/rock recording projects in Studio 301. Prerequisite: MUSI 4390.

**MUSI 4326. RECORDING TECHNIQUES III. 3 Hours.**

This course builds upon the previous two courses by introducing students to more advanced aspects of audio engineering, such as combining MIDI and audio, syncing audio to video, advanced aural skills, and mixing automation. Students will be able to utilize Studio 301 and Irons Hall in order to pursue their recording work in a more independent fashion. Prerequisite: MUSI 4325 (Recording Techniques II).

**MUSI 4327. TECHNIQUES AND TECHNOLOGY IN FILM COMPOSITION. 3 Hours.**

Study in the technical and artistic requirements of film composition and the realization of film scores. Prerequisite: MUSI 2227 and MUSI 3392.

**MUSI 4350. 20TH CENTURY FORM & TECHNIQUE. 3 Hours.**

Introduction to twentieth-century form and techniques, as well as relevant analytical methods and compositional strategies. Seminar designed to meet the needs of students desiring to become theorists or teacher of theory. This course formerly MUSI 4490. Prerequisite: Grade of C or better in MUSI 3391.

**MUSI 4351. MUSIC THEORY CAPSTONE/SEMINAR. 3 Hours.**

Seminar designed to meet the needs of students desiring to become theorists or teachers of theory; includes preparation and presentation of a senior research project in music theory in a conference setting. This course formerly MUSI 4491. Prerequisite: Grade of C or better in MUSI 4390 (formerly MUSI 4490).

**MUSI 4390. RECORDING TECHNIQUES I. 3 Hours.**

Live performance and studio recording techniques. Topics include microphone selection and placement, equalization techniques, overdubbing, console-mixing, sound synchronization, and related recording techniques. Prerequisite: MUSI 3394.

**MUSI 4391. CONFERENCE COURSE. 3 Hours.**

Special problems in music. Topic may change from semester to semester. May be repeated for credit. Prerequisite: Consent of the instructor or chair of the department.

**MUSI 4392. JAZZ STUDIES SENIOR RECITAL/PROJECT. 3 Hours.**

Senior recital or project for jazz studies majors. Designed in consultation with the Director of Jazz Studies. Prerequisites: completion of performance lesson requirements; consent of instructor or music department chair.

**MUSI 4393. CAPSTONE IN MUSIC THEORY. 3 Hours.**

Senior project in music theory, culminating in a professional presentation on a selected topic in music theory. Prerequisite: MUSI 4490.

**MUSI 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department.

**MUSI 4395. INTERNSHIP. 3 Hours.**

The Internship course is designed to give students practical experience in a variety of music media and music business settings. The student must work with a local business for at least ten hours per week (140 hours total).

**MUSI 4450. PRIVATE LESSONS IN VOICE. 4 Hours.**

These courses meet the requirements of performance majors in voice. Performance of a senior (full) recital is required for completion of MUSI 4451. Prerequisite: MUSI 3351.

**MUSI 4451. PRIVATE LESSONS IN VOICE. 4 Hours.**

These courses meet the requirements of performance majors in voice. Performance of a senior (full) recital is required for completion of MUSI 4451. Prerequisite: MUSI 4450.

**MUSI 4452. PRIVATE LESSONS IN PIANO. 4 Hours.**

These courses meet the requirements of performance majors in piano. Performance of a senior (full) recital is required for completion of MUSI 4453. Prerequisite: MUSI 3353.

**MUSI 4453. PRIVATE LESSONS IN PIANO. 4 Hours.**

These courses meet the requirements of performance majors in piano. Performance of a senior (full) recital is required for completion of MUSI 4453. Prerequisite: MUSI 4452.

**MUSI 4454. PRIVATE LESSONS IN STRINGS. 4 Hours.**

These courses meet the requirements of performance majors in strings. Performance of a senior (full) recital is required for completion of MUSI 4455. Prerequisite: MUSI 3355.

**MUSI 4455. PRIVATE LESSONS IN STRINGS. 4 Hours.**

These courses meet the requirements of performance majors in strings. Performance of a senior (full) recital is required for completion of MUSI 4455. Prerequisite: MUSI 4454.

**MUSI 4456. PRIVATE LESSONS IN WOODWINDS. 4 Hours.**

These courses meet the requirements of performance majors in woodwinds. Performance of a senior (full) recital is required for completion of MUSI 4457. Prerequisite: MUSI 3357.

**MUSI 4457. PRIVATE LESSONS IN WOODWINDS. 4 Hours.**

These courses meet the requirements of performance majors in woodwinds. Performance of a senior (full) recital is required for completion of MUSI 4457. Prerequisite: MUSI 4456.

**MUSI 4458. PRIVATE LESSONS IN BRASS. 4 Hours.**

These courses meet the requirements of performance majors in brass. Performance of a senior (full) recital is required for completion of MUSI 4459. Prerequisite: MUSI 3359.

**MUSI 4459. PRIVATE LESSONS IN BRASS. 4 Hours.**

These courses meet the requirements of performance majors in brass. Performance of a senior (full) recital is required for completion of MUSI 4459. Prerequisite: MUSI 4458.

**MUSI 4460. PRIVATE LESSONS IN PERCUSSION. 4 Hours.**

These courses meet the requirements of performance majors in percussion. Performance of a senior (full) recital is required for completion of MUSI 4461. Prerequisite: MUSI 3361.

**MUSI 4461. PRIVATE LESSONS IN PERCUSSION. 4 Hours.**

These courses meet the requirements of performance majors in percussion. Performance of a senior (full) recital is required for completion of MUSI 4461. Prerequisite: MUSI 4460.

**MUSI 4467. PRIVATE LESSONS IN ORGAN. 4 Hours.**

These courses meet the requirements of performance majors in organ. Performance of a senior (full) recital is required for completion of MUSI 4468. Prerequisite: MUSI 3368.

**MUSI 4468. PRIVATE LESSONS IN ORGAN. 4 Hours.**

These courses meet the requirements of performance majors in organ. Performance of a senior (full) recital is required for completion of MUSI 4468. Prerequisite: MUSI 4467.

**MUSI 4477. PRIVATE LESSONS IN HARPSICHORD. 4 Hours.**

This course meets the requirements of performance majors in harpsichord. Performance of a senior (full) recital is required for completion of MUSI 4478. Prerequisite: MUSI 3378.

**MUSI 4478. PRIVATE LESSONS IN HARPSICHORD. 4 Hours.**

These courses meet the requirements of performance majors in harpsichord. Performance of a senior (full) recital is required for completion of MUSI 4478. Prerequisite: MUSI 4477.

**MUSI 4492. COMPOSITION III. 4 Hours.**

Individual instruction designed to meet the needs of students desiring to become composers or teachers of composition. A continuation of MUSI 3393. Prerequisite: MUSI 3393.

**MUSI 4493. COMPOSITION IV. 4 Hours.**

Individual instruction designed to meet the needs of students desiring to become composers or teachers of composition. A continuation of MUSI 4492. Prerequisite: MUSI 4492.

**MUSI 5100. WIND SYMPHONY. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5101. SYMPHONIC WINDS. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5102. A CAPELLA CHOIR. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5103. CHAMBER SINGERS. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5104. UNIVERSITY SINGERS. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5106. KEYBOARD ENSEMBLE. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5107. JAZZ ORCHESTRA. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5108. JAZZ ENSEMBLE. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5109. VOCAL JAZZ. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5110. JAZZ COMBO. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5111. ORCHESTRA. 1 Hour.**

The schedule of classes indicates which ensembles are offered each semester. Prerequisite: Approval of the ensemble director.

**MUSI 5112. CHAMBER MUSIC. 1 Hour.**

This course is an in-depth study of the repertoire of standard chamber ensembles such as string quartets and piano trios, woodwind quintets and brass quintets. Weekly coaching with professors culminates in a public performance where students demonstrate skills in music performance. Prerequisite: Approval of Ensemble Director.

**MUSI 5115. VOCAL COACHING. 1 Hour.**

Advanced instruction in diction, interpretation, and style for singers and collaborative instrumentalists. By permission of instructor.

**MUSI 5120. PRIVATE LESSONS IN VOICE. 1 Hour.**

This course provides private instruction in voice. This course may be repeated for credit as often as course content changes.

**MUSI 5121. PRIVATE LESSONS IN PIANO. 1 Hour.**

This course provides private instruction in piano. This course may be repeated for credit as often as course content changes.

**MUSI 5122. PRIVATE LESSONS IN ORGAN. 1 Hour.**

This course provides private instruction in organ. This course may be repeated for credit as often as course content changes.

**MUSI 5123. PRIVATE LESSONS IN HARPSICHORD. 1 Hour.**

This course provides private instruction in harpsichord. This course may be repeated for credit as often as course content changes.

**MUSI 5124. PRIVATE LESSONS IN JAZZ PIANO. 1 Hour.**

This course provides private instruction in jazz piano. This course may be repeated for credit as often as course content changes.

**MUSI 5125. PRIVATE LESSONS IN VIOLIN. 1 Hour.**

This course provides private instruction in violin. This course may be repeated for credit as often as course content changes.

**MUSI 5126. PRIVATE LESSONS IN VIOLA. 1 Hour.**

This course provides private instruction in viola. This course may be repeated for credit as often as course content changes.

**MUSI 5127. PRIVATE LESSONS IN CELLO. 1 Hour.**

This course provides private instruction in cello. This course may be repeated for credit as often as course content changes.

**MUSI 5128. PRIVATE LESSONS IN BASS. 1 Hour.**

This course provides private instruction in bass. This course may be repeated for credit as often as course content changes.

**MUSI 5129. PRIVATE LESSONS IN JAZZ BASS. 1 Hour.**

This course provides private instruction in jazz bass. This course may be repeated for credit as often as course content changes.

**MUSI 5130. PRIVATE LESSONS IN GUITAR. 1 Hour.**

This course provides private instruction in guitar. This course may be repeated for credit as often as course content changes.

**MUSI 5131. PRIVATE LESSONS IN CLARINET. 1 Hour.**

This course provides private instruction in clarinet. This course may be repeated for credit as often as course content changes.

**MUSI 5132. PRIVATE LESSONS IN OBOE. 1 Hour.**

This course provides private instruction in oboe. This course may be repeated for credit as often as course content changes.

**MUSI 5133. PRIVATE LESSONS IN FLUTE. 1 Hour.**

This course provides private instruction in flute. This course may be repeated for credit as often as course content changes.

**MUSI 5134. PRIVATE LESSONS IN SAXOPHONE. 1 Hour.**

This course provides private instruction in saxophone. This course may be repeated for credit as often as course content changes.

**MUSI 5135. PRIVATE LESSONS IN BASSOON. 1 Hour.**

This course provides private instruction in bassoon. This course may be repeated for credit as often as course content changes.

**MUSI 5136. PRIVATE LESSONS IN TRUMPET. 1 Hour.**

This course provides private instruction in trumpet. This course may be repeated for credit as often as course content changes.

**MUSI 5137. PRIVATE LESSONS IN FRENCH HORN. 1 Hour.**

This course provides private instruction in trumpet. This course may be repeated for credit as often as course content changes.

**MUSI 5138. PRIVATE LESSONS IN TROMBONE. 1 Hour.**

This course provides private instruction in trombone. This course may be repeated for credit as often as course content changes.

**MUSI 5139. PRIVATE LESSONS IN TUBA. 1 Hour.**

This course provides private instruction in tuba. This course may be repeated for credit as often as course content changes.

**MUSI 5140. PRIVATE LESSONS IN EUPHONIUM. 1 Hour.**

This course provides private instruction in euphonium. This course may be repeated for credit as often as course content changes.

**MUSI 5190. KEYBOARD ACCOMPANIMENT. 1 Hour.**

This course entails the student accompanying performances as specified and supervised by the instructor.

**MUSI 5191. CONFERENCE COURSE IN MUSIC. 1 Hour.**

Special problems in music. Topic may change from semester to semester. May be repeated for credit. Prerequisite: permission of instructor and Graduate Advisor.

**MUSI 5205. MUSIC THEATRE/OPERA LAB. 2 Hours.**

Exploration of opera roles, staging techniques, and repertoire. Prerequisite: Approval of the ensemble director.

**MUSI 5220. PRIVATE LESSONS IN VOICE. 2 Hours.**

This course provides private instruction in voice. This course may be repeated for credit as often as course content changes.

**MUSI 5221. PRIVATE LESSONS IN PIANO. 2 Hours.**

This course provides private instruction in piano. This course may be repeated for credit as often as course content changes.

**MUSI 5222. PRIVATE LESSONS IN ORGAN. 2 Hours.**

This course provides private instruction in organ. This course may be repeated for credit as often as course content changes.

**MUSI 5223. PRIVATE LESSONS IN HARPSICHORD. 2 Hours.**

This course provides private instruction in harpsichord. This course may be repeated for credit as often as course content changes.

**MUSI 5224. PRIVATE LESSONS IN JAZZ PIANO. 2 Hours.**

This course provides private instruction in jazz piano. This course may be repeated for credit as often as course content changes.

**MUSI 5225. PRIVATE LESSONS IN VIOLIN. 2 Hours.**

This course provides private instruction in violin. This course may be repeated for credit as often as course content changes.

**MUSI 5226. PRIVATE LESSONS IN VIOLA. 2 Hours.**

This course provides private instruction in viola. This course may be repeated for credit as often as course content changes.

**MUSI 5227. PRIVATE LESSONS IN CELLO. 2 Hours.**

This course provides private instruction in cello. This course may be repeated for credit as often as course content changes.

**MUSI 5228. PRIVATE LESSONS IN BASS. 2 Hours.**

This course provides private instruction in bass. This course may be repeated for credit as often as course content changes.

**MUSI 5229. PRIVATE LESSONS IN JAZZ BASS. 2 Hours.**

This course provides private instruction in jazz bass. This course may be repeated for credit as often as content changes.

**MUSI 5230. PRIVATE LESSONS IN GUITAR. 2 Hours.**

This course provides private instruction in guitar. This course may be repeated for credit as often as course content changes.

**MUSI 5231. PRIVATE LESSONS IN CLARINET. 2 Hours.**

This course provides private instruction in clarinet. This course may be repeated for credit as often as course content changes.

**MUSI 5232. PRIVATE LESSONS IN OBOE. 2 Hours.**

This course provides private instruction in oboe. This course may be repeated for credit as often as course content changes.

**MUSI 5233. PRIVATE LESSONS IN FLUTE. 2 Hours.**

This course provides private instruction in flute. This course may be repeated for credit as often as course content changes.

**MUSI 5234. PRIVATE LESSONS IN SAXOPHONE. 2 Hours.**

This course provides private instruction in saxophone. This course may be repeated for credit as often as course content changes.

**MUSI 5235. PRIVATE LESSONS IN BASSOON. 2 Hours.**

This course provides private instruction in bassoon. This course may be repeated for credit as often as course content changes.

**MUSI 5236. PRIVATE LESSONS IN TRUMPET. 2 Hours.**

This course provides private instruction in trumpet. This course may be repeated for credit as often as course content changes.

**MUSI 5237. PRIVATE LESSONS IN FRENCH HORN. 2 Hours.**

This course provides private instruction in French Horn. This course may be repeated for credit as often as course content change.

**MUSI 5238. PRIVATE LESSONS IN TROMBONE. 2 Hours.**

This course provides private instruction in trombone. This course may be repeated for credit as often as course content changes.

**MUSI 5239. PRIVATE LESSONS IN TUBA. 2 Hours.**

This course provides private instruction in tuba. This course may be repeated for credit as often as course content changes.

**MUSI 5240. PRIVATE LESSONS IN EUPHONIUM. 2 Hours.**

This course provides private instruction in euphonium. This course may be repeated for credit as often as course content changes.

**MUSI 5241. PRIVATE LESSONS IN PERCUSSION. 2 Hours.**

This course provides private instruction in percussion. This course may be repeated for credit as often as course content changes.



**MUSI 5242. PRIVATE LESSONS IN IMPROVISATION. 2 Hours.**

This course provides private instruction in improvisation. This course may be repeated for credit as often as course content changes.

**MUSI 5291. CONFERENCE COURSE IN MUSIC. 2 Hours.**

Special problems in music. Topic may change from semester to semester. May be repeated for credit. Prerequisite: permission of instructor and Graduate Advisor.

**MUSI 5301. FORM AND STYLE ANALYSIS. 3 Hours.**

A survey of the forms and styles of Western art music employing relevant analytical techniques.

**MUSI 5302. THEORY & COMPOSITION SPECIAL TOPICS. 3 Hours.**

This course covers topics which vary from semester to semester, and includes in-depth study of selected topics in music theory. This course may be repeated for credit as often as the content changes. (Formerly MUSI 5330.)

**MUSI 5308. MUSIC HISTORY SELECTED TOPICS. 3 Hours.**

This course will consist of an in-depth study of a particular genre, composer, or period. It may be repeated as the course content changes.

**MUSI 5320. PRIVATE LESSONS IN VOICE. 3 Hours.**

This course provides private instruction in voice. This course may be repeated for credit as often as course content changes.

**MUSI 5321. PRIVATE LESSONS IN PIANO. 3 Hours.**

This course provides private instruction in piano. This course may be repeated for credit as often as course content changes.

**MUSI 5322. PRIVATE LESSONS IN ORGAN. 3 Hours.**

This course provides private instruction in organ. This course may be repeated for credit as often as course content changes.

**MUSI 5323. PRIVATE LESSONS IN HARPSICHORD. 3 Hours.**

This course provides private instruction in harpsichord. This course may be repeated for credit as often as course content changes.

**MUSI 5324. PRIVATE LESSONS IN JAZZ PIANO. 3 Hours.**

This course provides private instruction in jazz piano. This course may be repeated for credit as often as course content changes.

**MUSI 5325. PRIVATE LESSONS IN VIOLIN. 3 Hours.**

This course provides private instruction in violin. This course may be repeated for credit as often as course content changes.

**MUSI 5326. PRIVATE LESSONS IN VIOLA. 3 Hours.**

This course provides private instruction in viola. This course may be repeated for credit as often as course content changes.

**MUSI 5327. PRIVATE LESSONS IN CELLO. 3 Hours.**

This course provides private instruction in cello. This course may be repeated for credit as often as course content changes.

**MUSI 5328. PRIVATE LESSONS IN BASS. 3 Hours.**

This course provides private instruction in bass. This course may be repeated for credit as often as course content changes.

**MUSI 5329. PRIVATE LESSONS IN JAZZ BASS. 3 Hours.**

This course provides private instruction in jazz bass. This course may be repeated for credit as often as course content changes.

**MUSI 5332. PRIVATE LESSONS IN OBOE. 3 Hours.**

This course provides private instruction in oboe. This course may be repeated for credit as often as course content changes.

**MUSI 5333. PRIVATE LESSONS IN FLUTE. 3 Hours.**

This course provides private instruction in flute. This course may be repeated for credit as often as course content changes.

**MUSI 5334. PRIVATE LESSONS IN SAXOPHONE. 3 Hours.**

This course provides private instruction in saxophone. This course may be repeated for credit as often as course content changes.

**MUSI 5335. PRIVATE LESSONS IN BASSOON. 3 Hours.**

This course provides private instruction in bassoon. This course may be repeated for credit as often as course content changes.

**MUSI 5336. PRIVATE LESSONS IN TRUMPET. 3 Hours.**

This course provides private instruction in trumpet. This course may be repeated for credit as often as course content changes.

**MUSI 5337. PRIVATE LESSONS IN FRENCH HORN. 3 Hours.**

This course provides private instruction in French Horn. This course may be repeated for credit as often as course content changes.

**MUSI 5338. PRIVATE LESSONS IN TROMBONE. 3 Hours.**

This course provides private instruction in trombone. This course may be repeated for credit as often as course content changes.

**MUSI 5339. PRIVATE LESSONS IN TUBA. 3 Hours.**

This course provides private instruction in tuba. This course may be repeated for credit as often as course content changes.

**MUSI 5340. PRIVATE LESSONS IN EUPHONIUM. 3 Hours.**

This course provides private instruction in euphonium. This course may be repeated for credit as often as course content changes.

**MUSI 5341. PRIVATE LESSONS IN PERCUSSION. 3 Hours.**

This course provides private instruction in percussion. This course may be repeated for credit as often as course content changes.

**MUSI 5342. PRIVATE LESSONS IN IMPROVISATION. 3 Hours.**

This course provides private instruction in improvisation. This course may be repeated for credit as often as course content changes.

**MUSI 5343. PRIVATE LESSONS IN GUITAR. 3 Hours.**

This course provides private instruction in guitar. This course may be repeated for credit as often as course content changes.

**MUSI 5344. PRIVATE LESSONS IN CLARINET. 3 Hours.**

This course provides private instruction in clarinet. This course may be repeated for credit as often as course content changes.

**MUSI 5350. SELECTED TOPICS IN MUSIC PEDAGOGY. 3 Hours.**

This course covers topics which vary from semester to semester and includes studies of teaching techniques applied to pre-K, elementary grades, the junior high school, the high school, the junior college, and the college or university. This course may be repeated for credit as often as the content changes.

**MUSI 5351. PHILOSOPHICAL FOUNDATIONS OF MUSIC EDUCATION. 3 Hours.**

Study in the philosophy of music education.

**MUSI 5352. PSYCHOLOGICAL FOUNDATIONS OF MUSIC EDUCATION. 3 Hours.**

A study of the psychological foundations of music education. An investigation of topics such as perception of and responses to music, the nature of musical attributes, music learning, and the measurement of musical behavior.

**MUSI 5353. PROJECT IN MUSIC EDUCATION. 3 Hours.**

For students enrolled in the non-thesis option. Offers the opportunity to complete a professional project in music education relevant to the student's background, interest, and/or needs. The project should include, but not necessarily be limited to, appropriate written documentation. May be repeated for credit, but not more than 3 hours will apply to the Master of Music degree. Enrollment is required each term in which the project is in progress.

**MUSI 5354. SELECTED TOPICS IN MUSIC LITERATURE. 3 Hours.**

This course covers topics which vary from semester to semester and includes studies in musical literature for the following: 1) Wind Band Literature; 2) Orchestral Literature; 3) Choral Literature; 4) World Music Literature; 5) Jazz Literature. This course may be repeated for credit as often as the content changes.

**MUSI 5355. REHEARSAL TECHNIQUES. 3 Hours.**

A study of rehearsal techniques, including tone development, phrasing, rehearsal score study, and rehearsal organization. Topics, which may vary by semester, are 1) Choral; 2) Instrumental; 3) Jazz. May be repeated for credit when topics vary. Topics may be taken concurrently.

**MUSI 5356. ORCHESTRAL EXCERPTS. 3 Hours.**

Study of orchestral excerpts for individual instruments. Topics will vary by semester. May be repeated for credit. Permission of instructor required.

**MUSI 5359. ADVANCED DICTION FOR SINGERS. 3 Hours.**

A study of performance diction for singers and the pronunciation of the language as it applies to public performance. Topics include English, French, Italian, and German. May be repeated for credit when topics vary.

**MUSI 5360. ADVANCED TECHNOLOGY FOR MUSICIANS. 3 Hours.**

Intensive and extensive student-centered study topics to be selected from MIDI sequencing, multimedia development, advanced music notation and digital sampling and synthesis.

**MUSI 5361. ELEMENTARY MUSIC. 3 Hours.**

A study of current methods and materials used in teaching elementary music. Classroom instruments are also studied.

**MUSI 5362. Introduction to Research in Music. 3 Hours.**

An introduction to the methods and materials of research in music, including instruction on appropriate style formats for papers and theses.

**MUSI 5363. RESEARCH IN MUSIC EDUCATION. 3 Hours.**

An introduction to historical, philosophical, descriptive, and experimental research in music education and present research practices in music education.

**MUSI 5364. HISTORICAL FOUNDATIONS AND CURRICULAR TRENDS IN MUSIC EDUCATION. 3 Hours.**

A study of the historical foundations of music education and curricular trends that provide the context for contemporary music education.

**MUSI 5365. MEANING & REPRESENTATION IN MUSIC. 3 Hours.**

This course will explore the basic questions of meaning in music, including the question of whether or not music can truly have meaning at all. Students will explore various philosophical, scientific, and musical (i.e. from composers and performers) viewpoints through readings, discussion, and writing.

**MUSI 5366. JAZZ STYLE AND ANALYSIS. 3 Hours.**

An in depth examination of the improvisational techniques used by prominent jazz musicians. Topics will include transcription and theoretical analysis over different periods and styles in jazz.

**MUSI 5391. CONFERENCE COURSE IN MUSIC. 3 Hours.**

Special problems in music. Topic may change from semester to semester. May be repeated for credit. Prerequisite: Permission of instructor and Graduate Advisor.

**MUSI 5393. CONDUCTING. 3 Hours.**

Applied lessons in conducting. This course is an in-depth study of conducting technique as applied to choral or instrumental ensembles. It may be repeated for credit as the content changes.

**MUSI 5398. THESIS. 3 Hours.**

The graduate student must be registered for MUSI 5398 when in consultation over the thesis with the advisor or supervisory committee.

**MUSI 5698. THESIS. 6 Hours.**

The graduate student must be registered for MUSI 5698 in the semester or term in which the Master of Music degree will be conferred.

## Nuclear Engineering (NE)

### COURSES

**NE 3301. INTRODUCTION TO NUCLEAR ENGINEERING. 3 Hours.**

Fundamentals of radiation, radiation decay, binding energy, types of interactions, shielding, and radioisotopes, fission cross section, fission in a reactor, controlling fission chains, basic reactor model, reactor theory, reactor generations I, II, III, IV, review heat transfer terms, reactor coolant, Loss-Of-Coolant Accidents, reactor accidents, safety, emergency planning zone, nuclear fuel and fuel cycle, waste storage, decontamination and decommissioning, fusion power, regulating nuclear reactors, nuclear power economics and environment. Prerequisite: PHYS 1444; MATH 3319 or MAE 3360.

**NE 4302. NUCLEAR REACTOR THEORY/ANALYSIS. 3 Hours.**

The neutronics behavior of fission reactors, primarily from a theoretical, one-speed perspective. Criticality, fission product poisoning, reactivity control, reactor stability and introductory concepts in fuel management, followed by slowing down and one-speed diffusion theory. Multi-group diffusion theory, finite-difference and nodal methods, core heterogeneous effects, pin power reconstruction, thermal neutron spectra, fine group whole spectrum calculations and coarse group constant generation. Prerequisite: NE 3301.

**NE 4303. REACTOR THERMAL HYDRAULICS. 3 Hours.**

Thermal hydraulic processes involved in the transfer of power from the reactor core to the secondary systems of nuclear power plants. Major topics include an overview of nuclear heat generation, fluid dynamics with respect to the flow in reactor channels, steady state radial and axial temperature distribution, thermal analysis of fuel elements and subchannel flow, Hot channel factors, two-phase flow dynamics. Prerequisite: NE 3301; MAE 3314 or MAE 3309.

**NE 4391. SPECIAL TOPICS IN NUCLEAR ENGINEERING. 3 Hours.**

Special topics in the field of nuclear engineering. Topic may vary from semester to semester. May be repeated for credit when topic changes. Departmental approval required in advance to use for degree credit. Prerequisite: NE 3301 or consent of instructor.

## Nursing (NURS)

### COURSES

**NURS 2232. LEARNING PROFESSIONAL NURSING AND LIFE SKILLS. 2 Hours.**

The purpose of this course is to assist students who experience challenges with testing, time management, clinical practice, and/or professional behavior. Prerequisite: Admission to the BSN program.

**NURS 3100. COOPERATIVE NURSING WORK EXPERIENCE. 1 Hour.**

Designed for nursing cooperative education students to integrate classroom study with career-related practical experience in the workplace. May be repeated for credit. Prerequisite: consent of instructor.

**NURS 3137. INDEPENDENT STUDY. 1 Hour.**

Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

**NURS 3147. SPECIALIZED TOPICS IN NURSING. 1 Hour.**

Areas of special interest. May be repeated with varied topics. Prerequisite: junior standing or consent of instructor.

**NURS 3150. NURSING LEARNING SKILLS. 1 Hour.**

A one semester course designed to enhance skills needed for success in the BSN program. Emphasis will be on identifying individual strengths and weaknesses, learning styles, problem solving, critical thinking, test taking skills, stress management, time management, computer skills and writing and math skills specific to nursing. Prerequisite: acceptance into junior level nursing courses.

**NURS 3200. COOPERATIVE NURSING WORK EXPERIENCE. 2 Hours.**

Designed for nursing cooperative education students to integrate classroom study with career-related practical experience in the workplace. May be repeated for credit. Prerequisite: consent of instructor.

**NURS 3237. INDEPENDENT STUDY. 2 Hours.**

Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

**NURS 3247. SPECIALIZED TOPICS IN NURSING. 2 Hours.**

Areas of special interest. May be repeated with varied topics. Prerequisite: junior standing or consent of instructor.

**NURS 3261. NURSING OF OLDER ADULTS. 2 Hours.**

Selected concepts and issues related to aging and its impact on society and health care. Introduction to gerontologic nursing principles. Clinical application in diverse settings across the continuum of care. Prerequisite: NURS 3632, NURS 3320.

**NURS 3300. COOPERATIVE NURSING WORK EXPERIENCE. 3 Hours.**

Designed for nursing cooperative education students to integrate classroom study with career-related practical experience in the workplace. May be repeated for credit.

**NURS 3320. HOLISTIC HEALTH ASSESSMENT ACROSS THE LIFESPAN. 3 Hours.**

Theory and practice of holistic health assessment of individuals and families across the life span with emphasis on normal findings. Prerequisite: NURS 3333 (or concurrent enrollment).

**NURS 3321. NURSING RESEARCH. 3 Hours.**

Basic concepts, processes and applications of nursing research. Research role of the nurse in decision making and clinical practice. Prerequisite: NURS 3632; Prerequisite or Corequisite: NURS 3561.

**NURS 3325. RN-BSN HOLISTIC CARE OF THE OLDER ADULT. 3 Hours.**

Introduction to gerontologic nursing principles and standards. Selected concepts and issues related to aging and its impact on society and health care. RN-BSN students only. Previously listed as NURS 3322. Prerequisite or Corequisite: NURS 3645.

**NURS 3333. HEALTH PROMOTION ACROSS THE LIFESPAN. 3 Hours.**

Focus on health promotion and disease prevention strategies that can reduce morbidity and mortality, promote healthy lifestyles and empower individuals and aggregates to become informed health care consumers. Prerequisite: Acceptance into the nursing program.

**NURS 3335. RN-BSN HEALTH PROMOTION ACROSS THE LIFESPAN. 3 Hours.**

Health promotion for individuals and families. Opportunities to gain knowledge about primary prevention in health care. Importance of the role of the nurse in disease prevention and health promotion. RN-BSN students only. Previously NURS 3435. Prerequisite or Corequisite: NURS 3645.

**NURS 3337. INDEPENDENT STUDY. 3 Hours.**

Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

**NURS 3344. ENHANCING NURSING PRACTICE AND SAFETY WITH HISPANIC PATIENTS THROUGH BETTER COMMUNICATION. 3 Hours.**

Explores and augments the understanding of factors which facilitate or inhibit effective communication with Spanish-speaking clients. Focus on vocabulary specific to assessment and intervention with persons whose primary language is Spanish.

**NURS 3347. SPECIALIZED TOPICS IN NURSING. 3 Hours.**

Areas of special interest. May be repeated with varied topics. Prerequisite: junior standing or consent of instructor.

**NURS 3352. THE LEGACY OF THE FAMILY. 3 Hours.**

Explore and enhance understanding and application of the principles of family science knowledge in therapeutic relationships with families across the lifespan. Prerequisite (for those taking the course online): Computer Technology Skills continuing education course or permission of instructor. \*.

**NURS 3353. NURSING ASSESSMENT AND INTERVENTIONS FOR THE VIOLENT FAMILY. 3 Hours.**

Explores the dynamics of family violence as to etiologies, assessments and interventions for both survivors and perpetrators of violence. An interdisciplinary approach is followed. Prerequisite: lower division psychology course.

**NURS 3355. HEALTH CARE SYSTEMS. 3 Hours.**

Focus is on a national and international comparison of health care systems with consideration of social, economic, and delivery structures. Emphasis is on U.S. health care delivery systems and roles of the advanced practice nurse. Prerequisite: Computer Technology Skills continuing education course for distance learning, or permission of the instructor.

**NURS 3356. NURSING CARE AT THE END OF LIFE. 3 Hours.**

An overview of the nursing care of the terminally ill patient and family. Explores the impact of personal values and beliefs about death on nursing care, the physiology of end stage disease processes, clinical approaches to pain and symptom management, societal issues and trends in end of life care and models of care delivery. Prerequisite: BSN students must complete all required Junior II courses, or Registered Nurse students.

**NURS 3357. GENETICS AND NURSING. 3 Hours.**

An overview of genetics principles and their application to health care, the genetic impact on health care, and the nursing implications of this health care revolution.

**NURS 3363. ETHICAL ISSUES IN CONTEMPORARY HEALTH CARE. 3 Hours.**

Examines philosophic foundations of ethical decision making in contemporary health care. Methods of moral reasoning based upon traditional ethical frameworks will be applied to selected ethical issues. Prerequisite: NURS 3333, NURS 3561, NURS 3481, or Registered NURS students.

**NURS 3365. PHARMACOLOGY IN NURSING PRACTICE. 3 Hours.**

Introduction to current concepts of pharmacology and their relationship to nursing practice. Included are basic principles of drug actions, side effects for major drug classifications, and the role of the nurse in drug therapeutics. Must complete within 3 years of entry into nursing program. Prerequisite: BIOL 2457, BIOL 2458, CHEM 1451.

**NURS 3366. PATHOPHYSIOLOGIC PROCESSES: IMPLICATIONS FOR NURSING. 3 Hours.**

Pathophysiologic alterations, their interactions, and effects on persons across the life span as a basis for therapeutic nursing interventions. Prerequisite: BIOL 2457, BIOL 2458, CHEM 1451.

**NURS 3425. RN-BSN HOLISTIC HEALTH ASSESSMENT ACROSS THE LIFESPAN. 4 Hours.**

Theory and practice of holistic health assessment of individuals and families across the life span designed for the registered nurse. RN-BSN students only. Prerequisite or Corequisite: NURS 3645.

**NURS 3437. INDEPENDENT STUDY. 4 Hours.**

Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

**NURS 3447. SPECIALIZED TOPICS IN NURSING. 4 Hours.**

Areas of special interest. May be repeated with varied topics. Prerequisite: junior standing or consent of instructor.

**NURS 3481. PSYCHIATRIC MENTAL HEALTH NURSING OF INDIVIDUALS, FAMILIES, AND GROUPS. 4 Hours.**

Application of the nursing process with emphasis on critical thinking, therapeutic nursing interventions, and effective communication and interpersonal skills as they relate to persons with psychiatric mental health conditions. Prerequisite: NURS 3632.

**NURS 3537. INDEPENDENT STUDY. 5 Hours.**

Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

**NURS 3547. SPECIALIZED TOPICS IN NURSING. 5 Hours.**

Areas of special interest. May be repeated with varied topics. Prerequisite: junior standing or consent of instructor.

**NURS 3561. NURSING OF ADULTS. 5 Hours.**

Application of the nursing process with emphasis on critical thinking, therapeutic nursing interventions, and effective communication for persons experiencing medical-surgical problems. Theory and clinical application in diverse settings. Prerequisite: NURS 3632.

**NURS 3632. CLINICAL NURSING FOUNDATIONS. 6 Hours.**

Basic therapeutic nursing interventions with individuals and families in diverse settings using nursing process framework. Prerequisite or Corequisite: NURS 3320, NURS 3333.

**NURS 3637. INDEPENDENT STUDY. 6 Hours.**

Topic and mode of study are agreed upon by the student and instructor. May be offered with any combination of lecture/lab hours. May be repeated with various topics.

**NURS 3647. SPECIALIZED TOPICS IN NURSING. 6 Hours.**

Areas of special interest. May be repeated with varied topics. Prerequisite: junior standing or consent of instructor.

**NURS 3677. RN FIRST ASSISTANT. 6 Hours.**

Focuses on the delivery of care to surgical patients in all aspects of the surgical experience: preoperative, intraoperative, and postoperative. Meets the requirements for RNs to assume the role of a registered nurse first assistant (RNFA). Registered Nurse students. Prerequisite: permission of instructor. CNOR or CNOR Eligible. (CNOR Eligible requires proof of eligibility to take the CNOR exam from the Competency and Credentialing Institution.).

**NURS 4100. COOPERATIVE NURSING WORK EXPERIENCE. 1 Hour.**

Designed for nursing cooperative education students to integrate classroom study with career-related practical experience in the workplace. May be repeated for credit. Prerequisite: consent of instructor.

**NURS 4200. COOPERATIVE NURSING WORK EXPERIENCE. 2 Hours.**

Designed for nursing cooperative education students to integrate classroom study with career-related practical experience in the workplace. May be repeated for credit. Prerequisite: consent of instructor.

**NURS 4223. PROFESSIONAL NURSING TRENDS. 2 Hours.**

Analysis of societal issues and trends influencing health care. Application of ethical, legal, economic, and political concepts. Identification of strategies for personal and professional empowerment. Prerequisite: NURS 4431, NURS 4441, and NURS 4581.

**NURS 4300. COOPERATIVE NURSING WORK EXPERIENCE. 3 Hours.**

Designed for nursing cooperative education student to integrate classroom study with career-related practical experience in the workplace. May be repeated for credit.

**NURS 4307. US ARMY ROTC NURSE SUMMER TRAINING PROGRAM. 3 Hours.**

A voluntary, paid three-week clinical elective for nurse cadets. The primary focus is to provide nurse cadets with at least 120 hours of clinical experience utilizing military, leadership, clinical nursing, administrative and interpersonal skills working side-by-side with an Army Nurse Corps officer preceptor. Prerequisite: 3 years of ROTC, NURS 3561.

**NURS 4309. FORENSICS FOR NURSING. 3 Hours.**

Explore the emerging field of forensic nursing, including the nurse's role in data collection, documentation, recognition of perpetrators, participation in the court system, and prevention of future violence. Prerequisite for RN - BSN: NURS 3645; Prerequisite for BSN: NURS 3561, NURS 3481.

**NURS 4325. RN-BSN NURSING RESEARCH. 3 Hours.**

Basic concepts, processes and applications of nursing research. Research role of the nurse in decision making and clinical practice. RN-BSN students only. Prerequisite: Math 1308, or equivalent and NURS 3645. (Previously offered as NURS 4321.).

**NURS 4350. CAPSTONE: Transition to Professional Nursing. 3 Hours.**

Focus on the synthesis of knowledge acquired throughout the curriculum and the enactment of the professional nurse role in a concentrated practicum. Prerequisite or Corequisite: NURS 4351, NURS 4462, NURS 4223.

**NURS 4351. BSN NURSING LEADERSHIP AND MANAGEMENT. 3 Hours.**

Exploration of organizational strategies, leadership theories and societal trends with implications for decision making in health care. Introduction to management skills needed by professional nurses with clinical application in diverse settings. Prerequisites: NURS 4431, NURS 4441, NURS 4581.

**NURS 4360. CULTURAL VARIATION IN HEALTH CARE: A COMPARATIVE ANALYSIS OF TWO CULTURES. 3 Hours.**

The purpose of this course is to further develop an awareness, understanding and appreciation of the cultural factors that underlie a person's way of living. This course will increase the practitioner's ability to make in-depth assessments of the cultural influences upon the individual's health care status and will develop the ability to deliver culturally sensitive, safe and effective care. Through the study of one specific cultural group, the Mexican culture. Students will gain knowledge, skills and principles that will enable them to generalize to other cultural groups.

**NURS 4393. NURSING CERTIFICATION. 3 Hours.****NURS 4431. NURSING OF CHILDREN AND ADOLESCENTS. 4 Hours.**

Nursing care for infants, children, adolescents, and their families. Theory and clinical application in diverse settings. Prerequisite: NURS 3561, NURS 3481.

**NURS 4441. NURSING OF THE CHILDBEARING FAMILY. 4 Hours.**

Application of the nursing process with emphasis on critical thinking, communication and therapeutic nursing interventions as related to care of individuals and families during the childbearing experience. Prerequisite: NURS 3481 and NURS 3561.

**NURS 4455. RN-BSN NURSING LEADERSHIP & MANAGEMENT. 4 Hours.**

Exploration of organizational strategies, leadership theories and societal trends with implications for decision making in health care. Introduction to management skills needed by professional nurses with clinical application in diverse settings. RN-BSN students only. Prerequisite or Corequisite: NURS 3645.

**NURS 4462. COMMUNITY HEALTH NURSING. 4 Hours.**

Integrate knowledge from nursing theory and public health science in assessing health care needs of aggregates, communities, and society. Prerequisite: NURS 4431, NURS 4441, NURS 4581.

**NURS 4465. RN-BSN CARE OF VULNERABLE POPULATIONS ACROSS THE LIFESPAN. 4 Hours.**

Integrates knowledge from nursing theory and public health science in assessing health care needs of aggregates, communities, and society for the Registered Nurse. RN-BSN students only. Prerequisite: NURS 3335, NURS 3645.

**NURS 4581. NURSING OF ADULTS WITH COMPLEX NEEDS. 5 Hours.**

Use of critical thinking, therapeutic nursing interventions and communication skills in promoting quality of life for persons with complex health needs. Application of nursing roles in diverse settings. Prerequisite: NURS 3561, NURS 3481.

**NURS 4585. RN-BSN CAPSTONE. 5 Hours.**

Synthesis of knowledge acquired in the RN-BSN curriculum and development of the Nurse Role with evolving professional issues, health care environment, lifelong learning, and promotion of the Nursing profession designed for Registered Nurses RN-BSN student only. Prerequisite or Corequisite: NURS 4325, NURS 4455, NURS 4465.

**NURS 4641. PERINATAL NURSING. 6 Hours.**

Enhances foundations of nursing concepts learned in NURS 4541. Focuses on skills, issues and care required for childbearing families in the antepartum, intrapartum, and postpartum or neonatal intensive care settings. Contains both theoretical and clinical components with emphasis on development of clinical and critical thinking skills. Prerequisite: NURS 4441.

**NURS 4655. CULTURAL VARIATION IN HEALTH CARE: COMPARATIVE ANALYSIS OF TWO CULTURES. 6 Hours.**

A comparative analysis of two cultures and the influences of cultural beliefs and practices upon the delivery of health care. Includes field study in a foreign country. Prerequisite: Completion of Junior I required nursing courses or consent of instructor.

**NURS 5170. INDEPENDENT STUDY IN NURSING. 1 Hour.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded F, P, R. Prereq: Permission of instructor. Graduate standing.

**NURS 5190. TOPICS IN NURSING. 1 Hour.**

Selected topics in advanced nursing. May be repeated for credit as topics change.

**NURS 5204. NEONATAL NURSING I. 2 Hours.**

Clinical management of the high-risk neonate with a focus on the perinatal and transition periods as well as stabilization of the ill newborn at birth. Includes fluid and electrolyte management, nutrition, and identification of the indications and complications associated with invasive skills and procedures relevant to the high-risk neonate. Prerequisite: NURS 5315.

**NURS 5270. INDEPENDENT STUDY IN NURSING. 2 Hours.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded F, P, R. Prereq: Permission of instructor. Graduate standing.

**NURS 5290. TOPICS IN NURSING. 2 Hours.**

Selected topics in advanced nursing. May be repeated for credit as topics change.

**NURS 5301. RESEARCH IN NURSING. 3 Hours.**

Exploration of the research process and critical examination of published studies with emphasis on critical appraisal, interpretation of statistical results, and evidence-based practice. Prerequisite: Graduate Standing.

**NURS 5302. CURRICULUM DEVELOPMENT AND EVALUATION. 3 Hours.**

Explore the nature of nursing education. Focus on the curriculum process and its application to nursing education programs. Prerequisite: Graduate standing.

**NURS 5303. PSYCHIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE. 3 Hours.**

Foundations of clinical management for commonly occurring psychiatric-mental health problems across the lifespan. Prerequisites: NURS 5334 and NURS 5418 or Certificate Program Standing.

**NURS 5305. ADULT MANAGEMENT IN ADVANCED NURSING PRACTICE. 3 Hours.**

Foundations of clinical management for commonly occurring conditions of adults in primary care. Prerequisites: NURS 5418, NURS 5334 or Certificate Program Standing.

**NURS 5306. PEDIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE. 3 Hours.**

Foundations of advanced clinical practice in the primary care of children, birth to 21 years with a family centered approach on growth and development, health promotion and management of common health problems. Prerequisites: NURS 5418, NURS 5334 or Certificate Program Standing.

**NURS 5307. NEONATAL NURSING FROM BIRTH THROUGH 2 YEARS OLD. 3 Hours.**

Focuses on an interdisciplinary approach to the assessment, management, and coordination of care of patients with commonly encountered health care problems experienced in the Neonatal Intensive Care Unit and after discharge through 2 years of age, along with their families. Prerequisite: NURS 5438.

**NURS 5308. NURSING INFORMATICS. 3 Hours.**

Focus on application of computer technology that supports the dissemination of health care data, information and knowledge. Selected software packages/applications are presented and used. Prerequisite: Graduate standing.

**NURS 5309. TEACHING / LEARNING THEORIES, STRATEGIES, AND EVALUATION. 3 Hours.**

Teaching/learning theories, strategies, and evaluations for educators. Prerequisite: Graduate standing.

**NURS 5311. NURSING MANAGEMENT IN THE HEALTH CARE ENVIRONMENT. 3 Hours.**

Considers development of theories of leadership and organizational behavior as applied to the health care arena. Prerequisite: NURS 5327 or NURS 5301 or concurrent enrollment.

**NURS 5313. CLINICAL PROCEDURES FOR ADVANCED PRACTICE NURSES. 3 Hours.**

A theory and clinical procedures course designed for the Advanced Practice Nurse to acquire skills and procedures in the clinical management of selected patients. Prerequisite: NURS 5334 or Certificate program standing.

**NURS 5314. INVASIVE PROCEDURES FOR ADVANCED PRACTICE NURSES. 3 Hours.**

A theory and clinical procedures course designed for the Advanced Practice Nurse to acquire invasive skills and procedures in the clinical management of selected patients. Prerequisite: NURS 5334 or Certificate Program standing.

**NURS 5315. ADVANCED PATHOPHYSIOLOGY. 3 Hours.**

This course focuses on developing an advanced knowledge base of pathophysiology across the lifespan. Principles of biochemistry, molecular biology and nutrition are applied to disease processes. Prerequisite: Graduate Standing.

**NURS 5316. ADVANCED HEALTH ASSESSMENT IN NURSING PRACTICE. 3 Hours.**

Apply theoretical foundations and clinical skills in comprehensive health assessment across the lifespan. Prerequisite: NURS 5301 and NURS 5315; NURS 5334 and NURS 5204 or concurrent enrollment or permission of instructor or Certificate Program Standing.

**NURS 5318. ADVANCED PATHOPHYSIOLOGY FOR NURSE EDUCATORS. 3 Hours.**

This course focuses on developing an advanced knowledge base of pathophysiology. Principles of advanced physiology and pathophysiology and are applied to disease processes. Prerequisite: Graduate Standing.

**NURS 5319. ADVANCED PHARMACOLOGY FOR NURSE EDUCATORS. 3 Hours.**

Study of clinical pharmacological therapeutics for nurse educators.

**NURS 5326. ADVANCED ASSESSMENT FOR NURSE EDUCATORS. 3 Hours.**

Apply theoretical foundations and clinical skills in comprehensive health assessment across the lifespan as applies to the nurse educator role. Prerequisite: NURS 5318 and NURS 5319.

**NURS 5327. EXPLORATION OF SCIENCE AND THEORIES FOR NURSING. 3 Hours.**

This course provides a critical examination of the philosophical and theoretical bases for nursing science. Prerequisite: Graduate standing.

**NURS 5328. THEORY AND RESEARCH APPLICATION IN NURSING. 3 Hours.**

Integration of theoretical and empirical elements of nursing research with emphasis on proposal development. Prerequisite: NURS 5327 and NURS 5301.

**NURS 5329. ROLE OF THE NURSE EDUCATOR. 3 Hours.**

Investigation of the roles and functions of the nurse educator. Prerequisite: NURS 5301 and NURS 5327.

**NURS 5331. ADVANCED CLINICAL NURSING PRACTICUM. 3 Hours.**

Clinical preceptorships in selected health practice sites with opportunities to apply knowledge, skills, and concepts in a guided, progressive context of advanced nursing practice. The ratio of credit to clinical hours is 1:4. Prerequisite: Good academic standing (GPA minimum 3.0). NURS 5425 or NURS 5431 or NURS 5436 or NURS 5444 or NURS 5539 or NURS 5546 or NURS 5453 or NURS 5450. Graded F, R, P, W.

**NURS 5332. ADVANCED CLINICAL NURSING PRACTICUM. 3 Hours.**

Clinical preceptorships in selected health practice sites with opportunities to apply knowledge, skills, and concepts in a guided, progressive context of advanced nursing practice. The ratio of credit to clinical hours is 1 to 4. Prerequisites: GPA 3.0 and Certificate Program standing. NURS 5425 or NURS 5431 or NURS 5434 or NURS 5436 or NURS 5444 or NURS 5539 or NURS 5546 or NURS 5453 or NURS 5450. Graded F,R,P,W.

**NURS 5334. ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS. 3 Hours.**

Study of clinical pharmacological therapeutics for advanced nursing practice. Prerequisites: NURS 5315 or Certificate Program Standing.

**NURS 5339. ROLES AND FUNCTIONS OF THE NURSE ADMINISTRATOR. 3 Hours.**

Examine and implement administrative and managerial roles in health care organizations. Prerequisite: NURS 5311; NURS 5328 or concurrent enrollment.

**NURS 5340. MANAGEMENT SEMINAR AND PRACTICE. 3 Hours.**

Synthesize management, organizational, and leadership concepts and theories in selected health care settings. Prerequisite: NURS 5339 and NURS 5342.

**NURS 5341. FINANCIAL MANAGEMENT IN NURSING. 3 Hours.**

Analyze and apply financial management concepts to financial planning, budgeting, and reimbursement systems in health care. Prerequisite: NURS 5311 or MANA 5312; NURS 5301 or concurrent enrollment.

**NURS 5342. MANAGEMENT OF NURSING OPERATIONS. 3 Hours.**

Examine effective strategic planning for health care systems. Prerequisite: NURS 5341.

**NURS 5343. NURSING LEADERSHIP AND COMPLEX HEALTH CARE SYSTEMS. 3 Hours.**

Analyze leadership strategies in current and predicted health care systems including dimensions of workforce and workplace issues, leadership, and evidenced-based decision-making. Prerequisite: NURS 5327; NURS 5311 or MANA 5312 or concurrent enrollment.

**NURS 5347. ADVANCED PRACTICE NURSING WOMEN'S HEALTH. 3 Hours.**

Addresses concepts of health care of female patients throughout the life span. Explores the physiology of the reproductive continuum, including childbearing and clinical management approaches specific to the health care of women. Prerequisites: NURS 5418 or NURS 5316 or NURS 5326 or permission of instructor.

**NURS 5348. NURSING CARE AT THE END OF LIFE. 3 Hours.**

Addresses concepts of palliative care of patients with life limiting disease and their families. Explores the physiology of end stage disease processes, clinical approaches to pain and symptom management, societal issues and trends in end of life care, models of care delivery and the impact of personal values and beliefs about death. Prerequisite: Graduate Standing.

**NURS 5350. ROLE OF THE NURSE IN ADVANCED PRACTICE. 3 Hours.**

Theory and application of the multiple roles of the advanced practice nurse within the health care system. Prerequisite: Graduate Standing.

**NURS 5360. SIMULATION APPLICATION IN NURSING. 3 Hours.**

Application of simulation in healthcare. Prerequisite: Graduate Standing.

**NURS 5361. SPECIAL TOPICS IN CLINICAL PRACTICE. 3 Hours.**

Advanced clinical practice with selected targeted patient populations. Prerequisite: NURS 5318, NURS 5319, NURS 5326.

**NURS 5362. TEACHING PRACTICUM. 3 Hours.**

The ratio of credit to clinical hours is 1:4. Nursing education preceptorship in selected health care sites with opportunities to apply clinical and educational knowledge, skills, and concepts in a guided, progressive context of nursing education. Prerequisite: NURS 5308 and NURS 5361; NURS 5329 or concurrent enrollment. Good academic standing (GPA 3.0). Graded: F,R,P,W.

**NURS 5366. PRINCIPLES OF RESEARCH IN NURSING. 3 Hours.**

This course focuses on integration of theoretical and empirical principles of nursing research to generate evidence for nursing practice. Prerequisite: Graduate Standing; NURS 5327 or concurrent enrollment.

**NURS 5367. EVIDENCE BASED PRACTICE. 3 Hours.**

This course focuses on preparation to implement an evidence-based change in practice. Prerequisite: Graduate Standing; NURS 5366 and NURS 5327.

**NURS 5370. INDEPENDENT STUDY IN NURSING. 3 Hours.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded F,R,P,W. Permission of instructor. Graduate standing.

**NURS 5380. INDEPENDENT STUDY IN RESEARCH. 3 Hours.**

Detailed study and participation in a faculty sponsored research project. Topic and mode of study are agreed upon by the student and instructor prior to registration. Permission of instructor. Graded F,R,P,W.

**NURS 5382. NURSING AND HEALTH CARE POLICY: ISSUES AND ANALYSIS. 3 Hours.**

Analyze historical, current, and predicted global, national, state, and local health care policy processes. Prerequisite: NURS 5327 or NURS 5301.

**NURS 5390. TOPICS IN NURSING. 3 Hours.**

Selected topics in advanced nursing. May be repeated for credit as topics change.



**NURS 5393. ADVANCED CLINICAL NURSING PRACTICE I. 3 Hours.**

Development of advanced knowledge base of specialized clinical concepts and the application of this knowledge in selected clinical areas. Prerequisite: Graduate standing.

**NURS 5394. ADVANCED CLINICAL NURSING PRACTICE II. 3 Hours.**

Expanded background in a selected clinical area with emphasis on analysis and synthesis of clinical data, clinical judgment, and management of patients and families' care. Prerequisite: NURS 5393.

**NURS 5398. THESIS. 3 Hours.**

Graded F,R.

**NURS 5418. ADVANCED HEALTH ASSESSMENT AND DIAGNOSTIC REASONING. 4 Hours.**

Apply theoretical foundations and clinical skills in comprehensive health assessment across the lifespan. Prerequisites: NURS 5301 and NURS 5334 or concurrent enrollment or Certificate Program Standing.

**NURS 5424. PSYCHIATRIC-MENTAL HEALTH NURSING I. 4 Hours.**

Advanced clinical management of individuals, families, and groups at risk for and experiencing acute and chronic psychiatric disorders. Prerequisite: NURS 5303; NURS 5305 or NURS 5306 or concurrent enrollment, or Certificate Program Standing.

**NURS 5425. PSYCHIATRIC-MENTAL HEALTH NURSING II. 4 Hours.**

Advanced clinical management of individuals, families, and groups at risk for and experiencing complex psychiatric disorders. Prerequisites: NURS 5328 and NURS 5424; NURS 5306 or NURS 5305 or concurrent enrollment or Certificate Program Standing.

**NURS 5430. FAMILY NURSING I. 4 Hours.**

Focus on advanced knowledge of acute, chronic, and complex health problems in the primary care management of individuals across the lifespan. Prerequisites: NURS 5305 and NURS 5306; NURS 5313 or NURS 5314 or concurrent enrollment or Certificate Program Standing.

**NURS 5431. FAMILY NURSING II. 4 Hours.**

Focus on advanced knowledge in the management of patients and families throughout the lifespan. Prerequisite: NURS 5328 and NURS 5430; NURS 5303 or concurrent enrollment.

**NURS 5435. ADULT GERONTOLOGY ACUTE CARE NURSING I. 4 Hours.**

Focuses on advanced knowledge of medical-surgical nursing in managing adults with secondary and tertiary health care needs. Prerequisite: NURS 5305; NURS 5314 or concurrent enrollment or Certificate Program standing.

**NURS 5436. ADULT GERONTOLOGY ACUTE CARE NURSING II. 4 Hours.**

Focuses on an interdisciplinary approach to the management and coordination of secondary and tertiary care for adults with complex multisystem dysfunction. Prerequisites: NURS 5328 and NURS 5435; NURS 5303 or concurrent enrollment or Certificate Program Standing.

**NURS 5438. PERINATAL/NEONATAL NURSING OF HIGH-RISK MATERNAL/FETAL DYAD. 4 Hours.**

Focuses on advanced knowledge of perinatal/neonatal nursing in the high-risk pregnancy and neonate with secondary and tertiary health care needs along with their families. Prerequisite: NURS 5314, NURS 5418 or permission of instructor or Certificate Program standing.

**NURS 5441. ACUTE CARE PEDIATRIC NURSING. 4 Hours.**

Focus is on advanced, interdisciplinary practice to assess, diagnose, and manage acute and critical, single and multi-system health problems of children birth to 21 years in secondary and tertiary care settings. Prerequisites: NURS 5306; NURS 5314 and NURS 5442 or concurrent enrollment; or Certificate Program standing.

**NURS 5442. PRIMARY CARE PEDIATRIC NURSING. 4 Hours.**

Focus is on integration of acquired theoretical and empirical knowledge in the assessment, diagnosis, and management of multiple common acute and stable chronic health problems in children birth to 21 years. Prerequisite: NURS 5306; NURS 5313 or NURS 5314 or concurrent enrollment; or Certificate Program standing.

**NURS 5444. ADVANCED NURSING CARE OF PEDIATRIC PATIENTS WITH COMPLEX PROBLEMS. 4 Hours.**

Clinical management of complex health problems of pediatric patients birth to 21 years within the family system. Prerequisites: NURS 5328 and NURS 5441 or NURS 5442 and NURS 5303 or concurrent enrollment; or Certificate Program standing.

**NURS 5447. NEONATAL NURSING III. 4 Hours.**

Clinical management of the high-risk neonate using evidence based knowledge, research, pharmacological, and technological therapies. Focus on the following systems: hematologic, skeletal, integumentary, immunologic, and metabolic/endocrine. Includes clinical management of complex health problems affecting infants (birth to 2 years of age) and their families including chronic care and ethical issues. Prerequisite: NURS 5537 or Certificate Program Standing.

**NURS 5450. NEONATAL NP CLINICAL PRACTICE. 4 Hours.**

Integration of clinical management of the high-risk neonate through clinical preceptorships in selected health practice sites with application of knowledge, skills and concepts in a guided, progressive context of advanced nursing practice. The ratio of credit to clinical hours is 1:4. Prerequisites: NURS 5334 and NURS 5316 and NURS 5204 and NURS 5537 or concurrent enrollment or Certificate Program Standing.

**NURS 5451. ADULT/GERONTOLOGY PRIMARY CARE NURSING I. 4 Hours.**

Focus on advanced knowledge of chronic and complex health problems in the primary care management including age groups from adolescence through old age. Prerequisite: NURS 5305 or Certificate Program Standing.

**NURS 5453. ADULT/GERONTOLOGY PRIMARY CARE NURSING III. 4 Hours.**

Continued focus on advanced knowledge and clinical practice in the management of adults of all ages, their families, and their communities. Prerequisite: NURS 5552 and NURS 5328; NURS 5303 or concurrent enrollment or Certificate Program Standing.

**NURS 5470. INDEPENDENT STUDY IN NURSING. 4 Hours.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Prerequisite: Permission of instructor. Graded F,R,P,W.

**NURS 5537. NEONATAL NURSING II. 5 Hours.**

Clinical management of the high-risk neonate using evidence based-knowledge, research, pharmacological, and technological therapies. Focus on the following systems: pulmonary, cardiovascular, gastrointestinal, hepatic, renal, and neurologic. Prerequisite: NURS 5204 and NURS 5334 and NURS 5316; NURS 5328 or concurrent enrollment or Certificate Program Standing.

**NURS 5539. NEONATAL NURSING. 5 Hours.**

Focuses on an interdisciplinary approach to the assessment, management, and coordination of secondary and tertiary care of neonates with complex multi-system dysfunction, along with their families. Prerequisite: NURS 5438.

**NURS 5552. ADULT/GERONTOLOGY PRIMARY CARE NURSING II. 5 Hours.**

Focus on advanced knowledge in the management of adults (age 12 and older), their families, and their communities with emphasis on special problems of the adolescent, women, and elders in a variety of settings. Prerequisite: NURS 5451 and NURS 5313 or concurrent enrollment or Certificate Program Standing.

**NURS 5631. ADVANCED CLINICAL NURSING PRACTICUM. 6 Hours.**

Clinical preceptorships in selected health practice sites with opportunities to apply knowledge, skills and concepts in a guided, progressive context of advanced nursing practice. The ratio of credit to clinical hours is 1:4. Prerequisite: NURS 5425 or NURS 5350 or NURS 5431 or NURS 5436 or NURS 5444 or NURS 5539 or NURS 5546 or NURS 5453 or NURS 5450. Good academic standing (GPA 3.0). Graded F,R,P,W.

**NURS 5632. ADVANCED CLINICAL NURSING PRACTICUM - CERT. 6 Hours.**

Clinical preceptorships in selected health practice sites with opportunities to apply knowledge, skills, and concepts in a guided, progressive context of advanced nursing practice. The ratio of credit to clinical hours is 1:4. Prerequisite: NURS 5425 or NURS 5431 or NURS 5434 or NURS 5436 or NURS 5539 or NURS 5444 or NURS 5546 or NURS 5453 or NURS 5450. Good academic standing and Certificate Program standing (3.0 GPA) Graded: F,R,P,W.

**NURS 5670. INDEPENDENT STUDY IN NURSING. 6 Hours.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Prereq: Permission of instructor. Graded F,R,P,W.

**NURS 5698. THESIS. 6 Hours.**

Graded F, R, P.

**NURS 6170. INDEPENDENT STUDY IN NURSING. 1 Hour.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded F,R, P.

**NURS 6190. SPECIAL TOPICS IN NURSING. 1 Hour.**

Selected topics in advanced nursing. May be repeated for credit as topics change.

**NURS 6270. INDEPENDENT STUDY IN NURSING. 2 Hours.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded F, R, P.

**NURS 6290. TOPICS IN NURSING. 2 Hours.**

Selected topics in advanced nursing. May be repeated for credit as topics change.

**NURS 6301. THEORETICAL EVOLUTION IN SCIENCE. 3 Hours.**

Philosophies of science and epistemologies, their influence on knowledge development for nursing practice, and strategies for theory development and analysis. Prerequisite: Graduate standing.

**NURS 6302. ISSUES IN STUDYING THE HEALTH OF CULTURALLY DIVERSE AND VULNERABLE POPULATIONS. 3 Hours.**

Social and cultural factors affecting health among sub-populations defined by age, education, gender, ethnicity, culture, religion, occupation, vulnerability, income and geography. Prerequisite: Graduate Standing. DNP or PhD program.

**NURS 6303. CULTURE OF SCIENCE. 3 Hours.**

Professional, financial, socio-politico, ethical and legal issues associated with the conduct of research and the relationships between research and health policy development and implementation. Prerequisite: Graduate standing.

**NURS 6304. MEASUREMENT IN CULTURALLY DIVERSE AND VULNERABLE POPULATIONS. 3 Hours.**

Evaluate measurement tools/instruments for studying culturally diverse and vulnerable populations. Prerequisite: NURS 6301, Theoretical Evolution in Science, or permission of instructor. Course is predicated on prior learning related to concept analysis, basic statistics including correlation.

**NURS 6305. QUALITATIVE RESEARCH. 3 Hours.**

Philosophical foundation for and methodological issues in using qualitative approaches for scientific and knowledge development. Prerequisite: Graduate standing.

**NURS 6306. RESEARCH DESIGN. 3 Hours.**

Application of advanced nursing research methods to design studies that improve health outcomes in culturally diverse populations. Prerequisites: NURS 6303 and NURS 6304 or permission of instructor.

**NURS 6308. RESEARCH SEMINAR. 3 Hours.**

Implements the research process with faculty guidance. Learning activities based on student and faculty interest. May be repeated to meet student learning needs. Prerequisite: Recommendation of the advisor; permission of the instructor.

**NURS 6309. SCIENTIFIC PRODUCTS: PREPARATION DISSEMINATION (DELIVERY). 3 Hours.**

Provides experiences in the development of scientific products for dissemination. Prerequisite: Graduate standing.

**NURS 6310. PROPOSAL DEVELOPMENT SEMINAR. 3 Hours.**

Development and critique of doctoral dissertation proposal. Successful completion of Comprehensive Examination; NURS 6308.

**NURS 6318. PARAMETRIC STATISTICS FOR HEALTHCARE RESEARCH. 3 Hours.**

Advanced knowledge and skills to use biostatistics effectively in different research designs and data analyses. Use of a statistical software package to manipulate datasets and perform statistical analyses. Emphasis will be placed on parametric statistical methods for complex research questions and designs. Prerequisite: Graduate-level introductory statistics course.

**NURS 6319. PSYCHOMETRIC AND NONPARAMETRIC STATISTICS FOR HEALTHCARE RESEARCH. 3 Hours.**

Basic knowledge and skills to select the appropriate biostatistical analysis for different research designs, analyze data, interpret statistical results, and understand research articles in professional journals. Emphasis will be placed on reliability and validity of instruments commonly used in healthcare; outcome measurement in health care; common research designs in health care research; nonparametric statistics for dependent samples and independent samples; logistic regression; and survival analysis. Prerequisite: Graduate-level introductory statistics course.

**NURS 6320. LEADERSHIP IN HEALTH CARE SYSTEMS. 3 Hours.**

Focuses on leadership and organizational theories and financial principles to promote quality improvement initiatives in a selected practice. DNP or PhD Program.

**NURS 6321. EPIDEMIOLOGY. 3 Hours.**

Principles of epidemiology: Introduces the basic principles and biostatistical methods of epidemiology and demonstrates their applicability to population health. Prerequisite: Doctoral standing. PhD or DNP Program.

**NURS 6323. PRACTICE SCHOLARSHIP. 3 Hours.**

Focuses on clinical scholarship and analytical methods for evidence-based practice. Prerequisite: NURS 6320 or concurrent enrollment.

**NURS 6324. CLINICAL INFORMATION SYSTEMS. 3 Hours.**

Focuses on the selection and use of information systems/technology to provide health care and to evaluate patient care programs, outcomes, and systems. Prerequisite: Doctoral standing. DNP or PhD Program.

**NURS 6325. ADVANCED PRACTICE NURSING FOR SELECTED POPULATIONS. 3 Hours.**

Apply advanced concepts in pathophysiology and technology in managing selected patient populations. Prerequisite: DNP Program.

**NURS 6326. PRACTICE SCHOLARSHIP PROJECT. 3 Hours.**

Seminar to develop a practice scholarship project. Prerequisite: NURS 6323.

**NURS 6370. INDEPENDENT STUDY IN NURSING. 3 Hours.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded F, R, P.

**NURS 6382. HEALTH CARE POLICY. 3 Hours.**

Analyze historical, current, and predicted global, national, state, and local health care policy processes. Prerequisite: Doctoral standing.

**NURS 6390. TOPICS IN NURSING. 3 Hours.**

Selected topics in advanced nursing. May be repeated for credit as topics change.

**NURS 6399. DISSERTATION. 3 Hours.**

Graded F, R. Prerequisite: Admission to candidacy for the Doctor in Nursing degree.

**NURS 6470. INDEPENDENT STUDY IN NURSING. 4 Hours.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded F, R, P.

**NURS 6490. TOPICS IN NURSING. 4 Hours.**

Selected topics in advanced nursing. May be repeated for credit as topics change.

**NURS 6620. DNP PRACTICUM I. 6 Hours.**

270 Clinical Hours. Emphasis on the development of advanced practice expertise in the management of health problems in selected populations. Prerequisite: NURS 6326 or concurrent enrollment. Good academic standing (GPA 3.0). Grade: F,R,P,W.

**NURS 6621. DNP PRACTICUM II. 6 Hours.**

270 Clinical Hours - Emphasis on the development of advance clinical practice expertise in the management of health problems in selected populations. Prerequisite: NURS 6620 and DNP status.

**NURS 6699. DISSERTATION. 6 Hours.**

Graded F, R, P, W. Prerequisite: Admission to candidacy for the Doctor in Nursing degree.

**NURS 6999. DISSERTATION. 9 Hours.**

Graded F, R, P. Prerequisite: Admission to candidacy for the Doctor in Nursing degree.

**NURS 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Nursing - Elective (AP) (NURS-EL)

### COURSES

**NURS-EL 3300. COOPERATIVE NURSING WORK EXPERIENCE. 3 Hours.**

Designed for nursing cooperative education students to integrate classroom study with career-related practical experience in the workplace. May be repeated for credit.

**NURS-EL 3347. SPECIALIZED TOPICS IN NURSING. 3 Hours.**

Areas of special interest. May be repeated with varied topics. Prerequisite: junior standing or consent of instructor.

**NURS-EL 3352. THE LEGACY OF THE FAMILY. 3 Hours.**

Explore and enhance understanding and application of the principles of family science knowledge in therapeutic relationships with families across the lifespan. Prerequisite (for those taking the course online): Computer Technology Skills continuing education course or permission of instructor. \*.

## Nursing - Independent Studies (NURS-IS)

### COURSES

**NURS-IS 3137. INDEPENDENT STUDY. 1 Hour.**

Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

**NURS-IS 3237. INDEPENDENT STUDY. 2 Hours.**

Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

**NURS-IS 3337. INDEPENDENT STUDY. 3 Hours.**

Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

**NURS-IS 5370. INDEPENDENT STUDY IN NURSING. 3 Hours.**

Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded F,R,P,W. Permission of instructor. Graduate standing.

## Nursing - Lower Level (NURS-LL)

### COURSES

**NURS-LL 1300. INTRODUCTION TO PROFESSIONAL NURSING. 3 Hours.**

Designed to introduce and transition the freshman and transfer pre-nursing student to the language of nursing, critical thinking, the essential academic skills for incoming students and the interpersonal skills required for success in nursing school and the nursing profession. Selected concepts and processes for professional nursing will be included in the course, including an introduction to nursing's theoretical, philosophical, ethical and legal dimensions.

## Nursing - Mexico Study Abroad (NURS-MX)

## COURSES

### **NURS-MX 3337. INDEPENDENT STUDY. 3 Hours.**

Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

### **NURS-MX 3637. INDEPENDENT STUDY. 6 Hours.**

Topic and mode of study are agreed upon by the student and instructor. May be offered with any combination of lecture/lab hours. May be repeated with various topics.

## Nursing - Student Success (NURS-SS)

### COURSES

#### **NURS-SS 2232. LEARNING PROFESSIONAL NURSING AND LIFE SKILLS. 2 Hours.**

The purpose of this course is to assist students who experience challenges with testing, time management, clinical practice, and/or professional behavior. Prerequisite: Admission to the BSN program.

## Nursing - Upper Level (NURS-UL)

### COURSES

#### **NURS-UL 3333. HEALTH PROMOTION ACROSS THE LIFESPAN. 3 Hours.**

Focus on health promotion and disease prevention strategies that can reduce morbidity and mortality, promote healthy lifestyles and empower individuals and aggregates to become informed health care consumers. Prerequisite: Acceptance into the nursing program.

#### **NURS-UL 3352. THE LEGACY OF THE FAMILY. 3 Hours.**

Explore and enhance understanding and application of the principles of family science knowledge in therapeutic relationships with families across the lifespan. Prerequisite (for those taking the course online): Computer Technology Skills continuing education course or permission of instructor. \*.

#### **NURS-UL 3365. PHARMACOLOGY IN NURSING PRACTICE. 3 Hours.**

Introduction to current concepts of pharmacology and their relationship to nursing practice. Included are basic principles of drug actions, side effects for major drug classifications, and the role of the nurse in drug therapeutics. Must complete within 3 years of entry into nursing program. Prerequisite: BIOL 2457, BIOL 2458, CHEM 1451.

#### **NURS-UL 3366. PATHOPHYSIOLOGIC PROCESSES: IMPLICATIONS FOR NURSING. 3 Hours.**

Pathophysiologic alterations, their interactions, and effects on persons across the life span as a basis for therapeutic nursing interventions. Prerequisite: BIOL 2457, BIOL 2458, CHEM 1451.

#### **NURS-UL 3632. CLINICAL NURSING FOUNDATIONS. 6 Hours.**

Basic therapeutic nursing interventions with individuals and families in diverse settings using nursing process framework. Prerequisite or Corequisite: NURS 3320, NURS 3333.

## Nursing Transferred Course (NRST)

### COURSES

#### **NRST 5393. UNT NURSING TRANSFER ELECTIVE. 3 Hours.**

#### **NRST 5394. UNT HEALTH ECONOMICS. 3 Hours.**

#### **NRST 5395. UNT CAPSTONE CULMINATING PROJECT 1. 3 Hours.**

#### **NRST 5397. UNT PROFESSIONAL REPORT CULMINATING PROJECT II. 3 Hours.**

#### **NRST 5698. UNT THESIS. 6 Hours.**

## Operations Management (OPMA)

### COURSES

#### **OPMA 3306. OPERATIONS MANAGEMENT. 3 Hours.**

Introduction to concepts and problem-solving techniques important in operations management and production management. Topics include demand forecasting, capacity management, resource allocation, inventory management, supply chain management, quality control, project management.

Prerequisite: : BSTAT 3321 or BSTAT 3322.

#### **OPMA 3308. OPERATIONS PLANNING AND CONTROL. 3 Hours.**

Course covers operations planning and control systems in manufacturing and service organizations. Topics include inventory control, material requirements planning, Just-in-Time and lean manufacturing, production scheduling, capacity planning, operations planning and control software.

Prerequisite: OPMA 3306.

**OPMA 3310. PROJECT MANAGEMENT. 3 Hours.**

Course covers concepts and issues important in effectively managing projects. Topics include project selection, project planning, negotiation, budgeting, scheduling, resource allocation, project control, project auditing, and project termination. Corequisite: OPMA 3306.

**OPMA 4191. STUDIES IN OPERATIONS MANAGEMENT. 1 Hour.**

Advanced studies, on an individual basis, in the various fields of operations management. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**OPMA 4291. STUDIES IN OPERATIONS MANAGEMENT. 2 Hours.**

Advanced studies, on an individual basis, in the various fields of operations management. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**OPMA 4301. COMPUTER MODELS IN OPERATIONS MANAGEMENT. 3 Hours.**

Course covers applications of computer models used in operations management. Prerequisite: OPMA 3306.

**OPMA 4302. LOGISTICS MANAGEMENT. 3 Hours.**

Physical supply, in-plant movement and storage, and physical distribution which comprise logistics systems in industry. Topics include facility location, transportation, warehousing, inventory control, distribution networks, and logistics information systems. Prerequisite: OPMA 3306.

**OPMA 4303. INTRODUCTION TO MANAGEMENT SCIENCES. 3 Hours.**

Introduction to optimization and quantitative analysis of business problems. Topics include applications of linear and integer programming, network analysis, simulation, game theory, queuing theory, and other operations research tools. Prerequisite: OPMA 3306, may be taken concurrently.

**OPMA 4307. QUALITY PLANNING AND ANALYSIS. 3 Hours.**

Quality of products and services needed by society, to include consideration of quality costs and improvements, designing for quality, process controls, inspections, testing, acceptance sampling, management controls, and quality information systems. Prerequisite: OPMA 3306 and BUSA 3321/STAT 3321.

**OPMA 4309. GLOBAL SUPPLY CHAIN MANAGEMENT. 3 Hours.**

Course covers concepts and issues important in managing supply chains. A strategic view is taken of the way companies coordinate their operations with suppliers and customers in a global marketplace. The strategic use of information systems to better manage supply chains is also covered. Prerequisite: OPMA 3306.

**OPMA 4314. SERVICE OPERATIONS. 3 Hours.**

Service operations make up the fastest-growing segment in economies throughout the developed world. This course is intended to help emerging business leaders understand challenges and opportunities inherent in the unique nature of service operations. This course emphasizes both strategic and tactical decision-making, with a focus on the effective design, delivery and improvement of service outputs. Prerequisite: OPMA 3306.

**OPMA 4331. SEMINAR IN OPERATIONS MANAGEMENT. 3 Hours.**

Readings and discussion of special topics in operations management. Prerequisite: Junior or senior standing and consent of instructor. May be repeated for credit with consent of department chair.

**OPMA 4391. STUDIES IN OPERATIONS MANAGEMENT. 3 Hours.**

Advanced studies, on an individual basis, in the various fields of operations management. Prerequisite: 90 credit hours and permission of instruction. May be repeated for credit with consent of department chair.

**OPMA 4393. OPERATIONS MANAGEMENT INTERNSHIP. 3 Hours.**

Practical training in operations management. Analysis of theory applied to real life situations. May be used as an advanced business elective only; graded on a pass/fail basis. No credit will be given for previous experience or activities. May not be repeated for credit. Prerequisite: Junior standing and consent of department internship advisor.

**OPMA 5199. GRADUATE OPERATIONS MANAGEMENT INTERNSHIP. 1 Hour.**

Practical training in operations management. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

**OPMA 5299. GRADUATE OPERATIONS MANAGEMENT INTERNSHIP. 2 Hours.**

Practical training in operations management. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

**OPMA 5321. INTRODUCTION TO MANAGEMENT SCIENCES. 3 Hours.**

Introduction to optimization and quantitative analysis of business problems. Topics include applications of linear and integer programming, network analysis, simulation, game theory, queuing theory, and other operations research tools.

**OPMA 5361. OPERATIONS MANAGEMENT. 3 Hours.**

Introduction to concepts and problem-solving techniques important in production management and operations management. Topics include demand forecasting, capacity management, resource allocation, inventory management, supply chain management, quality control, and project management.

**OPMA 5362. SERVICES OPERATIONS. 3 Hours.**

Service operations make up the fastest-growing segment in economies throughout the developed world. This course is intended to help emerging business leaders understand challenges and opportunities inherent in the unique nature of service operations. This course emphasizes both strategic and tactical decision-making, with a focus on the effective design, delivery and improvement of service outputs.

**OPMA 5363. OPERATIONS PLANNING AND CONTROL. 3 Hours.**

Course covers operations planning and control systems in manufacturing and service organizations. Topics include inventory control, material requirements planning, Just-In-Time and lean manufacturing, production scheduling, capacity planning, and operations planning and control software. Previous introductory course in operations management suggested.

**OPMA 5364. PROJECT MANAGEMENT. 3 Hours.**

Course covers concepts and issues important in effectively managing projects. Topics include project selection, project planning, negotiation, budgeting, scheduling, resource allocation, project control, project auditing, and project termination.

**OPMA 5367. QUALITY MANAGEMENT. 3 Hours.**

Course focuses on quality of products and services needed by society. Topics include consideration of quality cost and improvements, designing for quality, process controls, inspections, testing, acceptance sampling, management controls, and quality information systems. Previous introductory course in statistics suggested.

**OPMA 5368. GLOBAL SUPPLY CHAIN MANAGEMENT. 3 Hours.**

Course covers concepts and issues important in managing supply chains. A strategic view is taken of the way companies coordinate their operations with suppliers and customers in a global marketplace. The strategic use of information systems to better manage supply chains is also covered. Previous introductory course in operations management suggested.

**OPMA 5369. LOGISTICS MANAGEMENT. 3 Hours.**

Course covers physical supply, in-plant movement and storage, and physical distribution of materials, which comprise logistics systems in industry. Topics include facility location, transportation, warehousing, inventory control, distribution networks, and logistics information systems. Previous introductory course in operations management suggested.

**OPMA 5377. HEALTH CARE QUALITY ASSESSMENT. 3 Hours.**

Covers an integrated case study approach to organizational performance management resulting in the delivery of ever-improving value to patients, improved health care quality and organizational sustainability, improvement of overall organizational effectiveness as a health care provider, and organizational learning.

**OPMA 5379. ORGANIZATIONAL RESEARCH PROJECT. 3 Hours.**

Students conduct a research project at a local organization, focusing on applications of business concepts studied in their coursework.

**OPMA 5382. INDEPENDENT STUDIES IN OPERATIONS MANAGEMENT. 3 Hours.**

Extensive analysis of an Operations Management topic.

**OPMA 5389. INDEPENDENT STUDIES IN MILITARY ACQUISITION. 3 Hours.**

This course is reserved for military officers in the Training with Industry or I-Grade programs at UT Arlington. Studies consist of an acquisition practicum with training at an assigned agency and a required seminar at UT Arlington.

**OPMA 5392. SELECTED TOPICS IN OPERATIONS MANAGEMENT. 3 Hours.**

In-depth study of selected topics in operations management. May be repeated when topics vary.

**OPMA 5399. GRADUATE OPERATIONS MANAGEMENT INTERNSHIP. 3 Hours.**

Practical training in operations management. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities.

**OPMA 5689. INDEPENDENT STUDIES IN MILITARY ACQUISITION. 6 Hours.**

This course is reserved for military officers in the Training with Industry or I-GRAD programs at UT Arlington. Studies consist of an acquisition practicum with training at an assigned agency and a required seminar at UT Arlington.

**OPMA 5989. INDEPENDENT STUDIES IN MILITARY ACQUISITION. 9 Hours.**

This course is reserved for military officers in the Training with Industry or I-Grade programs at UT Arlington. Studies consist of an acquisition practicum with training at an assigned agency and a required seminar at UT Arlington.

**OPMA 6370. SEMINAR IN OPERATIONS MANAGEMENT. 3 Hours.**

Doctoral seminar that is a comprehensive and integrative study of operations management that focuses on theoretical frameworks, applications of models, and methods of analysis. Prerequisite: Doctoral standing.

**OPMA 6371. INTEGRATED OPERATIONS STRATEGY AND RESEARCH. 3 Hours.**

Linkages between the manufacturing and strategy development functions. Research issues within production/operations management. Current techniques/designs for achieving effective research. Prerequisite: Doctoral standing and previous introductory course in operations management suggested.

**OPMA 6380. RESEARCH IN OPERATIONS MANAGEMENT. 3 Hours.**

Independent research under the supervision of a faculty member. May be repeated for credit. Prerequisite: Doctoral standing.

**OPMA 6392. SPECIAL TOPICS IN OPERATIONS MANAGEMENT. 3 Hours.**

Advanced doctoral level topics in Operations Management. May be repeated when topics vary. Prerequisite: Doctoral standing.

## Philosophy (PHIL)

## COURSES

### **PHIL 1301. FUNDAMENTALS OF REASONING. 3 Hours. (TCCN = PHIL 2303)**

The analysis of arguments and rhetorical forms. Deals with common forms of valid and fallacious reasoning and includes exercises and drill in practical reasoning.

### **PHIL 1304. CONTEMPORARY MORAL PROBLEMS. 3 Hours. (TCCN = PHIL 2306)**

(PHIL 2306). Examination of ethical problems and theories which have a bearing on contemporary life. Texts may include both classical and contemporary ethical writings and deal with problems such as the conditions under which life may be taken (abortion, capital punishment, medical ethics), business ethics, social justice, and individual rights.

### **PHIL 1310. PHILOSOPHICAL PERSPECTIVES. 3 Hours.**

Approaches philosophy through a broad application of philosophical perspectives to humanistic disciplines, including history, literature, and the arts. Recommended for students satisfying the social/cultural core requirement.

### **PHIL 2300. INTRODUCTION TO PHILOSOPHY. 3 Hours. (TCCN = PHIL 1301)**

(PHIL 1301). An examination of one or more basic problems of lasting interest to philosophers. Typical problems may include human nature and limits of knowledge. Formerly listed as PHIL 1300. Credit cannot be received for both PHIL 1300 and PHIL 2300.

### **PHIL 2311. LOGIC. 3 Hours.**

The development of formal and symbolic systems (categorical, propositional, and predicate) for the analysis of arguments.

### **PHIL 2312. ETHICS. 3 Hours.**

Ethics is the philosophical study of morality. This course is an introduction to the main normative ethical theories, such as theological voluntarism, utilitarianism, and Kantianism. A normative ethical theory provides an answer to the question, ¿What is it that makes right acts right?¿.

### **PHIL 2313. PHILOSOPHY OF THE ARTS. 3 Hours.**

Problems in the philosophy of art and art criticism; the history of aesthetic theory.

### **PHIL 2314. PERSPECTIVES ON SCIENCE AND MATHEMATICS. 3 Hours.**

Topics and episodes in the history of science and mathematics from a philosophical point of view. Students are brought to understand that science has a fascinating history, is underpinned by deep philosophical presuppositions, and depends upon special social and cultural factors for its continued growth and revision. This course is part of the UTeach program.

### **PHIL 2315. TOPICS IN PHILOSOPHY. 3 Hours.**

In-depth treatment of philosophical topics or movements, such as Existentialism, Philosophy of Science Fiction, Brain and Mind, Asian Philosophy. May be repeated for credit as content changes.

### **PHIL 3301. HISTORY OF PHILOSOPHY: ANCIENT PHILOSOPHY. 3 Hours.**

The beginning and the early developments of the western philosophic tradition. Ancient Greek philosophy, basically the Pre-Socratics, Socrates, Plato and Aristotle.

### **PHIL 3302. HISTORY OF PHILOSOPHY: ROMAN AND MEDIEVAL PHILOSOPHY. 3 Hours.**

Post-Aristotelians (e.g., the later Stoics, the Epicureans, Neo-Platonists); philosophy of the early Church Fathers through Aquinas and later Scholastics.

### **PHIL 3303. HISTORY OF PHILOSOPHY: RENAISSANCE AND EARLY MODERN EUROPEAN PHILOSOPHY. 3 Hours.**

The philosophical views of Galileo, Newton, Bacon, and Hobbes, the Continental Rationalists and British Empiricists, and a brief introduction to the philosophy of Immanuel Kant.

### **PHIL 3304. HISTORY OF PHILOSOPHY: NINETEENTH AND EARLY TWENTIETH CENTURY PHILOSOPHY. 3 Hours.**

Major philosophers from Kant to the early 20th century.

### **PHIL 3307. SEMINAR IN RESEARCH METHODS AND PHILOSOPHICAL WRITING. 3 Hours.**

Examination of philosophical methodology; philosophical analysis, philosophical writing, discipline-specific bibliographic tools, etc. Students write a series of short papers on topics of interest. Prerequisite: PHIL 2311 and one other PHIL course.

### **PHIL 3316. PHILOSOPHY OF RELIGION. 3 Hours.**

Problems that engage philosophy of religion (e.g., the existence of God, theodicy, religious language) and the way these problems have been treated by some outstanding Western thinkers.

### **PHIL 3317. INTERMEDIATE LOGIC. 3 Hours.**

Begins with predicate calculus and includes such topics as soundness and completeness theorems, definite descriptions, identity, modal logic, and others. Prerequisite: PHIL 2311.

### **PHIL 3318. THE PHILOSOPHY OF SCIENCE AND TECHNOLOGY. 3 Hours.**

The method and goals of scientific scholars and inquiry. The distinction between formal and empirical sciences, laws and theories, measurement, the role of observation and experiment, and probability. Formerly listed as PHIL 4315. Credit cannot be received for both PHIL 4315 and PHIL 3318.

### **PHIL 3319. BIOMEDICAL ETHICS. 3 Hours.**

Major ethical problems which arise in modern medicine and in medical/biological research (euthanasia, abortion, patient-physician relations, allocations of medical resources, genetic research, etc.).



**PHIL 3320. PHILOSOPHY OF LAW. 3 Hours.**

Examination of the institution of law, legal concepts, legal reasoning, and the legal process. Topics may include the nature of law; the moral limits of the criminal law; legal rights; liberty, justice, and equality; punishment; responsibility; the private law (property, contract, and tort); constitutional law; and feminist jurisprudence.

**PHIL 3321. PHILOSOPHY OF LANGUAGE. 3 Hours.**

Topics to be investigated include the nature of language and communication; the distinction between natural and artificial language; the traditional division of the field into syntax, semantics, and pragmatics; and such specialized subtopics as meaning, reference, truth, and speech acts. Completion of PHIL 2311 is recommended, but not required.

**PHIL 3324. BUSINESS ETHICS. 3 Hours.**

Selected ethical issues in business, such as the nature and moral status of capitalism; corporate moral agency and responsibility; issues and challenges in the workplace (e.g., civil liberties, personnel policies, unionization, privacy, and safety); moral choices facing employees (e.g., loyalty, insider trading, and whistleblowing); job discrimination (e.g., affirmative action, comparable worth, and sexual harassment); consumer protection; environmental protection; and globalization.

**PHIL 3330. SOCIAL AND POLITICAL PHILOSOPHY. 3 Hours.**

Investigation of the basis (if any) of political obligation. Analysis of social and political concepts, such as equality, liberty, rights, and justice. Discussion of social and political theories, such as anarchism, contractarianism, Marxism, and conservatism.

**PHIL 3340. TOPICS IN APPLIED ETHICS. 3 Hours.**

Investigation of a single moral issue or a cluster of issues that arise in the context of a particular profession. Examples of the former are abortion, punishment, freedom of speech, the environment, and the moral status of animals. Examples of the latter are business ethics, legal ethics, engineering ethics, nursing ethics, and computer ethics. May be repeated for credit as content changes.

**PHIL 3390. HONORS COLLOQUIUM. 3 Hours.**

An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors College.

**PHIL 4191. UNDERGRADUATE CONFERENCE COURSE. 1 Hour.**

Topics assigned on an individual basis covering research of individual students or study in designated areas. May be repeated for credit.

**PHIL 4291. UNDERGRADUATE CONFERENCE COURSE. 2 Hours.**

Topics assigned on an individual basis covering research of individual students or study in designated areas. May be repeated for credit.

**PHIL 4318. PHILOSOPHY AND LITERATURE. 3 Hours.**

The role of ideas in literature and an analysis of the actual contacts between philosophy and the dominant world views of the great writers of literature.

**PHIL 4380. PHENOMENOLOGY. 3 Hours.**

Phenomenology is a major philosophical movement based on the methodically controlled and objectively validated description of human experience, as uncovered at first introspectively. This course focuses on (1) the origin of the movement in common problems stemming from the devaluation of the subjective point of view brought on by positivistic and scientific views in philosophy and the sciences, (2) the development of the movement's method, and (3) a close study of some influential phenomenologists.

**PHIL 4381. THEORIES OF INTERPRETATION. 3 Hours.**

Philosophical hermeneutics—the theory or study of interpretation—dates back at least to Aristotle and grew in the 20th century from a focus on texts to an analysis of the interpretation of every human act and idea. This course traces the history of the problems of interpretation from Aristotle to the present.

**PHIL 4385. THEORY OF KNOWLEDGE. 3 Hours.**

Problems which arise from attempts to give an account of human knowledge. Skepticism, perception, induction, or the nature of truth. Note: Although there are no prerequisites for this course, students who have had no previous philosophy courses may find the material difficult.

**PHIL 4386. METAPHYSICS. 3 Hours.**

Problems which arise from attempts to give an account of reality and its manifestations. Possibility and necessity, causality, the nature of events, mind-body, and universals. Note: Although there are no prerequisites for this course, students who have had no previous philosophy courses may find the material difficult.

**PHIL 4387. TOPICS IN VALUE THEORY. 3 Hours.**

In-depth treatment of an issue or topic within value theory, which is broadly construed to include moral philosophy (and its subfields, such as moral epistemology and moral psychology), social philosophy, political philosophy, philosophy of law, aesthetics, philosophy of religion, and feminist philosophy. May be repeated for credit with permission of the department.

**PHIL 4388. TOPICS IN THE HISTORY OF PHILOSOPHY. 3 Hours.**

In-depth treatment of a single important philosophical writer, a related group of writers, or an extended tradition. May be repeated for credit with permission of the department.

**PHIL 4389. TOPICS IN PHILOSOPHY AND THE SOCIAL SCIENCES. 3 Hours.**

In-depth treatment of one or more of the social sciences from a philosophical perspective: may include the philosophy of history, social philosophy, political philosophy, philosophy of the social sciences, or any specific subject therein. Credit may not be granted for PHIL 4311 or PHIL 4317 (no longer offered) and PHIL 4389. May be repeated for credit with permission of the department.

**PHIL 4391. UNDERGRADUATE CONFERENCE COURSE. 3 Hours.**

Topics assigned on an individual basis covering research of individual students or study in designated areas. May be repeated for credit.

**PHIL 4394. SENIOR THESIS. 3 Hours.**

During the senior year, the student completes a thesis under the direction of a faculty member in the major department. Required of all pre-professional track philosophy majors and of all philosophy majors who are members of the University Honors College.

**PHIL 5391. CONFERENCE COURSE IN PHILOSOPHY. 3 Hours.**

May be taken only with the permission of the instructor and Graduate Advisor.

**PHIL 5392. TOPICS IN THE HISTORY OF PHILOSOPHY. 3 Hours.**

Consideration in depth of the work of a single philosopher or a related philosophical school against the background of the development of philosophy. May be repeated for credit as the topic changes.

**PHIL 5393. PHILOSOPHICAL PERSPECTIVES ON THE HUMANITIES. 3 Hours.**

A philosophical inquiry into problems and issues of relevance in humanistic disciplines. May be repeated for credit as the topic changes.

**PHIL 6389. SEMINAR IN PHILOSOPHICAL ANALYSIS. 3 Hours.**

Seminar-style treatment of some major problem in contemporary philosophy. May be repeated for credit as the topic changes.

**PHIL 6394. TOPICS IN SYSTEMATIC PHILOSOPHY. 3 Hours.**

In-depth treatment of an issue or issues in metaphysics, epistemology, ethics, aesthetics or related subdisciplinary areas. May be repeated for credit as the topic changes.

## Physical Education (PHED)

### COURSES

**PHED 0113. PHYS EDUC. 1 Hour.**

## Physics (PHYS)

### COURSES

**PHYS 1181. PROBLEMS IN MECHANICS. 1 Hour.**

Primarily an independent study course involving problem-solving in general technical mechanics. The objective is to prepare the student whose background in physics is of a non-technical nature to do advanced study in curricula requiring technical physics. This course in combination with PHYS 1441 shall serve as an equivalent to PHYS 1443. Prerequisite: MATH 1426 and a grade of B or better in PHYS 1441. Department consent may be granted to take this course with Physics B AP score of 4 or 5.

**PHYS 1182. PROBLEMS IN ELECTRICITY AND MAGNETISM. 1 Hour.**

Primarily an independent study course involving problem-solving in general technical electricity and magnetism. The objective is to prepare the student whose background in physics is of a non-technical nature to do advanced study in curricula requiring technical physics. This course in combination with PHYS 1442 shall serve as an equivalent to PHYS 1444. Prerequisite: MATH 2425 and a grade of B or better in PHYS 1442. Department consent may be granted to take this course with Physics B AP score of 4 or 5.

**PHYS 1188. SPECIAL PROBLEMS IN GENERAL PHYSICS. 1 Hour.**

Primarily laboratory work and/or problem-solving in general technical physics. Prerequisite: PHYS 1441 or PHYS 1443 lecture credit equivalent or PHYS 1442 or PHYS 1444 lecture credit equivalent.

**PHYS 1288. SPECIAL PROBLEMS IN GENERAL PHYSICS. 2 Hours.**

Primarily laboratory work and/or problem-solving in general technical physics. Prerequisite: PHYS 1441 and PHYS 1442 lecture credit equivalent or PHYS 1443 and PHYS 1444 lecture credit equivalent.

**PHYS 1300. INTRODUCTION TO MUSICAL ACOUSTICS. 3 Hours.**

An introduction, for the music major, to the nature of periodic motion and its relation to music, characteristics of sound waves, sources of sound used in music, musical scales and temperament, mechanics of hearing, recording and reproduction of sound. May not be used to satisfy any of the requirements for a degree in physics.

**PHYS 1301. PHYSICS FOR NON SPECIALISTS I. 3 Hours.**

PHYS 1301 and 1302 constitute a one-year introductory course for liberal arts and business majors. How physics plays a role in everyday life; explanations of how things work. Helps develop analytical thinking. The first semester explains motion and forces and heat.

**PHYS 1302. PHYSICS FOR NON SPECIALISTS II. 3 Hours.**

Follows PHYS 1301 and explains sound, light, electricity and magnetism. Prerequisite: PHYS 1301 or permission from instructor.

**PHYS 1441. GENERAL COLLEGE PHYSICS I. 4 Hours. (TCCN = PHYS 1401)**

The first half of a one-year, non-calculus introductory physics course taken by pre-medical, pre-dental, biology and architectural majors and others. The study of mechanics, elasticity, fluids, heat and waves is supplemented by laboratory experiments. Familiarity with high school algebra and trigonometry is required.

**PHYS 1442. GENERAL COLLEGE PHYSICS II. 4 Hours. (TCCN = PHYS 1402)**

The second half of a one-year, non-calculus introductory physics course. Subject matter includes electricity and magnetism, light and optics, and modern physics. Prerequisite: PHYS 1441 or equivalent, or permission of instructor.

**PHYS 1443. GENERAL TECHNICAL PHYSICS I. 4 Hours. (TCCN = PHYS 2425)**

The first half of a one-year technical course. Required for many science and engineering majors, exceeds premedical requirement. The study of physical phenomena in the fields of mechanics, heat, and waves. Concurrent enrollment in MATH 1426 (per prerequisite) is not recommended if no prior background in calculus. Prerequisite: MATH 1426 or consent of instructor.

**PHYS 1444. GENERAL TECHNICAL PHYSICS II. 4 Hours. (TCCN = PHYS 2426)**

The second half of a one-year technical course. The study of physical phenomena including electricity, magnetism, circuit theory, light, and optics. Prerequisites: PHYS 1443 or equivalent and MATH 2425 or concurrent enrollment.

**PHYS 2311. MATHEMATICAL METHODS OF PHYSICS. 3 Hours.**

Harmonic oscillators, waves, vector description of particles and fields, coordinate transformations, eigenvalue problems, and systems of linear equations. Prerequisites: PHYS 1444 or equivalent and MATH 2425.

**PHYS 2315. INTRODUCTORY ASTROPHYSICS. 3 Hours.**

This course introduces Science and Engineering majors to astrophysics. Subject matter includes the solar system, stellar properties and evolution, the Milky Way galaxy, normal and active galaxies, and cosmology. Prerequisite: PHYS 1444 or permission of the instructor.

**PHYS 2321. COMPUTATIONAL PHYSICS. 3 Hours.**

Development of computational techniques, including simulation, through applications to physical problems. A survey of topics including the multi-body problem, celestial mechanics, scattering, chaos, percolation, fractals, random processes, Fourier techniques in wave phenomena, Monte Carlo methods, and image reconstruction techniques. Prerequisite: PHYS 1444 or equivalent.

**PHYS 3183. MODERN PHYSICS LABORATORY. 1 Hour.**

Supplements the topics covered in PHYS 3313. Prerequisite: PHYS 3313 or concurrent enrollment.

**PHYS 3313. INTRODUCTION TO MODERN PHYSICS. 3 Hours.**

A brief introduction to the theories of quantum mechanics and statistical mechanics followed by a survey of atomic physics, conductors, semiconductors and modern electronic devices, nuclear and sub-nuclear physics. Prerequisites: PHYS 1444 or equivalent and MATH 2425.

**PHYS 3315. ASTROPHYSICS AND COSMOLOGY. 3 Hours.**

Diverse concepts in theoretical physics are applied to a wide range of astrophysical problems. Topics include stellar properties, spectra, evolution, radiation transport, nuclear reactions, degenerate matter, orbital mechanics, galactic dynamics, introductory general relativity and cosmology. Prerequisite: PHYS 3313 and MATH 3318 or MATH 3319.

**PHYS 3316. ASTROBIOLOGY. 3 Hours.**

This is an interdisciplinary course between astrophysics, biology and geology. Topics include properties of life, origin and evolution of life on Earth, mass extinctions, extremophiles, search for life in the Solar System, space missions, stellar habitable zones, SETI, Fermi paradox, Drake equation. Offered as BIOL 3316, GEOL 3316 and PHYS 3316; credit will be granted only once. Prerequisites: PHYS 1441 & PHYS 1442 or equivalent and PHYS 2315 or PHYS 3315, or permission from instructor. Prerequisites for Biology majors: PHYS 1441 and PHYS 1442 or equivalent and BIOL 3315. Offered as BIOL 3316, GEOL 3316, and PHYS 3316; credit will be granted only once.

**PHYS 3321. INTERMEDIATE ELECTRICITY AND MAGNETISM. 3 Hours.**

Vector algebra and vector calculus applied to electrostatics, magnetostatics, the study of dielectric materials, and boundary value problems. Prerequisite: PHYS 2311 and MATH 3318 or MATH 3319.

**PHYS 3341. INTRODUCTION TO BIOLOGICAL PHYSICS. 3 Hours.**

This course will cover four parts: Part I - History of Biological Physics and the general introduction of Cell biology; Part II - Physics of Biomaterials including polymer Physics; DNA & RNA; Protein Structures, Functions and Physics; Part III - Physics of life genetics including molecular motors, ATP functions, Photosynthesis and Physics of genetic regulations; and Part IV - Physics of biological detection including Physics of Radiation diagnosis; Optical Imaging; Magnetic Resonance Imaging and Ultrasound imaging. Prerequisite: PHYS 1442 or PHYS 1444 or equivalent.

**PHYS 3342. INTRODUCTION TO NANO-BIO PHYSICS. 3 Hours.**

The objective of this course is to provide students with an in-depth understanding of the physics of nanotechnology and its biological applications. The course is composed of two parts: nanoparticle physics and nano-bio physics. In the first part, the physics of nanotechnology will be introduced. The second part is the biological applications of nanotechnology, for which the focus will be on how to understand the physics of these applications. The understanding of the physical objectives for these applications will be helpful for the exploration of nano-biotechnology. Key advances from the recent literature will be reviewed and introduced to students as supplemental topics. Prerequisite: PHYS 1442 or PHYS 1444 or equivalent.

**PHYS 3366. SPECIAL TOPICS IN PRE-COLLEGE PHYSICAL SCIENCE INSTRUCTION. 3 Hours.**

A laboratory oriented curriculum for teaching physical science and/or physics is developed and experienced. The developed curriculum is particularly appropriate for pre-college instruction. May be repeated for credit as the subject matter changes, but not more than six hours credit may be accumulated. Prerequisite: junior standing, six hours of science, three hours of education, and consent of the instructor.

**PHYS 3445. OPTICS. 4 Hours.**

Fundamental principles of physical and geometric optics, absorption and scattering, Planck's quantum theory of radiation, diffraction, interference, light sources, and spectra. Prerequisites: PHYS 1444 or equivalent and MATH 2425.

**PHYS 3446. NUCLEAR AND PARTICLE PHYSICS. 4 Hours.**

The study of atomic nuclei and the fundamental constituents of matter. Topics include nuclear structure, radioactivity, nuclear reactions, fission, fusion, particles and their interactions, the standard model of particle physics, experimental methods, accelerators, and examples from current research topics. Prerequisite: PHYS 3313.

**PHYS 3455. ELECTRONICS. 4 Hours.**

A study of electronic components and quantum devices and their application to circuits and instrumentation. Prerequisites: PHYS 3313 and MATH 2425.

**PHYS 4117. INDIVIDUAL LEARNING BY SEMINAR. 1 Hour.**

Individual instruction on using the seminar as a model of learning current topics in physics. An individual report is required. Prerequisite: 18 hours of physics and senior standing.

**PHYS 4171. ADVANCED OPTICS LABORATORY. 1 Hour.**

Special laboratory projects in advanced optics. Prerequisite: PHYS 3445 or permission of the instructor.

**PHYS 4181. SPECIAL PROBLEMS. 1 Hour.**

Selected projects in research or teaching laboratories, which may be repeated in any order for a total credit not to exceed four hours, unless authorized by the undergraduate advisor. Prerequisite: Permission from instructor and Physics undergraduate advisor.

**PHYS 4185. ADVANCED ELECTRICITY AND MAGNETISM LABORATORY. 1 Hour.**

Supplements the topics covered in PHYS 3321 and 4324. Prerequisite: PHYS 4324 or concurrent enrollment.

**PHYS 4191. SPECIAL TOPICS IN PHYSICS. 1 Hour.**

Selected topics arranged on an individual basis, which may be repeated with permission from instructor and Physics undergraduate advisor. Prerequisite: as determined for topic or permission from instructor.

**PHYS 4271. ADVANCED OPTICS LAB. 2 Hours.**

Special laboratory projects in advanced optics. Prerequisite: PHYS 3445 or permission of the instructor.

**PHYS 4281. SPECIAL PROBLEMS. 2 Hours.**

Selected projects in research or teaching laboratories, which may be repeated in any order for a total credit not to exceed four hours, unless authorized by the undergraduate advisor. Prerequisite: permission from the instructor and the Physics undergraduate advisor.

**PHYS 4291. SPECIAL TOPICS. 2 Hours.**

Selected topics arranged on an individual basis, which may be repeated with permission from instructor and Physics undergraduate advisor. Prerequisite: as determined for topic or permission from instructor.

**PHYS 4315. THERMODYNAMICS AND STATISTICAL MECHANICS. 3 Hours.**

Topics in classical thermodynamics include the laws of thermodynamics, Gibbs' and Helmholtz's free energies, the Maxwell relations, heat capacities, entropy change calculations, phase and chemical changes. Statistical mechanics centers on the partition function and its applications, such as the entropy of an ideal gas, the Maxwell velocity distribution, the heat capacity of a solid, photon statistics, and blackbody radiation. Fermi-Dirac and Bose-Einstein statistics. Prerequisite: PHYS 3313 and MATH 2326 or permission of the instructor.

**PHYS 4319. ADVANCED MECHANICS. 3 Hours.**

Coupled oscillators, central forces, Lagrange's equations, Hamilton's canonical equations, the moment of inertia tensor, and the application of Euler's angles to rotational motion. Prerequisite: PHYS 2311, PHYS 3321, and MATH 3318 or MATH 3319, or permission of the instructor.

**PHYS 4324. ADVANCED ELECTRICITY AND MAGNETISM. 3 Hours.**

Electromagnetic phenomena based on Maxwell's equations and particle-field interactions. Prerequisite: PHYS 3321 or permission of the instructor.

**PHYS 4325. SOLID STATE PHYSICS. 3 Hours.**

Classification of crystalline solids and elastic and thermal properties, electric and magnetic properties, and electronic properties of solids. An introduction to current research problems. Prerequisite: PHYS 4315 or permission of the instructor.

**PHYS 4326. INTRODUCTION TO QUANTUM MECHANICS. 3 Hours.**

Schrodinger's equation and implications, the free particle, the one-electron atom, the potential barrier, and perturbation theory. Prerequisite: PHYS 3313, MATH 3318 or MATH 3319, or permission of the instructor.

**PHYS 4327. INTRODUCTION TO QUANTUM MECHANICS II. 3 Hours.**

This is a continuation of Introduction to Quantum Mechanics (PHYS 4326). The topics that will be covered will include: time-independent perturbation theory for non-degenerate states, degenerate perturbation theory, atoms with one or two electrons and molecules, Fermi and Bose gases, time-dependent perturbation theory, scattering theory, and introduction to relativistic quantum mechanics. Prerequisite: PHYS 4326 or permission from instructor.

**PHYS 4391. SPECIAL TOPICS. 3 Hours.**

Selected topics arranged on an individual basis, which may be repeated with permission from instructor and Physics undergraduate advisor. Prerequisite: as determined for topic or permission from instructor.

**PHYS 4393. HONORS THESIS IN PHYSICS. 3 Hours.**

Required of all students in the University Honors College. During the senior year the honors physics major will perform a research project under the direction of a Physics Department faculty member.

**PHYS 5193. READINGS IN PHYSICS. 1 Hour.**

Conference course. May be repeated for credit.

**PHYS 5194. RESEARCH IN PHYSICS. 1 Hour.**

Conference course with laboratory. May be repeated for credit.

**PHYS 5294. RESEARCH IN PHYSICS. 2 Hours.**

Conference course with laboratory. May be repeated for credit.

**PHYS 5305. CHAOS AND NONLINEAR DYNAMICS. 3 Hours.**

Introduction to basic principles and concepts of chaos theory and their applications in diverse fields of research. Topics include chaotic and non-chaotic systems, stability analysis and attractors, bifurcation theory, routes to chaos and universality in chaos, iterated maps, Lyapunov exponents, fractal dimensions, multifractals, hamiltonian chaos, quantum chaos, controlling chaos, self-organized systems, and theory of complexity.

**PHYS 5306. CLASSICAL MECHANICS. 3 Hours.**

General principles of analytical mechanics, the kinematics of rigid bodies, canonical transformation, Hamilton-Jacobi theory.

**PHYS 5307. QUANTUM MECHANICS I. 3 Hours.**

Matrix formulation, theory of radiation, angular momentum, perturbation methods.

**PHYS 5308. QUANTUM MECHANICS II. 3 Hours.**

Approximate methods, symmetry and unitary groups, scattering theory. Prerequisite: PHYS 5307.

**PHYS 5309. ELECTROMAGNETIC THEORY I. 3 Hours.**

Boundary value problems in electrostatics and magnetostatics, Maxwell's equations.

**PHYS 5310. STATISTICAL MECHANICS. 3 Hours.**

Fundamental principles of statistical mechanics, Liouville theorem, entropy, Fermi-Dirac distribution, Bose-Einstein distribution, Einstein condensation, density matrix, quantum statistical mechanics, kinetic methods, and transport theory.

**PHYS 5311. MATHEMATICAL METHODS IN PHYSICS I. 3 Hours.**

Algebraic and analytical methods used in modern physics. Algebra: matrices, groups, and tensors, with application to quantum mechanics, the solid state, and special relativity. Analysis: vector calculus, ordinary and partial differential equations, with applications to electromagnetic and seismic wave propagation.

**PHYS 5312. MATHEMATICAL METHODS IN PHYSICS II. 3 Hours.**

Continuation of PHYS 5311 with a selection from the following topics. Algebra: matrix representations of the symmetric and point groups of solid state physics, matrix representations of the continuous groups  $O(3)$ ,  $SU(2)$ ,  $SU(3)$ ,  $SL(2,C)$ , general covariance. Analysis: further study of analytic functions, Cauchy's theorem, Green's function techniques, orthogonal functions, integral equations. Prerequisite: PHYS 5311.

**PHYS 5313. ELECTROMAGNETIC THEORY II. 3 Hours.**

Modern tensorial treatment of classical electrodynamics, force on and field of a moving charge, derivation and application of 4-vector potential, Maxwell's equations in tensor form, field momentum and radiation.

**PHYS 5314. ADVANCED OPTICS. 3 Hours.**

Electromagnetic wave equations, theory of diffraction, radiation scattering and dispersion, coherence and laser optics. Additional advanced topics of current interest.

**PHYS 5315. SOLID STATE I. 3 Hours.**

Crystal structure, lattice vibration, thermal properties, and band theory of solids.

**PHYS 5316. SOLID STATE II. 3 Hours.**

Electrical and magnetic properties of crystalline solids, magnetic resonance, and optical phenomena.

**PHYS 5317. STATISTICAL MECHANICS II. 3 Hours.**

Methods in applied statistical mechanics. Topics may include fluctuations and critical phenomena, the Ising model, the master equation, transport in solids, and chaos.

**PHYS 5319. MATHEMATICAL METHODS IN PHYSICS III. 3 Hours.**

Numerical methods for applied physics; computer techniques, numerical differentiation, integration, interpolation, extrapolation; differential equations, integral equations, statistical analysis; scientific computer library; artificial intelligence programming.

**PHYS 5320. QUANTUM MECHANICS III. 3 Hours.**

Quantum theory of radiation; relativistic equations; elements of quantum field theory; symmetries and gauge theories. Applications in elementary particle physics and solid-state physics.

**PHYS 5325. INTRODUCTION TO ELEMENTARY PARTICLES I. 3 Hours.**

An overview of particles and forces. Particle detectors and accelerators. Invariance principles and conservation laws. Standard model. Electromagnetic, weak, strong, and unified interactions.

**PHYS 5326. INTRODUCTION TO ELEMENTARY PARTICLE PHYSICS II. 3 Hours.**

Systematics of the quark model; the fundamental interactions of elementary particles; spin and relativistic kinematics; Dirac Equation; the standard electroweak model.

**PHYS 5328. SURFACE PHYSICS. 3 Hours.**

Experimental and theoretical methods for the study of solid surfaces. Geometric and electronic structure of metals and semiconductors. Surfaces as model systems of reduced dimensionality. Adsorption phenomena and film growth.

**PHYS 5330. PHYSICS OF SEMICONDUCTOR PROCESSING AND CHARACTERIZATION. 3 Hours.**

Selection from the following topics: physics of crystal growth, lattice defects, impurity diffusion, ion-implantation, thin film growth and plasma etching. Physics of characterization techniques utilizing resistivity, carrier mobility and lifetimes, electrons, x-rays, ions, Rutherford backscattering, neutron activation analysis, positron annihilation spectroscopy, deep-level transient spectroscopy.

**PHYS 5381. MECHANICS & HEAT FOR TEACHERS. 3 Hours.**

This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in fundamental physics (not available for M.S. or Ph.D. credit in Physics). Topics include: 1) Newton's laws of motion, gravitation, and planetary motion; 2) the basic laws of thermal and statistical physics; 3) oscillatory motion including waves and sound. Replaceable experiments will be demonstrated throughout the course.

**PHYS 5382. ELECTROMAGNETISM FOR TEACHERS. 3 Hours.**

This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in fundamental physics (not available for M.S. or Ph.D. credit in Physics). Topics include: 1) Static charges, current flow, electric and magnetic fields; 2) simple DC/AC electrical circuits including examples from household circuit and practical electronic devices; 3) light and optics including examples such as cameras, microscopes and telescopes. Replaceable experiments will be demonstrated throughout the course.

**PHYS 5383. MODERN PHYSICS FOR TEACHERS. 3 Hours.**

This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in fundamental physics (not available for M.S. or Ph.D. credit in Physics). Topics include: 1) Introduction to special relativity and quantum theory; 2) light and radiation; 3) applications to modern electrical devices; 4) nuclear and particle physics.

**PHYS 5385. PHYSICS LAB TECHNIQUES FOR TEACHERS. 3 Hours.**

This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in fundamental physics (not available for M.S. or Ph.D. credit in Physics). Experiments demonstrating various topics are covered. Experiments include gravitational acceleration heat flow, harmonic motion, sound, electric magnetic fields, electric circuits, optic, x-rays and nuclear radiation.

**PHYS 5391. SPECIAL TOPICS IN PHYSICS. 3 Hours.**

Topics in physics, particularly from areas in which active research is being conducted, are assigned to individuals or small groups for intensive investigations. May be repeated for credit.

**PHYS 5393. READINGS IN PHYSICS. 3 Hours.**

Conference course. May be repeated for credit.

**PHYS 5394. RESEARCH IN PHYSICS. 3 Hours.**

Conference course with laboratory. May be repeated for credit.

**PHYS 5398. THESIS. 3 Hours.****PHYS 5694. RESEARCH IN PHYSICS. 6 Hours.**

Conference course with laboratory. May be repeated for credit.

**PHYS 5698. THESIS. 6 Hours.****PHYS 6301. METHODS OF APPLIED PHYSICS I--ELECTRONICS. 3 Hours.**

The analysis and design of electronic circuits for use in the laboratory. Transistors and integrated circuits in analog instrumentation. Digital logic. Information theory and signal processing.

**PHYS 6302. METHODS OF APPLIED PHYSICS II--COMPUTERS IN PHYSICS. 3 Hours.**

Applications of computers in physics. Acquisition and analysis of experimental data. Vector and parallel processing, image processing, simulation.

**PHYS 6303. METHODS OF APPLIED PHYSICS III--SPECTROSCOPY. 3 Hours.**

The principles (interactions, cross-sections, elastic and inelastic scattering, diffraction, coherence), the methodologies (sources, detectors, visualization), and applications (structure, dynamics, composition, excitations) of neutral and charged particle spectroscopies to condensed matter physics and materials science.

**PHYS 6304. APPLIED PHYSICS INTERNSHIP. 3 Hours.**

Applied physics and engineering research and training in industry or other science or engineering departments of U.T. Arlington or other institutions requiring applied physicists. Faculty supervision and submission of technical progress reports required.

**PHYS 6391. SELECTED TOPICS IN APPLIED PHYSICS. 3 Hours.**

Topics chosen from research areas in the Department of Physics or at one of the institutions or corporations participating in the traineeship program in applied physics; emphasis on industrial and engineering applications. May be repeated for credit.

**PHYS 6399. DISSERTATION. 3 Hours.****PHYS 6604. APPLIED PHYSICS INTERNSHIP. 6 Hours.**

Applied physics and engineering research and training in industry or other science or engineering departments of U.T. Arlington or other institutions requiring applied physicists. Faculty supervision and submission of technical progress reports required.

**PHYS 6699. DISSERTATION. 6 Hours.****PHYS 6904. APPLIED PHYSICS INTERNSHIP. 9 Hours.**

Applied physics and engineering research and training in industry or other science or engineering departments of U.T. Arlington or other institutions requiring applied physicists. Faculty supervision and submission of technical progress reports required.

**PHYS 6999. DISSERTATION. 9 Hours.****PHYS 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Political Science (POLS)

### COURSES

**POLS 2311. GOVERNMENT OF THE UNITED STATES. 3 Hours. (TCCN = GOVT 2305)**

(GOVT 2305). The constitution and government of the United States. The organization, procedures, and duties of the branches of the government, together with their accomplishments and defects.

**POLS 2312. STATE AND LOCAL GOVERNMENT. 3 Hours. (TCCN = GOVT 2306)**

(GOVT 2306). The principles and organization of American state, county, and municipal government, together with current problems and the constitution and government of Texas.

**POLS 3302. INTRODUCTION TO INTERNATIONAL RELATIONS. 3 Hours.**

Introduction to the interplay between states, international organizations, multinational corporations, and popular or militant movements within the international system and to their continued search for wealth, power, and security.

**POLS 3303. INTRODUCTION TO PUBLIC ADMINISTRATION. 3 Hours.**

The scope and development of public administrative organizations; both the traditional and behavioral approaches to the treatment of administrative principles, decision making, and organizational environment.

**POLS 3304. INTRODUCTION TO COMPARATIVE POLITICS. 3 Hours.**

Cross-national and cross-cultural comparisons of political systems. Institutional structure, political process, dynamics of change, and ideology.

**POLS 3305. GOVERNMENT IN URBAN AMERICA. 3 Hours.**

Problems associated with the growth, diversity, and complexity of urban areas and governmental solutions. Urban regimes, neighborhood governments, electoral politics, and intergovernmental relations. Useful for students interested in urban management.

**POLS 3306. LEGISLATIVE ORGANIZATION AND PROCEDURE. 3 Hours.**

Internal and external influences on the U.S. Congress: rules, norms, committees, seniority, political parties, presidents, media, constituents and interest groups.

**POLS 3307. COMPARATIVE STATE AND LOCAL POLITICS. 3 Hours.**

Comparison of state and local political institutions and policy choices in the United States. Useful for students interested in state and local government policy innovations.

**POLS 3308. POLITICS OF A TEXAS CITY: ARLINGTON CITY POLITICS. 3 Hours.**

Describes the political processes over a period of fifty years from the immediate post-World War II years to the present. The outlines of Arlington city government, its structure, the changes, and personalities that have shaped it and held power. This course does not satisfy area distribution requirements.

**POLS 3310. RESEARCH METHODS AND POLITICAL ANALYSIS. 3 Hours.**

How to study politics scientifically, through proper research design, quantitative and qualitative methods. Students are familiarized with a statistical package to analyze political data, which will fulfill the computer competency requirement. Prerequisites: POLS 2311, POLS 2312, Math 1301 or Math 1302, and Math 1308. Exceptions as approved by the Department.

**POLS 3311. PUBLIC OPINION. 3 Hours.**

Measurement of attitudes, public opinion and ideology, the learning and influencing of public opinion, and expression of public opinion in elections and mass political movements. The logic and practice of survey research.

**POLS 3312. INTRODUCTION TO PUBLIC POLICY ANALYSIS. 3 Hours.**

The American policymaking process from issue creation to program administration and evaluation. Policy models and methods of policy analysis. Oriented toward providing students with skills as a professional policy analyst.

**POLS 3313. MODERN CRITICS OF SOCIETY AND POLITICS. 3 Hours.**

Designed for both political science and other majors. Focus on writers like Banfield, Galbraith, Marcuse, Reich, Revel, Skinner, and Toffler.

**POLS 3314. POLITICAL SYSTEMS OF EASTERN AND CENTRAL EUROPE. 3 Hours.**

POLS 3314 or RUSS 3314. Examination of the political institutions and processes of the former communist systems of Eastern Europe and the Baltics, as well as selected Central European states. Credit will be given in only one department. Students receiving credit in Russian will complete projects using the Russian language.

**POLS 3315. VIOLENCE & REPRESSION IN THE AMERICAS. 3 Hours.**

Examination of extra-legal behavior in the Americas (particularly Latin America). Topics include human rights violations, repression, insurrection, terrorism, and revolution. Analysis of different causes and outcomes of such political participation. Prerequisite: POLS 2311 and POLS 2312.

**POLS 3316. DICTATORSHIP AND DEMOCRACY IN LATIN AMERICAN POLITICS. 3 Hours.**

The political development of Latin American nations and various explanations for trends and differences in Latin American politics. Strategies of development; Latin America's relationship with the United States; and contemporary events in Latin America.

**POLS 3317. MEXICAN POLITICS AND U.S.-MEXICO RELATIONS. 3 Hours.**

Current economic and political systems of Mexico and relevant issues in U.S.-Mexico relations. Trade, immigration, economic dependency, energy, contraband, and other topics. Offered as MAS 3317 and POLS 3317; credit will be given in only one department.

**POLS 3318. POLITICAL SYSTEMS OF EAST ASIA. 3 Hours.**

The political institutions and dynamics in the political systems of East Asia including China and Japan.

**POLS 3327. AMERICAN POLITICAL PARTIES. 3 Hours.**

The development and characteristics of the American political party system, including systematic goals, formal organizations, membership recruitment, ideological and issue orientations, electoral and participatory functions, and linkages in the political system.

**POLS 3328. INTRODUCTION TO MIDDLE EAST POLITICS. 3 Hours.**

The historical developments that have led to the current political, social, economic, and security order of the Middle East, as well as the contemporary challenges facing the region and its inhabitants. Prerequisites: POLS 2311 and POLS 2312.

**POLS 3329. THE POLITICS OF INTERNATIONAL CONFLICT. 3 Hours.**

The impact of factors such as national security and political ideologies on international conflict and the role of international organizations in maintaining world peace.

**POLS 3330. JUDICIAL BEHAVIOR AND THE JUDICIAL PROCESS. 3 Hours.**

Decision making, role perception, recruitment and socialization of judges, and the relationship between attitudes and values of justices and their decisions. The judicial process and how courts relate to the larger political system and society. Especially recommended for pre-law majors.

**POLS 3331. CONTEMPORARY ISSUES IN CIVIL LIBERTIES. 3 Hours.**

The status and function of civil liberties in modern America emphasizing problem areas of Equal Employment Opportunity, invasion of privacy by government, obscenity and pornography, and corporate and industrial assaults on civil liberties.

**POLS 3333. JURISPRUDENCE. 3 Hours.**

An empirical and normative examination of the nature of law, legal reasoning, and modern legal systems, particularly in the U.S. Other topics: the origins of American legal concepts as they have evolved from earlier legal systems in the Western world and a comparative treatment of legal systems in the world today. Especially recommended for pre-law majors.

**POLS 3334. WOMEN AND U.S. LAW. 3 Hours.**

An exploration of the status and rights of women under the law in the United States. Examines the changing nature of sex discrimination through Supreme Court cases, federal legislation and other primary source material. Analyzes the impact of the Supreme Court on national policy making in areas such as employment, education, privacy and the family.

**POLS 3335. CRIMINAL LAW. 3 Hours.**

The substantive legal provisions of criminal justice; major crimes prohibited by our legal system with stress upon social values. Texas and Anglo-American criminal laws treated and contrasted.

**POLS 3336. STATE JUDICIAL INSTITUTIONS & JURISPRUDENCE. 3 Hours.**

An examination of state judicial institutions emphasizing the role of processes in determining judicial behavior and the composition of state courts. Examines the role of law and courts, judicial system structures, and judicial policy-making in state government.

**POLS 3390. HONORS COLLOQUIUM. 3 Hours.**

An interdisciplinary course designed to meet the needs of advanced undergraduates in the honors program.

**POLS 4101. MOOT COURT. 1 Hour.**

An understanding of legal debate from the perspective of student competitions, discussions of legal doctrines, and legal research methods. Statewide competitions required. This course does not satisfy area distribution requirements. May be repeated for total of 3 hours credit.

**POLS 4102. POLITICAL SCIENCE SERVICE LEARNING. 1 Hour.**

Students will engage in service learning placements to supplement political science course work with the goal of civic education and community involvement. Placements will be coordinated with the Center for Community Service Learning and students will be required to fulfill not only placement hours, but also additional reflection in writing in consultation with the faculty advisor. This course does not satisfy area distribution requirements.



**POLS 4300. POLITICS IN FILM. 3 Hours.**

Use of film and video in the presentation of political ideas, opinions, and facts. Techniques, subject matter, and alternative forms of presentation. This course does not satisfy area distribution requirements.

**POLS 4303. PUBLIC ADMINISTRATION AND THE POLITICAL PROCESS. 3 Hours.**

The relationships of public administration at all levels with democratic institutions, including its interactions in the formulation and execution of public policies with the chief executive, the legislative and judicial branches, political parties, clientele groups, and the public at large.

**POLS 4311. INTERNATIONAL RELATIONS, FOREIGN POLICY, AND POLITICAL PSYCHOLOGY. 3 Hours.**

Introduction to psychological approaches to international relations and foreign policy. Topics may include foreign policy images and belief systems, personality and leadership, decision-making in groups, preference updates and belief change. Topics may also include forecasting, emotions and neuroscience, cognition, identity politics, and foreign policy attitudes.

**POLS 4312. INTERNATIONAL ORGANIZATIONS. 3 Hours.**

This course introduces students to the institutions, decision-making, and activities of the world's leading multilateral organizations. Examples include the United Nations, NATO, the African Union, and the European Union. Students will focus on how organizations respond to contemporary global challenges such as civil wars, terrorism, human rights abuses, and economic crises. The course also teaches students how to apply theories of international relations to real-world policy problems.

**POLS 4313. POLITICAL DEVELOPMENT. 3 Hours.**

The concept of political development, political values, structures, issues, and patterns of political processes in the pre-industrial, industrial, and post-industrial political communities.

**POLS 4314. SEPARATION OF POWERS AND AMERICAN INSTITUTIONS. 3 Hours.**

Theories behind institutional design and development of the executive, legislative, and judicial branches in the United States. Emphasis is placed on interactions of these units of government.

**POLS 4316. WOMEN IN THE POLITICAL PROCESS. 3 Hours.**

This course introduces students to the unique experiences of women in the political process, the impact of these experiences on the political system, and theories of gender and politics. Offered as POLS 4316 and WOMS 4316; credit will be granted only once.

**POLS 4317. ETHNIC GROUP POLITICS IN THE UNITED STATES. 3 Hours.**

The influence of selected major ethnic groups with special attention given to organizational development, participation in political parties, leadership, ideology, immigration policy, current issues, and relations with the dominant culture and other ethnic groups. Offered as AAST 4317 and POLS 4317; credit will be granted in only one department.

**POLS 4318. POLITICS OF AFRICAN AMERICANS. 3 Hours.**

The influence of African-American politics on United States government and policies with special attention given to organizational development, participation in political parties, leadership, ideology, the Civil Rights movement, current issues, and relations with other ethnic groups. Offered as AAST 4318 and POLS 4318; credit will be granted in only one department.

**POLS 4319. POLITICS OF MEXICAN AMERICANS. 3 Hours.**

The influence of Mexican-American politics on United States government and policies with special attention given to organizational development, participation in political parties, leadership, ideology, the Chicano Movement, current issues, and relations with other ethnic groups. Offered as MAS 4319 and POLS 4319; credit will be given in only one department.

**POLS 4322. ISSUES IN POLITICAL THEORY. 3 Hours.**

Each time this course is offered it will focus on one particular issue central to the study of political theory for example, authority, justice, citizenship, methodology of the social sciences. May be repeated for credit when content varies.

**POLS 4323. FEMINIST POLITICAL THOUGHT. 3 Hours.**

Issues raised by the feminist critique of political theory; the exclusion of women from the political sphere until the 20th century; Marxist, liberal, and radical feminist political thought; alternative feminist conceptions of the political. Offered as POLS 4323 and WOMS 4323; credit will be granted only once.

**POLS 4324. ELECTORAL BEHAVIOR. 3 Hours.**

Major theories of candidate strategy and voter choice, including rational behavior and empirical democratic theory. Introduction to voting behavior analysis in contemporary elections.

**POLS 4326. ELECTION STRATEGY AND CAMPAIGN MANAGEMENT. 3 Hours.**

Strategies relating to elections and various aspects of managing campaigns, including the techniques of demographic survey, voting behavior analysis, opinion survey, issue research, and candidate research.

**POLS 4327. POLITICAL IDEAS OF THE ANCIENT WORLD. 3 Hours.**

Principal theorists and schools of political thought prior to 1500, with emphasis upon those making significant contributions to the political heritage of Western Europe.

**POLS 4328. MODERN POLITICAL IDEAS. 3 Hours.**

The development of political thought from Machiavelli to Marx. Emphasis on the Renaissance, Classical Liberalism, French Radicalism and Marxism.

**POLS 4329. CONTEMPORARY CONTROVERSIES IN POLITICAL THEORY. 3 Hours.**

Examination of twentieth-century approaches to political thought and central controversies in the field. Topics may include: liberal, conservative, and socialist theories; critical theory; communitarianism; postmodernism; feminism; and identity politics.

**POLS 4330. THE U.S. PRESIDENCY. 3 Hours.**

The U.S. Presidency, including sources of power, changes in the office over time, and the relationship between the individual and the institution.

**POLS 4331. U.S. CONSTITUTIONAL LAW: GOVERNMENT POWER. 3 Hours.**

U.S. Supreme Court decisions regarding the structure of government in the United States. Focus on Congress, the President, Federalism, and the relation of the judicial process to these topics. Recommended for pre-law majors.

**POLS 4332. U.S. CONSTITUTIONAL LAW: FUNDAMENTAL RIGHTS. 3 Hours.**

U.S. Supreme Court decision making involving the Bill of Rights and other fundamental rights. Especially recommended for pre-law majors.

**POLS 4333. PRESIDENTIAL LEADERSHIP IN DOMESTIC POLICY MAKING. 3 Hours.**

Explores the policy process from the perspective of the U.S. president, examining the president's influence through the policy stages. Prerequisite: POLS 2311 and POLS 2312.

**POLS 4334. PRESIDENTIAL LEADERSHIP IN FOREIGN POLICY. 3 Hours.**

The roles, powers, and expectations of the presidency in crafting and implementing foreign policy. By analyzing how presidents utilize the tools of foreign policy available to them, an understanding of broader social and political forces shaping the formulation and implementation of foreign policy is gained. Prerequisite: POLS 2311, POLS 2312.

**POLS 4335. LEADERSHIP IN AMERICAN (U.S.) POLITICAL DEVELOPMENT. 3 Hours.**

This course critically examines the tension between democracy and leadership in the development of American (U.S.) politics. By analyzing the role of political leaders in American political development, an understanding of the dynamics that drive change in American politics is gained. Prerequisite: POLS 2311 and POLS 2312.

**POLS 4336. CONTEMPORARY UNITED STATES FOREIGN POLICY. 3 Hours.**

Theories and analytical structure for understanding United States foreign policy. Policy examined from theoretical, structural, regional, and topical perspectives.

**POLS 4340. FEDERAL SOCIAL POLICY. 3 Hours.**

This course examines public policies, including Social Security, Medicare, Medicaid, and various public assistance programs that emerged from the federal government's attempts to create a "safety net" for American citizens beginning in the 1930s, and from attempts to confront poverty during the 1960s. This course also considers the importance of federal "tax expenditures" in prompting private actors to provide services, such as employer-sponsored health insurance. The course also examines attempts to alter, roll back, or expand the federal role in social policy over recent decades.

**POLS 4350. HEALTH POLITICS AND POLICY. 3 Hours.**

Debates over the role of government in providing access to health care have been a prominent feature of American politics for the past century. This course examines the politics of health care debates in America as well as major features of federal health policy. Prerequisite: POLS 2311 and POLS 2312.

**POLS 4351. ENERGY POLICY AND ADMINISTRATION. 3 Hours.**

Basic issues underlying the politics, economics, and administration of energy policy within the United States. Emerging energy sources, such as solar and geothermal.

**POLS 4352. U.S. IMMIGRATION POLICY AND THE AMERICAN DREAM. 3 Hours.**

Focus on American identity through the examination of immigration to the United States, past and present, and the evolution of U.S. immigration policy. Topics include U.S. attitudes and policy responses to European, Asian, and Latin American immigration and to the incorporation of the descendants of African slaves and Native Americans. Emphasis on the decline of the melting pot idea and the incorporation of recent immigrants. Offered as MAS 4352 and POLS 4352. Credit will be granted only once.

**POLS 4353. PUBLIC BUDGETING AND TAXATION. 3 Hours.**

The concepts, processes, and policy impacts of taxation and public budgeting. Individual, group, and institutional roles in taxes and budgeting are emphasized. Introduction to current research techniques in political economy.

**POLS 4354. THE POLITICS OF REFORM POLICY. 3 Hours.**

Current and past efforts to change the way American government functions. Sources of reform, consequences of reform, and case studies of current reforms.

**POLS 4355. INTERNATIONAL POLITICS. 3 Hours.**

The background, principles, practices, risks, and problems of international relations and politics in the world composed of nation-states; international conflicts, their bases, and mechanisms for their solution.

**POLS 4360. THEORIES OF THE INTERNATIONAL SYSTEM. 3 Hours.**

Major theories and approaches to the international system. Traditionalist, behavioralist, and post-behavioralist theories rather than institutional, legal, or topical considerations.

**POLS 4361. THE POLITICAL ENVIRONMENT OF RUSSIA AND THE SUCCESSOR STATES. 3 Hours.**

The domestic political systems of Russia and the other former Soviet republics. The communist state in retrospect. Development of political actors, institutions, and parties. Offered as POLS 4361 and RUSS 4361; credit will be given in only one department. Taught in English; for Russian language credit, research will be done in Russian.

**POLS 4362. RUSSIA AND THE SUCCESSOR STATES TODAY. 3 Hours.**

The metamorphosis of the Communist Party and the current political philosophies of the post-Soviet states. Examination of attitudes and self-perceptions of citizens of these states in the post-period. Emphasis is on area studies and culture. The course will be taught in English, but for Russian language credit; research will be done in the Russian language. May be repeated for credit as topics change. Offered as HIST 4362, POLS 4362, & RUSS 4362. Credit will be granted in only one department.

**POLS 4365. FOREIGN POLICIES OF RUSSIA AND THE SUCCESSOR STATES. 3 Hours.**

The foreign policies of Russia and other former Soviet republics. Development of their policymaking structures and the major issues confronting them. Emphasis on Russia and the superpower relationship, European security and cooperation, relations with developing states, and the interactions of the former Soviet republics. Also listed as RUSS 4365; credit will be given in only one department.

**POLS 4370. INTERNATIONAL RELATIONS OF THE MIDDLE EAST. 3 Hours.**

This course will focus on the international interactions among actors in the Middle East. Topics to be covered include: theoretical and conceptual approaches to understanding regional politics; main conflicts in the region; contemporary challenges and issues; and a survey examination of the foreign policies of select countries.

**POLS 4371. THE POLITICS AND FOREIGN POLICY OF ISRAEL. 3 Hours.**

This course will examine the domestic politics and foreign policies of Israel. The course will be divided into two sections. The first section will focus on the domestic institutions and politics of Israel, while the second section will focus on Israel's foreign policies and the impact of domestic politics on them. Topics to be covered include: the rise of Zionism; the pre-state period in Palestine; efforts at state-building and institutional development; domestic politics (including institutions, parties, electoral system); divisions in Israeli society; and determinants and examples of foreign policy. Prerequisite: POLS 2311 and POLS 2312.

**POLS 4372. HUMAN SECURITY, VIOLENCE, AND SCARCITY. 3 Hours.**

This course explores patterns of violence, scarcity, and norms in world politics, particularly as they pertain to the emerging paradigm of human security. This approach calls into question conventional notions of national and international security by focusing on the security of people rather than states. It explores challenges to basic human needs and desires which undermine the ability to be safe, free, and secure -- such as infectious disease, genocide, environmental degradation, migration, and transnational crime. It also examines international responses to such problems.

**POLS 4389. BEYOND CONGRESS AND THE WHITE HOUSE. 3 Hours.**

An examination of power in Washington, focusing on what lies outside the Executive and Legislative branches. Students visit and study significant institutions and monuments in the city as windows into complex political and social issues. Enrollment is restricted to designated Archer Fellows.

**POLS 4390. POLICYMAKING IN WASHINGTON. 3 Hours.**

An analysis of the central role of Congress in shaping public policy. Emphasis on real-world policymaking. Students play the role of legislative assistants to members of Congress and produce analyses of the public policy issues. Enrollment is restricted to designated Archer Fellows. Prerequisite: POLS 2311 and POLS 2312.

**POLS 4392. SPECIAL TOPICS IN POLITICAL SCIENCE. 3 Hours.**

May be repeated for credit as topics change.

**POLS 4393. PREPARING FOR CAREERS IN POLITICAL SCIENCE. 3 Hours.**

Supervised employment in a government or government-related organization with the student performing duties related to the academic curricula of political science. Students are required to submit a term paper, case study, or an approved academic project related to the work performed. Work is generally graded pass/fail. A maximum of six semester hours of credit in Political Science Internship may be used to satisfy a political science elective requirement for graduation. Students must be classified as juniors or seniors, be political science majors or minors, and have a minimum 3.0 GPA in their major and overall. Majors must have completed 21 hours of political science; minors must have completed 12 hours of political science. Contact the Department for a complete description of requirements. Departmental consent required before enrollment.

**POLS 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department.

**POLS 4395. CONFERENCE COURSE READINGS IN POLITICAL SCIENCE. 3 Hours.**

Designed for the advanced undergraduate student who is capable of independent study. An in-depth examination of one area of political science not necessarily covered in regular course work. May be repeated for credit when the subject matter varies, but only with permission of the department. Only two such courses will be counted on a student's degree plan. Prerequisites: permission of the undergraduate advisor; appropriate previous coursework; written consent of the instructor. Students must be Political Science majors or minors, have a minimum of 60 credit hours/junior status, have a 3.0 grade point average, and have completed at least 9 hours of Political Science.

**POLS 4691. ARCHER PROGRAM INTERNSHIP. 6 Hours.**

One-semester work experience in Washington, DC carried out during the student's tenure of an Archer Fellowship. The internship is custom-designed with the assistance of the director of the Archer Program based on the student's academic and professional goals. Enrollment is restricted to designated Archer Fellows. Prerequisite: POLS 2311 and POLS 2312.

**POLS 5197. MASTER'S COMPREHENSIVE EXAMINATION. 1 Hour.**

Required of all non-thesis Master of Arts students in the semester of their graduation. Graded P/F/R.

**POLS 5300. AMERICAN GOVERNMENT AND POLITICS. 3 Hours.**

A survey of the major theories and subfields in the study of American politics. Readings comprise a representation of scholarship illustrating a variety of substantive and methodological approaches.

**POLS 5301. JUDICIAL POLITICS AND THE U.S. SUPREME COURT. 3 Hours.**

This course focuses on judicial decision-making and behavior. While the entire American court system will be considered, primary attention will be given to the U.S. Supreme Court and constitutional issues.

**POLS 5302. BUREAUCRATIC LEADERSHIP: TRENDS IN PUBLIC ADMINISTRATION AND POLICY MANAGEMENT. 3 Hours.**

Recent literature in organizational theory, government restructuring, and policy management problems.

**POLS 5303. COMPARATIVE POLITICAL SYSTEMS. 3 Hours.**

Theories, concepts, and methods that dominate modern comparative political analysis. The state of the discipline and controversies in the comparative method are evaluated.

**POLS 5305. TOPICS IN POLITICAL THEORY. 3 Hours.**

This course will cover both historical and contemporary topics central to the discipline of political theory. It will consider the major figures in the field as well as themes such as citizenship, democracy, freedom, and authority. May be repeated for credit as the topic changes.

**POLS 5310. EMPIRICAL THEORY AND RESEARCH METHODS. 3 Hours.**

Focus on issues of philosophy of science, explanations and theories, research designs, measurement, survey research, and statistical analysis. Exposes the student to the basic steps of political research: defining the problem or the question, formulating hypotheses, specifying a research design, operationalizing the measures, analyzing the data, and reaching conclusions.

**POLS 5311. CAMPAIGNS AND ELECTIONS. 3 Hours.**

Describes important trends in modern campaigns and elections practices, focusing on contemporary American elections, including campaign finance, voter turnout, campaign advertising, and voter choices. Class presentations, a short research paper, and journal article readings.

**POLS 5315. PUBLIC OPINION. 3 Hours.**

Describes the development of survey research and commonly-encountered problems in surveys. Focuses most heavily on the contemporary practice of public opinion research, particularly in the American setting. Class presentations, a short research paper, and journal article readings.

**POLS 5316. PUBLIC LEADERSHIP: RACE, ETHNICITY, & GENDER. 3 Hours.**

Study of leadership theories, skills and traits, with focus on the intersections of race, ethnicity, and gender on public leadership in the public arena.

**POLS 5317. ETHNIC GROUPS AND THE NATION STATE. 3 Hours.**

Examines the role of the nation state on ethnic/racial groups; characteristics of a nation, theories of the nation state and of ethnic/racial groupings; and, theories of incorporation of these groups by the nation state.

**POLS 5318. WOMEN IN THE POLITICAL PROCESS. 3 Hours.**

This course examines women and gender in the political process, exploring various theoretical and methodological approaches helpful in studying gender and politics.

**POLS 5319. CONGRESSIONAL BEHAVIOR. 3 Hours.**

This course addresses several major questions regarding the nature of Congress as an institution, the behaviors of its members, and the role Congress plays in shaping public policy and the general nature of a representative democracy. Students are expected to have the ability to comprehend readings that are heavily quantitative. Course requirements will include weekly writings, a research paper and exams.

**POLS 5320. THE AMERICAN PRESIDENCY. 3 Hours.**

An overview course on the U.S. Presidency, exploring the institution as well as its relationship to other branches and political actors.

**POLS 5321. THE PRESIDENCY AND DOMESTIC POLICY. 3 Hours.**

This course examines presidential and domestic policy making, exploring how the president makes policy, focusing on theories of presidential leadership, White House organization and presidential-congressional interactions.

**POLS 5322. SEPARATION OF POWERS IN AMERICAN POLITICAL DEVELOPMENT. 3 Hours.**

Theories behind institutional design and the historical development of the executive, legislative, and judicial branches in the United States. Emphasis is placed on interactions of these institutions of government and current separation of powers controversies.

**POLS 5323. STATE COURT SYSTEMS. 3 Hours.**

Examination of the major theories of judicial politics and public law applied to the state court level. Topics include attention to the institutional, strategic, and attitudinal perspectives of judicial behavior.

**POLS 5324. PUBLIC POLICY ANALYSIS. 3 Hours.**

Examination of the U. S. national policymaking process from agenda setting to policy outcomes. A variety of analytical frameworks are introduced to analyze power structures.

**POLS 5325. STATE GOVERNORS AND LEGISLATURES. 3 Hours.**

Examination of the similarities and differences in the organization of state legislative and executive offices. Course focuses on the organization of state governments and the behavior of state elites.

**POLS 5326. STATE/LOCAL GOVERNMENT POLICYMAKING. 3 Hours.**

Focus on policy problems. Emphasis is on trends in state policy, interstate policy innovation and diffusion, and the effects of federal programs on state policy choices.

**POLS 5327. URBAN POLICYMAKING AND ADMINISTRATION. 3 Hours.**

Focus on the influence of economic, political, institutional, and organizational factors on urban policymaking and administration. A variety of regime and power structure models facilitate the analysis of urban policymaking.

**POLS 5328. PUBLIC POLICY AND MEXICAN AMERICAN COMMUNITIES. 3 Hours.**

Focus on the public policy process and the limited role Mexican Americans have had in national and state (TX) policymaking. Select topic areas are utilized to focus on state actors, issues, allocation of resources, and the power structure for analytical purposes.

**POLS 5329. PUBLIC BUDGETING. 3 Hours.**

The concepts, processes, and policy impacts of taxation and public budgeting. Introduction to current research techniques, budgetary issues, and the relevant political economy literature.

**POLS 5330. ENERGY AND THE ENVIRONMENT. 3 Hours.**

Analysis of the politics, economics, and administration of energy and environmental policies in the United States.

**POLS 5331. POLITICAL SYSTEMS OF EAST ASIA. 3 Hours.**

Comparative analysis of the political institutions and processes of China and Japan, with emphasis on the aspects of political development.

**POLS 5332. THEORIES OF THE INTERNATIONAL SYSTEM. 3 Hours.**

Classical theories and concepts of international politics and models of foreign policy decision-making. Also may include the underlying assumptions in traditionalist vs. behaviorist approaches in examining international relations.

**POLS 5333. IDENTITY AND POLITICS IN THE MIDDLE EAST. 3 Hours.**

Deeper examination of processes of state building and political development; state-society relations; Arabism; authoritarianism and democratization; oil and economic issues; Islamist politics; the role of transnational ideas.

**POLS 5334. VIOLENCE AND DEPRIVATION IN WORLD POLITICS. 3 Hours.**

Focuses on theoretical frameworks, empirical analysis, and policy relevance of myriad threats to individuals and communal groups. Examples include: human rights, failed states, violence, health issues, slavery and migration, environmental security.

**POLS 5335. LATIN AMERICAN POLITICS. 3 Hours.**

Designed to give students knowledge of the political development of Latin America by first examining general topics and then analyzing events in specific countries. Utilizes themes and concepts that are universal to all Latin American nations, but also stresses the different paths to political development that have been taken in each of these countries.

**POLS 5336. REPRESSION AND REVOLUTION IN LATIN AMERICAN. 3 Hours.**

Examines issues of political repression and revolutionary participation in Latin America. Topics range from human rights violations to coups and revolutions.

**POLS 5337. POLITICAL SYSTEMS OF RUSSIA AND EASTERN EUROPE. 3 Hours.**

Russia and the states of Eurasia from a comparative perspective. Analysis of how political issues and policies within these states have an impact upon economic, social, and cultural systems.

**POLS 5338. AMERICAN FOREIGN POLICY. 3 Hours.**

Evaluation of some of the primary theories and models used in explaining American Foreign Policy. The course attempts to bridge the gaps that exist between theory and reality through approaches such as realism, neo-realism, deterrence, and others.

**POLS 5339. ISRAELI IDENTITY AND THE ARAB-ISRAELI CONFLICT. 3 Hours.**

This course will explore the deeper threads of Israeli identity, and how these impact Israeli policy toward the Arab-Israeli conflict. Topics to be covered include: diverse and clashing identities (e.g., Jewish, democratic, Middle Eastern, Israeli); how identity clashes have played out in politics; outlines of Israeli foreign policy; specific policies toward the Palestinians.

**POLS 5341. Political Psychology and International Relations. 3 Hours.**

Course focuses on psychological approaches to international politics and examines how different perspectives can contribute to the study of world politics.

**POLS 5342. International Organizations. 3 Hours.**

This course describes the institutions, decision-making and activities of the world's leading international organizations to establish an understanding of the role of international organizations in managing contemporary global problems.

**POLS 5368. Health Politics and Policy. 3 Hours.**

Course will survey the political history of the health care debate in the United States as well as major features of federal health policy.

**POLS 5369. SOCIAL POLICY. 3 Hours.**

This course examines the role of the federal government relating to social policy as a central theme of contemporary American politics. Issues surrounding the federal government's attempt to create a social safety net and issues such as poverty will be confronted, as well as the central role of tax expenditures and attempts to roll back social policies.

**POLS 5380. TOPICS IN U.S. POLITICS: INSTITUTIONS, PROCESS AND BEHAVIOR. 3 Hours.**

This course will focus on the specific aspects of U.S. governing institutions, processes, and behavior. A single aspect of U.S. politics will be examined in a given semester. (May be repeated for credit when topics vary.).

**POLS 5381. TOPICS IN COMPARATIVE POLITICS. 3 Hours.**

This course will serve as a treatment of emerging and established nations. (May be repeated for credit when topics vary.).

**POLS 5382. TOPICS IN PUBLIC LAW AND JURISPRUDENCE. 3 Hours.**

The role of U.S. national and state courts in policy making, constitutional law, and the examination of the evolution and nature of law in the United States. (May be repeated for credit when topics vary.).

**POLS 5383. TOPICS IN PUBLIC ADMINISTRATION AND POLICY MAKING. 3 Hours.**

U.S. national policy making and program management, state and urban policy making and administration. (May be repeated for credit when topics vary.).

**POLS 5384. TOPICS IN INTERNATIONAL RELATIONS. 3 Hours.**

Topics of international politics, including subjects such as American foreign policy, assessments of institutions, and international behavior.

**POLS 5391. CONFERENCE COURSE IN POLITICAL SCIENCE. 3 Hours.**

Research and reading in a specialized field under the direction of a member of the graduate faculty. Graded P/F/W.

**POLS 5392. FEDERAL POLICYMAKING: INSIDE THE FEDERAL GOVERNMENT. 3 Hours.**

This summer course offered in Washington, DC through the Archer Program in Public Policy, takes students behind the scenes in the federal government to explain how the government works. Students meet with officials from Congress, the White House, Executive Branch agencies, lobbying firms, NGOs, think tanks, interest groups, and the media. The seminar requires significant student participation. The extensive literature on federal government dynamics will be sampled, but the focus will be on interaction with representatives of the major institutions that participate in the process of federal governance. Open to designated Archer Fellows only, by permission of POLS graduate advisor.

**POLS 5398. THESIS. 3 Hours.**

Original research designed to augment existing studies of problems or topics related to one of the major fields of study.

**POLS 5692. ARCHER CENTER WASHINGTON INTERNSHIP. 6 Hours.**

An approved summer internship in a government or non-governmental organization in Washington, DC. Internships are arranged with assistance from the Archer Center staff. Students acquire and utilize the interpersonal skills necessary to function effectively in an office environment; they become conversant with the substantive issues on which their office focuses; and they develop time-management, priority-setting and other skills necessary to meeting the work and classroom demands of the Archer Graduate Program in Public Policy. Open to designated Archer Fellows only, by permission of POLS graduate advisor.

**POLS 5698. THESIS. 6 Hours.**

Original research designed to augment existing studies of problems or topics related to one of the major fields of study. POLS 5398 graded R/F only; POLS 5698 graded P/F/R.

## Portuguese (PORT)

### COURSES

**PORT 1441. BEGINNING PORTUGUESE I. 4 Hours. (TCCN = PORT 1411)**

Multimedia immersion in the culture and language of Portuguese-speaking countries. Designed to enable students to understand and communicate effectively in Portuguese at the beginning level. No prerequisites.

**PORT 1442. BEGINNING PORTUGUESE II. 4 Hours. (TCCN = PORT 1412)**

Continuation of beginning Portuguese. Prerequisite: PORT 1441 with a grade of C or better.

**PORT 2301. TOPICS IN LITERATURE IN TRANSLATION. 3 Hours.**

Study of the works of major authors and intellectual trends of a given period of periods. May be repeated for credit as topics or periods vary. PORT 2301 may be taken to fulfill the foreign language literature requirement. Prerequisite: ENGL 1301 and ENGL 1302.

**PORT 2313. INTERMEDIATE PORTUGUESE I. 3 Hours. (TCCN = PORT 2311)**

Continued immersion in the culture and language of Portuguese -speaking countries. Application of strategies and technology in mastering listening, speaking, reading, and writing at the intermediate level. Prerequisite: PORT 1442 with a grade of C or better.

**PORT 2314. INTERMEDIATE PORTUGUESE II. 3 Hours. (TCCN = PORT 2312)**

Continuation of intermediate Portuguese. Prerequisite: PORT 2313 with a grade of C or better.

**PORT 3303. PORTUGUESE CONVERSATION AND CULTURE. 3 Hours.**

Practice in oral expression with an emphasis on developing conversational skills and cultural knowledge. Of special interest to students who wish to improve their skills in pronunciation, comprehension, and oral expression. Prerequisite: PORT 2314 with a grade of C or better. Credit will not be granted to native speakers of Portuguese. Heritage speakers of Portuguese need the consent of the instructor to register.

**PORT 3304. PORTUGUESE CONVERSATION AND CULTURE II. 3 Hours.**

Students continue to develop conversational skills and cultural knowledge. Emphasis on speaking, listening, building vocabulary, and providing practice in a broad range of communicative and cultural contexts. Credit will not be granted to native speakers of Portuguese. Heritage speakers of Portuguese need the consent of the instructor to register. Prerequisite: PORT 3303 with a grade of C or better.

**PORT 3310. PORTUGUESE LOCALIZATION AND TRANSLATION. 3 Hours.**

Introduction to cultural and linguistic issues in the translation of Portuguese language texts. Students will explore current technologies used in various real-world translation contexts and how to adapt texts, products, and services to the locale for which they are intended. Prerequisite: PORT 2314 or the equivalent with a grade of B or better. May not be repeated for credit.

**PORT 3311. PORTUGUESE LOCALIZATION AND TRANSLATION II. 3 Hours.**

Continued study of cultural and linguistic issues in the translation of Portuguese and English language texts. Systematic development of advanced skills in localization and computer-aided translation and in using TMX/TBX (international standards for translation memory and terminology exchange) tools. Translation practice, individually and in translation teams, with increasingly longer and more specialized texts. Prepares localization and translation specialists for real-world careers in the language-services industry. May be repeated once. Prerequisite: PORT 3310 with a grade of B or better.

**PORT 3391. CONFERENCE COURSE. 3 Hours.**

Independent study; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: consent of the department.

## Psychology (PSYC)

### COURSES

**PSYC 1315. INTRODUCTION TO PSYCHOLOGY. 3 Hours. (TCCN = PSYC 2301)**

The fundamental methods and content of scientific psychology. Concentration on the understanding of basic principles.

**PSYC 2317. BASIC CONCEPTS IN HUMAN SEXUALITY. 3 Hours. (TCCN = PSYC 2306)**

The physiological, psychological, and sociological aspects of human sexuality. Offered as BIOL 2317, HEED 2317, PSYC 2317, and WOMS 2317. Credit will be granted for one of these courses only. Students seeking certification in Health Education must enroll in HEED 2317. Students seeking credit toward their science requirement must enroll in BIOL 2317. May not be used for biology grade point calculation or biology credit toward a BS degree in biology, microbiology, medical technology, psychology, or sociology.

**PSYC 2359. CURRENT TOPICS IN PSYCHOLOGY. 3 Hours.**

Students will delve into detail regarding current issues, problems, or topics in modern psychology. Topics will vary depending on instructor. May be repeated for credit as different topics are offered. Prerequisite: PSYC 1315.

**PSYC 2443. RESEARCH DESIGN & STATISTICS I. 4 Hours.**

Theoretical and practical approaches to research methodology, statistical analyses and techniques of report research. Prerequisite: PSYC 1315, MATH 1302 (or equivalent), ENGL 1302, and completion of computer competency requirement.

**PSYC 2444. RESEARCH DESIGN & STATISTICS II. 4 Hours.**

Theoretical and practical approaches to research methodology, statistical analyses and techniques of report research. Prerequisite: PSYC 2443.

**PSYC 3131. PSYCHOLOGY SERVICE LEARNING. 1 Hour.**

Service learning is a credit-bearing learning experience; therefore, credit is awarded for academic learning and not for service hours. Students engage in classroom activities, assignments, and discussions and in addition, integrate course content and learning outcomes with genuine community needs or issues. Collaborations with the community result in relationship-building and partnerships through intentional, structured service experiences. Students are required to analyze and evaluate these experiences by engaging in reflective activities, such as discussion and journaling. This process of structured service and learning in the community promote a sense of civic responsibility and commitment to others. Students commit to serve weekly time resulting in at least fifteen hours during one semester. This time is agreed upon by student, faculty, and community agency. Prerequisites: Permission of the Instructor.

**PSYC 3231. PSYCHOLOGY COMMUNITY SERVICE LEARNING. 2 Hours.**

Service learning is a credit-bearing learning experience; therefore, credit is awarded for academic learning and not for service hours. Students engage in classroom activities, assignments, and discussions and in addition, integrate course content and learning outcomes with genuine community needs or issues. Collaborations with the community result in relationship-building and partnerships through intentional, structured service experiences. Students are required to analyze and evaluate these experiences by engaging in reflective activities, such as discussion and journaling. This process of structured service and learning in the community promote a sense of civic responsibility and commitment to others. Students commit to serve weekly time resulting in at least fifteen hours during one semester. This time is agreed upon by student, faculty, and community agency. Prerequisites: Permission of the Instructor.

**PSYC 3301. PSYCHOLOGY OF HUMAN RELATIONS. 3 Hours.**

Workplace applications of topics including person perception, social influence, group processes and dynamics, interpersonal relations, teamwork, leadership, workplace discrimination, diversity, stress, and burnout.

**PSYC 3302. BUSINESS PSYCHOLOGY. 3 Hours.**

A survey of the fields of industrial and organizational psychology, focusing on the application of psychological theory to understanding and solving problems in the workplace. Topics include recruitment, employee selection and training, the effects of attitudes, motivation, group dynamics and leadership, job satisfaction, productivity and morale.

**PSYC 3303. DRUGS AND BEHAVIOR. 3 Hours.**

A survey of the psychoactive agents, their therapeutic uses, and social abuses. Alcohol, nicotine, caffeine, narcotics, hallucinogens, stimulants, and tranquilizers. Offered as BIOL 3303, HEED 3303, and PSYC 3303; credit will be granted only once. May not be used for biology grade point calculation or biology credit toward a B.S. degree in biology, microbiology, or medical technology. Students seeking certification in health education must enroll in HEED 3303.

**PSYC 3304. ANALYSIS & MANAGEMENT OF BEHAVIOR. 3 Hours.**

Behavioral control techniques for remediation and prevention of problem behaviors and for optimization of normal behaviors in real life settings. Contrasting therapeutic approaches, the ethics of behavior control, and the impact of behaviorism on society. Prerequisite: PSYC 1315 or permission of the instructor.

**PSYC 3306. PSYCHOLOGY OF CREATIVITY AND CREATIVE THINKING. 3 Hours.**

Research and theory relevant to the traits, attitudes, and abilities which are related to creative functioning with emphasis on the conceptual-cognitive components of creative formation and problem solving. Methods of stimulating creative behavior in individuals and in groups. Relevant research findings provide the substance of the course. Prerequisite: PSYC 1315.

**PSYC 3307. UNDERSTANDING PSYCHOLOGY THROUGH FILM. 3 Hours.**

An exploration of psychological issues represented in film. Using an interdisciplinary approach, the medium of film will be used to discuss psychological mechanisms as well as psychotherapeutic processes. Human behaviors such as those involved in character and plot development, as well as the perspectives of filmmakers and movie-goers will be explored. Prerequisite: Six hours of behavioral science (i.e., psychology, sociology, anthropology, and others).

**PSYC 3308. FORENSIC PSYCHOLOGY. 3 Hours.**

Examines the legal system's basic assumptions and procedures in light of social scientific evidence pertaining to human behavior relevant to the rights of defendants, victims, children, and mental patients, including areas of clinical psychology in which psychologists act as expert witnesses and consultants.

**PSYC 3310. DEVELOPMENTAL PSYCHOLOGY. 3 Hours.**

Human development and growth from conception through old age, concerned with the physical, behavioral, and social aspects. Prerequisite: PSYC 1315.

**PSYC 3311. ADULTHOOD AND AGING. 3 Hours.**

Developmental changes in major psychological processes and abilities are related to health, sex, ethnicity, socioeconomic status, and lifestyle. Emphasis is on models of psychobiological changes with age and current empirical knowledge having implications for the preservation of intellectual function, mental health, and physical condition. Prerequisite: PSYC 1315.

**PSYC 3312. SOCIAL & PERSONALITY DEVELOPMENT. 3 Hours.**

A review of psychological theory and research on age trends and individual differences in personality and social development. Topics include emotional development, aggression, identity and achievement, attachment, gender role development, and familial and extrafamilial influences on development. Prerequisite: PSYC 1315.

**PSYC 3313. CULTURAL PSYCHOLOGY. 3 Hours.**

Theory and research regarding psychological issues related to gender and cultural diversity. These issues will be approached from different perspectives within psychology, including clinical, developmental, social, health, and cognitive psychology. Prerequisite: PSYC 1315. Offered as PSYC 3313 and WOMS 3313; credit will be granted only once.

**PSYC 3314. PSYCHOLOGY OF PERSONALITY. 3 Hours.**

A broad survey of major theories, assessment methods, and representative research in the field of personality. The theoretical approaches considered include the psychoanalytic, neo-Freudian, trait, biological, humanistic, behavioral social/learning, and cognitive approaches. Prerequisite: PSYC 1315.

**PSYC 3315. SOCIAL PSYCHOLOGY. 3 Hours.**

The theories and research dealing with individual behavior in the social environment. Social influence processes, interpersonal attraction, group behavior, aggression, conformity, and attitude formation and change. Prerequisite: PSYC 1315.

**PSYC 3316. ENVIRONMENTAL PSYCHOLOGY. 3 Hours.**

The effect of the social, physical, and ecological features of the environment on human behavior. The effects of crowding, noise, architecture, urban design, and climate. Prerequisite: PSYC 1315.

**PSYC 3317. INTRODUCTION TO CLINICAL AND COUNSELING PSYCHOLOGY. 3 Hours.**

The student is introduced to psychodiagnostic procedures and the basic approaches of counseling and psychotherapy. Prerequisite: PSYC 1315.

**PSYC 3318. ABNORMAL PSYCHOLOGY. 3 Hours.**

Major forms of psychopathology. Classification, etiology, and treatment of major disorders. Prerequisite: PSYC 1315.

**PSYC 3319. PSYCHOLOGY OF ADOLESCENCE. 3 Hours.**

A topical study of adolescent behavioral and psychological development with emphasis on theory, methods of inquiry, and practical implications. Prerequisite: PSYC 1315.

**PSYC 3320. BEHAVIOR AND MOTIVATION. 3 Hours.**

Theory and research involving relation of motivation and emotion to learning theory, social behavior, personality, and development. Prerequisite: PSYC 1315.



**PSYC 3322. BRAIN AND BEHAVIOR. 3 Hours.**

An introduction to the anatomical structures and physiological processes that determine behavior. Topics include the acquisition and processing of sensory information, the neural control of movement, and the biological bases of complex behaviors (such as learning, memory, sex, language, and addiction), as well as the basic functioning of the nervous system. Offered as BIOL 3322 and PSYC 3322. Credit will be granted only once. BIOL 3322 prerequisite: BIOL 1441, BIOL 1442. PSYC 3322 prerequisite: BIOL 1441 or PSYC 1315.

**PSYC 3326. ANIMAL BEHAVIOR. 3 Hours.**

A survey of research and theory comparing behavior at various phyletic levels. Offered as BIOL 3326 and PSYC 3326. Credit will be granted for only one of these courses. Prerequisite: BIOL 1441, BIOL 1442.

**PSYC 3331. PSYCHOLOGY COMMUNITY SERVICE LEARNING. 3 Hours.**

Service learning is a credit-bearing learning experience; therefore, credit is awarded for academic learning and not for service hours. Students engage in classroom activities, assignments, and discussions and in addition, integrate course content and learning outcomes with genuine community needs or issues. Collaborations with the community result in relationship-building and partnerships through intentional, structured service experiences. Students are required to analyze and evaluate these experiences by engaging in reflective activities, such as discussion and journaling. This process of structured service and learning in the community promote a sense of civic responsibility and commitment to others. Students commit to serve weekly time resulting in at least fifteen hours during one semester. This time is agreed upon by student, faculty, and community agency. Prerequisites: Permission of the Instructor.

**PSYC 3334. COGNITIVE PROCESSES. 3 Hours.**

Current theory and research in cognitive processes such as memory, information processing, concept formation, and problem solving. Prerequisite: PSYC 1315.

**PSYC 3351. PRACTICUM IN APPLIED BEHAVIOR ANALYSIS. 3 Hours.**

Students receive supervised experience in the application of behavior modification procedures to everyday behavior problems. Practicum students work off-campus in a community setting. The course provides an opportunity to develop skills in setting behavior objectives, analyzing contingencies of reinforcement, and designing, writing, and implementing practical behavior change programs. Prerequisite: PSYC 3304, PSYC 4310 and Permission of the Instructor.

**PSYC 3355. INTERNSHIP IN PSYCHOLOGY. 3 Hours.**

Provides the student with an opportunity to apply academic experience to practical situations by serving for a specified number of hours as participant-observer in an off-campus activity. The activity will be reflected in the title on the transcript. Internships must be arranged with an internship supervisor and/or faculty member in the semester prior to enrolling for this course.

**PSYC 3356. EVOLUTIONARY PSYCHOLOGY. 3 Hours.**

A consideration of how evolution has influenced social, cognitive and developmental processes in humans. Comparisons between humans and other species, and between different human cultures will be included. Topics such as mate selection, marriage and family practices, child rearing, social relations, language, thinking, neuropsychology, learning and related topics will be considered. Methods of gathering data and theory about evolutionary processes will be stressed. Prerequisite: PSYC 1315.

**PSYC 4155. ORAL COMMUNICATION SKILLS IN PSYCHOLOGY. 1 Hour.**

Study and practice of effective oral communication skills in psychology. Students will gain experience in developing effective oral communication techniques by learning to evaluate, prepare, and make oral presentations based on selected topics in psychology. This course will satisfy the Oral Communication Competency requirement in Psychology. Graded by pass/fail only. Prerequisite: PSYC 3315 and PSYC 3144 or PSYC 3326 and PSYC 3146 or PSYC 3420 or PSYC 4322 and PSYC 3142 or PSYC 3431 or PSYC 4334 and PSYC 3145.

**PSYC 4161. READINGS IN PSYCHOLOGY. 1 Hour.**

Topics arranged on an individual basis. Performance may be assessed by oral exam, written test, or review paper as arranged. Prerequisite: permission of the instructor.

**PSYC 4181. RESEARCH IN PSYCHOLOGY. 1 Hour.**

Research problems arranged on an individual basis, to be conducted by the student, and written in publishable journal format. Prerequisite: permission of the instructor.

**PSYC 4261. READINGS IN PSYCHOLOGY. 2 Hours.**

Topics arranged on an individual basis. Performance may be assessed by oral exam, written test, or review paper as arranged. Prerequisite: permission of the instructor.

**PSYC 4281. RESEARCH IN PSYCHOLOGY. 2 Hours.**

Research problems arranged on an individual basis, to be conducted by the student, and written in publishable journal format. Prerequisite: permission of the instructor.

**PSYC 4301. INTRO TO NEUROSCIENCE. 3 Hours.**

An in depth understanding of the mechanisms underlying the function of the nervous system. Topics include cellular mechanisms of neural communication, neuroanatomy and neurophysiology of sensory, motor, and autonomic systems, cellular mechanisms of learning and memory, and neuropathological conditions that contribute to neurological disorders. Course offered as BIOL 4301 and PSYC 4301. Credit will be granted only once. Prerequisite: PSYC 3322 (BIOL 3322) or permission of instructor.

**PSYC 4303. PAIN RESEARCH AND MANAGEMENT. 3 Hours.**

An introduction to the psychological and biological factors that underlie pain conditions with a focus on the underlying mechanisms of clinical pain disorders and current pain management strategies.

**PSYC 4306. MAJOR PERSONALITY DISORDERS. 3 Hours.**

This course surveys the major disorders of human personality. It begins with a review of classic and contemporary perspectives for understanding personality disorders and considers how personality disorders are assessed and treated in the context of psychotherapy. The major personality disorders are examined in considerable detail. They include the avoidant personality, the antisocial personality, the narcissistic personality, the dependent personality, and the borderline personality. Prerequisite: PSYC 1315 and PSYC 3314 or PSYC 3318.

**PSYC 4309. NEUROPHARMACOLOGY. 3 Hours.**

A survey of how drugs affect the nervous system. General topics will include cellular and molecular foundations of neuropharmacology, receptors and modulation of neural signaling. The specific role of neurotransmitter systems (i.e. acetylcholine, dopamine, norepinephrine, serotonin, and opiate) will be explored. Offered as BIOL 4309 and PSYC 4309; credit will be granted only once. Prerequisites: BIOL 1441 or BIOL 3322 or PSYC 3322 or BIOL 3301.

**PSYC 4310. BEHAVIOR THERAPY. 3 Hours.**

Current theory and practice in the analysis and treatment of psychological disorders using problem solving techniques derived from the experimental analysis of behavior. Behavioral treatment strategies are reviewed for chronic disorders such as fears and phobias, obsessive-compulsive disorder, depression, and anxiety as well as childhood disorders such as language delay, autism, attention deficits, and hyperactivity. Prerequisite: PSYC 1315.

**PSYC 4325. DEVELOPMENTAL PSYCHOBIOLOGY. 3 Hours.**

The biological basis of behavioral development. A survey of the influences of maternal factors, genes, hormones, teratogens, early nutrition, and environmental change upon the maturation of the central nervous system. Basic concepts such as critical periods, the organization of behavioral systems, neural plasticity, and the ontogeny of consciousness. Also offered as BIOL 4325; credit will be granted only once. Students seeking credit toward the science requirement must enroll in BIOL 4325. Prerequisite: PSYC 3310 or PSYC 3322 or BIOL 3322 or BIOL 3346.

**PSYC 4327. BEHAVIORAL GENETICS. 3 Hours.**

Genetic influences on behavioral phenotypes. Research strategies, quantitative methods, and pharmacogenetic approaches to the brain; sociality and altruism; the personality, emotionality and intelligence; psychopathology; chromosomal abnormalities; forensic implications of genetic counseling. Also offered as BIOL 4327; credit will be granted only once. Students seeking credit toward the science requirement must enroll in BIOL 4327. Prerequisite: BIOL 3315 or PSYC 2444.

**PSYC 4329. ANIMAL LEARNING AND COGNITION. 3 Hours.**

A comprehensive survey of psychological, biological, and ethological perspectives on learning, memory, and cognition in animals. Prerequisite: PSYC 2444.

**PSYC 4332. THEORIES OF HUMAN LEARNING AND MEMORY. 3 Hours.**

A comprehensive survey of theories and research concerning basic learning and memory processes and their application to a variety of areas, e.g., eyewitness memory, false memory syndrome, autobiographical memory, memory decline in aging. Theoretical and background perspectives include associative mechanism, information processing approaches, and neurophysiological bases for encoding, storage, and retrieval. Prerequisite: PSYC 1315, and Junior Standing.

**PSYC 4335. COGNITIVE DEVELOPMENT. 3 Hours.**

Theories and phenomena concerning development of all aspects of human cognition across the life span. Prerequisite: PSYC 2444.

**PSYC 4337. PSYCHOLOGY OF TESTING. 3 Hours.**

The student will become familiar with a wide variety of group and individual tests. Statistical interpretation will be emphasized in terms of validity, reliability, objectivity, item analysis, correlation, and other pertinent criteria. PSYC 1315, PSYC 2444.

**PSYC 4338. COGNITIVE NEUROSCIENCE. 3 Hours.**

Theory and research on the relationship between the brain and human cognition. Normal functioning and comparisons between normal and disordered states (e.g., Alzheimer's disease, amnesia, localized brain injury, age changes). Prerequisite: PSYC 4332 or PSYC 3334.

**PSYC 4339. PSYCHOLOGY OF JUDGMENT AND CHOICE. 3 Hours.**

Research and theory on the errors of intuitive judgment and how formal decision methods improve choices. Prerequisite: PSYC 2444.

**PSYC 4350. SPORTS PSYCHOLOGY. 3 Hours.**

The course will provide an overview of the growing field of Sports Psychology, which involves applying psychological science to sports. Topics such as maximizing sports performance, elite performance and personality, motivation techniques in sports, leadership skills in sports, etc., will be covered.

**PSYC 4355. THE HISTORY OF PSYCHOLOGY. 3 Hours.**

The evolution of psychology as a science, up to and including contemporary developments. Prerequisite: nine hours of psychology.

**PSYC 4357. HEALTH PSYCHOLOGY. 3 Hours.**

This course provides a broad introduction to health psychology and its interface with the medical world. The course provides a balanced presentation of the important issues in the field, as well as specific content topics that are especially relevant today to better understand health and illness. Offered as BIOL 4357, HEED 4357, and PSYC 4357. Students seeking science requirement credit must enroll in BIOL 4357; students seeking Certification in Health must enroll in HEED 4357. Prerequisite: PSYC 1315 or BIOL 1333 or BIOL 1441 or BIOL 2457; junior standing recommended.

**PSYC 4359. SELECTED TOPICS IN PSYCHOLOGY. 3 Hours.**

Topics pertinent to the field of psychology. Topic, format, and prerequisites to be determined by the instructor. May be repeated for credit as different topics are offered. Prerequisite: to be determined by the instructor.

**PSYC 4361. READINGS IN PSYCHOLOGY. 3 Hours.**

Topics arranged on an individual basis. Performance may be assessed by oral exam, written test, or review paper as arranged. Prerequisite: permission of the instructor.

**PSYC 4381. RESEARCH IN PSYCHOLOGY. 3 Hours.**

Research problems arranged on an individual basis, to be conducted by the student, and written in publishable journal format. Prerequisite: permission of the instructor.

**PSYC 4398. HONORS THESIS. 3 Hours.**

Students may take this course only at the invitation of the department. Consists of a research project of a type and level which would be publishable in one of the psychological journals. Particular emphasis is placed on independent work by the student. Prerequisite: departmental invitation.

**PSYC 4410. ADVANCED TOPICS IN DEVELOPMENTAL PSYCHOLOGY. 4 Hours.**

This course will cover current topics in Developmental Psychology using an interactive, participatory format that includes a lecture portion and a laboratory section. The course will focus on specific content topics that are especially relevant today to better understand and use advanced concepts in Developmental Psychology. Completion of the course is essential for students who are interested in pursuing a career in Developmental Psychology research. Prerequisites: C or better in both PSYC 2444 and PSYC 3310; junior standing recommended.

**PSYC 4411. ADVANCED TOPICS IN PERSONALITY. 4 Hours.**

This course will cover current topics in Personality using an interactive, participatory format that includes a lecture portion and a laboratory section. The course will focus on specific content topics that are especially relevant today to better understand and use advanced concepts in Personality. Completion of the course is essential for students who are interested in pursuing a career in Personality research. Prerequisites: C or better in both PSYC 2444, PSYC 3314; junior standing recommended.

**PSYC 4412. ADVANCED TOPICS IN SOCIAL PSYCHOLOGY. 4 Hours.**

This course will cover current topics in Social Psychology using an interactive, participatory format that includes a lecture portion and a laboratory section. The course will focus on specific content topics that are especially relevant today to better understand and use advanced concepts in Social Psychology. Completion of the course is essential for students who are interested in pursuing a career in Social Psychology research. Prerequisites: C or better in both PSYC 2444 and PSYC 3315; junior standing recommended.

**PSYC 4420. EXPERIMENTAL ANALYSIS OF BEHAVIOR. 4 Hours.**

A laboratory course examining basic principles of behavior control and analysis with single animals and automated testing apparatus. Emphasis is placed on individualized, self-paced instruction and creative experimentation. Prerequisite: PSYC 2444 and either PSYC 3304 or PSYC 4310.

**PSYC 4421. ADVANCED TOPICS IN NEUROSCIENCE. 4 Hours.**

This course will cover current topics in Neuroscience using an interactive, participatory format that includes a lecture portion and a laboratory section. The course will focus on specific content topics that are especially relevant today to better understand and use advanced concepts in Neuroscience. Completion of the course is essential for students who are interested in pursuing a career in Neuroscience research. Prerequisites: C or better in both PSYC 2444 and PSYC 3322; junior standing recommended.

**PSYC 4430. ADVANCED TOPICS IN CLINICAL COUNSELING. 4 Hours.**

This course will cover current topics in Clinical and Counseling using an interactive, participatory format that includes a lecture portion and a laboratory section. The course will focus on specific content topics that are especially relevant today to better understand and use advanced concepts in Clinical and Counseling. Completion of the course is essential for students who are interested in pursuing a career in Clinical and Counseling research. Prerequisite: PSYC 2444, PSYC 3317 and PSYC 3318; junior standing recommended.

**PSYC 4431. ADVANCED TOPICS IN COGNITIVE SCIENCE. 4 Hours.**

This course will cover current topics in Cognitive Psychology using an interactive, participatory format that includes a lecture portion and a laboratory section. The course will focus on specific content topics that are especially relevant today to better understand and use advanced concepts in Cognitive Psychology. Completion of the course is essential for students who are interested in pursuing a career in Cognitive Psychology research. May be repeated for credit as specific topics vary. Prerequisite: PSYC 2444 and PSYC 3334. Junior standing recommended.

**PSYC 4432. ADVANCED TOPICS IN HEALTH. 4 Hours.**

This course will cover current topics in Health Psychology using an interactive, participatory format that includes a lecture portion and a laboratory section. The course will focus on specific content topics that are especially relevant today to better understand and use advanced concepts in Health Psychology. Completion of the course is essential for students who are interested in pursuing a career in Health Psychology research. May be repeated for credit as specific topics vary. Prerequisite: C or better in both PSYC 2444 and PSYC 4357. Junior standing recommended.

**PSYC 5110. PROFESSIONAL DEVELOPMENT I. 1 Hour.**

The philosophy and methods of conducting a university class for undergraduates are examined. Specific tips and suggestions for managing course materials, lectures, audiovisual aids, grading, etc. will be presented. The role of the university instructor as a researcher as well as a teacher will be elaborated. Specific topics will include the ethics and regulation of research, service as a journal referee, corresponding with peers, participating in a research team, manuscript preparation, presentation at professional conferences, and submitting material for publication. Prerequisite: admission to the graduate program in psychology or permission of the instructor. Graded F, P. Prerequisite: Admission to the graduate program in psychology or permission of the instructor.

**PSYC 5112. PROFESSIONAL DEVELOPMENT II. 1 Hour.**

An introduction to the skills associated with the conduct of psychology as a science and as a profession. Individual faculty will be invited to present techniques and approaches that they see as useful and necessary to the application of the specialty in psychological research and problem-solving. Graded F, P. Prerequisite: Admission to the graduate program in psychology or permission of the instructor.

**PSYC 5151. READINGS IN PSYCHOLOGY. 1 Hour.**

Independent readings under the supervision of an individual faculty member. Students wishing to conduct research should sign up for PSYC 5191, PSYC 5291, or PSYC 5391. May be repeated for credit with consent of the Graduate Advisor. Graded P/F/R. Prerequisite: consent of the instructor.

**PSYC 5191. RESEARCH IN PSYCHOLOGY. 1 Hour.**

Independent research under the supervision of an individual faculty member; may be repeated for credit with consent of Graduate Advisor. Graded P/F/R. Prerequisite: consent of the instructor.

**PSYC 5251. READINGS IN PSYCHOLOGY. 2 Hours.**

Independent readings under the supervision of an individual faculty member. Students wishing to conduct research should sign up for PSYC 5191, PSYC 5291, or PSYC 5391. May be repeated for credit with consent of the Graduate Advisor. Graded P/F/R. Prerequisite: consent of the instructor.

**PSYC 5291. RESEARCH IN PSYCHOLOGY. 2 Hours.**

Independent research under the supervision of an individual faculty member; may be repeated for credit with consent of Graduate Advisor. Graded P/F/R. Prerequisite: consent of the instructor.

**PSYC 5301. BRAIN & BEHAVIOR. 3 Hours.**

A comprehensive survey of physiological processes and structures underlying human and animal behavior.

**PSYC 5307. RESEARCH METHODS. 3 Hours.**

This course considers basic and advanced aspects of methodology used in psychological research, including experimental design, methodologies that combine disciplinary approaches (e.g., biomedical, behavioral, and field and laboratory approaches).

**PSYC 5309. HEALTH PSYCHOLOGY. 3 Hours.**

A survey of current theory and research in health psychology, including basic research in health and behavior, biobehavioral contributions to illness and disability, and fundamental relationships among the brain, bodily function, and behavior that may affect health and well-being. It will also include clinical and translational topics including patient interventions in medically-ill populations, pain management, and disease prevention.

**PSYC 5310. MATHEMATICAL MODELS IN PSYCHOLOGY. 3 Hours.**

Elementary probability theory, matrix algebra, and theory of linear difference equations applied to theoretical problems in learning, signal detection, decision processes, and social interactions.

**PSYC 5313. HIGHER MENTAL PROCESSES. 3 Hours.**

Includes topics such as concept identification, problem solving, reasoning, and knowledge representation.

**PSYC 5314. COGNITIVE DEVELOPMENT. 3 Hours.**

A survey of current theories of cognitive development. Recent research within topic areas, such as physical reasoning, spatial cognition, memory, and symbol use, will be used to evaluate the theories presented.

**PSYC 5315. BEHAVIOR ANALYSIS. 3 Hours.**

Overview of operant theory with an emphasis upon contemporary problems. Basic concepts that are covered include: reinforcement and stimulus control, punishment, compound schedules, response topography, and chaining. Other topics include complex human operants, verbal behavior, behavior modification, and contingency management.

**PSYC 5321. PERSONALITY PSYCHOLOGY. 3 Hours.**

A survey of contemporary topics in personality psychology, including personality assessment, strategies for studying personality, temporal stability and cross-situational consistency in behavior, and personality influence on social behavior.

**PSYC 5322. SOCIAL PSYCHOLOGY. 3 Hours.**

A survey of contemporary topics in social psychology, including interpersonal attraction, altruism and aggression, attribution and social cognition, social influence, group dynamics, and social motivation.

**PSYC 5323. GROUP PROCESSES. 3 Hours.**

Survey of the major topics in group dynamics. Among the issues covered will be performance, motivation, goal setting, decision-making, creativity, social influence, memory, leadership, teamwork, and collective behavior.

**PSYC 5324. APPLIED RESEARCH DESIGN. 3 Hours.**

Basic aspects of organizational research methods will be covered including: research ethics, the scientific method, inductive and deductive reasoning, research questions, hypotheses, study designs, manipulation of variables, and various measures and methods used in organizational research. The history of Industrial and Organizational research will also be covered.

**PSYC 5325. ORGANIZATIONAL BEHAVIOR. 3 Hours.**

Theory and research concerning organizational development will be examined. This course is designed to provide an intensive survey of topics relating to organizational change strategies, climate and culture, team dynamics and issues related to diversity and inclusion. Leadership theories, models, and practices will be evaluated.

**PSYC 5326. EMPLOYEE SELECTION. 3 Hours.**

Principles and techniques of employee selection, placement, and classification will be examined. Job analysis and competency modeling will be covered with a focus on the legal aspects of selection and promotion. The use of various methods and measures of job relevant individual differences will be examined within the context of predicting performance criteria.

**PSYC 5327. INDUSTRIAL AND ORGANIZATIONAL INTERNSHIP. 3 Hours.**

This course is preparation for and supervision of internship activities in an organization or organizations in an area related to area of interest or training. No credit will be given for previous experience or activities. Course may be repeated for credit. Prerequisite: consent of instructor.

**PSYC 5328. EMPLOYEE ATTITUDES AND BEHAVIORS. 3 Hours.**

Theory and research concerning the determinants, consequences, and measurement of job satisfaction and related constructs such as involvement, commitment and work motivation will be covered. Attitudes, opinions, and beliefs will be examined in relation to the behavioral intentions of individuals at work. Organizational interventions designed to improve and enhance employee motivation, attitudes and behaviors will be evaluated.

**PSYC 5329. PERFORMANCE MANAGEMENT SYSTEMS. 3 Hours.**

Principles and techniques of the performance appraisal and feedback process will be covered. Different sources of performance information will be evaluated. Mentoring and procedures for communicating performance evaluation information and improving job performance via development and training will be examined. Theories and techniques used to design, conduct, and evaluate training programs will be evaluated.

**PSYC 5331. PERCEPTION AND ATTENTION. 3 Hours.**

Survey of methods and findings dealing with perception; emphasis will be upon behavioral rather than physiological considerations; particular topics include signal detection theory, form and pattern recognition, and attentional mechanisms.

**PSYC 5333. BEHAVIORAL NEUROSCIENCE. 3 Hours.**

A survey of biological and physical processes underlying behavior. Emphasis on neural, hormonal, and genetic determinants of behavior. Topics include regulatory behaviors, reward and nociceptive systems, differentiation and sociosexual behaviors, limbic and cortical functions.

**PSYC 5334. HUMAN PHYSIOLOGY. 3 Hours.**

This course will provide a comprehensive review of the human physiology that is categorized in 15 sections and 84 chapters. Some of them will be covered by different courses, such as Neuroscience, Immunology, and Endocrinology. Students are expected to learn how the human body works and what the underlying mechanisms that control the physiological responses are. In case of damage to these systems, what will happen to the body as a whole and what will be the impact on behaviors?.

**PSYC 5337. ANIMAL COGNITION AND BEHAVIOR. 3 Hours.**

A survey of theory and data on how animals learn and represent the world and the evolutionary processes that influence their individual and social behavior.

**PSYC 5341. DECISION MAKING. 3 Hours.**

Factors that influence categorical and numerical judgments, choices, and preference decisions. Comparison of human decision behavior with various quantitative theories.

**PSYC 5345. HUMAN LEARNING AND MEMORY. 3 Hours.**

Survey of current approaches to the study of human learning and memory.

**PSYC 5348. EXPOSURE TO CONTEMPORARY PC MICROCOMPUTERS. 3 Hours.**

Operating systems, ASCII editors, word processors, spreadsheets, graphics, data bases, programming languages, programming psychological experiments, statistical programming, using networks, the Internet, e-mail, Gopher, FTP, and Telnet.

**PSYC 5351. READINGS IN PSYCHOLOGY. 3 Hours.**

Independent readings under the supervision of an individual faculty member. Students wishing to conduct research should sign up for PSYC 5191, PSYC 5291, or PSYC 5391. May be repeated for credit with consent of the Graduate Advisor. Graded P/F/R. Prerequisite: consent of the instructor.

**PSYC 5389. CONTEMPORARY PROBLEMS IN PSYCHOLOGY. 3 Hours.**

Topics vary. May be repeated for credit with consent of Graduate Advisor.

**PSYC 5390. CAPSTONE COURSE IN INDUSTRIAL-ORGANIZATIONAL PSYCHOLOGY. 3 Hours.**

Designed for students near or at the end of their I-O curriculum to demonstrate the ability to apply knowledge of industrial-organizational psychology.

**PSYC 5391. RESEARCH IN PSYCHOLOGY. 3 Hours.**

Independent research under the supervision of an individual faculty member; may be repeated for credit with consent of Graduate Advisor. Graded P/F/R. Prerequisite: consent of the instructor.

**PSYC 5405. ADVANCED STATISTICS I. 4 Hours.**

Basic descriptive and inferential statistics used in psychological research.

**PSYC 5407. EXPERIMENTAL DESIGN. 4 Hours.**

Statistical aspects of complex experimental designs used in psychological research. Prerequisite: PSYC 5406.

**PSYC 5600. ADVANCED RESEARCH. 6 Hours.**

Supervised research. May be repeated for credit. Graded P/F/R. Prerequisite: permission of instructor.

**PSYC 5698. THESIS. 6 Hours.**

Graded P/F/R. Prerequisite: 12 hours of advanced psychology and an approved thesis proposal.

**PSYC 6101. PROSEMINAR IN HEALTH PSYCHOLOGY. 1 Hour.**

Professional development seminar will include presentations of ongoing and recently completed research, discussion of best approaches to writing reports and giving research presentations, grant writing skills, and other scientific, professional issues.

**PSYC 6110. PROSEMINAR IN INDUSTRIAL & ORGANIZATIONAL PSYCHOLOGY. 1 Hour.**

Professional development seminar will include presentations of ongoing and recently completed research, discussion of best approaches to writing reports and giving research presentations, grant and contract writing skills, and other scientific, professional issues. Course may be repeated for credit. Prerequisite: consent of instructor.

**PSYC 6191. RESEARCH IN PSYCHOLOGY. 1 Hour.**

**PSYC 6291. RESEARCH IN PSYCHOLOGY. 2 Hours.**

**PSYC 6300. SEMINAR IN PSYCHOLOGY. 3 Hours.**

Offered each semester. Topics vary. May be repeated for credit. Prerequisite: consent of instructor.

**PSYC 6312. ANIMAL LEARNING. 3 Hours.**

Survey of contemporary topics in animal learning.

**PSYC 6316. HISTORY AND SYSTEMS. 3 Hours.**

Consideration of the origins of psychology in the development of Western thought. Early conceptualization of problems and their modification with changes in evidence is emphasized.

**PSYC 6318. SOCIAL AND PERSONALITY DEVELOPMENT. 3 Hours.**

Theory and research on social and emotional development with an emphasis on the interaction between individual needs and abilities and societal expectations and demands.

**PSYC 6320. NEUROPHARMACOLOGY. 3 Hours.**

Survey of the basis of behavioral pharmacology including mechanisms and theories of drug actions, techniques and strategies of research, common psychoactive drugs, and the uses of drugs in clinical practice.

**PSYC 6335. ANIMAL BEHAVIOR. 3 Hours.**

Phylogenetic approach to some basic problems in behavior, with special emphasis on unlearned behavior.

**PSYC 6336. COMPARATIVE PSYCHOLOGY. 3 Hours.**

Theory and data about all aspects of behavior stressing similarities and differences across species.

**PSYC 6338. NEURAL AND COGNITIVE MODELING. 3 Hours.**

Principles of neural network and dynamical systems modeling; application of these principles to the simulation of cognitive processes in both brains and machines; models of associative learning, pattern recognition and classification, and individual and group behavior. Prerequisite: consent of instructor.

**PSYC 6343. COGNITIVE NEUROPSYCHOLOGY. 3 Hours.**

Surveys current experimental and clinical research and theory relating the brain and cognition. Emphasizes selected areas i.e., perception, attention, memory, language, and thinking.

**PSYC 6346. EVOLUTIONARY PSYCHOLOGY. 3 Hours.**

Evolutionary processes influence behavior and thinking of humans and nonhuman species. Sociosexual behavior, aggression, cognition, and information processing from an evolutionary perspective will be among the topics covered.

**PSYC 6347. ENVIRONMENTAL PSYCHOLOGY. 3 Hours.**

Survey of the current literature on the impact of various features of the physical environment on human behavior. Topics covered include crowding, privacy, territoriality, personal space, noise, the natural environment, residential, educational and work environments, urban and community design, and pollution and resource management. Designed to be of interest to graduate students in architecture, urban affairs, environmental science and engineering, geology, sociology, as well as those in psychology.

**PSYC 6349. PSYCHOMETRIC THEORY. 3 Hours.**

Introduction to test construction. Topics include reliability theory, test validation, and item analysis.

**PSYC 6355. MULTIVARIATE ANALYSIS. 3 Hours.**

Application of general linear model to special cases such as factor analysis, multiple regression, and discriminant analysis. PSYC 5344 recommended.

**PSYC 6391. RESEARCH IN PSYCHOLOGY. 3 Hours.**

**PSYC 6399. DISSERTATION. 3 Hours.**

Graded R/F. Prerequisite: approved dissertation proposal.

**PSYC 6699. DISSERTATION. 6 Hours.**

Graded R/F/P/W. Prerequisite: approved dissertation proposal.

**PSYC 6999. DISSERTATION. 9 Hours.**

Graded P/F/R. Prerequisite: approved dissertation proposal.

**PSYC 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Public Relations (PREL)

### COURSES

**PREL 2338. INTRODUCTION TO PUBLIC RELATIONS. 3 Hours. (TCCN = COMM 2330)**

Principles and methods of building goodwill and obtaining publicity; process of influencing public opinion; analysis of media; implementation of public relations programs.

**PREL 3320. STRATEGIC SOCIAL MEDIA COMMUNICATION. 3 Hours.**

Writing for social media, audience analysis, understanding the unique attributes of various platforms and communicating ethically and effectively across those platforms. Prerequisite: COMM 3300.

**PREL 3339. PUBLIC RELATIONS METHODS. 3 Hours.**

The theory and practice of selecting the appropriate mass media channels to reach and influence specialized groups, with practice in public relations writing. Prerequisite: PREL 2338 with a grade of C or higher (2.0/4.0 scale), JOUR 2346, 60 or more hours earned, COMM 2315, and MATH 1308, Elementary Statistical Analysis, with a grade of C or higher).

**PREL 3355. PUBLIC RELATIONS CASE STUDIES. 3 Hours.**

The use of case studies to study the techniques of goal-setting and strategy-selection as applied in actual programs and under varying information conditions. Prerequisite: COMM 2315 and PREL 2338 with a grade of C or higher (2.0/4.0 scale), JOUR 2346, 60 or more hours earned and MATH 1308, Elementary Statistical Analysis, with a course grade of C or higher (2.0/4.0 scale).

**PREL 4316. PUBLIC RELATIONS CAMPAIGNS. 3 Hours.**

The study of advanced public relations campaign strategies based on research techniques; campaign development, implementation and assessment. Prerequisite: PREL 3339, PREL 3355, COMM 2315, COMM 3303, and ECON 2305, and completion or concurrent enrollment in PREL 4320.

**PREL 4320. PUBLIC RELATIONS MANAGEMENT. 3 Hours.**

Public relations management decision-making in areas of operation, personnel, content, promotion, finance, and governmental regulations. Prerequisite: PREL 3339, PREL 3355.

**PREL 4391. CONFERENCE COURSE. 3 Hours.**

Topic assigned on an individual basis, covering individual research or study in the designated areas. May be repeated when topic changes, for a maximum of six credit hours. Prerequisite: COMM 2315, 60 or more hours earned, and permission of the department.

**PREL 4393. SPECIAL TOPICS. 3 Hours.**

Special studies in public relations. Topic varies from semester to semester. May be repeated when topic changes for a maximum of six credit hours. Prerequisite: COMM 2315, 60 or more hours earned, and permission of the department.

**PREL 4395. PROFESSIONAL INTERNSHIP. 3 Hours.**

Individual research while working with business and industry. Individual conference to be arranged. Prerequisite: PREL 3339, 60 or more hours earned, and permission of the department. Graded Pass/Fail.

## Public and Urban Administration (PUAD)

### COURSES

**PUAD 6399. DISSERTATION. 3 Hours.**

Graded F/R only.

**PUAD 6699. DISSERTATION. 6 Hours.**

Graded F/R/P/W only.

**PUAD 6999. DISSERTATION. 9 Hours.**

Graded P/F/R.

**PUAD 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Real Estate (REAE)

### COURSES

**REAE 3325. REAL ESTATE FUNDAMENTALS. 3 Hours.**

A foundation for study and research in specialized areas such as real estate financing, real estate investment and counseling, real estate management, real estate development, and property appraising. Formerly BUSA 3325; credit will be granted only once. Prerequisite: MATH 1316 (or permission of instructor) and junior standing.

**REAE 4191. STUDIES IN REAL ESTATE. 1 Hour.**

Advanced studies, on an individual basis, in the various fields of real estate. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**REAE 4291. STUDIES IN REAL ESTATE. 2 Hours.**

Advanced studies, on an individual basis, in the various fields of real estate. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**REAE 4314. REAL ESTATE DEVELOPMENT. 3 Hours.**

The land conversion process including feasibility analysis, site selection, design, construction, and financial analysis. Land use controls, planning, and environmental constraints are also examined. Formerly REAE 4311; credit will be granted only once. Prerequisite: junior standing.

**REAE 4319. REAL ESTATE FINANCE. 3 Hours.**

Problems associated with real property financing. In-depth study of financial intermediaries who supply funds for real property investment. May be included as a part of the finance concentration. Formerly BUSA 4319; credit will be granted only once. Prerequisite: REAE 3325 (FINA 3313 may be substituted for non-real estate majors).

**REAE 4321. REAL ESTATE INVESTMENT. 3 Hours.**

The determination of financial feasibility for proposed real estate investments, the effect of income taxes and various financing patterns on the equity investment, and the criteria for proper decision making to maximize benefits for equity investors. Formerly REAE 4310; credit will be granted only once. Prerequisite: REAE 3325 (FINA 3313 may be substituted for non-real estate majors).

**REAE 4331. SEMINAR IN REAL ESTATE. 3 Hours.**

Readings and discussion of special topics in real estate. Prerequisite: Junior or senior standing and consent of instructor. May be repeated for credit with consent of department chair.

**REAE 4334. REAL ESTATE APPRAISAL. 3 Hours.**

Theory and methods of residential and income property appraisal. Market analysis, highest-and-best-use analysis, capitalization techniques, and market, cost, and income approaches to valuation and reconciliation of value indicators. Prerequisite: REAE 3325 (FINA 3313 may be substituted for non-real estate majors).

**REAE 4391. STUDIES IN REAL ESTATE. 3 Hours.**

Advanced studies, on an individual basis, in the various fields of real estate. Prerequisite: 90 credit hours and permission of instructor. May be repeated for credit with consent of department chair.

**REAE 4393. REAL ESTATE INTERNSHIP. 3 Hours.**

Practical training in real estate. Analysis of theory applied to real life situations. May be used as an advanced business elective only; graded on a pass/fail basis. No credit will be given for previous experience or activities. May not be repeated for credit. Prerequisite: Junior standing and consent of department internship advisor.

**REAE 5182. INDEPENDENT STUDIES IN REAL ESTATE. 1 Hour.**

Extensive analysis of a real estate topic. Prerequisite: departmental permission.

**REAE 5199. GRAD REAL ESTATE INTERNSHIP. 1 Hour.**

Practical training in real estate. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.



**REAE 5299. GRAD REAL ESTATE INTERNSHIP. 2 Hours.**

Practical training in real estate. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**REAE 5301. SUSTAINABLE ISSUES IN THE BUILT ENVIRONMENT. 3 Hours.**

A survey-based course that analyzes current and historical sustainability issues. The global and political nature of this evolving discipline is emphasized. Additionally, a macro view of the components currently embodied in the practice of sustainability will be examined and discussed.

**REAE 5302. SUSTAINABLE STRATEGIES IN THE BUILT ENVIRONMENT. 3 Hours.**

Business strategies that emphasize quantitative methods, asset allocation, socially responsible investing, and evaluation research.

**REAE 5303. SUSTAINABLE POLICIES IN THE BUILT ENVIRONMENT. 3 Hours.**

Governmental, regulatory, internal reporting, and policy development related to sustainability. Grant writing will also be explored.

**REAE 5304. SUSTAINABLE PROJECTS IN THE BUILT ENVIRONMENT. 3 Hours.**

A field-based study of buildings, developments, organizations, and companies that exemplify sustainable practices. Course will include elements of social networking and communication strategies.

**REAE 5311. REAL ESTATE ANALYSIS. 3 Hours.**

Survey of real estate investment, appraisal and valuation, finance, market analysis, and other phases of the real estate development/management process.

**REAE 5312. INTERNATIONAL PROPERTY MARKETS. 3 Hours.**

Property markets are characterized by significant institutional differences that affect the nature and performance of national markets. Analysis of socio-economic and cultural factors influencing the operation of international markets.

**REAE 5313. GIS & PROPERTY ANALYSIS. 3 Hours.**

The increasing availability of geographically referenced property data offers significant potential for real estate research and modeling. Covers fundamentals of Geographic Information Systems (GIS) (Concepts, principles, and functions) and essential skills for applying GIS to real estate industry problems.

**REAE 5314. SEMINAR IN REAL ESTATE DEVELOPMENT. 3 Hours.**

Topics relating to site selection, design, market analysis, financial feasibility, and management in the real estate development process. Prerequisite: FINA 5311 or REAE 5311.

**REAE 5315. REAL ESTATE TRENDS & ISSUES. 3 Hours.**

Analysis of specialized topics associated with emerging trends and issues in the real estate industry using current literature and case studies.

**REAE 5316. ADAPTIVE REUSE & REDEVELOPMENT OF COMMERCIAL INVESTMENT REAL ESTATE. 3 Hours.**

The tools and techniques associated with the market and financial feasibility analysis of adaptively reusing and redeveloping existing properties into economically viable commercial investment real estate.

**REAE 5317. REAL ESTATE CONSTRUCTION MANAGEMENT. 3 Hours.**

Topics relating to construction management for commercial investment real estate.

**REAE 5318. SUSTAINABLE DEVELOPMENT. 3 Hours.**

Sustainability perspectives about values, rights, property and what constitutes an optimum human environment; sustainability principles and case studies emphasizing on-the-ground, incentive-based commercial investment real estate development that balances economic growth with environmental quality. Projects will include those in urban areas as well as those in rural areas focusing on agricultural elements.

**REAE 5319. SEMINAR IN REAL ESTATE FINANCE. 3 Hours.**

Study of real property financing methods; analysis of cost of borrowing, sources of funds, and mortgage terms; emphasis on construction and permanent financing of commercial and industrial properties. Prerequisite: FINA 5311 or REAE 5311.

**REAE 5320. TEXAS REAL ESTATE STUDY TOUR. 3 Hours.**

A field-based study of Texas real estate markets, focusing on projects in Austin, San Antonio, Houston, and Dallas-Fort Worth.

**REAE 5321. SEMINAR IN REAL ESTATE INVESTMENT. 3 Hours.**

Introduction to analytical techniques, sources of financing, and other factors related to real estate investment. Stresses current developments and topics. Prerequisite: FINA 5311 or REAE 5311.

**REAE 5322. COMMERCIAL LEASE ANALYSIS. 3 Hours.**

Application of critical occupancy decisions such as comparative lease analysis, lease vs. purchase analysis, lease buyout analysis, and sale-leaseback analysis to optimize user space decisions.

**REAE 5323. REAL ESTATE PROJECT STUDIO. 3 Hours.**

Studio based course focused on a commercial real estate project.

**REAE 5324. Real Estate Economics. 3 Hours.**

A review of the nature of urban areas and the development of the urban economics as an economic discipline. Emphasis will be on identifying location patterns in urban areas, policy issues, real estate and urban housing options, government issues in urban areas, and urban social problems. Students will utilize data analytics and projective techniques in developing projects based on current local urban real estate issues and opportunities.

**REAE 5327. ADVANCED REAL ESTATE MARKET ANALYSIS. 3 Hours.**

Study of advanced market analysis techniques and methods, including trend analysis and demand forecasting. Emphasis is on the application of these methods to commercial property markets.

**REAE 5334. SEMINAR IN REAL ESTATE APPRAISAL. 3 Hours.**

Market, cost, and income approaches with stress on income forecasting and capitalization. Prerequisite: FINA 5311 or REAE 5311.

**REAE 5337. REAL PROPERTY LAW. 3 Hours.**

Legal property theory underlying real estate transactions and relationships including estates and interests in land, conveyances, and mortgages.

**REAE 5350. QUANTITATIVE METHODS FOR REAL ESTATE. 3 Hours.**

Study of advanced statistical, modeling, and econometric techniques as applied to real estate markets. Emphasis on the integration of these techniques with traditional real estate analysis.

**REAE 5382. INDEPENDENT STUDIES IN REAL ESTATE. 3 Hours.**

Extensive analysis of a real estate topic. Prerequisite: departmental permission.

**REAE 5392. SELECTED TOPICS IN REAL ESTATE. 3 Hours.**

In-depth study of selected topics in real estate. May be repeated when topics vary. Prerequisite: REAE 5311.

**REAE 5398. THESIS. 3 Hours.**

Prerequisite: departmental permission.

**REAE 5399. GRAD REAL ESTATE INTERNSHIP. 3 Hours.**

Practical training in real estate. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisite: Minimum nine graduate semester hours completed.

**REAE 5698. THESIS. 6 Hours.**

Prerequisite: departmental permission.

**REAE 6390. SEMINAR IN SPECIAL TOPICS IN REAL ESTATE. 3 Hours.**

Doctoral level coverage of advanced topics in real estate. May be repeated for credit when topics vary. Prerequisite: REAE 5311.

**REAE 6392. RESEARCH IN REAL ESTATE. 3 Hours.**

Independent study of advanced topics in real estate under the direction of graduate faculty. May be repeated for credit when topics vary. Prerequisite: REAE 5311.

## Russian (RUSS)

### COURSES

**RUSS 1441. BEGINNING RUSSIAN I. 4 Hours. (TCCN = RUSS 1411)**

Multimedia immersion in the culture and language of Russian-speaking countries. Designed to enable students to understand and communicate effectively in Russian at the beginning level. No prerequisites.

**RUSS 1442. BEGINNING RUSSIAN II. 4 Hours. (TCCN = RUSS 1412)**

Continuation of beginning Russian. Prerequisite: RUSS 1441 with a grade of C or better.

**RUSS 2301. TOPICS IN RUSSIAN LITERATURE IN TRANSLATION. 3 Hours.**

Study of the works of major authors and intellectual trends of a given period or periods. May be repeated for credit as topics or periods vary. RUSS 2301 may be taken to fulfill the foreign language literature requirement. Prerequisite: ENGL 1301 and ENGL 1302.

**RUSS 2313. INTERMEDIATE RUSSIAN I. 3 Hours. (TCCN = RUSS 2311)**

Continued immersion in the culture and language of Russian-speaking countries. Application of strategies and technology in mastering listening, speaking, reading, and writing at the intermediate level. Prerequisite: RUSS 1442 with a grade of C or better.

**RUSS 2314. INTERMEDIATE RUSSIAN II. 3 Hours. (TCCN = RUSS 2312)**

Continuation of intermediate Russian. Prerequisite: RUSS 2313 with a grade of C or better.

**RUSS 2315. INTRODUCTION TO RUSSIAN LANGUAGE AND CULTURE. 3 Hours.**

A fully online course devoted to immersion in Russian culture through print and digital media as well as conversation and collaboration with native speakers of Russian. Students will gain broad exposure to social and historical contexts of Russian culture as well as reading ability of the Russian Cyrillic alphabet, and practice in basic reading, writing and speaking skills in Russian. No prerequisites. Prior knowledge of Russian is useful but not required. Credit will not be granted to native or heritage speakers of Russian.

**RUSS 3301. RUSSIAN LITERATURE IN TRANSLATION. 3 Hours.**

The works of major Russian authors during the period from the beginning of Russian literature until the 1917 Revolution. The interrelationship of various literary movements and philosophies. Students receiving Russian credit will be required to compare selected translations with the original works and must complete a research or translation project. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A. Offered as ENGL 3301 and RUSS 3301; credit will be granted in only one department.

**RUSS 3304. TOPICS IN RUSSIAN LANGUAGE STUDY. 3 Hours.**

Study of Modern Russian with a focus on pronunciation, word formation, and syntax. Students develop advanced listening, reading, speaking, and writing skills through cultural analysis. Cultural topics come from literature, music, film, visual and performing arts, sports, and science. Repeatable for credit when the topic changes. Prerequisite: RUSS 2314 with a grade of C or better, or permission of the instructor.

**RUSS 3305. TOPICS IN RUSSIAN POETRY. 3 Hours.**

Literary analysis of selected works of Russian poetry in the original Russian. Topics will come from different periods of Russian literary and cultural history. Students develop reading, writing, and language skills at an advanced level. Prerequisite: RUSS 2314 with a grade of C or better, or permission of the instructor. Repeatable for credit when the topic changes.

**RUSS 3306. SOVIET AND POST-SOVIET LITERATURE IN TRANSLATION. 3 Hours.**

The works of major Soviet and post-Soviet authors from 1917 to the present against the background of unfolding social and political development in the USSR and post-USSR. May be repeated for credit as topics and periods vary. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A. Students receiving credit in Russian will complete a translation or research project using the Russian language. Offered as ENGL 3306 and RUSS 3306; credit will be given in only one department.

**RUSS 3310. LOCALIZATION AND TRANSLATION I. 3 Hours.**

Introduction to cultural and linguistic issues in the translation of Russian language texts. Students will explore current technologies used in various real-world translation contexts and how to adapt texts, products, and services to the locale for which they are intended. May be repeated once. Prerequisite: RUSS 2314 with a grade of B or better.

**RUSS 3311. LOCALIZATION AND TRANSLATION II. 3 Hours.**

Continued study of cultural and linguistic issues in the translation of Russian and English language texts. Systematic development of advanced skills in localization and computer-aided translation and in using TMX/TBX (international standards for translation memory and terminology exchange) tools. Translation practice, individually and in translation teams, with increasingly longer and more specialized texts. Prepares localization and translation specialists for real-world careers in the language-services industry. May be repeated once. Prerequisite: RUSS 3310 with a grade of B or better.

**RUSS 3314. POLITICAL SYSTEMS OF EASTERN AND CENTRAL EUROPE. 3 Hours.**

POLS 3314 or RUSS 3314. Examination of the political institutions and processes of the former communist systems of Eastern Europe and the Baltics, as well as selected Central European states. Credit will be given in only one department. Students receiving credit in Russian will complete projects using the Russian language.

**RUSS 3333. CONVERSATION AND TOPICS IN RUSSIAN CULTURE. 3 Hours.**

Intermediate practice in spoken Russian using print and media resources on a range of cultural topics. Students actively master the discourse of the source media through dialogue, debate, and short presentations in Russian. May be repeated as topic varies. May be taken concurrently with RUSS 2313 and/or RUSS 2314. Credit will not be granted to native speakers. Prerequisite: RUSS 1442 with a grade of C or better.

**RUSS 3343. RUSSIAN PHONETICS. 3 Hours.**

Introduction to the articulatory phonetics of Russian. Of special interest to students who wish to improve their pronunciation, comprehension, and oral expression. Prerequisite: RUSS 2314 with a grade of C or better.

**RUSS 3391. CONFERENCE COURSE. 3 Hours.**

Independent study; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: Permission.

**RUSS 4301. SELECTED AUTHORS AND TOPICS. 3 Hours.**

Detailed reading and analysis of selected Russian writers such as Alexander Pushkin, Nikolai Gogol, Fyodor Dostoevsky, Leo Tolstoy, Ivan Turgenev and Anton Chekhov. Their works are compared in the light of urgent social, political, literary and philosophical questions of their day. May be repeated as topic varies. No prerequisites. Students majoring in Russian read some texts in the original. Taught in English. Satisfies the core curriculum requirement for literature.

**RUSS 4302. RUSSIAN AND SOVIET CINEMA. 3 Hours.**

A survey of Russian and Soviet cinema from their beginnings to the present. Special attention is paid to film theory and formal analysis, the ideological uses of film art, and cinema as a medium of cultural dissent and witness to social change. No prerequisites. May also be offered as ENGL 3300; credit will be granted in only one department. Taught in English.

**RUSS 4303. PROPAGANDA AND IDEOLOGY IN SOVIET ART AND LITERATURE. 3 Hours.**

An examination of the purpose, value and influence of the arts in revolutionary Russia with the aid of diverse source documents and artistic media. Focus is on the symbols, stories, rituals and ideologies that defined the Russian experience of 'building socialism' in the early decades of the Soviet Union. No prerequisites. Students majoring in Russian read some texts in the original. Taught in English. Satisfies the core curriculum requirement for literature.

**RUSS 4304. BANNED AND CENSORED WORKS OF RUSSIAN LITERATURE. 3 Hours.**

An examination of selected works of Russian literature that were censored, banned or otherwise prohibited, from tsarist Russia through the Soviet period. The role of censorship in Russian cultural life, and the great works of literature that flourished in spite of it. No prerequisites. Students majoring in Russian read some texts in the original. Taught in English. Satisfies the core curriculum requirement for literature.

**RUSS 4334. THE CULTURE OF BUSINESS. 3 Hours.**

The relationship of culture, language, and meaning to issues affecting business and e-commerce in the Russian-speaking world, with emphasis on intercultural communication in an international business environment. Web-based media segments about international business in Russia, Europe, and North America are used as an aid in the acquisition of pertinent cultural knowledge, as well as vocabulary and other linguistic knowledge. Prerequisite: RUSS 2314 with a grade of C or better.

**RUSS 4335. BUSINESS RUSSIAN. 3 Hours.**

Students learn to function in business environments, with emphasis on the skills needed for conducting e-commerce. Web-based media segments from Russia, Europe, and North America are used to reinforce vocabulary and other linguistic knowledge. Prerequisite: RUSS 4334 with a grade of C or better.

**RUSS 4342. TOPICS IN SIMULTANEOUS INTERPRETING: THEORY AND PRACTICE. 3 Hours.**

This fully online course focuses on the theory and practice of simultaneous interpreting through active translation and interpreting tasks. Through telecollaboration with native speakers of Russian, students will gain active practice in listening comprehension and spoken and written Russian. A major focus is on translation and simultaneous interpreting in a variety of professional contexts including health and legal settings, politics and media, and business negotiations. Active learning projects will involve role-play, simultaneous interpreting tasks, and creating audio/visual presentations. Prerequisite: RUSS 2314 or equivalent.

**RUSS 4359. HISTORY OF RUSSIA TO 1855. 3 Hours.**

A survey of Russian history from the origins of the first Russian state through the reign of Nicholas I. Special attention to such topics as the Kievan Rus, the Mongol impact and Muscovite state, the rise of Imperial Russia, and Russia's emergence as a global power. Offered as HIST 4359 and RUSS 4359.

**RUSS 4360. HISTORY OF RUSSIA SINCE 1855. 3 Hours.**

A survey of Russian history from the reign of Alexander II to the present. Special attention to such topics as the decline of Imperial Russia, the rise of the revolutionary spirit, and the emergence, consolidation, and development of the Soviet state. Offered as HIST 4360 and RUSS 4360.

**RUSS 4361. THE POLITICAL ENVIRONMENT OF RUSSIA AND THE SUCCESSOR STATES. 3 Hours.**

The domestic political systems of Russia and the other former Soviet republics. The communist state in retrospect. Development of political actors, institutions, and parties. Offered as POLS 4361 and RUSS 4361; credit will be given in only one department. Taught in English; for Russian language credit, research will be done in Russian.

**RUSS 4362. RUSSIA AND THE SUCCESSOR STATES TODAY. 3 Hours.**

The metamorphosis of the Communist Party and the current political philosophies of the post-Soviet states. Examination of attitudes and self-perceptions of citizens of these states in the post-period. Emphasis is on area studies and culture. The course will be taught in English, but for Russian language credit; research will be done in the Russian language. May be repeated for credit as topics change. Offered as HIST 4362, POLS 4362, & RUSS 4362. Credit will be granted in only one department.

**RUSS 4365. FOREIGN POLICIES OF RUSSIA AND THE SUCCESSOR STATES. 3 Hours.**

The foreign policies of Russia and other former Soviet republics. Development of their policymaking structures and the major issues confronting them. Emphasis on Russia and the superpower relationship, European security and cooperation, relations with developing states, and the interactions of the former Soviet republics. Also listed as RUSS 4365; credit will be given in only one department.

**RUSS 4391. CONFERENCE COURSE. 3 Hours.**

Independent study in the preparation of a paper or a translation on a research topic; consultation with instructor on a regular basis. May be repeated for credit.

**RUSS 4393. RUSS INTERNSHIP. 3 Hours.****RUSS 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department. May not be repeated for credit.

## SUSTAINABILITY (SUST)

### COURSES

**SUST 5301. SUSTAINABILITY ISSUES SEMINAR I. 3 Hours.**

A survey and analysis of current and historical sustainability efforts with an emphasis on the psychological and socio-economic dynamics of this cultural paradigm shift. The significance of organizational and societal direct cost issues will be emphasized.

**SUST 5302. SUSTAINABILITY ISSUES SEMINAR II. 3 Hours.**

Financing and valuation issues impacting sustainability.

**SUST 5303. SUSTAINABILITY ISSUES SEMINAR III. 3 Hours.**

Governmental and regulatory issues as they relate to sustainability.

**SUST 5304. SUSTAINABILITY PROJECT STUDIO A. 3 Hours.**

A studio based course focused on the US Green Building Council's Leadership in Energy and Environmental Design (LEED) Program, Continental Automated Buildings Association (CABA), Energy Star, and Hi-Performance Building Systems.

**SUST 5305. SUSTAINABILITY PROJECT STUDIO B. 3 Hours.**

A studio based course focused on High Density Development.

**SUST 5306. INDEPENDENT STUDIES IN SUSTAINABILITY. 3 Hours.**

Extensive analysis of a sustainability topic.

**SUST 5307. INTERNSHIP IN SUSTAINABILITY. 3 Hours.**

Practical training in sustainability. Analysis of theory applied to real life situations.

**SUST 5308. SELECTED TOPICS IN SUSTAINABILITY. 3 Hours.**

In-depth study of selected topics in sustainability.

**SUST 6301. PhD TEACHING COLLOQUIUM IN SUSTAINABILITY. 3 Hours.**

Review of teaching methods for effective classroom instruction.

**SUST 6302. PhD RESEARCH COLLOQUIUM IN SUSTAINABILITY. 3 Hours.**

Review of the research process and contemporary developments in the methodology and design of empirical research in the major fields of study related to sustainability.

**SUST 6303. PhD SERVICE-LEARNING COLLOQUIUM IN SUSTAINABILITY. 3 Hours.**

Review of service-learning methods for achieving sustainability.

## School of Urban and Public Affairs (SUPA)

### COURSES

**SUPA 5300. FOUNDATIONS OF URBAN PLANNING AND SOCIOLOGY. 3 Hours.**

How urban communities develop as human settlements, their life cycles, expansion, and decay. Special consideration is given to social policy. Topics such as poverty, race, neighborhoods, and environment.

**SUPA 5301. FOUNDATIONS OF URBAN POLITICS AND ECONOMICS. 3 Hours.**

Examines the major political and economic institutions and processes in urban communities and their effect on urban policy.

## Science (General) (SCIE)

### COURSES

**SCIE 1101. STEP 1: INQUIRY APPROACHES TO TEACHING. 1 Hour.**

STEP 1 allows students to explore teaching as a career. Following an introduction to the theory and practice behind excellent inquiry-based science and mathematics instruction, students observe two and teach three lessons in elementary classrooms to obtain firsthand experience in planning and implementation.

**SCIE 1102. STEP 2: INQUIRY-BASED LESSON DESIGN. 1 Hour.**

In STEP 2, students continue developing the lesson planning skills learned in STEP 1 as they become familiar with exemplary middle school science curricula. After observing a lesson being taught in a local school district classroom, students work alone or in pairs to plan and teach three inquiry-based lessons to sixth, seventh, or eighth graders. Prerequisite: Credit or concurrent enrollment in SCIE 1101.

**SCIE 1234. STEP 1 & 2 COMBO: INQUIRY APPROACHES TO TEACHING & LESSON DESIGN. 2 Hours.**

STEP 1 & 2 Combo allows students to explore teaching as a career. Following an introduction to the theory and practice behind excellent inquiry-based science and mathematics instruction, students observe two lessons being taught in a local school district. Students will then work alone or in pairs to plan and teach four inquiry-based lessons to elementary and middle school students. This course is for students completing the UTeach program in two years or less.

**SCIE 2301. FOUNDATIONS OF SCIENCE. 3 Hours.**

An integrated presentation of the methodology and fundamental concepts in the physical, biological and behavioral sciences with special emphasis on their social, cultural and historical context. Topics will be organized around a selected theme, such as origins, the environment or science and society. The primary goal is to prepare students to participate in modern society. This course does not require previous background in the sciences and satisfies the Social/Cultural Studies requirement of the core curriculum.

**SCIE 2392. SPECIAL TOPICS IN SCIENCE. 3 Hours.**

Topics as selected by the instructor. May be repeated for credit as the topic varies. Prerequisite: permission of the department.

**SCIE 3301. PHYSICAL SCIENCE - PHYSICS. 3 Hours.**

This integrated study of physics and chemistry includes force and motion, waves, thermodynamics energy transformations, and quantum physics. Prerequisite: permission of instructor.

**SCIE 3302. PHYSICAL SCIENCE - CHEMISTRY. 3 Hours.**

This physical science includes atomic structure, chemical bonding, the periodic table, nomenclature, kinetic theory, gas laws, chemical equations, and solutions.

**SCIE 3303. GEOLOGY, METEOROLOGY, AND OCEANOGRAPHY. 3 Hours.**

This integrated study of the earth emphasizes interactions among plate tectonics, the atmosphere, the oceans, the biosphere, and human activity. Topics include formation, composition, and shaping of the earth, including plate tectonics, the rock cycle, natural energy resources, characteristics of oceans, characteristics of the atmosphere, climate, and weather. This course is designed to meet the needs of students seeking to become elementary or middle school science teachers.

**SCIE 3304. ASTRONOMY. 3 Hours.**

Topics include the evolution of the universe, properties of light and the life cycle of stars, galaxies, and apparent motions and characteristics of the solar system. This course is designed to meet the needs of students seeking to become elementary or middle school science teachers.

**SCIE 3305. ENVIRONMENTAL SYSTEMS. 3 Hours.**

Topics include interrelationships among biotic and abiotic factors within habitats, ecosystems, and biomes and the energy flow through environmental systems. This course is designed to meet the needs of students seeking to become elementary or middle school science teachers.

**SCIE 4101. SPECIAL TOPICS IN COMPOSITE SCIENCE. 1 Hour.**

This special seminar will focus on contemporary issues on integrated science topics, including reflections on science teaching experiences and contemporary critical issues in science education. Prerequisite: permission of instructor.

**SCIE 4107. STUDENT TEACHING SEMINAR. 1 Hour.**

Restricted to students in the UTeach Arlington program who have earned a passing score on the preliminary portfolio. Discussions include student teaching experiences, contemporary critical issues in education, and preparation for the state certification exams. Concurrent enrollment in Student Teaching for Secondary Grades (SCIE 4607) is required. Prerequisite: EDUC 4333 and a cumulative GPA of at least 2.75.

**SCIE 4192. SELECTED TOPICS IN SCIENCE. 1 Hour.**

(Variable credit 1-3 hours as arranged). Topics in science not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for credit as different topics are offered.

**SCIE 4301. ISSUES IN AMERICAN HEALTHCARE. 3 Hours.**

Survey of current issues in American healthcare to include medical ethics, holistic medicine, nutrition, wellness, and the economics of healthcare. This course is the capstone course required for a College of Science interdisciplinary minor in Health Studies. This course is only open to students completing a minor in Health Studies within the College of Science.

**SCIE 4302. TEACHING AND LEARNING: SCIENTIFIC INQUIRY. 3 Hours.**

Scientific inquiry refers to the diverse ways in which scientists study the natural world and propose explanations based on the evidence derived from their work. This course explores inquiry as it refers to the activities of students in which they develop knowledge and understanding of scientific ideas, as well as an understanding of how scientists study the natural world.

**SCIE 4325. WOMEN IN SCIENCE. 3 Hours.**

Explores the role of women in science. Emphasis on gender and science, the history of women in science, gender equity in the classroom, strategies for the retention of women scientists, the current culture/climate for women in science, and contemporary women in science. Offered as EDUC 4325, SCIE 4325, and WOMS 4325. Credit will be granted only once.

**SCIE 4607. STUDENT TEACHING FOR SECONDARY GRADES. 6 Hours.**

Closely supervised field experience in a cooperating school. Experience includes carrying out the duties of a secondary teacher. Twenty hours of fieldwork a week for one semester. Offered on a pass/fail basis only. Approval of the preliminary portfolio by the UTeach Arlington program, consent of the UTeach Arlington advisor, and concurrent enrollment in SCIE 4107 are required. Prerequisite: EDUC 4333, a cumulative GPA of at least 2.75.

**SCIE 5192. SELECTED TOPICS IN SCIENCE. 1 Hour.**

Topics in science not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for credit as different topics are offered.

**SCIE 5292. SELECTED TOPICS IN SCIENCE. 2 Hours.**

Topics in science not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for credit as different topics are offered.

**SCIE 5301. CONTEMPORARY SCIENCE. 3 Hours.**

This class will review modern topical areas in contemporary science from a broadly multidisciplinary view. Readings from popular and scientific journals will be combined with lectures from different disciplines, to review the newest science innovations. Materials presented will familiarize students with current research, major breakthroughs in various fields, and the foundational science behind the discoveries. Topics covered should enrich K-12 science curricula and help teachers to address student questions about breaking science news. This class is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in the College of Science.

**SCIE 5302. CAPSTONE SCIENCE SEMINAR. 3 Hours.**

The Capstone Science Seminar is an intensive research and discussion class that will focus on new studies in science education and practice. Students in the M.A. in Science program should take this class in the last semester of study. This class will include a research project relevant to science education, and formal presentation of the research. This class is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in the College of Science.

**SCIE 5303. TEACHING AND LEARNING: SCIENTIFIC INQUIRY. 3 Hours.**

Scientific inquiry refers to the diverse ways in which scientists study the natural world and propose explanations based on the evidence derived from their work. This course explores inquiry as it refers to the activities of students in which they develop knowledge and understanding of scientific ideas, as well as an understanding of how scientists study the natural world.

**SCIE 5304. SPECIAL TOPICS IN SCIENCE I. 3 Hours.**

Seminar on significant research in science. Topics are selected with the assistance of the instructor and may include both pure and applied science.

**SCIE 5305. SPECIAL TOPICS IN SCIENCE II. 3 Hours.**

Seminar on significant research in science. Topics are selected with the assistance of the instructor may include both pure and applied science.

**SCIE 5307. INTEGRATED PHYSICS AND CHEMISTRY: CHEMISTRY. 3 Hours.**

This integrated study of physics and chemistry fundamental chemical principles including atomic structure, chemical bonding, the periodic table, nomenclature, kinetic theory, gas laws, chemical equations, and solutions.

**SCIE 5308. INTEGRATED PHYSICS AND CHEMISTRY: PHYSICS. 3 Hours.**

This integrated study of physics and chemistry includes force and motion, waves and thermodynamics, energy transformations, quantum physics, and atomic structure.

**SCIE 5321. MECHANICS, HEAT, & WAVE MOTION. 3 Hours.**

This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in the teaching of fundamental physics. Topics include: 1) Newton's laws of motion, gravitation, and planetary motion; 2) the basic laws of thermal and statistical physics; 3) oscillatory motion including wave and sound. Replicable experiments will be demonstrated throughout the course. This class is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for M.S. or Ph.D. degrees in the College of Science. Prerequisite: Trigonometry.

**SCIE 5322. ELECTRICITY, MAGNETISM, CIRCUITS, & OPTICS. 3 Hours.**

This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in the teaching of fundamental physics. Topics include: 1) Static charges, current flows, electric and magnetic fields; 2) simple DC/AC electrical circuits including examples from household circuit and practical electronic devices; 3) light and optics including examples such as camera, microscopes and telescopes. Replicable experiments will be demonstrated throughout the course. This class is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for M.S. or Ph.D. degrees in the College of Science. Prerequisite: SCIE 5321.

**SCIE 5323. MODERN PHYSICS. 3 Hours.**

This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in the teaching of fundamental physics. Topics include: 1) introduction to special relativity and quantum theory; 2) light and radiation; 3) applications to modern electronic devices; 4) nuclear particle physics. This class is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for M.S. or Ph.D. degrees in the College of Science. Prerequisite: SCIE 5321, SCIE 5322.

**SCIE 5329. LABORATORY TECHNIQUES IN PHYSICS. 3 Hours.**

This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in the teaching of fundamental physics. Experiments demonstrating various topics are covered. Experiments include gravitational acceleration heat flow, harmonic motion, sound, electric, magnetic fields, electric circuits, optic, x-rays and nuclear radiation. This class is intended for M.A. in Interdisciplinary Science majors and may not be taken for credit for M.S. or Ph.D. degrees in the College of Science. Prerequisite: SCIE 5321, SCIE 5322.

**SCIE 5330. EARTH SYSTEMS, PART I. 3 Hours.**

A review of Earth materials and their chemistry. Earth structure and geologic time, followed by a detailed discussion of the plate tectonic system, the hydrologic system, and their interaction in weathering and erosion, sedimentation, and landscape development. Laboratory demonstrations will include identification of earth materials, estimating plate motions, location of earthquake epicenters, flood frequency, and groundwater discharge. These classes are intended for M.A. in Interdisciplinary Science majors and may not be taken for credit for the M.S. or Ph.D. degrees in Geology or any other College of Science discipline.

**SCIE 5331. EARTH SYSTEMS, PART II. 3 Hours.**

A detailed discussion of the atmosphere system, oceanic systems, biologic systems, and their history. A summary discussion of the interaction of Earth Systems for an understanding of processes that have formed and continue to form the Planet Earth. Laboratory demonstrations will include weather forecasting, ocean currents, sea level change, and fossil identification. This class is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Geology or any other College of Science discipline. Prerequisite: SCIE 5330 and admission into the M.A. in Interdisciplinary Science program.

**SCIE 5332. EARTH RESOURCES & THE ENVIRONMENT. 3 Hours.**

A detailed discussion of resources that support life: atmosphere, water, soil, minerals and materials, and energy; the use of those resources and the effect on the environment and global change; and the relation between population, resource distribution and availability, and environmental pollution. These classes are intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Geology or any other College of Science discipline. Prerequisite: SCIE 5330, SCIE 5331, and admission into the M.A. in Interdisciplinary Science Program.

**SCIE 5335. LABORATORY METHODS & TECHNIQUES. 3 Hours.**

Methods and techniques used to identify minerals, rocks and fossils; maps and mapping of geological data; recognition of landslides; flood frequency and erosion processes of river and streams; location of earthquakes. These classes are intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Geology or any other College of Science discipline. Prerequisite: SCIE 5330, SCIE 5331 and admission into the M.A. in Interdisciplinary Science Program.

**SCIE 5355. PRINCIPLES OF CHEMISTRY. 3 Hours.**

The fundamentals of atomic structure, chemical bonding, the periodic table, nomenclature, gas laws, chemical equations, and solutions. The course will be supplemented with laboratory demonstrations devoted to chemical problem-solving, library and Internet resources, chemical ethics, etc. This course is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Chemistry or any other College of Science discipline.

**SCIE 5356. PRINCIPLES OF CHEMISTRY II. 3 Hours.**

Study of advanced atomic structure and bonding concepts, acid-base theory, kinetics and equilibria, thermodynamics, electrochemistry, and the chemistry of some elements. The course will be supplemented with laboratory demonstrations devoted to chemical problem solving, library and internet resources, chemical ethics etc. This course is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for M.S. or Ph.D. degrees in Chemistry or any other College of Science discipline. Prerequisite: SCIE 5355.

**SCIE 5357. INTRODUCTORY ORGANIC & BIOCHEMISTRY. 3 Hours.**

Survey of organic and biochemistry with emphasis on application to the human body. Organic functional groups and nomenclature, organic reactions, carbohydrates, lipids, proteins, enzymes, metabolism, and nucleic acids. This course is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for M.S. or Ph.D. degrees in Chemistry or any other College of Science discipline. Prerequisite: SCIE 5355, SCIE 5356.

**SCIE 5358. LABORATORY PROBLEMS IN CHEMISTRY. 3 Hours.**

Experiments related to fundamental principles covered in SCIE 5355 (formerly CHEM) and SCIE 5356. Volumetric and gravimetric determinations and qualitative analysis. This course is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Chemistry or any other College of Science discipline. Prerequisite: SCIE 5355, SCIE 5356.

**SCIE 5371. CELL AND MOLECULAR BIOLOGY. 3 Hours.**

The course focuses on the chemical and molecular basis of life, including metabolism, cell structure and function and genetics. This class is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Biology or any other College of Science discipline.

**SCIE 5372. STRUCTURE & FUNCTION OF ORGANISMS. 3 Hours.**

The study of structure and function of plants and animals. Topics to be covered include structure at the level of the cell, tissue, organ and individual, growth, transport/circulation/gas exchange, nutrition, reproduction, development, endocrinology, and animal neural regulation. This class is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Biology or any other College of Science discipline. Prerequisite: SCIE 5371.

**SCIE 5373. EVOLUTION, ECOLOGY, AND BIODIVERSITY. 3 Hours.**

Reviews three significant aspects of organismal biology and presents current hypotheses concerning the origin and diversification of life on Earth. The ecological and behavioral interactions between organisms and their biotic/abiotic environments are considered from an evolutionary perspective. This class is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Biology or any other College of Science discipline. Prerequisite: SCIE 5371, SCIE 5372.

**SCIE 5374. LABORATORY PROBLEMS IN BIOLOGY. 3 Hours.**

Laboratory experiments related to fundamental principles covered in SCIE 5371 (formerly BIOL) and SCIE 5372. This course will utilize labs designed by Master Biology Teachers. These will be supplemented by labs published by the National Association of Biology Teachers, and various biology publishers. This class is intended for M.A. in Interdisciplinary Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Biology or any other College of Science discipline. Prerequisite: SCIE 5371, SCIE 5372.

**SCIE 5380. MENTORED RESEARCH. 3 Hours.**

Research under the direction of a College of Science faculty member. No more than six credit hours of SCIE 5380 may be taken for a letter grade. Prerequisite: written permission of the instructor.

**SCIE 5392. SELECTED TOPICS IN SCIENCE. 3 Hours.**

Topics in science not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for credit as different topics are offered.

## Science Education (SCED)

### COURSES

**SCED 5351. PHYSICAL SCIENCE - PROPERTIES AND CHANGES IN MATTER. 3 Hours.**

This course provides an in depth study of the properties and changes in matter and how to teach these concepts to students in grades K-12 science. Students study matter by engaging in inquiry and field/laboratory investigations using scientific processes, critical thinking, and problem solving. The course will help students learn to teach these physical science concepts to K-12 students using inquiry models.

**SCED 5352. PHYSICAL SCIENCE - FORCE & ENERGY. 3 Hours.**

In this course, students gain scientific knowledge about characteristics and interactions among matter, force, and energy with interdisciplinary and everyday life connections. Topics experienced through laboratory/field based investigations include: gravity, work, friction, acceleration, volume, length, distance, light, forms of energy, electricity, heat, and simple machines. The course will help students learn to teach these physical science concepts to K-12 students using inquiry models.



**SCED 5353. EARTH SCIENCE - STRUCTURES, MOVEMENT, & CHANGES IN EARTH & SPACE. 3 Hours.**

Through laboratory investigations, students gain knowledge of the various constructive and destructive forces that shape and alter the Earth's surfaces such as plate tectonics, volcanoes, earthquakes, erosion, weathering and deposition, as well as conservation of resources. The course will include studies of rock identification, and the rock cycle, as well as geologic time and the fossil record. The course includes study of earth, moon and planetary characteristics and motions. The course will enable students to teach these earth science concepts to K-12 students using inquiry models.

**SCED 5354. EARTH SCIENCE - WATER PROPERTIES, DISTRIBUTION, THE WATER CYCLE, & WEATHER. 3 Hours.**

Students gain understanding of the importance of water including the topics of cohesion, adhesion, surface tension, and capillary action. Water distribution on Earth is analyzed using maps and charts, with connections to geographic and climatic characteristics of the various regions. Water, as a major factor in weather, along with other meteorological variables such as air pressure, humidity, dew point, and cloud formation will be studied and weather patterns will be tracked over time using technology and maps. The course will provide students with the knowledge and skills required to teach these earth science concepts to K-12 students using inquiry models.

**SCED 5355. LIFE SCIENCE - UNITY & DIVERSITY OF LIFE & LIFE PROCESSES. 3 Hours.**

This course will explore living organisms and classification of organisms. The course will focus on the unity of life including the cell and cell components and the life functions, as well as the diversity of life including a look at pathogenic agents including bacteria and viruses. The course will analyze the structure and function of DNA and genetics. The course will include comparative anatomy and physiology studies of organisms. Students will learn how to teach these life science concepts to K-12 students using inquiry models.

**SCED 5356. LIFE SCIENCE - CYCLES IN NATURE, ADAPTATIONS, AND ENVIRONMENTAL SCIENCE. 3 Hours.**

This course analyzes life, biochemical, and geochemical cycles within the natural world and how they impact ecological systems and environment. Students conduct laboratory and field investigations to examine and recognize various plant and animal adaptations. Science topics include camouflage, mimicry, body coverings, mouthparts, habitats. Math-science integrations include estimations, relationships, graphing, and number sense. Inquiry models will be used to help students learn to teach these life science concepts to K-12 students.

## Social Work (SOCW)

### COURSES

**SOCW 2311. INTRODUCTION TO SOCIAL WORK. 3 Hours. (TCCN = SOCW 2361)**

(SOCW 2361). An overview of the social work profession, its fields of practice, methods of social intervention, its historical context, and its relationship to the social welfare system.

**SOCW 2313. SOCIAL WORK PRACTICE I. 3 Hours.**

Critical evaluation of the value base of the social work profession and basic practice concepts in a framework for understanding a variety of intervention models. Requires a 25-hour volunteer placement in a human service agency. Prerequisite: SOCW 2311. Prospective BSW majors only.

**SOCW 3301. HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT I. 3 Hours.**

The first of two required human behavior courses that explore, within the context of a strengths and empowerment perspective, knowledge of the bio-psycho-social development of persons from birth through young adulthood. Offered as AAST 3301 and SOCW 3301; credit will be granted in only one department.

**SOCW 3302. HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT II. 3 Hours.**

The second of two required human behavior courses that explore, within the context of a strengths and empowerment based perspective, knowledge of the bio-psycho-social development of persons from adulthood to death.

**SOCW 3303. SOCIAL WELFARE POLICY AND SERVICES. 3 Hours.**

Examines how social goals are met by social welfare institutions. Conceptual schemes are developed for analyzing the structure of social welfare institutions and evaluating social welfare sub-systems. The social work profession is also examined in the context of the evolution and function of the contemporary American social welfare system. Prerequisite: SOCW 2311.

**SOCW 3304. SOCIAL WORK PRACTICE II. 3 Hours.**

Theories and methodologies of social work assessment and intervention at the individual, family, and group levels in diverse settings. Prerequisite: SOCW 2311, SOCW 2313, SOCW 3301. BSW majors only.

**SOCW 3305. SOCIAL WORK RESEARCH METHODS. 3 Hours.**

This course is designed to provide students with the fundamental skills to understand, use, and conduct research to advance the knowledge base of the social work profession and assess the effectiveness of social work interventions in generalist social work practice. The course addresses elements of the research process, quantitative and qualitative methods, research ethics, and approaches to data analysis. Particular attention will be given to the role of research with populations-at-risk, social and economic justice, and cultural diversity. Prerequisite: SOCW 2311; SOCW 3325 OR SOCI 3352, or permission of the instructor.

**SOCW 3306. SOCIAL WORK PRACTICE III. 3 Hours.**

The theory and practice of social change at the community level, including a sociological analysis of bureaucracies as collectivities of power, and of the community as a social phenomenon. Three models of community organization--community development, social action, and social planning--will be emphasized including methods of resource delivery and redistribution. Prerequisite: SOCW 2311, SOCW 2313. BSW majors only.

**SOCW 3317. HUMAN BEHAVIOR AND DIVERSE POPULATIONS. 3 Hours.**

Introduction to theoretical, practical, and policy issues related to diverse populations. Historical, political, and socioeconomic forces are examined that maintain discriminatory and oppressive values, attitudes, and behaviors in society and in all levels of organizational behavior. Prerequisite: SOCW 2311, SOCW 2313. Offered as AAST 3317 and SOCW 3317; credit will be granted in only one department.

**SOCW 3325. SOCIAL WORK STATISTICS. 3 Hours.**

This course is designed to enhance students' skills as research consumers and in performing research and statistical analyses in social work and social science. Included in the course are descriptive statistical procedures including measures of central tendency, variability, shape and distribution along with associations between two variables. In addition, inferential statistics are covered including estimation and hypothesis testing. Prerequisites: SOCW 2311 and SOCW 2313.

**SOCW 4191. CONFERENCE COURSE. 1 Hour.**

Topics assigned on an individual basis covering personal research or study in designated areas. Prerequisite: permission of the instructor.

**SOCW 4251. SOCIAL WORK FIELD SEMINAR I. 2 Hours.**

Integration of social work knowledge, theory, and skills learned in the classroom with practical application in a social work setting. Prerequisite: SOCW 2311, SOCW 2313, SOCW 3301, SOCW 3302, SOCW 3304, and concurrent enrollment in SOCW 4451. BSW majors only.

**SOCW 4252. SOCIAL WORK FIELD SEMINAR II. 2 Hours.**

Integration of theory and practice, based primarily on field instruction experiences. This course must be taken in the semester immediately following SOCW 4451. Prerequisite: SOCW 3303 or SOCW 3306, SOCW 4251, SOCW 4451, SOCI 3352; and concurrent enrollment in SOCW 4452. BSW majors only.

**SOCW 4291. CONFERENCE COURSE. 2 Hours.**

Topics assigned on an individual basis covering personal research or study in designated areas. Prerequisite: permission of the instructor.

**SOCW 4310. SOCIAL WORK WITH CHILDREN AND FAMILIES. 3 Hours.**

A critical examination of social policies, research, and practices impacting at-risk children and families in child welfare, child mental health, and school settings. Emphasis is placed on the role of the social work practitioner in enhancing the well-being of children and families in contemporary society. Prerequisite: SOCW 2311 or consent of the instructor.

**SOCW 4350. SPECIAL ISSUES IN SOCIAL WORK. 3 Hours.**

Relevant social work topics generated and explored in depth according to student and professional needs. The topic will be determined prior to registration. Prerequisite: permission of the instructor.

**SOCW 4391. CONFERENCE COURSE. 3 Hours.**

Topics assigned on an individual basis covering personal research or study in designated areas. Prerequisite: permission of the instructor.

**SOCW 4451. SOCIAL WORK FIELD INSTRUCTION I. 4 Hours.**

Supervised social work experience in a human service agency. Integration of generalist practice concepts into professional practice experiences. Requires a minimum of 240 clock hours in the agency. Prerequisite: SOCW 2311, SOCW 2313, SOCW 3301, SOCW 3302, SOCW 3304, and concurrent enrollment in SOCW 4251. P/F grading. BSW majors only. For additional information and requirements, see the BSW Field Policies and Procedures Manual.

**SOCW 4452. SOCIAL WORK FIELD INSTRUCTION II. 4 Hours.**

Supervised social work experience in a human service agency. Integration of generalist practice concepts into professional practice experiences. Requires a minimum of 240 clock hours in the agency. Prerequisite: SOCW 3303, SOCW 3306, SOCW 4251, SOCW 4451, and concurrent enrollment in SOCW 4252. This course must be taken in the semester immediately following SOCW 4451. P/F grading. BSW majors only. For additional information and requirements, see the BSW Field Policies and Procedures Manual.

**SOCW 4453. SOCIAL WORK FIELD SEMINAR. 4 Hours.**

Here, the field requirement is fulfilled in one semester. Prerequisite: Acceptance into the Title IV-W Child Welfare Program.

**SOCW 4853. SOCIAL WORK FIELD INSTRUCTION. 8 Hours.**

Supervised social work experience in a Child Protective Services agency. Integration of generalist practice concepts into professional practice experiences. Requires a minimum of 480 clock hours in the agency. Prerequisite: Acceptance into the Title IV-E Child Welfare Program, SOCW 2311, SOCW 2313, SOCW 3301, SOCW 3302, SOCW 3303, SOCW 3304, SOCW 3305 and SOCW 3306.

**SOCW 5301. HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT I. 3 Hours.**

Exploration of behavioral and social science knowledge of human behavior and development through the life course. Examines major systems in society: individual, group, family, and community; and the diversity of ethnicity, race, class, sexual orientation, and culture.

**SOCW 5303. FOUNDATIONS OF SOCIAL POLICY AND SERVICES. 3 Hours.**

Examines how social goals are met by social welfare institutions. Conceptual schemes are developed for analyzing the structure of social welfare institutions and evaluating social welfare sub-systems. The social work profession also is examined in the context of the evolution and function of the contemporary American social welfare system. Required of all first-year students.

**SOCW 5304. GENERALIST MICRO PRACTICE. 3 Hours.**

This foundation level course introduces graduate students to both theory and methods for social work practice with individuals, families, and small groups. It emphasizes a generalist perspective, beginning interviewing and relationship skills, problem assessment, goal setting, and contracting. Special attention is given to the common roles assumed by social workers (e.g. facilitator, broker, advocate). Required of all except advanced standing students.

**SOCW 5306. GENERALIST MACRO PRACTICE. 3 Hours.**

Examines generalist community and administrative practice roles, the perspectives of strengths, empowerment, evidence-based practice, and global practice along with the values of social justice, diversity, and participation. Specific attention is given to assessing community assets and needs. Required of all except advanced standing students.

**SOCW 5310. MICRO AND MACRO PRACTICE FIELD SEMINAR. 3 Hours.**

Integration of social work knowledge, theory, and skills learned in the classroom with practical application in social work setting. Prerequisite: SOCW 5301, SOCW 5304, SOCW 5306, and concurrent enrollment in SOCW 5551.

**SOCW 5317. HUMAN BEHAVIOR AND DIVERSE POPULATIONS. 3 Hours.**

Introduction to theoretical, practical, and policy issues related to race, ethnicity, and women. Historical, political, and socioeconomic forces are examined that maintain racist and sexist values, attitudes, and behaviors in society and all levels of organizational behavior. The importance and contribution of globalization, social justice and diversity are explored.

**SOCW 5322. RESEARCH AND EVALUATION METHODS IN SOCIAL WORK I. 3 Hours.**

This course is designed to provide students with an understanding of and ability to use the evidence-informed practice process to identify, analyze and apply evidence-informed interventions. Students will be able to comprehend both quantitative and qualitative research and to synthesize strengths and weaknesses of the social work literature. Students will be able to synthesize and evaluate research in terms of its content, quality, and applicability to clients. Students will understand scientific and ethical approaches to building knowledge to apply to and evaluate the impact of interventions on clients or clients' presenting problems.

**SOCW 5551. APPLIED SOCIAL WORK PRACTICE I. 5 Hours.**

Practical internship experience in the field with a social work agency. Course hours are completed by contacting the agency you are assigned to. Please contact the Field Office for more information. Prerequisites: SOCW 5301, SOCW 5304, and SOCW 5306.

**SOCW 6151. APPLIED SOCIAL WORK PRACTICE II. 1 Hour.****SOCW 6190. TUTORIAL. 1 Hour.**

Arrangements may be made for a directed and supervised tutorial in a select area of special interest to the student.

**SOCW 6251. APPLIED SOCIAL WORK PRACTICE II. 2 Hours.****SOCW 6301. ADVOCACY AND SOCIAL POLICY. 3 Hours.**

Politics are key to developing social policy. Students learn theory and skills to impact social and distributive justice at local, state and national levels. Examines the role of the social work profession in politics. This course may be chosen as a Policy, Administrative Practice, or Community Practice elective. Prerequisite: SOCW 5303. Corequisite: SOCW 5310 & SOCW 5551.

**SOCW 6303. POVERTY, INEQUALITY AND SOCIAL POLICY. 3 Hours.**

This course examines the nature and extent of poverty and inequality in the United States, their causes and consequences, and the debate concerning the role of government in providing anti-poverty programs. Many points of view concerning social and distributive justice are presented, from the radical left to radical right. Prerequisite: SOCW 5303. Corequisites: SOCW 5310 & SOCW 5551.

**SOCW 6304. SOCIAL POLICY AND CHILD WELFARE. 3 Hours.**

Examination of current policies, programs, and practices. Attention given to new perspectives on the delivery system and staffing in child welfare. Through analysis and research, students are provided knowledge for more effective practice in the field of child welfare. Prerequisite: SOCW 5303.

**SOCW 6305. INTEGRATIVE SEMINAR. 3 Hours.**

Focuses on issues and aspects of practice of broad concern to the profession of social work. Faculty members serve as consultants and resource persons to seminar members. Required of all non-thesis students in their final semester of coursework. Grade of C or better must be earned in this seminar to pass. If this requirement is not met, the student must repeat the course. Milestone: all courses have been taken for the degree except those left in the last semester, including this course. If fall or spring, no more than 15 hours can be left; if summer, no more than 12 hours can be left. Prerequisite: SOCW 6451 or SOCW 6851.

**SOCW 6306. CLINICAL ASSESSMENT. 3 Hours.**

Reviews and builds on the fundamentals of clinical assessment. Topics are covered in considerable depth and practiced with social work clients. Advanced topics include behavioral observation, self-anchored rating scales, client surveys, standardized measurement and scales, single-subject designs, family assessment tools and categorical systems. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6310. SEMINAR IN GENDER ISSUES. 3 Hours.**

Explores women's issues in human behavior theory, practice theory, and policy. The historical, political, and socioeconomic forces that maintain sexism are discussed. Environmental influences are examined in relation to social justice, social work values, knowledge, and skills. Prerequisite: SOCW 5301, SOCW 5317.

**SOCW 6311. SEMINAR IN DIRECT METHODS IN COUPLES COUNSELING. 3 Hours.**

Examination of various psychological, social, and cognitive-behavioral treatment approaches to problems in intimate coupling. Emphasis is placed on the assessment of the sources and patterns of dissatisfaction and conflict, the selection and ordering of treatment strategies, and application of treatment techniques consistent with determined goals. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment.

**SOCW 6312. GROUP DYNAMICS I AND SOCIAL WORK PRACTICE. 3 Hours.**

Examines contemporary social-psychological concepts and small group research, with a view to testing their applicability to practice propositions and operational principles, in work with both task and personality satisfaction groups. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6314. ADVANCED ADMINISTRATIVE PRACTICE. 3 Hours.**

Focuses on selected topics, issues, and skills for effective social work administration. Content includes leadership, worker motivation, resource development, interagency relations and managing conflict and diversity in a climate of scarce resources. Prerequisite: SOCW 6371 or concurrent enrollment.

**SOCW 6315. ADVANCED COMMUNITY PRACTICE. 3 Hours.**

Focuses on topics, issues, and skills for mobilizing neighborhoods, communities, and client groups to solve collective human problems. Content includes the politics of empowerment, mobilizing coalitions, locating resources, and mediating conflict. Prerequisite: SOCW 6371 or concurrent enrollment.

**SOCW 6317. DIRECT PRACTICE IN HEALTH CARE. 3 Hours.**

Explores the central contribution of social work to comprehensive health care and health in environment theory and evidence; advanced knowledge and skills in human behavior theory relevant to health care, as well as social work interventions to assess and ameliorate the psychological effects of illness and disability, are included along with emerging roles for social work in prevention and health maintenance. Prerequisite: SOCW 6325.

**SOCW 6318. DIRECT PRACTICE WITH AGING. 3 Hours.**

Course presents an overview of current issues in the care, treatment, and delivery of social services to the aging. Students learn practice procedures designed to equip them with the skills needed for effective social work practice and review major theories on aging. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6319. SOCIAL POLICY AND MENTAL HEALTH. 3 Hours.**

Studies programs and policies in the field of mental health. An analytical model is employed in the process of examining critical issues in the mental health arena. Prerequisite: SOCW 5303.

**SOCW 6320. PERSONAL RELATIONSHIPS. 3 Hours.**

Explores theoretical and empirical data on diverse personal relationships at the follow stages of relationship: initiation, maintenance, and termination. Identifies areas for intervention. Prerequisite: SOCW 5301 and SOCW 5317.

**SOCW 6323. PERSPECTIVES IN MENTAL HEALTH. 3 Hours.**

Examines and analyzes theories of mental health and disorders, perspectives on the etiology and epidemiology of mental disorder and the societal response to problems in mental health of vulnerable and oppressed populations. Prerequisite: SOCW 5301, SOCW 5317.

**SOCW 6324. RESEARCH AND EVALUATION METHODS IN SOCIAL WORK II. 3 Hours.**

This course is designed to provide students with an understanding of and ability to analyze, monitor, and evaluate evidence informed interventions and human service programs. In this course quantitative and qualitative research methods and approaches are applied to the scientific and ethical evaluation of evidence informed interventions and human service programs. Research skills and knowledge are presented from the perspective of promoting diversity and social and economic justice in the evaluation of social work. Prerequisite: SOCW 5322 or advanced standing status.

**SOCW 6325. ADVANCED MICRO PRACTICE. 3 Hours.**

Builds on the generalist perspective and the basic familiarity with social work processes (such as problem identification, assessment, contracting, plan implementation, and outcome evaluation) in the context of (1) existing psychotherapeutic modalities, and (2) the particular client characteristics that lend themselves to specific change modalities. Required of all DP students. Prerequisite: SOCW 5304, SOCW 5310, and SOCW 5551.

**SOCW 6326. DIRECT PRACTICE WITH CHILDREN AND FAMILIES. 3 Hours.**

Focuses on the characteristics, strengths, and service needs of children and their families. Addresses assessment and intervention skills to work effectively with a variety of child, parent(s), and family problems. Specific techniques considered include child therapy, play therapy, behavioral contracting, cognitive-behavioral interventions, and crisis intervention. Required of all DP students specializing in Children and Families. Prerequisite: SOCW 6325 or concurrent enrollment.

**SOCW 6328. SOCIAL POLICY RESEARCH AND ANALYSIS. 3 Hours.**

Seminar examining methods for analyzing social policies and for assessing effects of policy. Students evaluate and apply different models for social policy analysis, including comparative models. Students work with social indicators and other data sources used in policy research. Prerequisite: acceptance into the Ph.D. program.

**SOCW 6329. SOCIAL WORK, LAW, AND THE FAMILY CODE. 3 Hours.**

Overview of legal principles and procedures as they apply to social workers and their interaction with clients. Particular attention given to the broad area of family law. Areas of mental health law, children's rights, consumerism, malpractice, courtroom testimony, criminal law, estates, and community legal services covered. This course is an elective only; does not meet the requirements for a second year policy course. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment. CAP students: SOCW 6371.

**SOCW 6330. CHILD DEVELOPMENT. 3 Hours.**

Reviews and analyzes theoretical and empirical approaches to understand the development of children through adolescence; explores implications for practice and policy with children and adolescents. Prerequisite: SOCW 5301 and SOCW 5317.

**SOCW 6331. THEORIES OF FAMILY. 3 Hours.**

Reviews a variety of theoretical approaches useful in understanding the family. Implications for practice at the policy, community, and interpersonal levels are discussed. Prerequisite: SOCW 5301 and SOCW 5317.

**SOCW 6332. ADULT DEVELOPMENT. 3 Hours.**

Explores selected issues and analyzes theories related to early and middle adulthood. Issues pertinent to practice, such as the developmental change processes of diverse populations, are also examined. Prerequisite: SOCW 5301 and SOCW 5317.

**SOCW 6333. AGING IN AMERICAN SOCIETY. 3 Hours.**

This course presents the major theories of aging, in the United States and across cultures, and explores the diverse factors of aging from various perspectives including psychological, biological, sociological, and spiritual. Theories are integrated into practice thus providing students a sound foundation for social work practice with older adults. Students develop skills for completing multi-dimensional assessments, and effective social work interventions with and on behalf of older adults. Prerequisite: SOCW 5301 and SOCW 5317.

**SOCW 6334. WOMEN AND FAMILY POLICY. 3 Hours.**

Policies affecting women and the family; interaction of women with other social institutions (family, economy, policy); the unique impact of policies upon families and women of color; cross cultural comparisons and political strategies; the role of the social work profession in this policy field. Prerequisite: SOCW 5303.

**SOCW 6336. DIRECT PRACTICE IN MENTAL HEALTH. 3 Hours.**

Focuses on assessment and intervention with those evidencing acute and chronic mental health problems and disabilities. The course addresses the delivery of services to various populations (children, adolescents, and adults), service delivery systems (community mental health, managed behavioral health care), and a wide range of problems. Topics include well-being, ethics, case management, treatment planning, managed care, DSM, PIE, and substance abuse. Required of all DP students specializing in Mental Health. Prerequisite: SOCW 6325.

**SOCW 6337. PSYCHODYNAMICS. 3 Hours.**

Applies psychodynamic theory derived from Freud and ego psychologists to the life cycle. Draws implications for social work practice with diverse groups. Prerequisite: SOCW 5301 and SOCW 5317.

**SOCW 6338. SOCIAL SERVICES AND SOCIAL POLICY. 3 Hours.**

Broad acquaintance with, and analysis of, the social services and their role within social welfare policy. A variety of social services examined as well as modes and methods of providing these services, degree of effectiveness of various services in adequately serving clients, service gaps or duplication, and related areas. Prerequisite: SOCW 5303.

**SOCW 6339. PROGRAM EVALUATION. 3 Hours.**

Presumes basic research competence on part of student. Focus on sociopolitical aspects of program evaluation as a specialized use of scientific methods and community practice skills. Relationships between program evaluation and program planning or administration stressed. Prerequisite: SOCW 5322. CAP students: SOCW 6371 or concurrent enrollment.

**SOCW 6340. ADVANCED RESEARCH METHODS IN HUMAN SERVICES. 3 Hours.**

Acquaints students at an advanced level with research methodology as it applies to the human services. Includes techniques and tools of research, problem conceptualization, measurement, research and instrument design and data collection methods. Prerequisite: acceptance into the Ph.D. program.

**SOCW 6341. ADVANCED STATISTICAL METHODS IN HUMAN SERVICES. 3 Hours.**

Advanced statistical applications in the human services. Emphasis on multivariate statistical approaches including multiple regression analysis, logistic regression, structural model analysis using LISREL or EQS. Prerequisite: SOCW 6347.

**SOCW 6342. HUMAN BEHAVIOR IN MACRO ENVIRONMENTS. 3 Hours.**

Offers advanced students the opportunity to study people's behavior within large and complex social settings including: natural helping networks and ontological communities, organizations and bureaucracies, and social and political movements. Meets the advanced Human Behavior requirement for students pursuing the Community and Administrative Practice (CAP) specialization. Prerequisite: SOCW 5301 and SOCW 5317 or advanced standing status.

**SOCW 6343. INTIMATE PARTNER VIOLENCE. 3 Hours.**

This course covers theoretical frameworks for understanding and addressing intimate partner violence as well as culturally sensitive prevention and intervention practice models. Prerequisite: SOCW 6325; Co-requisite: SOCW 6326 or SOCW 6336.

**SOCW 6344. TREATMENT OF CHILDREN AND ADOLESCENTS. 3 Hours.**

Overview of the literature which describes physical, psychological, and cultural characteristics unique to childhood and adolescence. Attention then turned to treatment principles, and the specification of procedures for the amelioration of problems common to children and adolescents. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6345. HEALTH POLICY. 3 Hours.**

Historical, current, and projected national and local health policies and roles of providers and consumers of health care examined; service demands, economic, access, and regulatory issues analyzed; relationships between governmental, voluntary, and commercial sectors studied; analytic frameworks for the understanding and development of policies developed. Prerequisite: SOCW 5303.

**SOCW 6346. TEACHING PRACTICUM. 3 Hours.**

Introduces students to the academic role through teaching practice at graduate and/or undergraduate level supervised by a full-time faculty member. Prerequisite: SOCW 6328, SOCW 6340, SOCW 6348, SOCW 6373.

**SOCW 6347. INTERMEDIATE STATISTICS. 3 Hours.**

Statistical applications for doctoral social work students. Emphasizes both parametric and non-parametric techniques, including t-tests, ANOVA, correlation and regression, chi-square, and other non-parametrics. Designed to provide a foundation for advanced multivariate statistical techniques. Prerequisite: acceptance into the Ph.D. program.

**SOCW 6348. SEMINAR IN QUALITATIVE RESEARCH METHODS. 3 Hours.**

Explores a variety of qualitative approaches to knowledge building and research. Designed to prepare students to carry out research projects within their areas of interest. Content includes discussions of knowledge development, study designs, data collection, analysis, and report writing. Prerequisite: acceptance into the Ph.D. program.

**SOCW 6349. AGING AND SOCIAL POLICY. 3 Hours.**

Social welfare policies and programs are examined in terms of the overall impact on the aged and society. Needs and gaps in services to the aged are evaluated, especially concerning minority and low-income aged. Current issues in aging policy are examined. Prerequisite: SOCW 5303.

**SOCW 6350. SEMINAR IN COGNITIVE-BEHAVIORAL INTERVENTION STRATEGIES. 3 Hours.**

Explores the integration of cognitive-behavioral and constructivist intervention methods in the treatment of various problems and clinical populations. The theoretical bases of cognitivism, behaviorism, and constructivism are identified and current issues in cognitive-behavioral and in constructivist methods are addressed. Assessment and interventions taught in this course are drawn from evidence-based practice knowledge and informed practice wisdom. Client strengths and individual empowerment are emphasized in formulating assessment and intervention strategies. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6353. SEMINAR IN FAMILY THERAPY. 3 Hours.**

Comparison of various approaches to working with the family as a total system; enhancement of cognitive understanding of similarities and differences in theory and goals of family treatment in many fields of practice; integration of strategies and techniques of each method into an individual style of therapy. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6354. SOCIALLY OPPRESSED GROUPS, SOCIAL EXCLUSION AND SOCIAL JUSTICE. 3 Hours.**

Past and present policies are examined related to people with disabilities, substance abusers, lesbians and gay men, juvenile delinquents, women convicted of criminal offenses, sex offenders and others who for various reasons experience social exclusion, stigma and social control. Theoretical bases of societal reaction to these groups and the impact on social policy and social work practice is considered. Prerequisite: SOCW 5303.

**SOCW 6356. SEMINAR IN PROGRAM AND PRACTICE EVALUATION. 3 Hours.**

This course provides hands on opportunities to develop program and clinical evaluation plans for social work/welfare agencies. Educational principles and theoretical foundations are discussed as the actual plans are developed. Students work with agency decision makers and the instructor to generate a plan acceptable to the agency for implementation. Prerequisite: SOCW 6347.

**SOCW 6358. SOCIAL WORK SUPERVISION. 3 Hours.**

Introduces the roles, functions, and contexts of social work supervision. Covers administrative and clinical perspectives on the social work supervisor as manager, educator, mentor, mediator, and leader in human service organizations. Prerequisite: Community and Administrative Practice (CAP) students: SOCW 6371 or concurrent enrollment. Direct Practice (DP) students: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6359. SOCIAL WORK IN SCHOOLS. 3 Hours.**

The purpose of this course is to provide an overview of the various social work related theoretical perspectives, models, and programs for intervention with children and their families in the school setting. This includes skills in assessment, prevention, and intervention in providing services to "high risk" students, such as students in poverty and students with disabilities, and addressing issues such as teen parenting, drug and alcohol abuse, and conflict management in the school setting. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment.

**SOCW 6360. CLINICAL ASSESSMENT OF CHILD MALTREATMENT. 3 Hours.**

Examines knowledge/technique in child physical/emotional/sexual abuse, physical/emotional neglect, and exploitation interventions. Includes interviewing, identification, legal issues, assessment/evaluation, case management, intervention, follow-up. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment.

**SOCW 6361. STRESS, CRISIS, AND COPING. 3 Hours.**

The impact of specific crises on individuals and families will be examined. Typical crises will include life-threatening illness, trauma, physical and mental disability, and death. Assessment and evaluation of an individual's coping ability and appropriate strategies for social work interventions will be studied. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6363. BUDGETING AND FINANCIAL MANAGEMENT. 3 Hours.**

Basic overview of financial management applied specifically to human service agencies; emphases on basic concepts and skill building in budgeting, and fund raising; accounting principles, financial statements, and computerized financial information systems also covered. Prerequisite: SOCW 6371 or concurrent enrollment.

**SOCW 6365. SEXUAL AND GENDER IDENTITIES. 3 Hours.**

Reviews various life experiences, challenges and psychosocial theories affecting lesbian, gay, bisexual, and transgender persons. Identifies social work interventions. Prerequisite: SOCW 5301 and SOCW 5317 or advanced standing status.

**SOCW 6367. SEMINAR IN ADVANCED STATISTICAL APPLICATIONS. 3 Hours.**

This seminar covers statistical analysis of experimental designs, the General Linear Model and other advanced statistics. The course focuses on applications of statistics using various data sets. Prerequisite: Knowledge of SPSS; SOCW 6341 and SOCW 6347.

**SOCW 6368. SEXUAL ABUSE OF CHILDREN: IDENTIFICATION, ASSESSMENT, CASE MANAGEMENT AND TREATMENT. 3 Hours.**

Seminar focused on examination of current knowledge and intervention strategies related to child sexual abuse. Topics addressed include techniques of obtaining information, sexual assault assessment procedures, validation, case management, application of change methods, case monitoring and relapse prevention. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment.

**SOCW 6369. INTRODUCTION TO HUMAN SEXUALITY AND SOCIAL WORK PRACTICE. 3 Hours.**

Overview of human sexuality as it relates to social work practice. Human sexuality considered from a bio-psychosocial perspective. Emphasis on viewing human sexuality as an interactive process of the total personality. Attention given to various psychological, social and behavioral educational/treatment approaches. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6370. TREATING PARENT-CHILD RELATIONSHIPS. 3 Hours.**

Treatment strategies and evaluation methods and research findings relevant to the treatment of parent-child relationships; review of existing parent training literature and commercially available parenting programs. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6371. COMMUNITY AND ADMINISTRATIVE PRACTICE. 3 Hours.**

Surveys theory and builds skills in roles associated specifically with community practice (e.g. community/locality development, social planning, social action) and administrative practice (e.g. supervision, administration, management and management systems). Students complete an advanced assignment in community and/or organizational assessment and program design. Required of all CAP (Community and Administrative Practice) students. Prerequisite: Advanced Standing Student or SOCW 5306, SOCW 5310, and SOCW 5551.

**SOCW 6373. THEORY AND MODELING BUILDING IN SOCIAL WORK RESEARCH. 3 Hours.**

This course gives special emphasis on ways in which theory informs social work research. This course prepares students to perform application and critical analysis of social science and social work theory and theory-driven research. The course involves students in integrating theory, research, and social work practice with the goal of producing models of interventions, programs, and policies. Prerequisite: acceptance into the Ph.D. program.

**SOCW 6380. TREATMENT OF ADDICTIVE BEHAVIORS. 3 Hours.**

Surveys major treatment alternatives, showing addictive behavior patterns such as alcohol/drug abuse or eating disorders. Student conducts field research of 12-step programs, practices interventions, and studies inpatient and outpatient treatment methods with emphasis on relapse prevention. Prerequisite: SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6384. MANAGEMENT OF CHILDREN'S AGENCIES AND PROGRAMS. 3 Hours.**

Course prepares students for mid-management and administrative roles in public and private child-serving agencies and programs. Includes content about state licensure of child care agencies and administrators and of child placing agencies and administrators, as well as about the legal aspects of child welfare practice. Emphasizes the community context of practice and how agencies can adapt their work to the cultural milieu of clients and others in the environment. Prerequisite: SOCW 6371 or concurrent enrollment.

**SOCW 6385. SOCIAL WORK AND MANAGED CARE. 3 Hours.**

Explores the history of managed care in health and social services, the underlying philosophy, and current trends and practice issues. Assesses the potential for conflict between social work values and managed care systems. Builds skills for administrative roles in managed care settings. Prerequisite: SOCW 6371 or concurrent enrollment.

**SOCW 6386. GRANT PROPOSAL DEVELOPMENT SEMINAR. 3 Hours.**

Grant proposal development is a fundamental method of accessing funds and developing new programs in the social service arena. In this class, students will identify key funding opportunities in their fields of interest and will write a proposal using an actual federal application and a foundation funding announcement. The majority of the course will be devoted to the development of the skills and knowledge necessary to produce a competitive proposal. These include, but are not limited to: a) needs and capacities assessment, b) program development, c) strategic planning, d) budgeting, e) evaluation, and f) community collaboration. The prerequisite for this course is SOCW 6371 (or concurrent enrollment) or SOCW 6325; SOCW 6326 or concurrent enrollment; or SOCW 6336 or concurrent enrollment.

**SOCW 6387. CHILD AND YOUTH POLICY. 3 Hours.**

The course centers on a critical examination of current and proposed social policies impacting "at-risk" children and youth. An analytical approach to address the wide arena of national, international, and state child and youth social policies that mandate child custody, health, education, economic supports, juvenile justice, and child protection services. Emphasis will be placed on the role of the social work practitioner in enhancing the well being of children and youth through social policy analysis, development, implementation, and reform. Prerequisite: SOCW 5303.

**SOCW 6389. Brain and Behavior. 3 Hours.**

This course is a second-year blended option in the HBSE, Direct Practice, and CAP sequences. The focus of this course is on current advances in knowledge of the neurobiological underpinnings of human behavior and development, the interaction between those underpinnings and the social context and environment, the relevance to social work practice with individuals, families, groups, programs/organizations, and communities, and related assessment and intervention practice behaviors across several practice domains. The domains include human development, genetics, mental health and substance abuse, cognition, stress and trauma, and violence and aggression. The implications of neurobiological and environmental influences (including public health issues and health disparities) will be examined in terms of social justice, social work values, knowledge, and skills, as well as in terms of the structural and systematic arrangement and delivery of social welfare services at the micro, mezzo, and macro levels. Prerequisite: SOCW 5301 and SOCW 5317.

**SOCW 6390. TUTORIAL. 3 Hours.**

Arrangements may be made for a directed and supervised tutorial in a select area of special interest to the student.

**SOCW 6392. SELECTED TOPICS IN SOCIAL WELFARE. 3 Hours.**

Topics vary from semester to semester depending on the needs and interest of the students. Prerequisite: permission of instructor.

**SOCW 6393. THESIS RESEARCH. 3 Hours.**

Initial research in the student's area of concentration, leading to thesis. Prerequisite for SOCW 6398. Prerequisite: permission of instructor.

**SOCW 6394. APPLIED RESEARCH PRACTICUM. 3 Hours.**

Students engage in an active program of applied research under direct supervision of a faculty member.

**SOCW 6396. SOCIAL WORK EDUCATION: PRINCIPLES AND SKILLS. 3 Hours.**

Considers a range of ideas in educational thought relevant to the formulation of an analytical appraisal of social work education and training. Educational methods and skills relevant to social work are addressed and practice opportunities offered. Prerequisite: acceptance into the Ph.D. program.

**SOCW 6397. WRITING FOR PUBLICATION. 3 Hours.**

This course will explore the world of academic publishing. Students will provide peer reviews of manuscripts, prepare and critique their ideas and draft sections of a manuscript, and present a final manuscript and publication plan. The intent is to help the students increase their chance of publishing manuscripts as a Ph.D. student and as a new faculty member. Although nothing can substitute for having information and research relevant for the field, the art of writing for publication should not be underestimated. Journal publishing, like any other human service endeavor, is easier as you become proficient. Most academics become proficient at communicating their ideas and research through trial and error. However, one's chances of becoming published can be increased by learning from experts in the field. Prerequisite: acceptance into the Ph.D. program.

**SOCW 6398. THESIS. 3 Hours.**

Requires an individual research project in the individual's area of concentration, with a minimum of six semester hours total needed for the project. Satisfactory completion requires approval of the instructor in charge, a supervising committee appointed by the Dean of Graduate Studies. Defense in a final oral examination is required. Prerequisite: permission of the instructor.

**SOCW 6399. DISSERTATION. 3 Hours.**

Preparation and submission of a doctoral dissertation in an area in social work.

**SOCW 6451. APPLIED SOCIAL WORK PRACTICE II. 4 Hours.****SOCW 6452. APPLIED SOCIAL WORK PRACTICE III. 4 Hours.****SOCW 6694. APPLIED RESEARCH PRACTICUM. 6 Hours.**

Students engage in an active program of applied research under direct supervision of a faculty member.

**SOCW 6698. THESIS. 6 Hours.**

Requires an individual research project in the individual's area of concentration, with a minimum of six semester hours total needed for the project. Satisfactory completion requires approval of the instructor in charge, a supervising committee appointed by the Dean of Graduate Studies. Defense in a final oral examination is required.

**SOCW 6699. DISSERTATION. 6 Hours.**

Preparation and submission of a doctoral dissertation in an area in social work.

**SOCW 6851. APPLIED SOCIAL WORK PRACTICE II. 8 Hours.**

Practical application of social work skills in real world environment. Student is assigned to field agency to enhance and practice learned theories. This course is 500 hours of direct client contact in agency setting as provided by the Field Experience Office. Prerequisite: SOCW 5310/SOCW 5551 and SOCW 6325.

**SOCW 6999. DISSERTATION. 9 Hours.**

Preparation and submission of a doctoral dissertation in an area in social work.



**SOCW 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Sociology (SOCI)

### COURSES

**SOCI 1311. INTRODUCTION TO SOCIOLOGY. 3 Hours. (TCCN = SOCI 1301)**

(SOCI 1301). A scientific approach to the analysis and explanation of culture, personality, and social organization. The social processes and mechanisms of interaction involved in the natural process of cultural development, dissemination, assimilation, and the institutions of the group.

**SOCI 2312. CONTEMPORARY SOCIAL ISSUES. 3 Hours. (TCCN = SOCI 1306)**

Selected topics in contemporary social issues.

**SOCI 3312. JUVENILE DELINQUENCY. 3 Hours.**

The delinquent as a person and delinquency as a social problem, theories of delinquency, and methods of correctional treatment and preventive programs.

**SOCI 3313. CRIMINOLOGY. 3 Hours.**

Crime-related social issues. Defining and measuring crime, surveying major theoretical explanations of criminal behavior, and society's formal responses to crime and criminals.

**SOCI 3314. THE LATINA EXPERIENCE. 3 Hours.**

Examines the social, cultural and economic experiences of Latin American women in the United States, with particular emphasis on Mexican-origin women. The course surveys the historical and contemporary experiences of Latinas in the United States with respect to family dynamics, religion, education, politics, health and illness, the labor market, mass media, and the arts. This course is also offered as MAS 3314, SOCI 3314, and WOMS 3314; credit will be granted only once.

**SOCI 3315. SOCIAL PSYCHOLOGY OF CRIME. 3 Hours.**

Selected concepts in social psychology applied to issues in crime and justice, such as the actions of victims, criminals, and criminal justice professionals. Topics include aggression, social perception, cognitions, conformity, obedience, and deviance.

**SOCI 3317. INDIVIDUAL AND SOCIETY. 3 Hours.**

How society influences individual thought, feeling, and behavior. Includes interpersonal perception, attitudes, norms, roles, conformity, and such social issues as aggression, helping behavior, prejudice, and interpersonal attraction.

**SOCI 3318. SELF AND SOCIAL IDENTITY. 3 Hours.**

The social self. Topics include factors in the development, organization, evaluation and presentation of self in everyday life and processes by which social categories and roles influence self concept.

**SOCI 3319. SMALL GROUPS. 3 Hours.**

The process and structures of small-scale interaction systems, including an analysis of the process of leadership, the exercise of influence, the effect of groups on individuals and of individuals on groups, the relation and function of the small group as a part of a larger whole, and the process of group formation, development, and disintegration.

**SOCI 3320. DEVIANCE: SOCIAL AND PERSONAL. 3 Hours.**

Theoretical perspectives on societal definitions of behavior as deviant or disorganized. Selected studies, representative of current problems, examined critically in terms of the structural-cultural conditions of contemporary society.

**SOCI 3321. SOCIALIZATION AND SOCIAL CONTROL. 3 Hours.**

The relationship between social structure and the individual. The influence of social factors on cognitive development, personality formation, and the behavior of individuals throughout the lifecycle. The effect of socialization on conformity and deviance. Prerequisite: sophomore standing or permission of the instructor.

**SOCI 3323. COLLECTIVE BEHAVIOR. 3 Hours.**

Provides an overview of the elementary forms of collective behavior including riots, panics, fads, fashion, cults and crazes. Explanatory theories and specific instances of the different forms of collective behavior are examined. Prerequisite: SOCI 1311.

**SOCI 3324. SOCIAL MOVEMENTS. 3 Hours.**

Focuses on twentieth and twenty-first century social movements, including the U.S. civil rights movement, the student and anti-war movements of the 1960s, the women's movement, the environmental movement, and anti-globalization movements. Status politics movements, such as pro-choice/pro-life and gay rights movements, are also explored. Compares these movements with their counterparts in other countries and identifies the reasons for their successes and failures. Prerequisite: SOCI 1311.

**SOCI 3327. INTERCULTURAL INTERACTION. 3 Hours.**

Patterns and variations in interactions involving people from different cultures and subcultures. Intercultural interaction, both within multicultural societies and between persons from different societies.

**SOCI 3328. MARITAL AND SEXUAL LIFESTYLES. 3 Hours.**

Contemporary American lifestyles selected from: singles, traditional marriage, homosexuals, single-parent families, open marriage, non-marital sexuality, cohabitation, dual-career marriage, childless couples, egalitarian marriage, families in later life. Offered as SOCI 3328 and WOMS 3328; credit will be granted only once.

**SOCI 3331. SOCIOLOGY OF THE FAMILY. 3 Hours.**

The family's role in American society and in other cultures past, present, and future. Family research methods, comparative family systems, child development/parenting, culture and personality, minority families, social class variation in families, work and family. Prerequisite: sophomore standing or permission of the instructor. Offered as SOCI 3331 and WOMS 3331; credit will be granted only once.

**SOCI 3334. GENDER ROLES. 3 Hours.**

Theories of gender role socialization and change in female and male roles. Impact of biology, psychology, and socialization on gender role development. How we learn gender in various social contexts including the family, education, and the peer group. Offered as SOCI 3334 and WOMS 3334; credit will be granted only once.

**SOCI 3336. SOCIAL INEQUALITY. 3 Hours.**

Examines the processes, characteristics, and consequences of social inequality in society. Topics include the social class structure, status groups, and elite power structure as they influence people's life chances. Offered as AAST 3336 and SOCI 3336; credit will be granted in only one department.

**SOCI 3337. RACIAL & ETHNIC GROUPS IN US. 3 Hours.**

Compares the immigration, acculturation, and adjustment processes of various racial/ethnic groups in the U.S. Examines historical and contemporary discrimination in relation to the social conditions of racial/ethnic minority groups in the U. S. Topics include classical and contemporary theory; individualistic, cultural, and structural arguments about social arrangements; and conflict among majority and minority groups. Prerequisite: SOCI 1311. Credit will not be granted for both SOCI 3337 and SOCI 4310 or for MAS 3337 and MAS 4310. Offered as AAST 3337 and SOCI 3337; credit will be granted in only one department.

**SOCI 3338. CONTEMPORARY BLACK EXPERIENCE. 3 Hours.**

An overview of recent research concerning the African American experience in the post-civil rights era. Topics include explanations for racial differences across spheres of society such as income, education, and occupation; the debate over race versus social class; the persistence of racial discrimination; and emerging disputes within the black community regarding "what it means to be black." Offered as AAST 3338 and SOCI 3338; credit will be granted in only one department.

**SOCI 3339. RACE, SPORT AND MEDIA. 3 Hours.**

The media, including television, film, print, audio, and online outlets, influence how we view the world. This course analyzes overt, subtle and subliminal messages about culture, race, ethnicity, and sport as presented to us through various forms of the media. Through examinations of media portrayals of race, both past and present, students will analyze media artifacts, identify recurring themes, and examine research focused on the societal effects of stereotypical media portrayals. Offered as AAST 3339 and SOCI 3339; credit will be granted in only one department.

**SOCI 3340. SOCIOLOGY OF EDUCATION. 3 Hours.**

Social relations between the school and society, teachers and parents, teachers and school management, and other relevant relationships. Studying cooperation and conflict, values, complex organizational structure, and social change. Prerequisite: sophomore standing or permission of the instructor.

**SOCI 3341. SOCIOLOGY OF SPORT. 3 Hours.**

Sociological examination of the institution of sport in U.S. society. By examining selected topics such as sport and socialization, sport and politics, sport and education, the Olympics, race and sport, violence in sport, women in sport, and the business of sport, this course will address the social significance of sport and its function as a major social institution.

**SOCI 3342. SOCIOLOGY OF THE HUMAN BODY. 3 Hours.**

Drawing from the social sciences, cultural and gender studies, and exercise physiology, this course in body sociology addresses several contemporary issues relating to diet, nutrition and exercise. Specific topics include eating disorders, factory farming, and "body industries" involving weight-loss diets, gyms, fashion, and cosmetic and bariatric surgery. The medical model of bodies is also examined. Also listed as KINE 3342; credit will not be granted for both.

**SOCI 3343. SOCIOLOGY OF RELIGION. 3 Hours.**

This course provides an overview of the scientific study of religion from a sociological perspective. The focus is on theories, research and trends relevant to religion in the contemporary United States. Topics include, but are not limited to, religious traditions, practices, and beliefs; declining religious participation; and religion and social change. The relationship between religion, politics, race relations, sex and gender will also be examined.

**SOCI 3345. SOCIOLOGY OF THE 1960S. 3 Hours.**

This course presents a sociological analysis of the sixties, stressing the connection between grassroots mobilization and large structures of power, war, race and gender. The legacy of the sixties is examined through stories told by and about activists of the period. Parallels between the sixties and the present are identified. Movements covered may include civil rights, black power, anti-war and women's rights. Offered as AAST 3344 and SOCI 3345; credit will be granted in only one department.

**SOCI 3346. U.S. INTO THE TWENTY-FIRST CENTURY. 3 Hours.**

Selected problems, prospects, and dilemmas examined in the context of contemporary perspectives in sociology as the United States enters the new millennium as a global actor.

**SOCI 3348. THE SOCIOLOGY OF RISK. 3 Hours.**

This course will examine how individuals and groups define and manage risk and uncertainty in everyday life. We will discuss differences in risk tolerance, when and why risk-taking behavior is encouraged and rewarded, when and why it is discouraged and punished, how risks and rewards are distributed, and the consequences of misestimating risk.

**SOCI 3351. WORK IN MODERN SOCIETY. 3 Hours.**

The changing patterns of work in modern society. The impact of technology, changing characteristics of the work force, and developments in organizational and occupational structure are examined. Prerequisite: sophomore standing or permission of the instructor.

**SOCI 3352. SOCIAL STATISTICS. 3 Hours.**

Descriptive statistics including measures of central tendency, measures of dispersion, and measures of association. Emphasis is on probability theory and testing hypotheses. Specific models include T-Test, chi-square, gamma, lambda, theta, analysis of variance and covariance, regression and correlation analysis. Prerequisite: sophomore standing or permission of the instructor.

**SOCI 3353. SOCIAL CLIMATE OF CITIES. 3 Hours.**

A comparative study of urban communities and metropolitan areas in terms of their distinctive social life and culture. Topics touching on power and urban politics, race and ethnic relations, poverty, and leisure and lifestyles will be examined in terms of their contribution to the unique social climate of cities. Offered as AAST 3353 and SOCI 3353; credit will be granted in only one department.

**SOCI 3355. COMPUTER APPLICATIONS IN THE SOCIAL SCIENCES. 3 Hours.**

Students will learn how to develop a research proposal, collect and analyze data based on the proposal, and present the results. The course will emphasize computer analysis, graphics and presentation skills through the use of popular software packages such as Word, Excel, Access, Power Point, and SPSS. Internet data collection and web publishing will also be covered. Individual and group oral presentation is a cornerstone of the course mission. Satisfies the university requirements for computer literacy and oral communication. Prerequisite: SOCI 3352 or equivalent.

**SOCI 3356. WOMEN, WORK AND SOCIAL CHANGE. 3 Hours.**

Women's work experiences, how these experiences are changing, and relationship between paid employment and non-wage household labor. Paid and unpaid work experiences are empirically examined in terms of a variety of theoretical perspectives. Offered as SOCI 3356 and WOMS 3356; credit will be granted only once.

**SOCI 3357. LAW AND SOCIETY. 3 Hours.**

Law as a social institution. The processes of defining criminal conduct and the social functions of law and of legal processes and systems. Prerequisite: sophomore standing or permission of the instructor.

**SOCI 3365. PROGRAM EVALUATION & NEEDS ASSESSMENT. 3 Hours.**

Introduces basic concepts in evaluation research addressing the need for and implementation, effectiveness, and efficiency of social intervention efforts. Students will advance their skills in quantitative and qualitative research in partnership with community organizations. The course provides an opportunity to learn about and apply techniques for needs assessment, formative and summative program evaluation, developing and testing social impact models, examining costs and benefits, and communicating findings. Prerequisite: SOCI 3462.

**SOCI 3366. POPULATION TRENDS AND PROCESSES. 3 Hours.**

Examines the fact that all people are born, usually move from one place to another, and inevitably die. Societal patterns in human fertility, migration and mortality contribute to widely varied life-chances for people over time and across the planet. This course explores theories and research on demographic dimensions of human behavior as they affect social and economic issues. The course provides an understanding of how vital population trends and processes are for assessing social problems and offering solutions. Credit will not be granted for both SOCI 4325 and SOCI 3366.

**SOCI 3372. SOCIOLOGICAL THEORY. 3 Hours.**

The nature and function of sociological theory and the systematic organization of concepts and principles for the explanation of social phenomena as a guide for social research. Formerly SOCI 4311; credit will be granted only once. Prerequisite: junior standing or permission of the instructor.

**SOCI 3390. HONORS COLLOQUIUM. 3 Hours.**

An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors College. Prerequisite: participation in the Honors College and/or permission of the instructor.

**SOCI 3462. SOCIAL RESEARCH. 4 Hours.**

Required of all sociology majors. The major quantitative and qualitative techniques for sociological research. Setting up and implementing a research project, interpreting findings, and preparing a required final paper. Lab includes design, sampling, instrumentation, data analysis, and writing results. Formerly SOCI 3305; credit will be granted only once. Prerequisite: SOCI 3352 or permission of the instructor.

**SOCI 4191. CONFERENCE COURSE. 1 Hour.**

Topics assigned on an individual basis covering personal research or study in the designated areas. Prerequisite: permission of the instructor.

**SOCI 4193. INTERNSHIP IN SOCIOLOGY. 1 Hour.**

Supervised internship program in which a student interns at a company, non-profit organization, or governmental agency. Involves the application of sociology in a non-academic setting. Prerequisite: SOCI 1311 or 2313; permission of the instructor; and junior standing. Students may complete a maximum of 6 hours in any combination of 4193, 4293, and 4393.

**SOCI 4195. SERVICE LEARNING INDEPENDENT STUDY. 1 Hour.**

This course involves the investigation and application of sociological knowledge through community based service. Involves structured academic analysis of service experiences. The student and supervising faculty will identify the partner agency and social issue to be addressed. Prerequisite: permission of the instructor.

**SOCI 4291. CONFERENCE COURSE. 2 Hours.**

Topics assigned on an individual basis covering personal research or study in the designated areas. Prerequisite: permission of the instructor.

**SOCI 4293. INTERNSHIP IN SOCIOLOGY. 2 Hours.**

Supervised internship program in which a student interns at a company, non-profit organization, or governmental agency. Involves the application of sociology in a non-academic setting. Prerequisite: SOCI 1311 or 2312; permission of the instructor; and junior standing. Students may complete a maximum of 6 hours in any combination of 4193, 4293 and 4393.

**SOCI 4295. SERVICE LEARNING INDEPENDENT STUDY. 2 Hours.**

This course involves the investigation of sociological knowledge through community based service. Involves structured academic analysis of service experiences. The student and supervising faculty will identify the partner agency and social issue to be addressed. Prerequisite: permission of the instructor.

**SOCI 4303. WOMEN IN SOCIETY. 3 Hours.**

Women's status in contemporary American society, including the family, workplace, and politics. Women's status will also be examined in historical and crosscultural perspectives. Offered as SOCI 4303 and WOMS 4303; credit will be granted only once.

**SOCI 4306. QUALITATIVE RESEARCH METHODS. 3 Hours.**

Conceptual frameworks and techniques for planning, conducting, analyzing, reporting and evaluating qualitative research. Topics include interviewing, participant observation, coding, case studies and focus groups. Prerequisite: sophomore standing or permission of the instructor.

**SOCI 4309. WRITING FOR THE SOCIAL SCIENCES. 3 Hours.**

This course blends the theory and practice of social science writing in order to teach students how to move from the first draft to the final draft of term papers, theses, dissertations, and articles. The primary skill taught is self-editing --appraising one's work from the outside. The goal is to learn how to write for publication, drawing from postmodern perspectives on writing. Prerequisite: SOCI 1301 or permission of instructor.

**SOCI 4315. VIOLENCE IN SOCIETY. 3 Hours.**

Violence as a group process directed toward social change. Historical perspectives, current events, preventive and control techniques, public reaction, and individual behavior. Prerequisite: sophomore standing or permission of the instructor.

**SOCI 4320. MEDICAL SOCIOLOGY. 3 Hours.**

The relationships between different societies and social groups and their incidence of disease and mortality. Also examines culture-related causes of disease and treatment approaches, medicine as an occupation, healer-patient relationships, and the modern hospital as a bureaucratic organization.

**SOCI 4331. RACE, ETHNICITY & FAMILY FORMATION. 3 Hours.**

Investigates the ways in which cultural understandings of race and ethnicity have shaped historical and contemporary variations in family structure, familial experiences, and the legal possibilities for family formation. Junior standing (60 hours) or permission of the instructor required to enroll in this course. Offered as AAST 4331 and SOCI 4331; credit will be granted in only one department.

**SOCI 4341. INEQUALITIES IN PUBLIC EDUCATION. 3 Hours.**

This course examines the manner in which race, ethnicity, and class affect the quality of education in the public schools. Topics include the resegregation of schools, class and race based achievement and funding gaps, and the role the schools play in reproducing inequality. This course has a service learning component and requires volunteering in programs designed to reduce inequality in the schools. Offered as AAST 4341 and SOCI 4341; credit will be granted in only one department.

**SOCI 4365. TOPICS IN SOCIOLOGY. 3 Hours.**

Selected topics in social issues, policy, processes and/or structure. Prerequisite: junior standing or permission of the instructor. May be repeated for credit with departmental permission.

**SOCI 4370. SENIOR RESEARCH SEMINAR. 3 Hours.**

Provides sociology majors with an opportunity to gain practical experience in social research through in-depth participation in a cooperative research project. Integrates substantive knowledge with methodological and statistical skills. Oral, written, and computer application components are included. Prerequisite: SOCI 3352 and SOCI 3462 or permission of the instructor.

**SOCI 4391. CONFERENCE COURSE. 3 Hours.**

Topics assigned on an individual basis covering personal research or study in the designated areas. Prerequisite: permission of the instructor.

**SOCI 4393. INTERNSHIP IN SOCIOLOGY. 3 Hours.**

Supervised internship program in which a student interns at a company, non-profit organization, or governmental agency. Involves the application of sociology in a non-academic setting. Prerequisite: SOCI 1311 or SOCI 2312; permission of instructor; and junior standing. Students may complete a maximum of 6 hours in any combination of SOCI 4193, SOCI 4293, and SOCI 4393.

**SOCI 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or project of equivalent difficulty under the direction of a faculty member in the major department.

**SOCI 4395. SERVICE LEARNING INDEPENDENT STUDY. 3 Hours.**

This course involves the investigation and application of sociological knowledge through community based service. Involves structured academic analysis of service experiences. The student and supervising faculty will identify the partner agency and social issue to be addressed. Prerequisite: Permission of Instructor.

**SOCI 5191. CONFERENCE COURSE. 1 Hour.****SOCI 5301. SOCIOLOGICAL THEORY. 3 Hours.**

A comprehensive review, analysis, and evaluation of the dominant conceptual perspectives, and their proponents, in sociological theory.

**SOCI 5303. RESEARCH DESIGN. 3 Hours.**

Seminar on the design, plan, structure, and strategies of contemporary social research. Examines the interrelationships of theory, methods, and statistics along with the problems of measurement, sampling, scaling techniques, and the presentation of statistical data.

**SOCI 5304. SOCIAL STATISTICS I. 3 Hours.**

Examines a variety of statistical methods including analysis of variance and covariance, multivariate regression models, multiple and partial correlations, factor analysis, and other contemporary parametric and nonparametric techniques. Emphasis is on the application of these methods to social science data.

**SOCI 5310. SEMINARS IN SOCIAL PSYCHOLOGY. 3 Hours.**

Introduction and discussion of theoretical and methodological perspectives in social psychology. Focusing on particular domains of social life, these seminars examine fundamental processes of social interaction and the influence of social situations and social experience on the thought, feeling, and behavior of individuals. (May be repeated for credit when topics vary.).

**SOCI 5319. SEMINARS IN SOCIAL INSTITUTIONS AND CHANGE. 3 Hours.**

Seminars in this area are concerned with the structure and change of the basic elements of society that represent ordered and regulated aspects of social life. Also examined are collective behavior and social movements which result from instability in institutional arrangements and represent efforts to enact social change. (May be repeated for credit when topics vary.).

**SOCI 5330. SEMINARS IN SOCIAL DIFFERENTIATION. 3 Hours.**

In all human societies, perceptions of differences in individuals, social positions and groups arise and form a basis for social evaluation. Seminars in this area examine the processes involved in social differentiation, social evaluation, and resulting forms of social inequality. (May be repeated for credit when topics vary.).

**SOCI 5341. SEMINARS IN THEORY AND RESEARCH METHODS. 3 Hours.**

Research methods seminars address a variety of issues related to quantitative and qualitative approaches to data collection and analysis. Theory courses offer extended treatment of topics in theory and theory construction, reflecting systematic efforts to understand the nature and operation of human society and social behavior. (May be repeated for credit when topics vary.).

**SOCI 5385. NON-THESIS PROJECT. 3 Hours.**

The topic and scope of the written project must be approved by the three graduate faculty members who will serve on the final Supervising Committee. A final oral presentation of the project is required.

**SOCI 5388. RESEARCH PRACTICUM / INTERNSHIP. 3 Hours.****SOCI 5389. TEACHING SOCIOLOGY. 3 Hours.**

To learn strategies of coping with practical problems of teaching undergraduate sociology, students assist one or more professors in lecture preparation, grading, and examination construction. Not to be counted toward the degree requirement.

**SOCI 5392. CONFERENCE COURSE IN SOCIOLOGY. 3 Hours.**

There is not currently a description listed for this course since the content varies.

**SOCI 5393. THESIS SUBSTITUTE. 3 Hours.**

The topic and scope of the written project must be approved by the three graduate faculty members who will serve on the final Supervising Committee. A final oral presentation of the project is required.

**SOCI 5398. THESIS. 3 Hours.****SOCI 5698. THESIS. 6 Hours.**

## Spanish (SPAN)

## COURSES

### **SPAN 1441. BEGINNING SPANISH I. 4 Hours. (TCCN = SPAN 1411)**

Beginning study of Spanish language with emphasis on speaking, listening, reading, and writing. No prerequisites. Native or heritage speakers of Spanish may not take this course.

### **SPAN 1442. BEGINNING SPANISH II. 4 Hours. (TCCN = SPAN 1412)**

Continuation of beginning Spanish. Prerequisite: SPAN 1441 with a grade of C or better. Native or heritage speakers of Spanish may not take this course.

### **SPAN 2301. TOPICS IN SPANISH LITERATURE IN TRANSLATION. 3 Hours.**

Study of the works of major authors and intellectual trends of a given period or periods. May be repeated for credit as topics or periods vary. SPAN 2301 may be taken to fulfill the foreign language literature requirement. Prerequisite: ENGL 1301 and ENGL 1302.

### **SPAN 2313. INTERMEDIATE SPANISH I. 3 Hours. (TCCN = SPAN 2311)**

Intermediate study of Spanish language with emphasis on speaking, listening, reading, and writing. Prerequisite: SPAN 1442 with a grade of C or better. Native or heritage speakers of Spanish may not take this course.

### **SPAN 2314. INTERMEDIATE SPANISH II. 3 Hours. (TCCN = SPAN 2312)**

Continuation of intermediate Spanish. Prerequisite: SPAN 2313 with a grade of C or better. Native or heritage speakers of Spanish may not take this course.

### **SPAN 2315. INTERM SPAN HERITAGE SPEAKERS. 3 Hours.**

This course focuses on the development of reading, writing, speaking and listening skills in Spanish, as well as an understanding of Hispanic cultures and issues of identity of heritage speakers in the United States. This course is intended for heritage speakers of Spanish and is the equivalent of SPAN 2314. Prerequisite: SPAN 2313 with a Grade of C or better or the equivalent, or consent of the department.

### **SPAN 2391. CONFERENCE COURSE. 3 Hours.**

Independent study; consultation with instructor on a regular basis. Prerequisite: Permission of the instructor.

### **SPAN 3302. HISPANIC LITERATURE IN TRANSLATION. 3 Hours.**

The works of major authors and intellectual trends of a given period. May be repeated for credit as topics or periods vary. SPAN 3302 cannot be applied toward the B.A. in Spanish or toward a Spanish minor, but may be taken to fulfill the foreign language literature requirement. Prerequisite: 2314 of a Modern or Classical language and six hours of English.

### **SPAN 3303. ADVANCED SPANISH CONVERSATION. 3 Hours.**

Practice in oral expression with an emphasis on vocabulary building and grammar review. Of special interest to students who wish to improve their skills in pronunciation, comprehension, and oral expression. Credit will not be granted to native or heritage speakers of Spanish. Prerequisite: SPAN 2314 with a grade of C or better.

### **SPAN 3305. ADVANCED SPANISH FOR HERITAGE SPEAKERS. 3 Hours.**

This course is designed for heritage speakers of Spanish who demonstrate an ability to comprehend and produce Spanish but who may lack previous formal instruction in the language. Capitalizes upon students' existing language skills, expands their knowledge base, and develops their ability to read, write, and communicate more effectively. Special attention is given to regional and dialectal differences. Prerequisite: SPAN 2315, or the equivalent, with a grade of C or better.

### **SPAN 3311. SPANISH CULTURE AND CIVILIZATION. 3 Hours.**

Spanish history with emphasis on cultural, intellectual, and artistic trends and existing social institutions. Prerequisite: SPAN 2314 with a grade of C or better.

### **SPAN 3312. LATIN AMERICAN CULTURE AND CIVILIZATION. 3 Hours.**

An interdisciplinary introduction to Latin American society, history and culture. Prerequisite: SPAN 2314 with a grade of C or better. Offered as MAS 3312 and SPAN 3312; credit will be granted for either MAS or SPAN.

### **SPAN 3313. TOPICS IN HISPANIC LANGUAGE, LITERATURE & CULTURE. 3 Hours.**

Topics may include Peninsular or Latin American film, music, radio, politics, human rights movements, literature, language or Hispanic linguistics. May be repeated as the topic changes. Prerequisite: SPAN 2314 or SPAN 2315 with a grade of C or better.

### **SPAN 3314. ADVANCED SPANISH GRAMMAR. 3 Hours.**

detailed study of Spanish grammar for non-native speakers. Credit will not be granted to native or heritage speakers of Spanish. Prerequisite: SPAN 2314 with a grade of C or better.

### **SPAN 3315. COMPOSITION THROUGH LITERATURE. 3 Hours.**

Practice in original composition and critical thinking through the study of selected literary and cultural texts. Of special interest to students who wish to improve their reading comprehension and their writing skills. Prerequisite: SPAN 3305 or SPAN 3314, with grade C or better.

### **SPAN 3319. INTRODUCTION TO SPANISH LINGUISTICS. 3 Hours.**

Introductory study of the structure of the Spanish language including phonology, morphology, and syntax, as well as historical, regional, and social variation. Prerequisite: SPAN 3314 or SPAN 3305 with a grade of C or better.

**SPAN 3320. INTRODUCTION TO HISPANIC LITERATURE AND CULTURE. 3 Hours.**

An introduction to the tools of literary and cultural criticism as well as Spanish and Latin American literary history. Study of representative literary texts with the object of developing students' understanding of historical change and cultural crosscurrents. Prerequisite: SPAN 3315 with a grade of C or better.

**SPAN 3340. INTRODUCTION TO TRANSLATION. 3 Hours.**

This course is an introduction to the theory, methods and practice of English to Spanish translation and Spanish to English translation. The student will learn how to address translation problems related to culture and language as well as the fundamentals of translating general material from different fields such as journalism, advertisement, tourism, gastronomy, health, business, etc. The student will also acquire basic knowledge of translation theory. Prerequisite: SPAN 3315 with grade of B or better. SPAN 3340 cannot be applied toward the B.A. in Spanish.

**SPAN 3341. INTRODUCTION TO INTERPRETING. 3 Hours.**

Introduction to the theory, methods and practice of interpreting. The student will become familiar with community interpreting (interpreting in school, medical and legal settings) and interpreting theory. The student will begin to interpret in the simultaneous and consecutive (bilateral) modes. The student will also learn about sight translation. Prerequisite: SPAN 3305 or SPAN 3314 with a grade of C or better. Non-native/heritage speakers are also encouraged to take SPAN 3303 prior to enrolling in SPAN 3341. SPAN 3341 cannot be applied toward the B.A. in Spanish.

**SPAN 3391. CONFERENCE COURSE. 3 Hours.**

Independent study; consultation with instructor on a regular basis. Offered primarily in summer study abroad programs. May be repeated for credit. Prerequisite: Permission of the instructor.

**SPAN 4191. CONFERENCE COURSE. 1 Hour.**

Independent study; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: Permission of the instructor.

**SPAN 4310. TOPICS IN PENINSULAR SPANISH LITERATURE AND CULTURE TO THE EIGHTEENTH CENTURY. 3 Hours.**

Topics may include: Medieval Spanish literature and culture, Golden Age Spanish literature and culture, or any particular movement, genre, work or author prior to the eighteenth century. May be repeated for credit when content changes. Prerequisite: SPAN 3315 with a grade of C or better.

**SPAN 4311. TOPICS IN PENINSULAR SPANISH LITERATURE AND CULTURE, EIGHTEENTH CENTURY TO THE PRESENT. 3 Hours.**

Topics may include: Neoclassical peninsular Spanish literature and culture, peninsular Spanish literature and culture of the Romantic period, Realist or Naturalist Spanish literature and culture, peninsular Spanish literature and culture since 1900, as well as any particular movement, genre, work or author from the eighteenth century to the present. May be repeated for credit when content changes. Prerequisite: SPAN 3315 with a grade of C or better.

**SPAN 4313. TOPICS IN HISPANIC CULTURE. 3 Hours.**

Among the topics are Spanish or Latin American music, television, radio, film, and literature as culture. May be repeated for credit as topic changes. Prerequisite: SPAN 3315 with a grade of C or better. Offered as MAS 4313 and SPAN 4313; credit will be given for MAS 4313 or SPAN 4313 but not both in a given semester.

**SPAN 4314. TOPICS IN LATIN-AMERICAN LITERATURE AND CULTURE TO MODERNISM. 3 Hours.**

Topics may include: Colonial Latin-American literature and culture, pre-modern Latin-American literature and culture, Latin-American literature and culture of the Enlightenment, or any particular movement, genre, work or author prior to Modernism. May be repeated for credit when content changes. Prerequisite: SPAN 3315 with a grade of C or better.

**SPAN 4315. TOPICS IN CONTEMPORARY LATIN-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT. 3 Hours.**

Topics may include: Latin-American literature and culture of Modernism, modern Latin-American literature and culture, or any particular movement, genre, work or author from Modernism to the present. May be repeated for credit when content changes. Prerequisite: SPAN 3315 with a grade of C or better. Offered as MAS 4315 and SPAN 4315; credit will be given for MAS 4315 or SPAN 4315 but not both in a given semester.

**SPAN 4317. CHICANO LITERATURE. 3 Hours.**

Mexican-American literature, with special attention to its social, cultural, and linguistic background. Offered as MAS 4317 and SPAN 4317; credit will be given for MAS 4317 or SPAN 4317 but not both in a given semester. Prerequisite: SPAN 3315 with a grade of C or better.

**SPAN 4318. MEXICAN LITERATURE. 3 Hours.**

Studies in Mexican fiction, poetry, drama, and literary essay. Offered as MAS 4318 and SPAN 4318; credit will be given for MAS 4318 or SPAN 4318 but not both in a given semester. Prerequisite: SPAN 3315 with a grade of C or better.

**SPAN 4320. TOPICS IN SPANISH LANGUAGE, WRITING AND THEORY. 3 Hours.**

Review of advanced research methods and topics in Spanish, Latino and Latin American literature, culture and linguistics. Topics may include: literary and cultural theory in relation to Hispanic literature and culture, research trends, and methods in Spanish linguistics. Students conduct original research or writing projects in relation to the course topic. May be repeated for credit as topic changes. Prerequisite: SPAN 3315 with a grade of C or better.

**SPAN 4327. WOMEN IN HISPANIC LITERATURE. 3 Hours.**

Considers women as characters in and writers of Hispanic literature. Includes the analysis of themes, language, and how the writings of women often give voice to lesser known aspects of culture. Offered as SPAN 4327, MAS 4327, and WOMS 4327; credit will be granted only once. Prerequisite: SPAN 3315 with a grade of C or better.

**SPAN 4330. TOPICS IN SPANISH LINGUISTICS. 3 Hours.**

Topics may include: Spanish phonetics and phonology, morphology, syntax, semantics, lexicography, history of the Spanish language, Old Spanish, Spanish sociolinguistics, as well as the application of any theoretical approach to the study of the Spanish language, excluding the study of either peninsular or American Spanish dialectology. May be repeated for credit when content changes. Prerequisite: SPAN 3319 with a grade of C or better.

**SPAN 4332. TOPICS IN SPANISH DIALECTOLOGY. 3 Hours.**

Topics may include: Modern peninsular Spanish dialectology, modern Spanish-American dialectology, Old Spanish dialectology, early American Spanish dialectology, as well as a detailed study of any one dialect or regional dialect of Spanish from either a synchronic or a diachronic perspective. Emphasis may be given to phonetics, phonology, morphology, syntax, semantics, or lexicon, as applied to the study of peninsular or American Spanish dialectology. May be repeated for credit when content changes. Prerequisite: SPAN 3319 with a grade of C or better.

**SPAN 4334. CULTURE AND ECONOMIC GLOBALIZATION IN THE HISPANIC WORLD. 3 Hours.**

An introduction to social, political and economic structures in Spain and Latin America, with special emphasis on current events affecting the business world. Prerequisite: SPAN 3315 with a grade of C or better. Exclusively for International Business Spanish students. SPAN 4334 cannot be applied toward the B.A. in Spanish.

**SPAN 4335. BUSINESS SPANISH. 3 Hours.**

An introduction to business terminology, skills needed for writing business letters, conducting telephone conversations, commercial transactions, and international procedures. Operational and strategic issues involved in interaction with Hispanic firms and markets; international trade; competitive, vendor-customer, and collaborative relations. Prerequisite: SPAN 3315 with a grade of C or better. Exclusively for International Business Spanish students. SPAN 4335 cannot be applied toward the B.A. in Spanish.

**SPAN 4339. THE ACQUISITION OF SPANISH. 3 Hours.**

Topics, methods, and techniques specific to the teaching of the Spanish language. Prerequisite: SPAN 3319 with a grade of C or better.

**SPAN 4341. BUSINESS AND LEGAL TRANSLATION. 3 Hours.**

An advanced course in translation with a focus on business and legal texts. Students deepen their knowledge of translation theory and are trained to build and consolidate their skills in specialized translation. May be taken concurrently with SPAN 4342. SPAN 4341 cannot be applied toward the B.A. in Spanish. Prerequisite: SPAN 3340 with a grade of B or better.

**SPAN 4342. MEDICAL, SCIENTIFIC & TECH TRANSLATION. 3 Hours.**

An advanced course in translation with a focus on medical, scientific and technical translation. Students deepen their knowledge of translation theory and are trained to build and consolidate their skills in specialized translation. May be taken concurrently with SPAN 4341. SPAN 4342 cannot be applied toward the B.A. in Spanish. Prerequisite: SPAN 3340 with a grade of B or better.

**SPAN 4343. INTERPRETING IN MEDICAL SETTINGS. 3 Hours.**

A study of different types of interpretation. Medical terminology in English and Spanish will be addressed with a special emphasis on the diverse roles of medical interpreters as well as various locations where they are needed, such as hospital clinics, doctor's offices, and hearings that deal with medical issues. Ethical standards of practice in medical interpreting will be examined. Prerequisite: SPAN 3341 with a grade of B or better. SPAN 4343 cannot be applied toward the B.A. in Spanish.

**SPAN 4344. INTERPRETING IN LEGAL SETTINGS. 3 Hours.**

A study of different types of interpretation. Legal terminology in English and Spanish will be addressed with special emphasis on the diverse roles of legal interpreters as well as various locations where they are needed, such as courtrooms, lawyer's offices, and state, federal, or local law-enforcement facilities. Ethical standards of practice in legal interpreting will be examined. Prerequisite: SPAN 3341 with a grade of B or better. SPAN 4344 cannot be applied toward the B.A. in Spanish.

**SPAN 4391. CONFERENCE COURSE. 3 Hours.**

Independent study in the preparation of a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: two 3000 level courses and permission of the instructor.

**SPAN 4393. SPANISH INTERNSHIP. 3 Hours.**

A combination of field-related experience in the business or service sector with an academic component. Coursework may include journal writing in Spanish, outside readings, and formal presentations. Prerequisite: two 3000 level courses and permission of the instructor.

**SPAN 4394. HONORS THESIS / SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or a project under the direction of a faculty member in the major department. May not be repeated for credit. Prerequisite: two 3000 level courses and permission of the instructor.

**SPAN 5101. TEACHING PRACTICUM I. 1 Hour.**

Required of all teaching assistants in Spanish in their first semester. May not be counted toward a master's degree. Graded P/F/R.

**SPAN 5102. TEACHING PRACTICUM II. 1 Hour.**

Required of all teaching assistants in Spanish in their second semester. May not be counted toward a master's degree. Graded P/F/R.

**SPAN 5190. CONFERENCE COURSE IN SPANISH LANGUAGE AND LITERATURE. 1 Hour.**

Graded P/F/R.

**SPAN 5300. HISTORY OF THE SPANISH LANGUAGE. 3 Hours.**

Development of the Spanish language from its earliest forms to the present. Required for the MA in Spanish and the MA in Humanities with Spanish concentration.

**SPAN 5302. SPANISH DIALECTOLOGY. 3 Hours.**

Phonological, lexical, and grammatical features in Iberia, South and North America, the Philippines, and in Sephardic dialect.



**SPAN 5303. APPLIED SPANISH LINGUISTICS. 3 Hours.**

Pedagogy, pronunciation and orthography, morphology, syntax, semantics, and culture. Required for the MA in Spanish and the MA in Humanities with Spanish concentration unless SPAN 5302 taken.

**SPAN 5310. TOPICS IN PENINSULAR SPANISH LITERATURE AND CULTURE TO THE EIGHTEENTH CENTURY. 3 Hours.**

Topics may include: Medieval Spanish literature and culture, Golden Age Spanish literature and culture, or any particular movement, genre, work or author prior to the eighteenth century. May be repeated for credit when content changes.

**SPAN 5311. TOPICS IN PENINSULAR SPANISH LITERATURE AND CULTURE, EIGHTEENTH CENTURY TO THE PRESENT. 3 Hours.**

Topics may include: Neoclassic peninsular Spanish literature and culture, peninsular Spanish literature and culture of the Romantic period, Realist or Naturalist Spanish literature and culture, peninsular Spanish literature and culture since 1900, as well as any particular movement, genre, work or author from the eighteenth century to the present. May be repeated for credit when content changes.

**SPAN 5313. TOPICS IN HISPANIC LITERATURE AND CULTURE. 3 Hours.**

Special studies in areas not ordinarily covered by regular course offerings. Different topics may be repeated for credit.

**SPAN 5314. TOPICS IN SPANISH-AMERICAN LITERATURE AND CULTURE TO MODERNISM. 3 Hours.**

Topics may include: Colonial Spanish-American literature and culture, pre-modern Spanish-American literature and culture, Spanish-American literature and culture of the Enlightenment, or any particular movement, genre, work or author prior to Modernism. May be repeated for credit when content changes.

**SPAN 5315. TOPICS IN CONTEMPORARY SPANISH-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT. 3 Hours.**

Topics may include: Spanish-American literature and culture of Modernism, modern Spanish-American literature and culture, or any particular movement, genre, work or author from Modernism to the present. May be repeated for credit when content changes.

**SPAN 5317. U.S. LATINO LITERATURE AND CULTURE. 3 Hours.**

Readings of poetry, theater, and prose in relation to the specific socio-historical and political context of U.S. Latino life. Charts changing concepts of cultural identity and the evolution of cultural coding in texts written after 1960.

**SPAN 5318. MEXICAN LITERATURE AND CULTURE. 3 Hours.**

Readings in all Mexican literary genres from various critical perspectives. Particular attention given to the novel, poetry, and essay of the 20th Century and to interrelationships between text and culture.

**SPAN 5320. TOPICS IN SPANISH LINGUISTICS. 3 Hours.**

Special studies in linguistics not ordinarily covered by regular course offerings. May be repeated for credit when content changes.

**SPAN 5327. WOMEN IN HISPANIC LITERATURE. 3 Hours.**

Readings of literary texts by women writers from medieval Spain to contemporary Spanish America. Attention to recurrent motifs as well as to the literary expression of historical and cultural transformation.

**SPAN 5330. ADVANCED STUDIES IN SPANISH LINGUISTICS I. 3 Hours.**

Topics may include: sociolinguistics, bilingualism, modern Spanish dialectology, as well as a detailed study on any one dialect or regional dialect of contemporary Spanish. May be repeated for credit when content changes.

**SPAN 5332. ADVANCED STUDIES IN SPANISH LINGUISTICS II. 3 Hours.**

Topics may include: Old Spanish, Spanish philology, Spanish text linguistics, and Old Spanish dialectology, as well as a detailed study of any one dialect or regional dialect of Spanish. May be repeated for credit when content changes.

**SPAN 5366. SPANISH FOR SCHOOL ADMINISTRATORS AND TEACHERS. 3 Hours.**

Development of Spanish proficiency for teachers and administrators through an immersion approach. Emphasis on concepts and terminology related to education, program administration, community involvement and communication with Spanish-speaking parents. This course can be repeated.

**SPAN 5391. CONFERENCE COURSE IN SPANISH LINGUISTICS AND LITERATURE. 3 Hours.**

Graded R.

**SPAN 5398. THESIS. 3 Hours.****SPAN 5698. THESIS. 6 Hours.****SPAN 5998. THESIS. 9 Hours.**

## Special Topics (SPEC)

### COURSES

**SPEC 3300. TOPICS COURSE. 3 Hours.****SPEC 3301. TOPICS COURSE. 3 Hours.****SPEC 4300. CROSS REG-DEC. 3 Hours.****SPEC 4301. TOPICS COURSE. 3 Hours.****SPEC 5300. CROSSREG-UCD. 3 Hours.**

**SPEC 5301. TOPICS COURSE. 3 Hours.**

## Statistics (STATS)

### COURSES

**STATS 1308. ELEMENTARY STATISTICAL ANALYSIS. 3 Hours.**

Descriptive statistics, relationships between variables, interpretation of data and graphs, rudiments of probability, elementary statistical models, hypothesis testing, inference, and estimation.

**STATS 3302. MULTIVARIATE STATISTICAL METHODS. 3 Hours.**

Topics in multivariate data analysis with applications in various areas of interest, including multiple regression, analysis of experimental designs, covariate adjustment, non-linear regression and the use of standard multivariate statistical packages. Prerequisite: C or better in MATH 3316 or STATS 3316 or MATH 3351 or BIOL 3351 or consent of the instructor.

**STATS 3313. INTRODUCTION TO PROBABILITY. 3 Hours.**

Basic concepts in probability, random variables, probability distributions, functions of random variables, moment generating functions, central limit theorem and its role in statistics, joint probability functions and joint probability density functions, joint cumulative distribution functions, conditional and marginal probability distributions, covariance and correlation coefficients, transformation and order statistics. Prerequisite: C or better in MATH 2326.

**STATS 3316. STATISTICAL INFERENCE. 3 Hours.**

A comprehensive study of basic statistical methods. Topics include descriptive statistics, numeracy, report writing, basic probability, experimental design and analysis. Prerequisite: C or better in 6 hours from the following: MATH 1302, MATH 1308, MATH 1322, MATH 1323, MATH 1330, MATH 1331, MATH 1332, MATH 1421, MATH 1426, MATH 2425, MATH 2326, MATH 3300, MATH 3307, MATH 3314, MATH 3319, or MATH 3330; HONR-SC 1426, HONR-SC 2425.

**STATS 4311. STOCHASTIC MODELS AND SIMULATION. 3 Hours.**

A study of processes, whose outcomes are governed by chance, through a combination of lectures and computer lab sessions. Experiments include random number generation, coin tossing and other games of chance, random walks, Markov Chains, Poisson processes, birth-death processes, branching processes, and Brownian Motion. A foundation for modeling random phenomena in sciences, engineering and business. Prerequisite: C or better in MATH 2326 and knowledge of basic probability (MATH 3313/STATS 3313 or MATH 3351/BIOL 3351 or equivalent), or consent of instructor.

**STATS 4312. PROBABILITY. 3 Hours.**

Basic probability theory, random variables, expectation, probability models, generating functions, transformations of random variables, limit theory. Prerequisite: C or better in MATH 3313/STATS 3313.

**STATS 4313. APPLICATIONS OF MATHEMATICAL STATISTICS. 3 Hours.**

A continuation of MATH 3313. Sampling distributions, estimation of parameters, confidence intervals, testing of hypotheses, linear regression, linear time series models, moving average, autoregressive and/or autoregressive integrated moving average (ARIMA) models, estimation, data analysis and forecasting with time series models and forecast errors and confidence intervals. Prerequisite: C or better in MATH 3313 or STATS 3313.

**STATS 5305. STATISTICAL METHODS. 3 Hours.**

Topics include descriptive statistics, numeracy, and report writing; basic principles of experimental design and analysis; regression analysis; data analysis using the SAS package. Prerequisite: consent of the instructor.

**STATS 5312. MATHEMATICAL STATISTICS I. 3 Hours.**

Basic probability theory, random variables, expectation, probability models, generating functions, transformations of random variables, limit theory. Prerequisite: MATH 5307 or concurrent registration or consent of instructor.

**STATS 5313. MATHEMATICAL STATISTICS II. 3 Hours.**

Theories of point estimation (minimum variance unbiased and maximum likelihood), interval estimation and hypothesis testing (Neyman-Pearson and likelihood ratio tests), regression analysis and Bayesian inference. Prerequisite: MATH 5312/STATS 5312.

**STATS 5314. EXPERIMENTAL DESIGN. 3 Hours.**

This course covers the classical theory and methods of experimental design, including randomization, blocking, one-way and factorial treatment structures, confounding, statistical models, analysis of variance tables and multiple comparisons procedures. Prerequisite: MATH 5305/STATS 5305 or MATH 5355/STATS 5355 or permission of instructor.

**STATS 5353. APPLIED LINEAR MODELS. 3 Hours.**

The course covers, at an operational level, three topics: 1) the univariate linear model, including a self-contained review of the relevant distribution theory, basic inference methods, several parameterizations for experimental design and covariate-adjustment models and applications, and power calculation; 2) the multivariate linear model, including basic inference (e.g. the four forms of test criteria and simultaneous methods), applications to repeated measures experiments and power calculation; and 3) the univariate mixed model, including a discussion of the likelihood function and its maximization, approximate likelihood inference, and applications to complex experimental designs, missing data, unbalanced data, time series observations, variance component estimation, random effects estimation, power calculation and a comparison of the mixed model's capabilities relative to those of the classical multivariate model. Knowledge of the SAS package is required. Prerequisite: MATH 5358/STATS 5358 (Regression Analysis) or equivalent.

**STATS 5354. CATEGORICAL DATA ANALYSIS. 3 Hours.**

This course covers classical methods for analyzing categorical data from a variety of response/factor structures (univariate or multivariate responses, with or without multivariate factors), based on several different statistical rationales (weighted least squares, maximum likelihood and randomization-based). Included are logistic regression, multiple logit analysis, mean scores analysis, observer agreement analysis, association measures, methods for complex experimental designs with categorical responses and Poisson regression. The classical log-linear model for the association structure of multivariate responses is briefly reviewed. Randomization-based inference (e.g. Mantel-Haenzel) is discussed as well. The necessary distribution theory (multinomial, asymptotics of weighted least squares and maximum likelihood) are discussed at an operational level. Knowledge of the SAS package is required. Prerequisite: MATH 5358/STATS 5358 (Regression Analysis).

**STATS 5355. STATISTICAL THEORY FOR RESEARCH WORKERS. 3 Hours.**

Designed for graduate students not majoring in mathematics. Topics include basic probability theory, distributions of random variables, point estimation, interval estimation, testing hypotheses, regression, and an introduction to analysis of variance. Graduate credit not given to math majors. Prerequisite: calculus MATH 1426/MATH 2425/MATH 2326 or permission of instructor.

**STATS 5356. APPLIED MULTIVARIATE STATISTICAL ANALYSIS. 3 Hours.**

Statistical analysis for data collected in several variables, topics including sampling from multivariate normal distribution, Hotelling's  $T^2$ , multivariate analysis of variance, discriminant analysis, principal components, and factor analysis. Prerequisite: MATH 5312/STATS 5312 or consent of instructor.

**STATS 5357. SAMPLE SURVEYS. 3 Hours.**

A comprehensive account of sampling theory and methods, illustrations to show methodology and practice, simple random sampling, stratified random sample, ratio estimates, regression estimates, systematic sampling, cluster sampling, and nonsampling errors. Prerequisite: MATH 5312/STATS 5312 or consent of instructor.

**STATS 5358. REGRESSION ANALYSIS. 3 Hours.**

A comprehensive course including multiple linear regression, non-linear regression and logistic regression. Emphasis is on modeling, inference, diagnostics and application to real data sets. The course begins by developing a toolbox of methods via a sequence of guided homework assignments. It culminates with projects based on consulting-level data analysis problems involving stratification, covariate adjustment and messy data sets. Some knowledge of the SAS package is required. Prerequisites: MATH 5305/STATS 5305, basic knowledge of matrices.

**STATS 5359. SURVIVAL ANALYSIS. 3 Hours.**

This course covers analysis of lifetime data, which has applications to actuarial science and health fields. Topics include the survivor function, hazard function, censoring, parametric regression models (e.g. the weibull), nonparametric regression models (e.g. the Cox proportional hazards model), categorical survival data methods, competing risks and methods for multivariate survival data. Knowledge of the SAS package is required. Prerequisites: MATH 5358/STATS 5358 (Regression Analysis) and preferably MATH 5313/STATS 5313. (Students without 5313 can still succeed if they have some basic calculus-based probability, such as MATH 3313).

**STATS 6353. GENERALIZED LINEAR MODELS. 3 Hours.**

This course covers modern methods for analyzing Bernoulli, multinomial and count data. It begins with a development of generalized linear model theory, including the exponential family, link function and maximum likelihood. Second is a discussion of the case of models for independent observations. Next is a discussion of models for repeated measures, based on quasi-likelihood methods. These include models (such as Markov chains) for categorical time series. Next is a treatment of models with random effects. Finally is a discussion of methods for handling missing data. Knowledge of the SAS package is required. Prerequisites: MATH 5358/STATS 5358 (Regression Analysis) and preferably MATH 5313/STATS 5313. (Students without 5313 can still succeed but must deal with the slightly higher mathematical level of this course.).

**STATS 6356. TIME SERIES ANALYSIS. 3 Hours.**

This course covers classical methods of time series analysis, for both the time and frequency domains. For covariance stationary series, these include ARIMA modeling and spectral analysis. For nonstationary series, they include methods for detrending and filtering. Also included is a treatment of multivariate series, as well as a discussion of the Kalman filter state-space model. Knowledge of the SAS package is required. Prerequisites: MATH 5358/STATS 5358 (Regression Analysis) and MATH 5313/STATS 5313.

**STATS 6357. NONPARAMETRIC STATISTICS. 3 Hours.**

This is a survey of classical nonparametric methods for inference in standard observational settings (one-sample, two-sample, k-samples and the univariate linear model), and includes a development of U-statistics, rank statistics and their asymptotic distribution theory. The mathematical level is fairly high. Prerequisite: MATH 5313/STATS 5313.

## Students Obtain Acad Readiness (SOAR)

### COURSES

SOAR 0010. RDG SKILLS REVW. 0 Hours.

SOAR 0020. WRTG SKILLS REV. 0 Hours.

SOAR 0030. MATH SKILLS REV. 0 Hours.

SOAR 0040. ESOL WRITING. 0 Hours.

## Theatre Arts (THEA)

## COURSES

### **THEA 0181. THEATRE PRACTICUM. 1 Hour. (TCCN = DRAM 1120)**

Open to all students interested in participating in dramatic productions on-stage, backstage, or front of house. Considers aspects of play production which may include scenery construction, publicity, costumes, and lighting. Practicum students participate in auditions and are assigned to production crews. May be repeated for credit. All Theatre Arts majors register for 0181 each semester.

### **THEA 1101. THEATRE ARTS SYMPOSIUM. 1 Hour.**

An orientation to academic and professional theatre skills and resources. This course is graded pass/fail.

### **THEA 1302. VOCAL FUNDAMENTALS. 3 Hours. (TCCN = DRAM 2336)**

Introduction to the fundamentals of vocal production for the stage and oral communication skills in presentations, including interaction in the classroom setting to meet the needs of course work. Emphasis on relaxation, breathing techniques, the creation of vocal sound, the interconnection of voice and body, and the use of acceptable grammar and pronunciation in formal presentations. Credit for THEA 1302 will not be granted to B.F.A. students in the performance option.

### **THEA 1303. VOCAL PERFORMANCE I: FUNDAMENTALS. 3 Hours.**

The fundamentals of vocal performance as it relates to effective oral communication. Students develop ideas for the purpose of communication and learn effective techniques for clarity of expression, ideas, and message while considering the effect on an audience. Theatrical communication techniques are one of several skill sets taught. Oral, aural, written, and visual literacy are all explored, with intense focus on oral presentation. This course satisfies the University of Texas at Arlington core curriculum requirement in Communication.

### **THEA 1304. STAGECRAFT I. 3 Hours. (TCCN = DRAM 1330)**

An introduction to all areas of theatre craft, technology, and production. The development and application of technical skills, production organization, and an orientation to production facilities, equipment, and materials. Service on crews for productions as required.

### **THEA 1305. INTRODUCTION TO THEATRICAL DESIGN. 3 Hours.**

Fundamentals of design elements, theory and practice as applied to costume, scenic, properties, lighting, and sound design.

### **THEA 1307. ACTING I: BASIC TECHNIQUES. 3 Hours. (TCCN = DRAM 1351)**

Study and exercise in fundamentals of the actor's craft utilizing the Stanislavsky Method. Emphasis on the development of basic acting techniques including: characterization, objectives, beats, action, and script analysis. Performance requirements include improvisation, monologues, and scene study. Attendance at productions outside of the classroom may be required. Prerequisite: Permission of instructor.

### **THEA 1342. THEATRE AND FILM APPRECIATION. 3 Hours.**

Develops awareness of and appreciation for dramatic art as reflected in theatre and film. Designed to increase the student's enjoyment and knowledge of drama and its historical, social and cultural contexts. Students may be required to attend plays. Theatre Arts BFA and BA majors and minors may not use this course in place of THEA 1343. This course satisfies the University of Texas at Arlington core curriculum requirement in Creative Arts.

### **THEA 1343. INTRODUCTION TO THEATRE. 3 Hours. (TCCN = DRAM 1310)**

Acquaints the student with major phases of theatrical activity and production research. Considers the duties and contributions of director, actor, scene designer, costumer, and others involved in play production. Students may be required to attend and review productions. This course satisfies the University of Texas at Arlington core curriculum requirement in Creative Arts.

### **THEA 2306. THE CRAFT OF COSTUME. 3 Hours. (TCCN = DRAM 1342)**

Introduction to the process and application of the fundamental skills of costuming and costume design preparation methods.

### **THEA 2337. IMPROVISATION. 3 Hours.**

The study of modern improvisational skills and techniques for the performer, director, playwright, and instructor. Prerequisite: Permission of instructor.

### **THEA 2352. ACTING II: SCENE STUDY. 3 Hours. (TCCN = DRAM 1352)**

Acting technique exercise to enhance and develop acting skills through scene study. Methods of characterization, research, and role preparation. Prerequisite: THEA 1303, THEA 1307, and permission of instructor.

### **THEA 3300. DIRECTING I. 3 Hours.**

The techniques of staging plays. Play interpretation, casting, rehearsal procedure, staging, and the role of the director in character analysis and creation. Prerequisite: THEA 1303, THEA 1304, THEA 1305, THEA 1307, THEA 1343, THEA 3309 and permission of faculty.

### **THEA 3301. SCENE DESIGN I. 3 Hours.**

History, theory, and basic concepts of design methods with application for stage, television, and film. Aesthetic skills of color, line, texture, and form, and the interactions of these elements. Mechanics and techniques of illustration and rendering of design ideas. Prerequisites: THEA 1304, THEA 1305, THEA 1343, THEA 3309, THEA 3318, and permission of instructor.

### **THEA 3302. FILM STUDIES. 3 Hours.**

Principles of film study, including history, genre, aesthetics, theory, and criticism of U.S. and international films. Lecture and discussion, including the viewing of selected films.

### **THEA 3303. SOUND DESIGN. 3 Hours.**

The study of the fundamentals of sound design as related to the theatrical production environment. The study of basic sound design tools and the practical application of these tools through project work. Prerequisites: THEA 1305, THEA 3316, and THEA 3318 or permission of instructor.

**THEA 3304. STAGECRAFT II. 3 Hours.**

An overview of and hands-on training in advanced production techniques, including metalworking and welding, theatrical rigging, automation principles, advanced wood joinery, and fabrication utilizing new materials, as well as an in-depth study of theatrical safety practices. Prerequisites: THEA 1304 or permission of instructor.

**THEA 3305. LIGHTING DESIGN I. 3 Hours.**

The study of basic design principles and techniques and their application in theatrical lighting design. The practical application of computer-aided design tools and the use of theatrical lighting equipment in realized design projects. Prerequisites: THEA 1305, THEA 3316, and THEA 3318 or permission of instructor.

**THEA 3306. SCENE PAINTING FOR THE STAGE. 3 Hours.**

Instructional and demonstrative approaches to scenic painting for the stage. Prerequisite: THEA 1304 and THEA 1343, or permission of instructor.

**THEA 3307. COSTUME HISTORY. 3 Hours.**

Historical styles and trends of fashion to the present as applied to stage, television, and film.

**THEA 3308. ACTING III: ACTING FOR THE CAMERA. 3 Hours.**

An advanced acting course to acquire performance technique on camera. Previously taught as THEA 4308. Credit will be granted only once. Prerequisite: THEA 1303, THEA 1307, THEA 2352, and permission of instructor.

**THEA 3309. SCRIPT ANALYSIS. 3 Hours.**

An investigation of dramatic structure from the points of view of the director, actor and designer. Elements of dramatic theory are included.

**THEA 3310. CREATIVE DRAMA. 3 Hours.**

The theory and practice of creative dramatics exercises and activities. The application of the artistic elements in creative drama and interdisciplinary applications of creative drama activities. Prerequisite: THEA 1307, THEA 1343, and permission of instructor.

**THEA 3311. VOCAL PERFORMANCE II: DIALECTS. 3 Hours.**

The study and application of selected U.S. and international dialects. Prerequisite: THEA 1303 and permission of instructor.

**THEA 3312. THEATRE FOR YOUNG AUDIENCES. 3 Hours.**

The theory and practice of creating and producing plays for young audiences. Students shall be required to act in selected works. Prerequisite: THEA 1307, THEA 1343, and permission of instructor.

**THEA 3315. THEATRICAL MAKEUP. 3 Hours.**

Types, styles, and techniques of make-up application for stage, television, and film.

**THEA 3316. LIGHTING AND SOUND TECHNOLOGY. 3 Hours.**

An introduction to the equipment, technologies, terminology, and careers in the theatrical areas of lighting and sound. Examines the theories and application of optical control and distribution, the physics of audio, distribution of acoustical energy, and lighting color theory.

**THEA 3317. SINGING FOR THE ACTOR I. 3 Hours.**

An applied study of the vocal apparatus, vocal placement, the voice/body relationship, character, working with text, phrasing, and auditioning as they relate to singing in musical theatre for the Broadway or West End theatre. Emphasis is placed on integrating singing and acting skills. Prerequisites: THEA 1307 or permission of faculty. Same as offering MUSI 3317; may not be repeated and credit will only be granted in one department.

**THEA 3318. DRAFTING FOR THE ARTS. 3 Hours.**

The principles and application of computer-aided drafting techniques for the entertainment industry.

**THEA 3320. PLAYWRITING I. 3 Hours.**

The art and craft of constructing a play. Students write playlets, scenes, and one-act plays for in-house performance and/or instructor evaluation. Prerequisite: THEA 3309 or permission of faculty.

**THEA 3335. DANCE FOR THE ACTOR I. 3 Hours.**

An introduction to dance styles and choreographic elements found in theatrical productions, and the applied use of dance and choreography to convey dramatic action and characterization. Open to Theatre Arts majors and minors only. Prerequisite: THEA 1307, Theatre Arts major or minor, and permission of faculty.

**THEA 3340. MOVEMENT PERFORMANCE I: FUNDAMENTALS. 3 Hours.**

Development of movement techniques and movement performances. Freeing the body through exercises and experiences in relaxation, physical awareness, and movement through space. Focus on body awareness and the release of habitual patterns that restrict the body (formerly titled Performance Fundamentals II: Movement). Prerequisite: THEA 1307 and permission of faculty.

**THEA 3341. ACTING IV: ADVANCED ACTING & PORTFOLIO. 3 Hours.**

Advanced principles of character development. Emphasis on the development of a role through script, exercises, and character work. The development and presentation of an actor's portfolio in an audition context. Prerequisite: THEA 1303, THEA 1307, THEA 1343, THEA 2352, THEA 3309 and permission of faculty.

**THEA 3346. STAGE COMBAT. 3 Hours.**

An introduction to stage combat. Students will safely explore the choreographed illusion of stage violence through the skills of unarmed and armed combat. Prerequisite: permission of instructor.

**THEA 3360. GENDER AND THE PERFORMING ARTS. 3 Hours.**

Examines the role of gender in the performing arts, including theory and practice focused on gender. Additional topics may include female pioneers in the performing arts, the image of gender in different media, the way gender affects actors and artists, and the effect of cultural definitions of gender on audience reception. Offered as THEA 3360 and WOMS 3360. Credit will be granted only once.

**THEA 3361. WOMEN IN THEATRE. 3 Hours.**

Examines the history, theory, and practice of women in theatre. Pioneering female writers, directors, producers, actors, designers, and activists will be explored as will their influence upon drama in its historical, social, and cultural contexts. Students will also be introduced to theory that examines female characters in plays and their impact on the artist and audience. Offered as THEA 3361 and WOMS 3361. Credit will be granted only once.

**THEA 3387. ART DIRECTION I. 3 Hours.**

The history, theory, and basic concepts of art direction methods and basic construction techniques for television and film. Prerequisite: Permission of faculty.

**THEA 4300. DIRECTING II. 3 Hours.**

Continuation of THEA 3300. Students will direct scenes and/or one-act plays. Prerequisite: THEA 3300 and permission of instructor.

**THEA 4301. ACTING V: PERIOD STYLES. 3 Hours.**

Selected periods in classical theatre literature exploring acting styles through text, movement, and performance. Prerequisite: THEA 1303, THEA 1307, THEA 1343, THEA 2352, THEA 3309 and permission of faculty.

**THEA 4302. STAGE MANAGEMENT AND THEATRE ADMINISTRATION. 3 Hours.**

Managerial activities and responsibilities applicable to community or professional theatre. Prerequisite: THEA 1343 and permission of instructor.

**THEA 4303. CLASSICAL THEATRE HISTORY. 3 Hours.**

The development of world theatre from its beginnings through the Renaissance. Analysis of representative plays of each period with particular emphasis on drama in its historical context. History of acting, costuming, and directing. Prerequisite: THEA 1343 and permission of instructor.

**THEA 4304. MODERN THEATRE HISTORY. 3 Hours.**

The development of Western theatre from the Renaissance to the present. Analysis of representative plays from Europe, England, and America. Development of the modern stage, acting methods, and production techniques. Prerequisite: THEA 1343 and permission of instructor.

**THEA 4305. SCENE DESIGN II. 3 Hours.**

Continuation of THEA 3301. Distinctions among stage, television, and film design, interaction of one with another, advanced methods, and application of scene design concepts. Prerequisite: THEA 3301 and permission of instructor.

**THEA 4306. LIGHTING DESIGN II. 3 Hours.**

Specialized topics and advanced design technique and application principles. Participation on light crews in departmental productions required. Prerequisite: THEA 3305 and permission of instructor.

**THEA 4310. MUSICAL THEATRE HISTORY. 3 Hours.**

The history, development, and contemporary manifestations of the musical theatre art form in America and London's West End, and its relation to the continually changing social milieu. The course follows the development of musical theatre from its inception to the present. Prerequisite: Permission of faculty.

**THEA 4311. VOCAL PERFORMANCE III: SHAKESPEARE AND VERSE. 3 Hours.**

The study and performance of iambic pentameter and verse as found in Shakespearean and verse plays. Prerequisite: THEA 1303 and permission of instructor.

**THEA 4314. ADVANCED PRODUCTION TECHNIQUES. 3 Hours.**

An advanced examination of theatre craft, technology, and production. Prerequisite: THEA 3304.

**THEA 4315. SPECIAL EFFECTS MAKEUP DESIGN. 3 Hours.**

The examination of styles and techniques of specialty makeup applications for the stage and how these relate to television and film.

**THEA 4317. SINGING FOR THE ACTOR II. 3 Hours.**

The advanced study of musical theatre performance as it relates to the integration of acting, singing and dance skills into an effective performance. The script, score, character, vocal demands, and movement requirements of both solo and ensemble works will be studied, and the works will be performed in a culminating, musical revue-styled performance. This course may be repeated once for credit. Prerequisite: THEA 1307, THEA 3317 or permission of instructor.

**THEA 4320. STAGE WELDING, RIGGING, AND FABRICATION. 3 Hours.**

Styles and techniques of welding, rigging, and specialized materials fabrication for the stage and in video and film production. Prerequisite: THEA 1304, and permission of instructor.

**THEA 4322. PLAYWRITING II. 3 Hours.**

The art and craft of constructing a full-length, two-act play. Course content will include references to the work of major playwrights and playwriting theory. Students will receive course content through a combination of class lectures and one-on-one writing conferences with the instructor. Prerequisites: THEA 3309 and THEA 3320 or permission of faculty.

**THEA 4330. U.S. THEATRE HISTORY. 3 Hours.**

The evolution of theatre in the United States from its beginning in colonial times to the present day. Representative plays from various periods are studied. Prerequisite: THEA 1343 and permission of instructor.

**THEA 4333. MUSICAL THEATRE PORTFOLIO AND SHOWCASE. 3 Hours.**

Advanced principles of character development for musical theatre are explored with emphasis on the development of a role through script, music, and character analysis. The semester is structured toward the development of an actor's final portfolio culminating in an audition context presentation or showcase. Prerequisite: THEA 2352, THEA 4317, THEA 4335 and permission of instructor.

**THEA 4335. DANCE FOR THE ACTOR II. 3 Hours.**

Intermediate instruction of ballet, jazz, tap, as well as a variety of specific musical theatre styles may be explored. Dance and movement analysis, research, and self-study as well as individual and group creative experiences will be included in this course. This course may be repeated once for credit. Prerequisite: THEA 3335 and permission of instructor.

**THEA 4340. MOVEMENT PERFORMANCE II: PHYSICAL THEATRE. 3 Hours.**

The study and performance of physical theatre techniques. Prerequisites: THEA 3340 and permission of instructor.

**THEA 4342. THEATRE STUDIES RESEARCH. 3 Hours.**

Studies in theatre research culminating in written and/or presentational work, depending upon the student's area of interest. Prerequisites: THEA 1343, THEA 3309 and permission of instructor.

**THEA 4343. COSTUME DESIGN. 3 Hours.**

Theory and practice of costume design and application of those principles to theatrical production. Prerequisites: THEA 1343, THEA 1305, THEA 3309, or permission of instructor.

**THEA 4344. PORTFOLIO AND RENDERING. 3 Hours.**

The application of the principles of developing and disseminating professional materials in the 21st century, including résumés, business cards, digital portfolios, and web-based portfolios. Includes developing interview skills and practices, accounting for the independent contractor, job searching, and research into unions on the theatrical industry. The lab component focuses on rendering techniques, both traditional and digital.

**THEA 4345. SUMMER THEATRE ACTIVITIES. 3 Hours.**

The study and application of specialized production and performance activities in a summer repertory theatre setting.

**THEA 4346. THEATRICAL WEAPONRY. 3 Hours.**

This course fosters a practical and theoretical understanding for the process of creating the illusion of safe and credible violence for the stage. Emphasis is placed on textual characterization and working with the weapons most frequently used in stage violence. Depending upon the semester, the student may be trained in broadsword, single rapier, rapier and dagger, small sword, or quarterstaff.

**THEA 4352. DRAMATURGY. 3 Hours.**

The study of the critical investigation of drama and/or other performance texts as a contribution to the ensemble-based production of theatre. In the course of their study, students will produce scene analyses, performance critiques, and a dramaturgical information packet. Prerequisite: THEA 1343, THEA 3309 and permission of instructor.

**THEA 4387. ART DIRECTION II. 3 Hours.**

An applied course in art direction methods, construction practices and techniques in video and film production. Prerequisite: Permission of faculty.

**THEA 4391. CONFERENCE COURSE. 3 Hours.**

Topics assigned on an individual basis covering individual research or study in a designated area. May be repeated as the topic changes. Prerequisite: permission of instructor.

**THEA 4393. SPECIAL TOPICS. 3 Hours.**

Special studies in drama and theatre. Topic varies from semester to semester. May be repeated as topic changes or until a maximum of six credit hours is attained. Prerequisite: permission of instructor.

**THEA 4394. HONORS THESIS/SENIOR PROJECT. 3 Hours.**

Required of all students in the University Honors College. During the senior year, the student must complete a thesis or project of equivalent difficulty under the direction of a faculty member in the major department.

**THEA 4395. THEATRE INTERNSHIP LEVEL I. 3 Hours.**

Individual research through working with a professional theatre or performing arts organization. Individual conference to be arranged. Prerequisites: Theatre Arts major with permission of instructor and department chair. Graded on a pass/fail basis.

**THEA 4695. THEATRE INTERNSHIP LEVEL 2. 6 Hours.**

Individual research through working with a professional theatre or performing arts organization. Individual conference between sponsor and departmental advisor required. Prerequisites: Theatre Arts major with permission of instructor and department chair. Graded on a pass/fail basis.

**THEA 4995. THEATRE INTERNSHIP LEVEL 3. 9 Hours.**

Individual research through working with a professional theatre or performing arts organization. Individual conference between sponsor and departmental advisor required. Prerequisites: Theatre Arts major with permission of instructor and department chair. Graded on a pass/fail basis.

**THEA 5393. TOPICS IN THEATRE ARTS. 3 Hours.**

Special topics in theatre; offered periodically, with subject matter determined by instructor and student interest. Previous topics have included: Design Portfolio Workshop; Alternative Actor Training Workshop; Playwriting; Improvisation; and Styles in Acting.

## University College (UNIV)

### COURSES

**UNIV 1131. ISSUES IN COLLEGE ADJUSTMENT. 1 Hour.**

Faculty, staff and Peer Academic Leaders in group discussion will communicate academic survival information, analyze potential academic and social problems, and assist in implementing individualized corrective measures. Special sections for Maverick Scholars Freshman Interest Groups, students on probation, students exploring majors, and student athletes will require permission to register. Elective only; does not count as a part of the professional certification requirements. Pass-fail grades will be awarded. For entering freshmen or entering transfer students.

**UNIV 1302. COLLEGE LEARNING. 3 Hours.**

An introduction to the learning strategies and behaviors necessary for academic success in academic programs and in personal and career development. Focus is on self-assessment, self-regulation, and employing cognitive and psychological theories and strategies for self-change. Students complete a self-change project based on theories and models of behavior modification. Gateway Advantage students are required to enroll in this course during their first semester.

**UNIV 3335. PEER ACADEMIC LEADER TRAINING. 3 Hours.**

To train students to be peer counselors who will work as group leaders in UNIV 1131 during the Fall Semester. Group counseling procedures and requisite guidance material to explain academic regulations and student services, analyze deficient study skills, initiate appropriate study habits, and make referrals when necessary. Only pass/fail grades will be awarded. Elective credit; does not count as part of the professional education certification requirements. Prerequisite: permission of instructor.

## Urban Planning and Public Policy (UPPP)

### COURSES

**UPPP 6300. ADVANCED URBAN THEORY. 3 Hours.**

Covers key theories of urbanization and socioeconomic relations. Emphasis is placed on the development of paradigms in urban theory, from classic texts to important shifts and debates in the late 20th-early 21st centuries. Considers principal theorists from urban disciplines of planning, geography, economics, sociology, and how they structure their arguments about urban form and social relations. Aimed at doctoral students, as well as advanced master's students, both from urban planning/urban affairs as well as from graduate programs outside School of Urban and Public Affairs.

**UPPP 6311. SPATIAL THEORY AND POLICY: URBAN FORM AND STRUCTURE. 3 Hours.**

Examines factors shaping urban form. Includes economic and spatial structures of cities and their implications for planning and policy issues. Outlines location theory, urban growth, density and land price, land use and spatial pattern, multi-centering and sprawl, as well as new traditional and transit oriented developments (NTD & TOD) among others. Broadens understanding of different aspects of cities and urban areas (housing, employment and commercial centers). Reflects on the connections between emergent patterns of growth and evolving transportation network.

**UPPP 6399. DISSERTATION. 3 Hours.**

Graded R/F only.

**UPPP 6699. DISSERTATION. 6 Hours.**

Graded R/F/P/W only.

**UPPP 6999. DISSERTATION. 9 Hours.**

Graded P/F/R.

**UPPP 7399. DOCTORAL DEGREE COMPLETION. 3 Hours.**

This course may be taken during the semester in which a student expects to complete all requirements for the doctoral degree and graduate. Enrolling in this course meets minimum enrollment requirements for graduation, for holding fellowships awarded by The Office of Graduate Studies and for full-time GTA or GRA positions. Students should verify that enrollment in this course meets other applicable enrollment requirements. To remain eligible in their final semester of study for grants, loans or other forms of financial aid administered by the Financial Aid Office must enroll in a minimum of 5 hours as required by the Office of Financial Aid. Other funding sources may also require more than 3-hours of enrollment. Additional hours may also be required to meet to requirements set by immigration law or by the policies of the student's degree program. Students should contact the Financial Aid Office, other sources of funding, Office of International Education and/or their graduate advisor to verify enrollment requirements before registering for this course. This course may only be taken once and may not be repeated. Students who do not complete all graduation requirements while enrolled in this course must enroll in a minimum of 6 dissertation hours (6699 or 6999) in their graduation term. Graded P/F/R.

## Urban and Public Affairs (URPA)

### COURSES

**URPA 1301. INTRO URB LIFE. 3 Hours.**



**URPA 3301. THE METROPLEX. 3 Hours.****URPA 4305. FOUNDATIONS OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY. 3 Hours.**

The organization, structure and practice of environmental protection at the federal, state and local levels of government. Course will develop a full understanding of how the goals of protecting human health and the environment are achieved through the implementation of environmental law, policy, practice, enforcement and collaboration among governmental entities, industry, environmental groups and the general public. Wide ranging use of case studies will be made and full engagement in new developments in the era of climate change will be achieved.

**URPA 4391. CONFERENCE. 3 Hours.****URPA 5160. URBAN MANAGEMENT/PLANNING INTERNSHIP. 1 Hour.**

Intended to enhance readiness for professional work through exposure to planning practice in a one semester log internship (100 hrs in the spring or fall semester or 75 hrs in the summer). Integrates work experience and coursework through journaling and reflective practice. Requirements: (1) student secures an internship from a planning related employer and approval from the student's major professor prior to enrolling in the course; (2) the intern must provide performance evaluation by the job supervisor and the intern's evaluation of the internship experience. Enrollment open to students with no previous formal planning experience. Credit not available for previous internship or planning experience. P/F grade.

**URPA 5300. Foundation of Urban Theory. 3 Hours.**

Social theories that explain the life cycle of urban communities as they develop, expand, and are sustained or decay are presented and contrasted. Special consideration is given to role of social policy. Topics such as poverty, race, neighborhoods, and environment are addressed.

**URPA 5301. FOUNDATIONS OF URBAN POLITICS AND ECONOMICS. 3 Hours.**

Examines the major political and economic institutions and processes in urban communities and their effect on urban policy.

**URPA 5302. FOUNDATIONS OF URBAN RESEARCH AND ANALYSIS. 3 Hours.**

An introduction to research methodologies, both quantitative and qualitative, and statistical techniques useful in the analysis of urban trends and administrative programs. Previously taught as SUPA 5302.

**URPA 5303. THE METROPLEX: SURVEY OF URBAN AFFAIRS, PLANNING, ADMINISTRATION. 3 Hours.**

The Metroplex provides an ideal laboratory for study with more than 100 cities and other governmental units, thousands of neighborhoods and business enterprises, major concentration of minorities and dozens of ethnic groups. An in-depth orientation on urban dynamics utilizing senior faculty members, governmental and community leaders, and current research reports and studies.

**URPA 5304. URBAN POLITICS. 3 Hours.**

Examination of the city as a political system, including the impact of urbanization and fragmentation on policies; input dimensions, including voting patterns and interest group development; decision-making structures, especially types of community power structures and the impact of the reform movement on structural processes. Also offered as POLS 5305; credit will be granted only once.

**URPA 5305. THEORIES OF URBAN SOCIETY. 3 Hours.**

Several theoretical perspectives of the community and community organization examined. Special emphasis given to theories from human ecology, organization and stratification, and social welfare.

**URPA 5306. THE URBAN ECONOMY. 3 Hours.**

Internal dynamics of the growth and development of the urban system and its relation to the national economy. National and urban economic policy, urban growth and land use, market imperfections, urban financial issues, and the environmental implications of urban growth studied through lecture, game simulation and policy debates.

**URPA 5307. URBAN GEOGRAPHY. 3 Hours.**

Emphasizes real aspects associated with urban physical environments and social, behavioral and financial processes that shape these environments.

**URPA 5308. URBAN HISTORY. 3 Hours.**

Extensive reading primarily in the history of the urbanization and metropolitanization of the people of the United States. Historical methods as exemplified in the works of leading historians and analyzed; examples of the scholarship of selected historians and treatises on selected cities, regions, and urban institutions studied.

**URPA 5309. INTERGOVERNMENTAL RELATIONS. 3 Hours.**

Critical analysis of the implications of federalism, and the changing nature of intergovernmental relations on state and local management, administration, planning, and policy making.

**URPA 5310. URBAN POLICY AND THE LAW. 3 Hours.**

Critical analysis of federal government and selected state and local government policies and programs designed to influence the course of change and the future development of cities and urban areas. The role of "private" governments in affecting policy explored.

**URPA 5311. SOCIAL POLICY FORMATION. 3 Hours.**

Utilization of a sociological approach in the study of policy formation in such areas as aging, social planning, and community problem solving.

**URPA 5312. ECONOMIC POLICY. 3 Hours.**

Examines structure of the U.S. economic system and its impact on welfare of consumers, workers, and industry; public policy efforts to provide for management of critical economic variables are evaluated for effectiveness and equity as they impact different interest groups.

**URPA 5313. COMMUNITY DEVELOPMENT. 3 Hours.**

Focuses on current problems of community development and neighborhood revitalization. Housing, community assets, the roles of community development corporations and social capital in cities, and community economic development will be analyzed. Federal, state, and local policies, with grassroots initiatives evaluated for effectiveness on promoting alternatives for community building and organizing. Also offered as CIRP 5324; credit will be granted only once.

**URPA 5314. HEALTH POLICY. 3 Hours.**

Current health policy and programs, examination of historical development, economic and legal aspects, interest groups and health constituencies.

**URPA 5315. URBAN EDUCATION POLICY. 3 Hours.**

Examines current education policy and programs, including public school districts, charter schools, and vouchers; economic and political aspects; role of adult education programs in improving human capital.

**URPA 5316. HUMAN SERVICES. 3 Hours.**

Social welfare institutions: private and public; needs assessment, resource allocation, procedures, city/state/federal/private policy review; highlights of current system demands and changes. Offered as URPA 5316 and CIRP 5344; credit will be granted only once.

**URPA 5317. ENVIRONMENTAL POLICY. 3 Hours.**

Focuses on the physical environmental dimensions of urbanization including such factors as pollution, waste disposal, and land use; stresses the role of economic, social, and political institutions as these affect environmental quality of the city. Offered as CIRP 5342 and URPA 5317; credit will be granted only once.

**URPA 5318. SOCIAL WELFARE POLICY. 3 Hours.**

Examines recent welfare reform measures (federal, state, and local levels), the political issues behind them, and their influence on urban life. A central topic will be the impact of a changing society on social welfare policy needs, including analyses of labor force participation and family structure.

**URPA 5319. URBAN PROBLEMS. 3 Hours.**

Specific urban problems examined in depth, traced to their historical origins to see how they or similar problems have been dealt with in other times and places. Students will then propose possible solutions to the problems in their contemporary form. Offered as CIRP 5347 and URPA 5319.

**URPA 5320. PUBLIC AND NON-PROFIT ORGANIZATION THEORY. 3 Hours.**

Historical evolution of administrative theory including classical, sociological and social-psychological dimensions; decision-making theory; implications of public interest theory for public and non-profit management; basic concepts of organization development and impact on public administration paradigms; new public administration; and future of public and nonprofit urban organization. Also offered as CRCJ 5309 and POLS 5303; credit will be granted only once.

**URPA 5321. URBAN MANAGEMENT. 3 Hours.**

Focuses through lectures, readings, and exercises on major administrative process: personnel and policy development and analysis; management styles and key contemporary management problems explored through presentations by prominent local practitioners.

**URPA 5322. POLITICS AND POLICY IN PUBLIC AND NON-PROFIT MANAGEMENT. 3 Hours.**

Development of theory of bureaucracy; bureaucracy as social issue; ethics and morality in public bureaucracy; mobilization of special interest support; power differentials in urban agencies; policy process in bureaucracy; new bureaucratic structures and processes for urban policy making.

**URPA 5323. MANAGING CHANGE IN PUBLIC AND NON-PROFIT SERVICES. 3 Hours.**

Current theories and concepts of public and non-profit organizational change with particular emphasis on organization development and action research; theoretical roots of contemporary change literature traced through readings and discussion of classical organization theory, public administration including New Public Administration decision making, public interest, phenomenology, learning theory and general systems. Prerequisite: basic organizational theory course or permission of instructor.

**URPA 5324. URBAN PUBLIC FINANCE. 3 Hours.**

Tax, revenue, and fiscal problems of cities and local governments in metropolitan areas; problems of matching costs and benefits in providing public services among different local governments; increasingly complex dimensions of intergovernmental fiscal relations and public budgeting systems. Offered as URPA 5324 and CIRP 5329; credit will be granted only once.

**URPA 5325. ADMINISTRATIVE LAW. 3 Hours.**

Examines scope and role of administrative regulation of and by governmental agencies; explores constitutional principles which limit administrative power and administrative law which governs classical areas of conflict between administrative agencies and their constituencies; rule-making, judicial review and informal regulatory processes of importance to public officials.

**URPA 5326. PUBLIC BUDGETING. 3 Hours.**

This course introduces students to the principles and practices used by federal, state, and local governments to acquire and spend revenues within the context of American democracy, capitalism, federalism, and economics. The primary objective of this course is to provide students with the practical skills and theoretical knowledge to enable them to be effective participants in the budgeting process and critical consumers and producers of research relevant to public budgeting. Offered as CIRP 5328 and URPA 5326. Credit will be granted only once.

**URPA 5327. COMPARATIVE ADMINISTRATION AND POLICY. 3 Hours.**

Extensive, multidisciplinary exposure to concepts and models of administration in developed and modernizing countries; role of the military, bureaucracy and traditional elites in development; practices and concepts of strategies for effective change.

**URPA 5328. SMALL CITY MANAGEMENT. 3 Hours.**

This course will focus on problems peculiar to small cities, including administrative law; personnel, planning; public works, public safety; human services; budget and finance; public relations and parks and recreation.

**URPA 5329. FINANCIAL MANAGEMENT IN THE PUBLIC AND NON-PROFIT SERVICES. 3 Hours.**

Overview of the principles of finance as they apply to the public and non-profit services, financial reporting for state and local governments and non-profit organizations and evaluation.

**URPA 5330. COMMUNITY AND NEIGHBORHOOD ORGANIZATION. 3 Hours.**

Structure and processes in the analysis and development of community and neighborhood organizations; special emphasis given to poverty and minority communities and neighborhoods.

**URPA 5331. LAND USE PLANNING AND THE LAW. 3 Hours.**

Explores the law of land use in the context of the American legal, economic, and political systems. Examines leading court decisions and precedents for their background, content, and applicability to contemporary land use. Offered as CIRP 5316 and URPA 5331. Credit will be granted only once.

**URPA 5332. CAPITAL BUDGETING IN PUBLIC MANAGEMENT. 3 Hours.**

Examines governmental capital budgeting processes with a focus on understanding the significance of capital improvement planning, public facility investment, and project evaluation to sound infrastructure financing and regional economic growth. Governments purchase or construct long-lasting physical assets or facilities financed mostly through borrowing. This course aims to understand the rationale for public capital budgeting and debt instruments used to finance capital investment in the political context of public budgeting in America.

**URPA 5333. GOVERNMENTAL AND NONPROFIT ACCOUNTING. 3 Hours.**

This course is designed as an introduction to governmental and nonprofit accounting. The course reviews major fund accounting principles, accounting for budgetary, revenue, and expenditure funds, accounting for general capital assets and long-term liabilities, accounting for fiduciary and proprietary funds, auditing practices, and financial reporting unique to government and non-profit organizations.

**URPA 5334. MANAGEMENT OF ECONOMIC DEVELOPMENT. 3 Hours.**

This course focuses on the knowledge, organization, politics, issues, techniques and processes of local economic development. Emphasis is placed on contemporary issues and trends in the rich, dynamic laboratory of local economic development in Texas. Learning objectives include: 1) comprehension of basic techniques and issues such as strategic planning, leadership strategies, financial options and evaluation; 2) increased knowledge of the positive potential of thoughtful economic development for local environmental, infrastructure, and revenue challenges; and 3) enhanced professional development through individual and classroom exposure to successful practitioners.

**URPA 5341. PROFESSIONAL REPORT WRITING. 3 Hours.**

Provides students entering public sector employment with writing, management information, data retrieval skills to communicate ideas and information within and outside an agency; basic writing skills reviewed, including organization of reports and grammatical construction; assignments based on actual internship position of students in public agencies.

**URPA 5342. INTERMEDIATE DATA ANALYSIS. 3 Hours.**

An intermediate level examination of statistical and research techniques appropriate to urban and social analysis. Presuming a basic understanding of descriptive and inferential statistics, the course covers multivariate regression, including error analysis and non-linear models, path analysis, ANOVA, logit and probit models, and techniques for data reduction (e.g., factor analysis). Prerequisite: URPA 5302. Offered as URPA 5342 and CIRP 5317; credit will be granted only once.

**URPA 5343. APPLIED URBAN ANALYSIS. 3 Hours.**

Group and individual projects to develop research studies or strategies, data reports for local government, agency or citizen group; techniques appropriate to task utilized. P/F only.

**URPA 5344. QUALITATIVE METHODS. 3 Hours.**

The study of qualitative research and analysis methods. Offered as CIRP 5346 and URPA 5344; credit will be given only once.

**URPA 5345. EVALUATION RESEARCH. 3 Hours.**

Methodological issues in evaluating public programs; identification of variables, indicators and analyses formats presented. Prerequisite: SUPA 5302 or URPA 5302.

**URPA 5346. DATA ANALYSIS. 3 Hours.**

An examination of the data competencies and quantitative techniques necessary for policy analysis. The course presumes a basic understanding of the basic statistical and research techniques taught in 5302 and 5342 (or equivalents from other departments). It builds on this foundation to cover quantitative techniques in policy analysis with a particular emphasis on categorical and limited dependent variables, cross section and panel data. The purpose of the course is to equip students with the quantitative tools necessary to address policy issues that require rigorous empirical analysis. Students will be responsible for applying statistical techniques to analyze a policy issue and demonstrating their ability to communicate the results of the analysis in a professional manner.

**URPA 5347. DEMOGRAPHIC METHODS. 3 Hours.**

Examination of sources of data-census, vital statistics, special surveys, reports, special studies; techniques of analysis with particular emphasis on growth and projection models, interpretation of findings as a major policy area in urban analysis.

**URPA 5348. COST BENEFIT ANALYSIS. 3 Hours.**

Reviews theory of cost-benefit and cost-effective analyses; explores the research, measurement and methodological requirements for the assessments of costs and benefits. It is recommended that students have completed at least one graduate course in research and one graduate class in public finance.

**URPA 5350. INTRODUCTION TO PUBLIC ADMINISTRATION. 3 Hours.**

This is a graduate level introductory course designed to give students an understanding of public administration as a field of academic inquiry and professional practice within the context of American federalism, democratic values, institutional dynamics, and bureaucratic politics. In addition to contextually defining public administration, the course addresses government reform, intergovernmental relations, public ethics, organizational dynamics and behavior, personnel issues, budgeting, and e-governance.

**URPA 5351. HUMAN RESOURCE MANAGEMENT IN GOVERNMENT AND NON-PROFITS. 3 Hours.**

The purpose of this course is to familiarize students with key functions of government and non-profit personnel systems, discuss various theoretical approaches and techniques, and understand the major legal requirements of public and non-profit personnel management. The course examines the structure, role, and evolution of the Civil Service, current personnel policies, and personnel management tasks such as examination, recruitment, position classification, and collective bargaining.

**URPA 5352. CONFLICT RESOLUTION IN THE PUBLIC AND NONPROFIT MANAGEMENT. 3 Hours.**

Labor management at all levels of government and non-profits, ability to work together to solve problems. Emphasis on collective and interest based bargaining, mediation, labor management partnership. Simulation exercises teach dynamics of bargaining, negotiation, problem solving, and small group dynamics.

**URPA 5353. REFORM AND INNOVATION IN URBAN PUBLIC AND NON-PROFIT MANAGEMENT. 3 Hours.**

Designed to acquaint students with urban governance and non-profit reform and innovation. Course will explore how reformed government differs from traditional bureaucracy by contrasting it with entrepreneurial government and other innovations. Examines some of the areas most in need of reform, including service delivery, organizational capacity, and fiscal decentralization.

**URPA 5354. MANAGEMENT OF NON-PROFIT ORGANIZATIONS. 3 Hours.**

This course examines the different management areas and techniques within the nonprofit organization such as institutional management, leadership and management and the differences between them, fund-raising and financial administration, human resources-staff, volunteer, and board-coordination, internal needs assessment, planning, performance measurements, and the organizational environment and culture.

**URPA 5355. NONPROFIT ORGANIZATIONS IN PUBLIC POLICY. 3 Hours.**

This course examines non-profits as community institutions with an outward focus: the political, economic, and inter-organizational environment, fund-raising and financial management, community relations and needs assessment, the role of the volunteers, boards and community leaders, marketing, and legal and government issues.

**URPA 5356. ENTREPRENEURSHIP IN PUBLIC AND NON-PROFIT MANAGEMENT. 3 Hours.**

Public and non-profit entrepreneurship involves the use of public powers, and partnerships with individuals, firms and other organizations, to achieve public purposes. The focus will be on creative management techniques and methods employed in managing the public and non-profit sectors.

**URPA 5357. STRATEGIC MGT AND PLANNING IN PUBLIC AND NON-PROFIT SERVICES. 3 Hours.**

Readings and case studies of strategic planning and management in the public and non-profit sectors; application of principles to an actual situation, involving stakeholder identification, environmental scanning, and formulation of mission statements, goals, and strategies. Offered as CIRP 5312 and URPA 5357. Credit will be granted only once.

**URPA 5358. ETHICS IN THE PUBLIC SERVICE. 3 Hours.**

This course examines public service theoretical ethics literature to provide a basis for each student to both reflect upon and expand their comprehension of the values and processes of ethical decision making. Beyond theoretical works, it addresses the application and evaluation of theory against the professional, workaday reality of case studies, ethical codes and other relevant materials. Three major learning objectives are: 1) achievement of a solid understanding of the dominant theoretical perspectives in the public service ethics literature; 2) competency in the development of guidelines and procedures that encourage ethical behavior, and 3) enhancement of the reach and resiliency of each member's personal commitment to public service ethics.

**URPA 5359. ORGANIZATIONAL DIAGNOSIS. 3 Hours.**

This class deals with tools and techniques necessary to manage public organizations. The learning objectives include ability to conduct an organizational diagnostic; and familiarity with group procedures and facilitation techniques involved in organizational change.

**URPA 5360. PUBLIC AND NON-PROFIT MANAGEMENT INTERNSHIP. 3 Hours.**

Designed to integrate work experience and coursework through a series of brief work-related assignments; presentations by local planning and management practitioners and class discussions and exercises. Enrollment is open to both pre-entry and in-career students. Formal internship placements with agency mentors will be arranged. P/F only.

**URPA 5361. INTERNATIONAL ORGANIZATIONS. 3 Hours.**

The course focuses on the rise of governmental and nongovernmental organizations in geopolitics, international development, and environmental management. It analyzes their institutional histories, their organizational structures and cultures, and their role as institutional policy actors in the global diffusion of policy initiatives and managerial knowledge and practices.

**URPA 5362. URBAN DIVERSITY. 3 Hours.**

Examines the growing spatial and social diversity of cities; how physical as well as socioeconomic urban structures have fostered race, class, and gender inequalities; how urban policies have addressed and can address these issues. Offered as CIRP 5362 and URPA 5362.

**URPA 5363. CIVIL RIGHTS AND URBAN MINORITIES. 3 Hours.**

Examines the changes in and growth of the civil rights of minorities in the United States from the close of the Civil War to the present. This is accomplished through the study of court decisions, legislation, and the civil rights movement in the 1950s and 1960s, as seen through the eyes of contemporary writers, including William Faulkner, Alice Walker, and Alex Haley.

**URPA 5364. INSTITUTIONAL AND OTHER RADICAL ECONOMIC THEORIES. 3 Hours.**

Examines the theoretical bases of institutional and other radical paradigms of the economic process and the alternative economic policies that logically flow from them. These are compared to and contrasted with the orthodox, or neo-classical, theoretical model of economics, and the economic policies that logically are derived from it. Emphasis will be on how and why the neo-classical model remains the dominant model for economic policy in Western, capitalist countries.

**URPA 5365. FOUNDATIONS OF ENVIRONMENTAL POLICY. 3 Hours.**

Explores how environmental controversy is rooted in conflict between a number of schools of environmental policy thought with divergent perspectives on issues such as how to define progress, how to balance the needs of economy and ecosystem, how to cope with environmental complexity, and what role science should play in environmental affairs. Also offered as CIRP 5343; credit will be granted only once.

**URPA 5366. US IMMIGRATION POLICIES AND PLANNING FOR IMMIGRANTS. 3 Hours.**

A seminar course where weekly readings would include: perspectives on international migration theory; the evolution of US immigration policy and national security; theories and urban issues related to immigrant assimilation and incorporation; urban ethnic economies and ethnic enclaves; segregation and housing of immigrants; globalization and immigrant labor networks; governance issues with providing education and other public services to immigrants and their children; and social work issues regarding generational conflict in immigrant families.

**URPA 5367. STRATEGIC PUBLIC AND NONPROFIT HUMAN RESOURCES MANAGEMENT. 3 Hours.**

This course is designed to acquaint students with the theory and practice of strategically developing, utilizing, and aligning human resources so that maximum contribution from each member of an organization is used toward the attainment of strategic long-range goals and objectives. Topics include HR strategy, diversity, leadership, selection, training and development, compensation, classification, performance appraisal, and future practices for public and non-profit organizations.

**URPA 5368. PRACTICAL EMPLOYMENT FOR PUBLIC AND NONPROFIT MANAGERS. 3 Hours.**

The course examines the rights and obligations of employers and employees. It does this by examining the legal background pertinent to public and nonprofit management. Topics addressed include employee selection, promotion and discipline, anti-discrimination legislation, gender and family issues legislation, environmental, safety and health issues, whistleblower legislation, immigration law, worker's compensation, labor law, and drug and alcohol issues.

**URPA 5390. TOPICS IN URBAN THEORY. 3 Hours.**

Different topics explored on an intensive basis, especially recent theoretical approaches. May be repeated for credit as topic changes.

**URPA 5391. TOPICS IN URBAN POLICY. 3 Hours.**

Different topics and approaches in analysis of urban problems. May be repeated for credit as topic changes.

**URPA 5392. TOPICS IN URBAN MANAGEMENT. 3 Hours.**

Selected topics on current management problems including small city management, community-neighborhood relations, citizen involvement programs and techniques, personal and professional effectiveness as a total person, intergovernmental strategies and styles, public-private sector collaboration and co-planning, privatization, and other alternatives to economic service delivery. May be repeated as topic changes.

**URPA 5394. SPECIAL TOPICS IN URBAN RESEARCH. 3 Hours.**

Different topics each semester concentrate on a variety of methodological techniques and research strategies, such as demographic research and survey techniques. May be repeated for credit as topic changes.

**URPA 5395. CONFERENCE COURSE IN URBAN AFFAIRS. 3 Hours.**

Reading and research in a specialized area of urban affairs under the direction of a member of the graduate faculty.

**URPA 5396. PROJECT REPORT. 3 Hours.**

Student prepares report focusing on specific policy or professional issue, utilizing appropriate research techniques; subject area and design of project report with consent of instructor. Graded P/F/R only.

**URPA 5397. RESEARCH REPORT. 3 Hours.**

Student prepares report comparable to a journal article focusing on research issue, utilizing appropriate theory and research techniques; subject area and design of research report with consent of instructor. Graded P/F/R only. Prerequisite: URPA 5342.

**URPA 5398. THESIS. 3 Hours.**

A thesis conforming to University and departmental requirements may be prepared by graduate students in urban affairs. Graded F, R.

**URPA 5399. PUBLIC ADMINISTRATION CAPSTONE. 3 Hours.**

This integrative applied research course assesses the student's ability to analyze, synthesize, and formulate cogent recommendations to solve a real public sector problem. Students will write the capstone paper using concepts drawn from the MPA core curriculum, their chosen emphasis track, and the student's professional public work experience. Students are required to successfully defend their capstone paper before a Public Administration Forum consisting of SUPA faculty, students, and other interested parties. Prerequisite: completion of all other course work required for the MPA degree, including core courses and emphasis area courses, unless an exception is approved by the MPA advisor.

**URPA 5698. THESIS. 6 Hours.**

A thesis conforming to University and departmental requirements may be prepared by graduate students in urban affairs. Graded P/F/R.

**URPA 6301. THEORETICAL FOUNDATIONS AND PH.D. WORKSHOP. 3 Hours.**

Explores the development and function of theoretical models and frameworks. Examines the major theories from the social sciences designed for framing urban planning or administration issues and public policy. Designed to assist doctoral students in preparing their dissertation research. Opportunities to present work in progress, share ideas, and interact with faculty. Prerequisite: CIRP 5346 and either CIRP 5317 or URPA 5342.

**URPA 6305. SEMINAR IN URBAN POLICY PROCESSES. 3 Hours.**

Final course in urban policy field; focus on the political, economic, and sociological institutions in the policy process, including various theoretical approaches, and application of these multidisciplinary perspectives in the analysis of specific policy issues.

**URPA 6306. SEMINAR IN PUBLIC ADMINISTRATION. 3 Hours.**

Final course in the public administration field, focuses on review and integration of the theories and principles of public administration.

**URPA 6310. MONETARY AND FISCAL POLICY: THE FEDERAL ROLE. 3 Hours.**

Examination of the role of the federal government in maintaining economic stability, ensuring full employment and controlling inflation; exploration of liberal interventionist, conservative and radical theories of state economic management to assess the various policy alternatives and the importance of interest groups.

**URPA 6315. PUBLIC ADMINISTRATION THEORY. 3 Hours.**

This course is designed to critically examine public administration theory through the lenses of various governance models that have been proposed beginning with Weber's "ideal"; bureaucratic model through Osborne and Gaebler's market model to Fox and Miller's postmodern discourse model. The course begins by examining each governance model's stated or implied assumptions (about man, government, state, etc.) Second, the course considers the political philosophy and conceptual pillars on which the models are theoretically founded. Finally, the course examines the ideas of what constitutes a state as it might be relevant to a particular model and public administration.

**URPA 6320. ADVANCED ORGANIZATION THEORY. 3 Hours.**

The purpose of this advanced seminar is to examine the role of public agencies as organs of the State. It focuses on federal, urban, and nonprofit organizations. Learning objectives include understanding of interpretive, critical, and postmodern critiques of State's institutions; and application of power, knowledge, and gender lenses to the analysis of organizational practices, culture, and policy actions. Prerequisite: URPA 5320 or URPA 5323.

**URPA 6326. PUBLIC BUDGETING & FINANCE. 3 Hours.**

The primary objective of this seminar is to provide students with the theoretical underpinnings of budgeting and financial management in the public sector. Students will engage in in-depth discussions of public budgeting and financial management topics drawn from economics, decision-making models, urban politics, federalism, and others to be able to have a sound understanding of how fiscal decisions affect public administration and policy.

**URPA 6340. RESEARCH DESIGN. 3 Hours.**

Advanced course especially for Ph.D. students; covers logic of research design and problems of structure. Emphasis on empirical and quantitative studies.

**URPA 6346. ADVANCED DATA ANALYSIS IN URBAN AND PUBLIC AFFAIRS. 3 Hours.**

An introduction to selected advanced techniques related to planning analysis. Subjects include advanced applied regression analysis, multivariate logit analysis, and multinomial logistic regression. Applications of projection techniques, land use and transportation models, and methods of regional analysis. Offered as CIRP 6346 and URPA 6346. Credit will be given only once.

**URPA 6349. DECISION MAKING AND PUBLIC POLICY ANALYSIS. 3 Hours.**

This course explores the theoretical, practical, and topical connections between public policy and public administration through a decision-making lens. The objectives of the course are to enable students to identify, critique, and connect the theoretical and meta-theoretical assumptions of decision-making models to models of public policy analysis and public administration. Course objectives will be pursued through readings, seminar discussions, and research-based assignments that focus on the intersection between decision-making, public policy, and public administration.

## Women's Studies (WOMS)

### COURSES

**WOMS 2301. TOPICS IN WOMEN'S AND GENDER STUDIES. 3 Hours.**

Special topics of interest in the disciplines of Women's and Gender Studies. May be repeated for credit when the topic changes.

**WOMS 2307. WOMEN IN THE ANCIENT WORLD. 3 Hours.**

Exploration of roles and images of women in ancient Greece and Rome, using a variety of primary (ancient) sources: literature, legal and medical texts, visual art, and inscriptions. Offered as CLAS 2307 and WOMS 2307. Credit will be granted only once.

**WOMS 2310. INTRO TO WOMEN'S & GENDER STUDIES. 3 Hours.**

Provides an introduction to Women's Studies and Gender Studies as fields that place women and gender at the center of inquiry. Examines topics such as work, family, reproduction, sexuality, politics, art, literature, and contemporary media. Explains the diversity of methods and theories employed in Women's and Gender Studies scholarship, emphasizing the intersection of gender, sexuality, race, ethnicity, and class.

**WOMS 2315. INTRODUCTION TO GAY AND LESBIAN STUDIES. 3 Hours.**

Provides an introduction to Gay and Lesbian Studies, including the study of transsexual, transgender, and queer identities. May address topics such as LGBTQ history; sexuality and civil rights; the representation of LGBTQ in art, literature, and popular culture; and/or feminist analysis of sex, gender, and sexuality. Explains the methods and theories employed in gay and lesbian studies, emphasizing the intersection of gender, sexuality, race, ethnicity, class, and ability/disability.

**WOMS 2317. BASIC CONCEPTS IN HUMAN SEXUALITY. 3 Hours.**

The physiological, psychological, and sociological aspects of human sexuality. Offered as BIOL 2317, HEED 2317, PSYC 2317, and WOMS 2317. Credit will be granted for one of these courses only. Students seeking certification in Health Education must enroll in HEED 2317. Students seeking credit toward their science requirement must enroll in BIOL 2317. May not be used for biology grade point calculation or biology credit toward a BS degree in biology, microbiology, medical technology, psychology, or sociology.

**WOMS 3300. TOPICS IN WOMEN'S AND GENDER STUDIES. 3 Hours.**

Special topics of interest in the disciplines of Women's and Gender Studies. May be repeated for credit when the topic changes.

**WOMS 3305. WOMEN'S HEALTH ISSUES. 3 Hours.**

Will address specific issues of importance to women and their health, including growth and development, nutrition, reproductive health, pregnancy, chronic diseases, and relationship/family issues. Offered as HEED 3305 and WOMS 3305. Credit will be granted only once.

**WOMS 3309. WOMEN AND WORK, 1600 TO THE PRESENT. 3 Hours.**

Examines the history of women and work, both waged and nonwaged, in Europe and the Americas, including the United States. Highlights differences within women's work cultures as well as variation in women's employment opportunities and their efforts to achieve equality with men in the workplace, by ethnicity, region, and nation. Offered as HIST 3309 and WOMS 3309; credit will be granted only once.

**WOMS 3310. U.S. WOMEN'S HISTORY TO 1860. 3 Hours.**

Women in politics, work and society from the colonial era to the Civil War. Women's efforts to reform society, including the abolition of slavery and acquisition of suffrage. Offered as HIST 3310 and WOMS 3310; credit will be granted only once.

**WOMS 3311. U.S. WOMEN'S HISTORY 1860 TO PRESENT. 3 Hours.**

American women in politics, work and society since 1860, focusing on race and class and women's struggles for rights and liberation. Offered as HIST 3311 and WOMS 3311; credit will be granted only once.

**WOMS 3313. CULTURAL PSYCHOLOGY. 3 Hours.**

Theory and research regarding psychological issues related to gender and cultural diversity. These issues will be approached from different perspectives within psychology, including clinical, developmental, social, health, and cognitive psychology. Prerequisite: PSYC 1315. Offered as PSYC 3313 and WOMS 3313; credit will be granted only once.

**WOMS 3314. THE LATINA EXPERIENCE. 3 Hours.**

Examines the social, cultural and economic experiences of Latin American women in the United States, with particular emphasis on Mexican-origin women. The course surveys the historical and contemporary experiences of Latinas in the United States with respect to family dynamics, religion, education, politics, health and illness, the labor market, mass media, and the arts. This course is also offered as MAS 3314, SOCI 3314, and WOMS 3314; credit will be granted only once.

**WOMS 3328. MARITAL AND SEXUAL LIFESTYLES. 3 Hours.**

Contemporary American lifestyles selected from: singles, traditional marriage, homosexuals, single-parent families, open marriage, non-marital sexuality, cohabitation, dual-career marriage, childless couples, egalitarian marriage, families in later life. Offered as SOCI 3328 and WOMS 3328; credit will be granted only once.

**WOMS 3331. SOCIOLOGY OF THE FAMILY. 3 Hours.**

The family's role in American society and in other cultures past, present, and future. Family research methods, comparative family systems, child development/parenting, culture and personality, minority families, social class variation in families, work and family. Prerequisite: sophomore standing or permission of the instructor. Offered as SOCI 3331 and WOMS 3331; credit will be granted only once.

**WOMS 3334. GENDER ROLES. 3 Hours.**

Theories of gender role socialization and change in female and male roles. Impact of biology, psychology, and socialization on gender role development. How we learn gender in various social contexts including the family, education, and the peer group. Offered as SOCI 3334 and WOMS 3334; credit will be granted only once.

**WOMS 3338. COMPARATIVE KINSHIP AND FAMILY SYSTEMS. 3 Hours.**

Variation in kinship and family systems from crosscultural and evolutionary perspectives. Structure, function, and dynamics of kinship and family systems as adaptations to diverse ecological, social, and historical circumstances. Implications of this approach for understanding kinship and family in American society also addressed. Formerly listed as ANTH 4338. Credit cannot be given for both ANTH 3338 and ANTH 4338. Also offered as WOMS 3338; credit will be granted only once. Offered as AAST 3332 and ANTH 3338; credit will be granted in only one department.

**WOMS 3356. WOMEN, WORK AND SOCIAL CHANGE. 3 Hours.**

Women's work experiences, how these experiences are changing, and relationship between paid employment and non-wage household labor. Paid and unpaid work experiences are empirically examined in terms of a variety of theoretical perspectives. Offered as SOCI 3356 and WOMS 3356; credit will be granted only once.

**WOMS 3360. GENDER AND THE PERFORMING ARTS. 3 Hours.**

Examines the role of gender in the performing arts, including theory and practice focused on gender. Additional topics may include female pioneers in the performing arts, the image of gender in different media, the way gender affects actors and artists, and the effect of cultural definitions of gender on audience reception. Offered as THEA 3360 and WOMS 3360. Credit will be granted only once.

**WOMS 3361. WOMEN IN THEATRE. 3 Hours.**

Examines the history, theory, and practice of women in theatre. Pioneering female writers, directors, producers, actors, designers, and activists will be explored as will their influence upon drama in its historical, social, and cultural contexts. Students will also be introduced to theory that examines female characters in plays and their impact on the artist and audience. Offered as THEA 3361 and WOMS 3361. Credit will be granted only once.

**WOMS 3364. GAY AND LESBIAN LITERATURE. 3 Hours.**

Examines modern representations of same-sex desire in relation to a variety of texts---religious, philosophical, literary and scientific--from the ancient world up through the 'invention' of homosexuality in the nineteenth century. Prerequisite: for English majors, ENGL 2350; for non-majors, 6 hours sophomore literature or 3 hours sophomore literature with a grade of A. Offered as ENGL 3364 and WOMS 3364; credit will be granted in only one department.

**WOMS 3366. SEX, GENDER, AND CULTURE. 3 Hours.**

The ways gender and sexuality are culturally constructed. Readings include ethnographies, life histories, and fiction. Debates within anthropology and within specific cultures over maleness and femaleness. Offered as ANTH 3366 and WOMS 3366; credit will be granted only once.

**WOMS 3368. TOPICS IN GENDER AND SEXUALITY. 3 Hours.**

Examines a variety of topics to do with issues of gender and sexuality, which include literary, theoretical, and philosophical texts that foreground questions of desire, sexual identity, and gender asymmetry. Considers how gender and sexuality shape and are shaped by race, ethnicity, class, ability/disability, religion, and age. May be repeated for credit as course content changes. Offered as ENGL 3368 and WOMS 3368; credit will be granted in only one department. Prerequisites: for English majors, ENGL 2350; for non-majors, 6 hours of sophomore literature or 3 hours of sophomore literature with a grade of A.

**WOMS 3370. WOMEN IN LITERATURE. 3 Hours.**

Works by women writers and/or images of women in literature. May be repeated for credit as subject matter changes. Offered as ENGL 3370 and WOMS 3370; credit will be granted in only one department.

**WOMS 3385. WOMEN AND CRIME. 3 Hours.**

This course examines criminology and criminal justice issues as they relate specifically to women. The three major areas of coverage include (1) women and girls as victims of crime, (2) women and girls as criminal offenders; and (3) women working in the criminal justice system. Offered as CRCJ 3385 and WOMS 3385; credit will be granted only once.

**WOMS 4190. CONFERENCE COURSE. 1 Hour.**

Independent study for the advanced undergraduate. A close examination of a chosen topic through research and/or reading; format designed by instructor and student. May be repeated for credit when the subject matter varies, but only with permission of director of Women's and Gender Studies Program.

**WOMS 4290. CONFERENCE COURSE. 2 Hours.**

Independent study for the advanced undergraduate. A close examination of a chosen topic through research and/or reading; format designed by instructor and student. May be repeated for credit when the subject matter varies, but only with permission of director of Women's and Gender Studies Program.

**WOMS 4301. ART AND GENDER. 3 Hours.**

Approaches to the interpretation of art from the stance of gender and feminism. Emphasis is placed on the work of significant female artists and on the gendered representations of art. Offered as ART 4301 and WOMS 4301; credit will be granted only once. Fulfills the Social/Cultural Studies requirement. Prerequisite: ART 1309 and ART 1310.

**WOMS 4303. WOMEN IN SOCIETY. 3 Hours.**

Women's status in contemporary American society, including the family, workplace, and politics. Women's status will also be examined in historical and crosscultural perspectives. Offered as SOCI 4303 and WOMS 4303; credit will be granted only once.

**WOMS 4316. WOMEN IN THE POLITICAL PROCESS. 3 Hours.**

This course introduces students to the unique experiences of women in the political process, the impact of these experiences on the political system, and theories of gender and politics. Offered as POLS 4316 and WOMS 4316; credit will be granted only once.

**WOMS 4318. LANGUAGE AND GENDER. 3 Hours.**

The role of language in the expression and creation of gender identities. Gender differences in language structure and use, women's and men's language in other cultures, the acquisition of gendered ways of speaking, and sexism in language. Offered as LING 4318 and WOMS 4318; formerly offered as LING 4392/WOMS 4392; credit will be granted only once. Prerequisite: LING 3311.



**WOMS 4323. FEMINIST POLITICAL THOUGHT. 3 Hours.**

Issues raised by the feminist critique of political theory; the exclusion of women from the political sphere until the 20th century; Marxist, liberal, and radical feminist political thought; alternative feminist conceptions of the political. Offered as POLS 4323 and WOMS 4323; credit will be granted only once.

**WOMS 4325. WOMEN IN SCIENCE. 3 Hours.**

Explores the role of women in science. Emphasis on gender and science, the history of women in science, gender equity in the classroom, strategies for the retention of women scientists, the current culture/climate for women in science, and contemporary women in science. Offered as EDUC 4325, SCIE 4325, and WOMS 4325. Credit will be granted only once.

**WOMS 4327. WOMEN IN HISPANIC LITERATURE. 3 Hours.**

Considers women as characters in and writers of Hispanic literature. Includes the analysis of themes, language, and how the writings of women often give voice to lesser known aspects of culture. Offered as SPAN 4327, MAS 4327, and WOMS 4327; credit will be granted only once. Prerequisite: SPAN 3315 with a grade of C or better.

**WOMS 4340. LITERATURE BY WOMEN. 3 Hours.**

Focus on women's writing in a particular genre or historical period or on a concept or issue of importance to women writers. May be repeated for credit as course content changes. Offered as ENGL 4340 and WOMS 4340; credit will be granted in only one department.

**WOMS 4390. CONFERENCE COURSE. 3 Hours.**

Independent study for the advanced undergraduate. A close examination of a chosen topic through research and/or reading; format designed by instructor and student. May be repeated for credit when the subject matter varies, but only with permission of director of Women's and Gender Studies Program.

**WOMS 4392. SPECIAL TOPICS IN WOMEN'S STUDIES. 3 Hours.**

Special topics related to women's and gender studies. May be repeated for credit when the topic changes, with permission of the director of the Women's and Gender Studies Program.

**WOMS 4393. WOMEN'S STUDIES INTERNSHIP. 3 Hours.**

Supervised internship through which students apply the academic skills they have acquired in Women's and Gender Studies courses by working in a related business or non-profit environment. Required coursework will be determined by instructor. Prerequisite: WOMS 2310 and permission of Director of Women's and Gender Studies.

**WOMS 5301. TOPICS WOMEN'S STUDIES. 3 Hours.**

Special topics of interest in the discipline of Women's Studies. May be repeated for credit when the topic changes.

# Index

---

## A

Academic Calendar .....	11
Academic Standing .....	20
Accounting .....	133
Accounting (ACCT) .....	722
Accounting - Graduate Programs .....	134
Accounting - Undergraduate Programs .....	137
Admissions .....	22
Advertising (ADVT) .....	726
Aerospace Engineering (AE) .....	726
Aerospace Studies .....	321
Aerospace Studies (AS) .....	731
Affiliated Studies Abroad (ASA) .....	732
African-American Studies (AAST) .....	732
Anthropology (ANTH) .....	735
Anthropology - Graduate Programs .....	430
Anthropology - Undergraduate Programs .....	428
Arabic (ARAB) .....	740
Architecture .....	101
Architecture (ARCH) .....	741
Architecture - Graduate Programs .....	106
Architecture - Undergraduate Programs .....	101
Art & Art History (ART) .....	748
Art + Art History - Graduate Program .....	323
Art and Art History .....	322
Art and Art History - Undergraduate Programs .....	326
Astronomy (ASTR) .....	759
Athletics .....	673

## B

Bilingual ESL Early Child Prog (BEEP) .....	759
Bioengineering .....	238
Bioengineering (BE) .....	760
Bioengineering - Graduate Programs .....	238
Bioengineering - Undergraduate Programs .....	242
Biology .....	477
Biology (BIOL) .....	767
Biology - Graduate Programs .....	477
Biology - Undergraduate Programs .....	482
Broadcast Communication (BCMNI) .....	777
Business Administration (BSAD) .....	778

Business Administration (BUSA) .....	779
Business Administration - Graduate Programs .....	144
Business Communication (BCOM) .....	780
Business Decisions (BDEC) .....	780
Business Honors (BHNR) .....	780
Business Law (BLAW) .....	780
Business Statistics (BSTAT) .....	781
<b>C</b>	
Center for African American Studies .....	636
Chemistry & Biochemistry (CHEM) .....	782
Chemistry and Biochemistry .....	515
Chemistry and Biochemistry - Graduate Programs .....	515
Chemistry and Biochemistry - Undergraduate Programs .....	520
Chinese (CHIN) .....	789
City and Regional Planning (CIRP) .....	790
City and Regional Planning - Graduate Programs .....	642
Civil Engineering .....	250
Civil Engineering (CE) .....	795
Civil Engineering - Graduate Programs .....	250
Civil Engineering - Undergraduate Programs .....	255
Classical Studies .....	335
Classics (CLAS) .....	807
College of Business .....	123
College of Education & Health Professions .....	190
College of Engineering .....	230
College of Liberal Arts .....	317
College of Nursing .....	445
College of Science .....	469
Communication .....	337
Communication (COMM) .....	808
Communication - Graduate Program .....	337
Communication - Undergraduate Programs .....	339
Communication Studies (COMS) .....	810
Communications Technology (CTEC) .....	811
Computer Science (CS) .....	812
Computer Science and Engineering .....	259
Computer Science and Engineering (CSE) .....	812
Computer Science and Engineering - Graduate Programs .....	260
Computer Science and Engineering - Undergraduate Programs .....	263
Course Descriptions .....	719
Criminology & Criminal Justice (CRCJ) .....	822
Criminology & Criminal Justice - Graduate Program .....	345

Criminology and Criminal Justice .....	345
Criminology and Criminal Justice - Undergraduate Programs .....	348
Curriculum and Instruction .....	194
Curriculum and Instruction - Graduate Programs .....	194
Curriculum and Instruction - Undergraduate Programs .....	199
<b>D</b>	
Dance Activity (DNCA) .....	826
Dance Theory (DNCE) .....	827
Degree Programs .....	11
Degree Requirements .....	44
Degree Requirements .....	93
Division of Student Affairs .....	673
<b>E</b>	
Early Childhood Education (ECED) .....	827
Earth and Environmental Sciences .....	533
Earth and Environmental Sciences - Graduate Programs .....	534
Earth and Environmental Sciences - Undergraduate Programs .....	539
Economics .....	149
Economics (ECON) .....	828
Economics - Graduate Programs .....	149
Economics - Undergraduate Programs .....	152
Education (EDUC) .....	833
Education (EDUCIR) .....	837
Education Counseling (EDCO) .....	837
Education Middle Level (EDML) .....	838
Educational Administration (EDAD) .....	839
Educational Administration (EDADIR) .....	845
Educational Leadership and Policy Studies .....	206
Educational Leadership and Policy Studies - Graduate Programs .....	206
Educational Leadership and Policy Studies - Undergraduate Programs .....	211
Educational Technology (EDTC) .....	845
Electrical Engineering .....	269
Electrical Engineering (EE) .....	846
Electrical Engineering - Graduate Programs .....	270
Electrical Engineering - Undergraduate Programs .....	275
Elementary Education (ELED) .....	857
Eng for Speakers of Other Lang (ESOL) .....	859
Engineering (ENGR) .....	859
Engineering Mechanics (EM) .....	860
English .....	353
English (ENGL) .....	860
English - Graduate Programs .....	353

English - Undergraduate Programs ..... 356

Environmental and Sustainability (ESST) .....871

Environmental Science and Engineering (EVSE) .....869

Exchange Courses (EXCH) ..... 871

Executive Master of Business Administration (EMBA) .....872

Exercise and Sport Activity (EXSA) .....873

Exercise and Sport Studies (EXSS) ..... 874

**F**

Faculty Listing ..... 681

Finance (FINA) .....875

Finance and Real Estate ..... 156

Finance and Real Estate - Graduate Programs .....157

Finance and Real Estate - Undergraduate Programs ..... 160

Financial Aid .....57

First Year Seminar - Art (FS-ART) .....878

First Year Seminar - Biology (FS-BIOL) .....878

First Year Seminar - Business (FS-BUSA) .....878

First Year Seminar - Communications (FS-COMM) .....878

First Year Seminar - Criminal Justice (FS-CRCJ) .....878

First Year Seminar - English (FS-ENGL) ..... 878

First Year Seminar - History (FS-HIST) ..... 879

First Year Seminar - Management (FS-MANA) .....879

First Year Seminar - Math (FS-MATH) .....879

First Year Seminar - Modern Languages (FS-MODL) ..... 879

First Year Seminar - Nurse (FS-NURS) ..... 879

First Year Seminar - Theater (FS-THEA) .....879

First Year Seminar - University Studies (FS-UNIV) ..... 879

First Year Seminar -Philosophy (FS-PHIL) .....880

French (FREN) ..... 880

**G**

General Core Requirements ..... 93

Geography (GEOG) ..... 883

Geology (GEOL) .....883

German (GERM) ..... 889

Global (GLOBAL) ..... 892

Grades and Grading Policies .....61

Graduate .....45

Graduate Admissions ..... 23

Graduate Education ..... 98

Graduation .....69

Greek (GREK) ..... 892

**H**

Health (HEED) .....	892
Health Care Administration (HCAD) .....	894
Health Care Administration - Graduate Programs .....	165
History .....	359
History (HIST) .....	895
History - Graduate Programs .....	360
History - Undergraduate Programs .....	367
Home .....	9
Honors (HONR) .....	905
Honors College .....	664
Honors-Architecture (HONR-AR) .....	907
Honors-Business (HONR-BU) .....	907
Honors-Education (HONR-ED) .....	908
Honors-Engineering (HONR-EN) .....	908
Honors-Liberal Arts (HONR-LA) .....	908
Honors-Nursing (HONR-NU) .....	909
Honors-Science (HONR-SC) .....	909
Honors-Social Work (HONR-SW) .....	910
Honors-Visual & Performing Arts (HONR-VP) .....	910
Humanities (HUMA) .....	910

**I**

Industrial and Manufacturing Systems Engineering .....	278
Industrial and Manufacturing Systems Engineering (IE) .....	911
Industrial and Manufacturing Systems Engineering - Graduate Programs .....	278
Industrial and Manufacturing Systems Engineering - Undergraduate Program .....	284
Information Systems (INSY) .....	917
Information Systems and Operations Management .....	168
Information Systems and Operations Management - Graduate Programs .....	168
Information Systems and Operations Management - Undergraduate Programs .....	171
Insurance (INSU) .....	921
Interdisciplinary Science - Graduate Programs .....	562
Interdisciplinary Studies .....	650
Interdisciplinary Studies (INTS) .....	921
Interior Design .....	113
Interior Design (INTD) .....	922
Introduction to Liberal Arts (COLA) .....	924

**J**

Journalism (JOUR) .....	924
-------------------------	-----

**K**

Kinesiology .....	212
Kinesiology (KINE) .....	925

Kinesiology - Graduate Programs .....212

Kinesiology - Undergraduate Programs .....217

Korean (KORE) ..... 934

**L**

Landscape Architecture .....118

Landscape Architecture (LARC) ..... 935

Latin (LATN) ..... 937

Leadership Studies (LSHP) .....938

Linguistics ..... 376

Linguistics (LING) ..... 938

Linguistics - Graduate Programs ..... 377

Linguistics and TESOL - Undergraduate Programs ..... 383

Literacy Studies (LIST) .....943

Literacy Studies (LISTIR) .....945

**M**

Management ..... 178

Management (MANA) .....946

Management - Graduate Programs ..... 178

Management - Undergraduate Programs ..... 180

Management Sciences (MASI) ..... 950

Marketing ..... 183

Marketing (MARK) .....950

Marketing - Graduate Programs ..... 184

Marketing - Undergraduate Programs ..... 186

Materials Science and Engineering ..... 288

Materials Science and Engineering (MSE) .....954

Materials Science and Engineering - Graduate Programs .....288

Materials Science and Engineering - Undergraduate Programs .....293

Mathematical Sciences (MSCI) .....959

Mathematics ..... 563

Mathematics (MATH) .....959

Mathematics - Graduate Programs .....563

Mathematics - Undergraduate Programs .....570

Mathematics Education (MAED) .....970

Mechanical and Aerospace Engineering ..... 294

Mechanical and Aerospace Engineering (MAE) .....975

Mechanical and Aerospace Engineering - Graduate Programs .....294

Mechanical and Aerospace Engineering - Undergraduate Programs .....307

Mechanical Engineering (ME) .....970

Mexican American Studies .....385

Mexican American Studies (MAS) .....980

Military Science ..... 386

Military Science (MILS) .....	982
Modern Languages .....	387
Modern Languages (MODL) .....	983
Modern Languages - Graduate Program .....	388
Modern Languages - Undergraduate Programs .....	390
Music .....	397
Music (MUSI) .....	984
Music - Graduate Programs .....	398
Music - Undergraduate Programs .....	402
<b>N</b>	
Nuclear Engineering (NE) .....	1003
Nursing (NURS) .....	1003
Nursing - Elective (AP) (NURS-EL) .....	1012
Nursing - Graduate Programs .....	447
Nursing - Independent Studies (NURS-IS) .....	1012
Nursing - Lower Level (NURS-LL) .....	1012
Nursing - Mexico Study Abroad (NURS-MX) .....	1012
Nursing - Student Success (NURS-SS) .....	1013
Nursing - Undergraduate Programs .....	459
Nursing - Upper Level (NURS-UL) .....	1013
Nursing Transferred Course (NRST) .....	1013
<b>O</b>	
Office of International Education .....	99
Operations Management (OPMA) .....	1013
Other Offices .....	673
<b>P</b>	
Philosophy (PHIL) .....	1015
Philosophy - Graduate Program .....	413
Philosophy and Classics - Undergraduate and Certificate Programs .....	413
Philosophy and Humanities .....	413
Physical Education (PHED) .....	1018
Physics .....	589
Physics (PHYS) .....	1018
Physics - Graduate Programs .....	589
Physics - Undergraduate Programs .....	591
Political Science .....	417
Political Science (POLS) .....	1023
Political Science - Graduate Programs .....	418
Political Science - Undergraduate Programs .....	420
Portuguese (PORT) .....	1030
Psychology .....	608
Psychology (PSYC) .....	1031



Psychology - Graduate Programs .....608  
 Psychology - Undergraduate Programs .....616  
 Public Administration - Graduate Programs ..... 651  
 Public and Urban Administration (PUAD) ..... 1039  
 Public Relations (PREL) .....1039

**R**

Real Estate (REAE) ..... 1040  
 Registration .....69  
 Russian (RUSS) ..... 1042

**S**

School of Architecture ..... 100  
 School of Social Work ..... 627  
 School of Urban & Public Affairs .....641  
 School of Urban and Public Affairs (SUPA) ..... 1045  
 Science (General) (SCIE) ..... 1045  
 Science Education (SCED) ..... 1048  
 Social Work (SOCW) ..... 1049  
 Social Work - Graduate Programs ..... 631  
 Social Work - Undergraduate Programs .....628  
 Sociology (SOCL) .....1057  
 Sociology - Graduate Programs ..... 427  
 Sociology - Undergraduate Programs .....424  
 Sociology and Anthropology ..... 424  
 Southwestern Studies ..... 430  
 Spanish (SPAN) ..... 1061  
 Special Programs & Centers ..... 671  
 Special Topics (SPEC) .....1065  
 Statistics (STATS) ..... 1066  
 Student Conduct & Academic Integrity .....78  
 Student Responsibilities ..... 82  
 Student Rights & Security .....84  
 Students Obtain Acad Readiness (SOAR) ..... 1067  
 SUSTAINABILITY (SUST) .....1044

**T**

The Diversity Certificate Program .....639  
 The University of Texas at Arlington ..... 10  
 The University of Texas at Arlington Administration ..... 19  
 The University of Texas System Administration ..... 18  
 Theatre Arts .....431  
 Theatre Arts (THEA) ..... 1067  
 Theatre Arts - Graduate Programs .....431  
 Theatre Arts - Undergraduate Programs .....431

Tuition & Fees ..... 86

**U**

Undergraduate ..... 52

Undergraduate Admissions ..... 34

Undergraduate Education ..... 97

University College ..... 668

University College (UNIV) ..... 1072

University Libraries ..... 679

University Requirements & Policies ..... 20

University Studies - Undergraduate Program ..... 668

Urban and Public Affairs (URPA) ..... 1072

Urban and Public Affairs - Graduate Programs ..... 661

Urban Planning and Public Policy (UPPP) ..... 1072

**V**

Veterans Upward Bound ..... 679

**W**

Women's and Gender Studies ..... 444

Women's Studies (WOMS) ..... 1078