

# Sustainable Building Technology

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## Master's Degrees

- [Master of Science in Sustainable Building Technology](https://www.uta.edu/academics/schools-colleges/cappa/academics/architecture/) (<https://www.uta.edu/academics/schools-colleges/cappa/academics/architecture/>)
- [Master of Architecture](https://www.uta.edu/cappa/academics/architecture/architecture/m-architecture.php) (<https://www.uta.edu/cappa/academics/architecture/architecture/m-architecture.php>)

## Overview

The Master of Science in Sustainable Building Technology is a post-professional degree that answers a need for practitioners in diverse fields to have a comprehensive understanding of sustainable building technology. The program provides a curriculum for the strategic intersection of energy efficient building design and sustainable building technologies. Students in this program will gain expertise in three primary areas:

- Advanced design of building system integration
- Advanced environmental system design
- Advanced performance-based design.

Additional courses are available to support areas of advanced study and research.

## Range of Prospective Students

The Master of Science in Sustainable Building Technology program draws primarily from the professional community and is a post-professional degree. It is intended for graduates and practicing professionals with degrees in the following fields:

- Architecture
- Landscape architecture
- Historic preservation
- Urban design
- Environmental planning
- Industrial design
- Civil engineering
- Architectural engineering
- Environmental engineering
- Construction management

## 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 the School of 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 the School of 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.SBT 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.

**[LAPTOP POLICY \(HTTPS://WWW.UTA.EDU/ACADEMICS/SCHOOLS-COLLEGES/CAPPA/ADMISSIONS-OLD/ADVISING/TOOLS-RESOURCES/LAPTOP-COMPUTER-POLICY-FAQ/\)](https://www.uta.edu/academics/schools-colleges/cappa/admissions-old/advising/tools-resources/laptop-computer-policy-faq/)**

## Advising

**M.SBT Academic Advisor**

**Director of Academic and Student Affairs / Advising Supervisor:** Cheryl Donaldson

## Master's Admissions Requirements

**M.SBT Program Director:** Brad Bell

**Prospective Students Contact:** James Brown, Academic Recruiter

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- Applicants must fulfill the requirements of both the Graduate School and the College of Architecture Planning and Public Affairs.
  - Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree from an accredited institution in one of the professions or fields of study listed below:
    - A four-year Bachelor of Science in Architecture (BS Arch)\*
    - A five- or six-year National Architectural Accrediting Board (NAAB)-accredited professional degree in architecture (BArch or MArch)
    - A four- or five-year Bachelor of Landscape Architecture or Bachelor of Science in Landscape Architecture degree; or a master's degree in Landscape Architecture. All degrees must be from programs accredited by the Landscape Architectural Accreditation Board.
    - A Bachelor of Science in Industrial Design
    - A Bachelor of Science in Urban and Regional Planning
    - A Bachelor of Science in Civil Engineering
    - A Bachelor of Science in Architectural Engineering
    - A Bachelor of Science Construction Management

The program consists of 30 credit hours of study, typically completed in three semesters, providing a path to advanced research or specialized practice.

\*The MS in Sustainable Building Technology does not lead to architecture licensure. Students seeking professional licensure should pursue the School of Architecture's accredited Master of Architecture 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. Letters of recommendation should be sent directly via email to [cappa.advising@uta.edu](mailto:cappa.advising@uta.edu) ([%20cappa.advising@uta.edu](mailto:%20cappa.advising@uta.edu)) or by postal service, to: CAPP Program – Master of Sustainable Building Technology (MSBT), Box 19108, Arlington TX 76019. 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.

**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 through the Pathways Admission Program described in the Admission section of this Catalog.

### 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

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.

### 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. A deferred admission may be granted when a file is incomplete or when a denied decision is not appropriate.

## Denial of Admission

Candidates who do not satisfy the requirements for probationary admission will not be admitted.

## 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.

## 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.

## Graduate Teaching/Research Assistantships

To be considered for a Graduate Teaching or Research Assistantship, the candidate must be admitted unconditionally. 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, score of 23 on the TOEFL-iBT Speaking subtest or score a 7.0 on the Speaking portion of the IELTS.

## Fellowships and Scholarships

To be considered for fellowships or scholarships in the Program the candidate must admitted without provisional conditions and have a favorable review in most of the evaluation criteria. Fellowships and scholarships in 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. For further information and to apply for scholarships visit: <https://www.uta.edu/academics/schools-colleges/cappa/admissions/scholarships> (<https://www.uta.edu/academics/schools-colleges/cappa/admissions/scholarships/>)

## CAPPA 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 CAPPA 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

A graduate student, whose cumulative grade point average (GPA) falls below a 3.000 in all graduate courses, be they graduate or undergraduate level and taken while enrolled as a UT Arlington graduate student, may be subject to dismissal from the program. (Reference: <http://catalog.uta.edu/academicregulations/academicstanding/#graduatetext> (<http://catalog.uta.edu/archives/2023-2024/academicregulations/academicstanding/#graduatetext>))

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## Sustainable Building Technology Degree Requirements

### TRACK 1 - GENERAL: THREE (3) CONSECUTIVE SEMESTERS (FULL-TIME STUDENT)

The curriculum for this course of study is:

## Track 1 Students

### First Year

Summer Session	Hours	Fall Semester	Hours	Spring Semester	Hours
ARCH 5695 (topic specific)		6 ARCH 5332		3 ARCH 5326	3
		ARCH 5357		3 ARCH 53xx ( Elective)	3
		ARCH 5320		3 ARCH 53xx ( Elective)	3
		ARCH 53xx ( Elective)		3 ARCH 53xx ( Elective)	3
	6		12		12

**Total Hours: 30**

Electives must include at least one course from each of the following categories of courses offered by the school:

- history and theory
- technology and practice, and
- allied disciplines (landscape architecture, urban design, housing, and interior design).

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## TRACK 2: FOUR (4) CONSECUTIVE SEMESTERS (FULL-TIME STUDENT)

The curriculum for this course of study is:

### Track 2 Students

#### First Year

Summer Session	Hours	Fall Semester	Hours	Spring Semester	Hours
ARCH 53xx (Elective)		3 ARCH 5332		3 ARCH 5326	3
		ARCH 5357		3 ARCH 5368 (Green Design + Construction)	3
		ARCH 5320		3 ARCH 53xx ( Elective)	3
	3		9		9

#### Second Year

	Hours	Fall Semester	Hours
		ARCH 53xx ( Elective)	3
		ARCH 5695 (topic specific)	6
	9		

**Total Hours: 30**

Electives must include at least one course from each of the following categories of courses offered by the School of Architecture:

- history and theory
- technology and practice and
- allied disciplines (landscape architecture, urban design, housing and interior design).

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## TRACK 3: FOUR (4) NON-CONSECUTIVE SEMESTERS (FULL-TIME OR PART-TIME STUDENT)

The curriculum for this course of study is:

### Track 3 Students

#### First Year

Fall Semester	Hours	Spring Semester	Hours
ARCH 5332		3 ARCH 5326	3
ARCH 5357		3 ARCH 5368 (Green Design + Construction)	3
ARCH 5320		3 ARCH 53xx ( Elective)	3
		9	9

#### Second Year

Fall Semester	Hours	Spring Semester	Hours
ARCH 53xx ( Elective)		3 ARCH 5695 (topic specific)	6

ARCH 53xx ( Elective)	3	
	<b>6</b>	<b>6</b>

Total Hours: 30

Electives must include at least one course from each of the following categories of courses offered by the School of Architecture:

- history and theory
- technology and practice and
- allied disciplines (landscape architecture, urban design, housing and interior design).

## TRACK 4: FIVE (5) CONSECUTIVE SEMESTERS (PART-TIME STUDENT)

The curriculum for this course of study is:

### Track 4 Students

#### First Year

Summer Session	Hours	Fall Semester	Hours	Spring Semester	Hours
ARCH 5357		3 ARCH 5332		3 ARCH 5326	3
ARCH 53xx ( Elective)		3 ARCH 5320		3 ARCH 5368 (Green Design + Construction)	3
	<b>6</b>		<b>6</b>		<b>6</b>

#### Second Year

	Hours	Fall Semester	Hours	Spring Semester	Hours
		ARCH 53xx ( Elective)		3 ARCH 5695 (topic specific)	6
		ARCH 53xx ( Elective)		3	
	<b>6</b>		<b>6</b>		

Total Hours: 30

Electives must include at least one course from each of the following categories of courses offered by the School of Architecture:

- history and theory
- technology and practice and
- allied disciplines (landscape architecture, urban design, housing and interior design).

## Master's Degree Curriculum

The program's curriculum imparts knowledge, skills and values necessary for entering the planning profession. The degree requires completion of 30 hours of study. The generalist core (21 hrs) and 9 hours in elective coursework.

Core Courses		21
ARCH 5320	PERFORMANCE-BASED DESIGN IN ARCHITECTURE	3
ARCH 5326	ENVIRONMENTAL CONTROL SYSTEMS II	3
ARCH 5332	ENERGY USE AND CONSERVATION IN ARCHITECTURE	3
ARCH 5357	BUILDING INFORMATION MODELING & VISUALIZATION	3
ARCH 5368	GREEN DESIGN + CONSTRUCTION (Green Design + Construction)	3
ARCH 5695	TOPICS IN ARCHITECTURE ((topic specific))	6

### Elective Courses 9

#### Architecture

Select 3 of the following:

ARCH 5321	ADVANCED COMPUTER APPLICATIONS	3
ARCH 5323	CONSTRUCTION MATERIALS AND METHODS	3
ARCH 5338	CODES AND REGULATIONS	3
ARCH 5339	DIGITAL FABRICATION METHODOLOGY	3
ARCH 5347	DIGITAL TECTONICS & PROTOTYPING	3
ARCH 5367	HIGH PERFORMANCE FACADE SYSTEMS (High Performance Facade Systems)	3
ARCH 5395	TOPICS IN ARCHITECTURE (Topics will vary)	3

<b>Engineering</b>		
CM 3331	MECHANICAL AND ELECTRICAL SYSTEMS	3
CM 3337	CONSTRUCTION ADMINISTRATION AND ECONOMICS	3
CM 5355	CONSTRUCTION MATERIALS	3
CM 5378	CONSTRUCTION CONTRACTS, SPECIFICATIONS, & ADMINISTRATION	3
CM 5382	CONSTRUCTION SUSTAINABILITY	3
<b>Total Hours</b>		<b>33</b>

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.

### **STUDIO CULTURE POLICY ([HTTPS://WWW.UTA.EDU/ACADEMICS/SCHOOLS-COLLEGES/CAPPA/ACADEMICS/STUDIO/](https://www.uta.edu/academics/schools-colleges/cappa/academics/studio/))**

### **LAPTOP POLICY ([HTTPS://WWW.UTA.EDU/ACADEMICS/SCHOOLS-COLLEGES/CAPPA/ADMISSIONS-OLD/ADVISING/TOOLS-RESOURCES/LAPTOP-COMPUTER-POLICY-FAQ/](https://www.uta.edu/academics/schools-colleges/cappa/admissions-old/advising/tools-resources/laptop-computer-policy-faq/))**

Visit the CAPP website for current [graduate certificates](https://www.uta.edu/cappa/academics/certificate-programs/) (<https://www.uta.edu/cappa/academics/certificate-programs/>) offered in the College of Architecture, Planning and Public Affairs.

**Prospective Students Contact:** James Brown, Academic Recruiter

## **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.

### **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.**

Introduction to freehand drawing within the dual concepts of observation and representation. This course explores various graphic techniques with emphasis on preparatory sketching, composition, contrast, texture, narrative, and line quality. Students will also be exposed to color use, physical model-making, orthographic delineation, and digital documentation. Prerequisite: Restricted to Architecture-Intended, ARCH\_UNIV, Interior Design-Intended and INTD\_UNIV majors.

### **ARCH 1342. DESIGN COMMUNICATION II. 3 Hours.**

A continuation of ARCH 1341 with emphasis on refined techniques and more complex drawing problems. This course focuses on constructed geometries and spatial representation through orthographic projection and axonometric delineation, digital modeling, and in-situ notational sketching. Students will also be exposed to line weight, multi-point perspectives, and digital documentation. This course is offered as INTD 1342; credit will be granted only once. Prerequisites: ARCH 1301, ARCH 1341. Restricted to Architecture-Intended, ARCH\_UNIV, Interior Design-Intended and INTD\_UNIV 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 INTERIOR 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 or INTD 1342. Restricted to Architecture-intended and Interior Design-intended majors.

### **ARCH 2304. HISTORY OF ARCHITECTURE AND INTERIOR 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 or INTD 1342, and ARCH 2303. Sophomore standing in the program. Restricted to Architecture-intended and Interior Design-intended majors.

**ARCH 2341. DESIGN COMMUNICATION FOR ENGINEERS. 3 Hours.**

This course introduces engineering students to design communication skills. Content includes sketching, drawing, graphic layout, diagramming and an introduction to orthographic projections and perspectives. Media will be both analog and digital. Digital tools may include image processing software, graphic design software and computer aided design (CAD) software. Prerequisite: Restricted to AREN students.

**ARCH 2391. TOPICS IN ARCHITECTURE. 3 Hours.**

Selected topics in concepts, philosophy, and models of architecture and allied arts of design. Prerequisite: Department Consent.

**ARCH 2551. BASIC DESIGN AND DRAWING I. 5 Hours.**

Basic Design and Drawing I course, the first design studio in the Basic Studies Foundation, is an introduction to architectural design, basic design theory and methodologies relating to spatial abstractions and forms. The course focuses on heuristic thinking with an emphasis on process and making. Two- and three-dimensional studio exercises develop a sensibility to design fundamentals, architectural vocabulary and design decision based on analysis and critique towards process-based learning strategies. As a continuation to the first-year courses, the role of design communications is reiterated in drawing exercises focusing on form, color theory, texture, and spatial determinants, historical precedence, sketching, orthographic projection and modeling. Prerequisite: ARCH 1342 or INTD 1342, credit or concurrent enrollment in ARCH 2303. Sophomore standing in the program. Restricted to Architecture-intended, ARCH\_UNIV, Interior Design-intended, and INTD\_UNIV majors.

**ARCH 2552. BASIC DESIGN AND DRAWING II. 5 Hours.**

Basic Design and Drawing II, the second design studio in the Basic Studies Foundation builds on disciplinary principles of basic design theory, 2D and 3D projects, with emphasis on visual and verbal representation. The course follows established methodologies that develop an understanding of foundational design principles of space, hierarchy, scale, proportion, circulation, and enclosure. Studio exercises and projects develop individual skills and collectively apply analog and digital processes to understand the design of architectural spaces and forms, their constituent parts, and their conditional relationships to the context, as a coherent, inter-related design process. The study of historical and contemporary masterworks of architecture serves to inform the projects toward the role of historical precedent in design. Design communication focuses on accurate orthographic projections, drawing conventions, graphic sensibility, and the exploration of 2D and 3D representation with physical models using a range of techniques, which exhibit understanding of tectonics, craft, materiality, and the representation of ideas. Prerequisite: ARCH 2303, ARCH 2551 and credit or concurrent enrollment in ARCH 2304. Restricted to Architecture-intended and Interior Design-intended 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.**

This course discusses the nature of materials and structural concepts to be used in the construction process. The principles and fundamentals of building construction materials and methods is evaluated, and the project development process and construction delivery systems are introduced. The course provides an understanding of building standards and codes; the impact of materials and buildings on the environment and human health, safety, and welfare; the material properties including structural properties of materials as well as performance properties and the major materials and construction systems such as light wood frame, mass timber, and steel and concrete frame construction. Prerequisite: ARCH 2552. Junior standing in program. Restricted to Architecture majors. Minimum 2.8 GPAs both cumulative and within the major required.

**ARCH 3324. STRUCTURES I. 3 Hours.**

This course is the foundation for all advanced structures courses in the undergraduate and graduate architecture programs. In an engineering curriculum, this course is offered in two separate courses referred to as: (a) Statics and (b) Strength of Materials, each of one-semester duration. The present course capsules the information yet is rigorous enough and covers all important topics in the two engineering courses including equilibrium of particles and rigid bodies, analysis of important structural load bearing items such as cables, beams and Trusses, Definition of Stress and strain and their role in structural design, cross-sectional properties of structural members and analysis of strength for the beams. Prerequisite: ARCH 3323, PHYS 1441 or PHYS 1443, MATH 1327 or MATH 1426. Junior standing in program. Restricted to Architecture majors. Minimum 2.8 GPAs both cumulative and within the major required.

**ARCH 3336. STRUCTURAL SYSTEMS FOR ARCHITECTURAL ENGINEERS. 3 Hours.**

This course covers the engineering design of various concrete, steel and masonry structural systems used in the construction of buildings. Building types vary from single-story commercial buildings to low-rise and high-rise buildings. Current building codes and project examples are examined from a fundamental structural engineering perspective, in which the rationale for the structural system is analyzed, calculations performed, and systematic construction design processes are developed for gravity loads and lateral loads from start to completion of each project. The project examples culminate with a detailed cost analysis based on current industry trends. Prerequisite: Restricted to CE\_AENUCOL, CE\_ARENINT, CE\_ARENBS, and CE\_AREPROB 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. This course is offered as ARCH 3343 and INTD 2343, credit will only be granted once. Prerequisite: Junior standing in program. Restricted to Architecture majors. Minimum 2.8 GPAs both cumulative and within the major required.



**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.

**ARCH 3357. DESIGN TECHNOLOGIES - BUILDING INFORMATION MODELING FOR ARCHITECTS/ENGINEERS. 3 Hours.**

Introduction to Building Information Modeling (BIM); discussions of the roles and impacts of BIM in the design process, energy assessment, and facility management. The course includes creating building elements such as walls, windows, doors, roof, ceiling, stairs, ramp, and structural and MEP systems. Course provides an overview of BIM applications such as daylight and energy analysis. Prerequisite: AREN 2352. Restricted to CE\_AENUCOL, CE\_ARENINT, CE\_ARENBS, and CE\_AREPROB majors.

**ARCH 3361. 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. Minimum 2.8 GPAs both cumulative and within the major required.

**ARCH 3364. 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. Minimum 2.8 GPAs both cumulative and within the major required.

**ARCH 3551. BASIC DESIGN FOR ENGINEERS. 5 Hours.**

This course is an introduction to design communication (verbal and graphic), the process of design, architectural principles and the process of navigating the relationship between architectural design and engineering. Precedent studies introduce students to Architecture and two- and three-dimensional studio exercises develop a sensibility to design fundamentals and vocabulary. Prerequisite: ARCH 1301 and ARCH 2341 and restricted to AREN students.

**ARCH 3553. DESIGN STUDIO: ARCHITECTURE I. 5 Hours.**

The reiteration of basic design principles, formal ordering systems and spatial concepts toward the synthesis of simple building types, with application of materials, introduction of structural systems, rudimentary building systems, limited program, with preliminary understanding of site design, and environmental issues. Projects will investigate small scale institutional, civic, or cultural buildings set in cities of historical significance that respond directly to their context. Research and analysis of influential precedent buildings and cities, whether historical or contemporary will inform the design process and methodologies. Credit will be given for only one of ARCH 3553 or INTD 3553. Prerequisite: ARCH 2552 or INTD 2552. Credit or concurrent enrollment in ARCH 3323 and ARCH 3343 or ARCH 3364. Junior standing in the program. Restricted to Architecture majors. Minimum 2.8 GPAs both cumulative and within the major required.

**ARCH 3554. DESIGN STUDIO: ARCHITECTURE II. 5 Hours.**

A continuation of ARCH 3553 with an increased complexity and scale of projects which address buildings within urban contexts. Projects will incorporate design theory with technical, site and structural considerations. Research of local specifics as design imperatives will inform building and site integration, which respond to context. Projects will investigate and subsequently integrate rudimentary building systems including those for formal ordering, spatial organization, structural support, materiality, building assembly, envelopes, building services, life safety, and circulation, with a particular attention towards sustainability, accessibility, efficiency, and code compliance. Design communication will demonstrate understanding of project components by developing an encompassing set of orthographic projections Three dimensional models will test and communicate spatial intentions relating to the context addressing, proportion, massing, materiality, environment, and project character. Prerequisite: ARCH 3323, ARCH 3553, and ARCH 3343 or ARCH 3364. Credit or concurrent enrollment in ARCH 3324 and ARCH 3343 or ARCH 3364. Junior standing in program. Restricted to Architecture majors. Minimum 2.8 GPAs both cumulative and within the major required.

**ARCH 3595. 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. 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, or Department consent.



**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 4309. MUSEUMS: HISTORY, CULTURE, DESIGN. 3 Hours.**

This course investigates the historical and cultural forces driving the design of museums in the 19th and 20th centuries with special attention to the development of a diverse range of new museum types beyond traditional art and natural science museums. Field trips to local museum sites are required. Prerequisite: ARCH 2303 and ARCH 2304, junior standing in program. Restricted to Architecture and Interior Design majors, or Department consent.

**ARCH 4310. SKYSCRAPER HISTORIES. 3 Hours.**

This course considers the history of the skyscraper from multiple perspectives, seeking consensus about what a skyscraper really is. This course will allow students to begin to develop their skills in reading, writing, critical thinking, visual memory, and visual analysis using the history of architecture as a medium. Students will also develop basic research skills using primary sources to document architecture. Prerequisite: ARCH 2303 and ARCH 2304, junior standing in program. Restricted to Architecture and Interior Design majors, or Department consent.

**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. Prerequisites: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4312. WHAT MAKES A CITY: CRITICAL ISSUES IN ARCHITECTURE, PLANNING, AND URBAN DESIGN. 3 Hours.**

This class is a critical exploration of the physical environment of the city, looking at a range of issues--mobility, housing, landscape, gentrification, sustainability, health--to understand how the built world shapes the way we live every day. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4313. THE ARCHITECT IN CONTEMPORARY SOCIETY. 3 Hours.**

Readings on the Culture of Architecture The focus of this course is to examine this social construct in the belief that critical self-reflection can assist in improving success within it. This examination will be conducted through readings in a collection of publications both historical and contemporary that offer critical insight into the professional/social culture of architects. 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. This course is offered as ARCH 4314 and INTD 4314; credit will be granted only once. 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. The course may be repeated up to four times as the topics change. Prerequisite: ARCH 2303 and ARCH 2304, junior standing in program. Restricted to Architecture and Interior Design majors, or Department consent.

**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, or Department consent.

**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, or Department consent.

**ARCH 4318. ARCHITECTURE ON SCREEN. 3 Hours.**

How do the things we watch shape our perceptions of architecture and the city? How do the environments in film and on television frame our vision, shape character, and convey themes? How are architects and other design professionals portrayed? What do they suggest about changes in the physical and technological world in which we live? This course explores those questions and others through screen history, from the earliest films to contemporary television and digital productions. Themes will include the dystopian city, suburbia, the evolving depiction of modernism, architecture as documentary subject, and the history of the city on screen. Students will explore these questions and will have to make their own short films. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4319. HOUSING PROTOTYPES: 1920s TO PRESENT. 3 Hours.**

An extensive investigation of the many states of housing that architects and educators have encountered in the last 100 years. The course is organized through introduction, research, analysis, and case study of various housing typologies, unit design principles, density concerns, site, relationship of inside and outside, zoning and building codes, and new emerging housing building types. Prerequisite: ARCH 2303 and ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4320. PERFORMANCE-BASED DESIGN IN ARCHITECTURE. 3 Hours.**

An overview of Performance-Based Building Design (PBB) in architecture and how clients' expectations are translated into performance requirements, how we describe performance objectives, how we define performance indicators, and finally, how we can quantify and assess building performance. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4322. ARCHITECTURE + POLITICS. 3 Hours.**

This course examines how notions of national identity are expressed in parliament buildings and other important buildings of state. Throughout the course, questions about what constitutes national identity, capital cities, and how architecture is used as a manifestation of these political aspects will be addressed. Buildings within nations or subnational regions across six continents are examined, giving students a global understanding of these issues. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors, or Department consent.

**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. Prerequisite: ARCH 4325 or AREN 3331. Junior standing in program. Restricted to Architecture, Interior Design, and Architectural Engineering 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 4332. 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 4338. CODES AND REGULATIONS. 3 Hours.**

A study of accessibility, building and energy codes and related regulations including the architects' responsibility for compliance. This course is offered as ARCH 4338 and INTD 3338; credit will be granted only once. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4339. 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. Prerequisites: Junior standing in program. Open to ARCH and INTD majors.

**ARCH 4340. MODERN + CONTEMPORARY ARCHITECTURE IN MEXICO. 3 Hours.**

This course examines notions of Mexican national identity as expressed through architecture. Part 1 looks at late 19th and early 20th century architecture during the Porfiriato, as well as that occurring shortly after the Mexican Revolution of 1910-20, including the critical role that cement played. Part 2 considers how the so-called First Generation of architects adapted and transformed Modernism in Mexico. Part 3 examines how the Second and Third Generations moved beyond Modernism, including. The course concludes with Mexico's "First Generation" of women architects as issues of gender are addressed. Prerequisite: ARCH 2303, ARCH 2304. Junior standing in program. Restricted to Architecture and Interior Design majors, or Department consent.

**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 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. DIGITAL TECTONICS & 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. ARCH 4339 Digital Fabrication Methodology is highly recommended. Prerequisite: 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 4352. HOUSING: FROM CAVES TO MANSIONS IN THE CLOUDS. 3 Hours.**

This course examines the evolution of American urban settlements as they evolved from French, Spanish and English concepts of town-planning. The course begins with the Native American settlements in the American Southwest, particularly Mesa Verde and Hovenweep, followed by examination of the earliest European capital cities of Rome, Paris and London. Since the wholesale transplanting of European principles of town-planning traditions could not take root in the New World, distinctly American housing settlements evolved such as Savannah, Santa Fe, Taos and St. Augustine. 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 4354. CONVERGENCES: BETWEEN ART AND ARCHITECTURE. 3 Hours.**

This course explores the convergences of artist methods of production with the processes of architectural practices. The course traces the work of leading filmmakers, both artistic and documentarian, whose professional leanings verge on the province of the architect. 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 (Revit) and advanced 3D modeling software. This course is offered as ARCH 4357 and INTD 3357, credit will only be granted once. Prerequisite: ARCH 3343, INTD 2343, or INTD 3343; and 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 4362. 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. Minimum 2.8 GPAs both cumulative and within the major required.

**ARCH 4365. CATALYTIC MAPPING. 3 Hours.**

An advanced theory elective course and workshop using the potential of mapping as a design, analytic and research mechanism for exploring complex contexts. Prerequisite: Junior standing in Architecture, Interior Design or permission of the advisor.

**ARCH 4366. RADICAL URBANISM. 3 Hours.**

An advanced theory course focused on the exposure to and critical analysis of some of the most radical, inspirational, and transformative urban design ideas and projects from Vitruvius to today. Prerequisite: Junior standing in Architecture, Interior Design or permission by the advisor.

**ARCH 4367. HIGH PERFORMANCE FACADE SYSTEMS. 3 Hours.**

Examines the role of the façade and building envelope as it relates to design, indoor comfort, energy and carbon usage, and overall performance through an exploration of materiality, assembly, and construction. The course also introduces the potential of generative technologies, smart materials, passive-active combinations, and integrated systems. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4368. GREEN DESIGN + CONSTRUCTION. 3 Hours.**

Green building design, construction, and operation is an opportunity to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. It provides cost savings to all tax-payers through improved human health and productivity, lower cost building operations, and resource efficiency. Green design and construction focuses on strategies and technologies to improve the energy efficiency and performance of buildings, and to reduce the environmental impact of buildings. The course emphasizes on different aspects of green building during all phases of a building's life-cycle, including design, construction, operation and decommissioning. All LEED categories are covered throughout the course and students get prepared to take LEED Green Associate exam by the end of the semester. Prerequisite: Junior standing in program. Restricted to Architecture and Interior Design majors.

**ARCH 4369. TERRITORIAL STRATEGIES. 3 Hours.**

Territorial Strategies focus on climate resilience of the built environment on the territorial scale. In Territorial Strategies, students explore how macro-level drivers of spatial (trans)formation impact micro-level strategies and actions in distinct climatic regions. Students apply a systems-thinking approach to map, diagram, model, draw, and visualize project outcomes, research findings, and data through various media. Prerequisite: Junior standing in Architecture, Interior Design, Sustainable Urban Design, or permission by the advisor.

**ARCH 4371. FUTURE CITIES. 3 Hours.**

Future Cities focus on climate resilience of the built environment on the urban scale. In Future Cities, students explore historical and contemporary concepts of ecological design and combine mitigative and adaptive strategies and actions for urban landscapes in the age of anthropogenic climate change. Students apply a participatory mixed-methods approach to map, diagram, model, draw, and visualize project outcomes, research findings, and data through various media. Prerequisite: Junior standing in Architecture, Interior Design, Sustainable Urban Design, or permission by the advisor.

**ARCH 4372. ADAPTIVE TYPOLOGIES. 3 Hours.**

Adaptive Typologies focus on climate resilience of the built environment on the architectural object scale. In Adaptive Typologies, students explore architectural objects, their characteristics, and their performative aspects as integrated parts of the urban ecosystem. Students analyze, transform, and develop hybrid typologies merging physical, digital, and biological concepts and apply a digital mixed-methods approach, utilizing analytical, representational, and generative tools. Prerequisite: Junior standing in Architecture, Interior Design, Sustainable Urban Design, or permission by the advisor.

**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 projects integrating research on contemporary issues intrinsic to architecture. Prerequisites: ARCH 3324, ARCH 3343, ARCH 3364, and ARCH 3554. Senior standing in program. Restricted to Architecture majors. Minimum 2.8 GPAs both cumulative and within the major required.

**ARCH 4557. DESIGN STUDIO: ARCHITECTURE IV. 5 Hours.**

Advanced architectural projects focusing on contemporary design issues that address topics extrinsic to the disciplines of architecture. Prerequisite: ARCH 3324, ARCH 3343, ARCH 3364, and ARCH 3554. Restricted to Architecture majors. Minimum 2.8 GPAs both cumulative and within the major required.

**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 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. INTRODUCTION TO ARCHITECTURE AND INTERIOR DESIGN. 3 Hours.**

A survey study of the interrelationships between society, culture, and architecture. Concurrent enrollment of ARCH 5591 and ARCH 5342 required.

**ARCH 5303. HISTORY OF ARCHITECTURE AND INTERIOR 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: Permission of the instructor.

**ARCH 5304. HISTORY OF ARCHITECTURE AND INTERIOR 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. 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 5309. MUSEUMS: HISTORY, CULTURE, DESIGN. 3 Hours.**

This course investigates the historical and cultural forces driving the design of museums in the 19th and 20th centuries with special attention to the development of a diverse range of new museum types beyond traditional art and natural science museums. Field trips to local museum sites are required. Prerequisite: ARCH 2303 or ARCH 5303 and ARCH 2304 or ARCH 5304. Department consent.

**ARCH 5310. SKYSCRAPER HISTORIES. 3 Hours.**

This course considers the history of the skyscraper from multiple perspectives, seeking consensus about what a skyscraper really is. This course will allow students to begin to develop their skills in reading, writing, critical thinking, visual memory, and visual analysis using the history of architecture as a medium. Students will also develop basic research skills using primary sources to document architecture. Prerequisite: ARCH 2303 or ARCH 5303 and ARCH 2304 or ARCH 5304. Department consent.

**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: ARCH 2303 or ARCH 5303, ARCH 2304 or ARCH 5304, and permission of the department.

**ARCH 5312. WHAT MAKES A CITY: CRITICAL ISSUES IN ARCHITECTURE, PLANNING, AND URBAN DESIGN. 3 Hours.**

This class is a critical exploration of the physical environment of the city, looking at a range of issues--mobility, housing, landscape, gentrification, sustainability, health--to understand how the built world shapes the way we live every day. Prerequisite: ARCH 2303 or ARCH 5303, ARCH 2304 or ARCH 5304, and permission of the department.

**ARCH 5313. THE ARCHITECT IN CONTEMPORARY SOCIETY. 3 Hours.**

Readings on the Culture of Architecture The focus of this course is to examine this social construct in the belief that critical self-reflection can assist in improving success within it. This examination will be conducted through readings in a collection of publications both historical and contemporary that offer critical insight into the professional/social culture of architects. Prerequisite: ARCH 2303 or ARCH 5303 and ARCH 2304 or ARCH 5304.

**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 or ARCH 5303 and ARCH 2304 or ARCH 5304. Department consent.

**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 5318. ARCHITECTURE ON SCREEN. 3 Hours.**

How do the things we watch shape our perceptions of architecture and the city? How do the environments in film and on television frame our vision, shape character, and convey themes? How are architects and other design professionals portrayed? What do they suggest about changes in the physical and technological world in which we live? This course explores those questions and others through screen history, from the earliest films to contemporary television and digital productions. Themes will include the dystopian city, suburbia, the evolving depiction of modernism, architecture as documentary subject, and the history of the city on screen. Students will explore these questions and will have to make their own short films. Prerequisite: ARCH 2303 or ARCH 5303, ARCH 2304 or ARCH 5304, and permission of the department.

**ARCH 5319. HOUSING PROTOTYPES: 1920s TO PRESENT. 3 Hours.**

An extensive investigation of the many states of housing that architects and educators have encountered in the last 100 years. The course is organized through introduction, research, analysis, and case study of various housing typologies, unit design principles, density concerns, site, relationship of inside and outside, zoning and building codes, and new emerging housing building types. Prerequisite: ARCH 2303 or ARCH 5303 and ARCH 2304 or ARCH 5304.

**ARCH 5320. PERFORMANCE-BASED DESIGN IN ARCHITECTURE. 3 Hours.**

An overview of Performance-Based Building Design (PBBD) in architecture and how clients' expectations are translated into performance requirements, how we describe performance objectives, how we define performance indicators, and finally, how we can quantify and assess building performance.

**ARCH 5321. ADVANCED COMPUTER APPLICATIONS. 3 Hours.**

The study and application of specialized computer programs in environmental design. Prerequisites: ARCH 3343 or INTD 3343 or ARCH 5343, or the equivalent. Department consent.

**ARCH 5322. ARCHITECTURE + POLITICS. 3 Hours.**

This course examines how notions of national identity are expressed in parliament buildings and other important buildings of state. Throughout the course, questions about what constitutes national identity, capital cities, and how architecture is used as a manifestation of these political aspects will be addressed. Buildings within nations or subnational regions across six continents are examined, giving students a global understanding of these issues. Prerequisite: ARCH 2303 or ARCH 5303 and ARCH 2304 or ARCH 5304. Department consent.

**ARCH 5323. CONSTRUCTION MATERIALS AND METHODS. 3 Hours.**

This course discusses the nature of materials and structural concepts to be used in the construction process. The principles and fundamentals of building construction materials and methods is evaluated, and the project development process and construction delivery systems are introduced. The course provides an understanding of building standards and codes; the impact of materials and buildings on the environment and human health, safety, and welfare; the material properties including structural properties of materials as well as performance properties and the major materials and construction systems such as light wood frame, mass timber, and steel and concrete frame construction. Prerequisite: Permission of the instructor.



**ARCH 5324. STRUCTURES I. 3 Hours.**

This course is the foundation for all advanced structures courses in the undergraduate and graduate architecture programs. In an engineering curriculum, this course is offered in two separate courses referred to as: (a) Statics and (b) Strength of Materials, each of one-semester duration. The present course encapsulates the information yet is rigorous enough and covers all important topics in the two engineering courses including equilibrium of particles and rigid bodies, analysis of important structural load bearing items such as cables, beams and Trusses, Definition of Stress and strain and their role in structural design, cross-sectional properties of structural members and analysis of strength for the beams. Prerequisite: ARCH 5323 or ARCH 3323.

**ARCH 5325. ENVIRONMENTAL CONTROL SYSTEMS I. 3 Hours.**

Illumination, acoustics, climate controls, mechanical and electrical systems, and their significance in the total design.

**ARCH 5326. ENVIRONMENTAL CONTROL SYSTEMS II. 3 Hours.**

Climate controls, mechanical and electrical systems, and their significance in the total design.

**ARCH 5327. STRUCTURES II. 3 Hours.**

This course is a continuation of ARCH 5324 with an emphasis on structural theory and systems in steel construction. It covers the design and investigation of structural steel. The course begins with a general introduction to structural behavior, strength, and modulus of elasticity of steel material. The elastic and plastic behavior of structural steel material is discussed, and the definition of yield strength is addressed as one of the main structural measures of steel material. Loads and load combinations are the next part of the course. This part describes how the gravity and lateral loads are distributed in a steel structure and what combination of loads should be considered for the design. To address the requirements of the design of structural members, simple methods of structural analysis are covered by which the internal moments and shear in members can be found. The course is continued by formulating and step by step description of the design of decks, beams and girders, open-web steel joists and joist girders as well as columns. Prerequisite: ARCH 5324.

**ARCH 5328. STRUCTURES III. 3 Hours.**

This course is a continuation of ARCH 5327 with an emphasis on structural theory and systems in concrete construction. It covers the design and investigation of structural concrete. The course begins with a general introduction to structural behavior, strength, and modulus of elasticity of concrete material. To ensure that the concrete has the required minimum strength, special field sampling and tests are necessary. Loads and load combinations are the next part of the course. This part describes how the gravity and lateral loads are distributed in a concrete structure and what combination of loads should be considered for the design. To address the requirements of the design of structural members, a simplified method of structural analysis is defined by which the internal moments and shear in members can be found. Course is continued by formulating and step by step description of the design of beams, columns, and footings in a concrete structure. 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. Prerequisite: ARCH 5670.

**ARCH 5332. ENERGY USE AND CONSERVATION IN ARCHITECTURE. 3 Hours.**

Basic concepts of the efficient use and conservation of energy related to architectural design principles. 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. PROGRAMMING AND SITE DESIGN II. 3 Hours.**

The course focuses on project programming and the technical aspects of site design. Prerequisite: ARCH 5670.

**ARCH 5337. SOILS AND FOUNDATIONS. 3 Hours.**

Soil classifications, field and laboratory identification, physical properties and load-bearing characteristics, retaining walls and foundations.

**ARCH 5338. CODES AND REGULATIONS. 3 Hours.**

A study of accessibility, building and energy codes and related regulations including the architects' responsibility for compliance. Prerequisite: Permission of Department.

**ARCH 5339. DIGITAL FABRICATION METHODOLOGY. 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.

**ARCH 5340. MODERN + CONTEMPORARY ARCHITECTURE IN MEXICO. 3 Hours.**

This course examines notions of Mexican national identity as expressed through architecture. Part 1 looks at late 19th and early 20th century architecture during the Porfiriato, as well as that occurring shortly after the Mexican Revolution of 1910-20, including the critical role that cement played. Part 2 considers how the so-called First Generation of architects adapted and transformed Modernism in Mexico. Part 3 examines how the Second and Third Generations moved beyond Modernism, including. The course concludes with Mexico's "First Generation" of women architects as issues of gender are addressed. Prerequisite: ARCH 2303 or ARCH 5303 and ARCH 2304 or ARCH 5304. Department consent.

**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. DESIGN COMMUNICATIONS. 3 Hours.**

Architectural drawing, perception, projections, and three-dimensional representation. Prerequisite: Concurrent enrollment in ARCH 5591 is required.

**ARCH 5343. ARCHITECTURAL GRAPHICS II. 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 to the design process. Prerequisite: ARCH 5342 or program approval.

**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 TECTONICS & 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. Completion of ARCH 4339 or ARCH 5339 Digital Fabrication Methodology is highly recommended.

**ARCH 5348. 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 5352. HOUSING: FROM CAVES TO MANSIONS IN THE CLOUDS. 3 Hours.**

This course examines the evolution of American urban settlements as they evolved from French, Spanish and English concepts of town-planning.

**ARCH 5354. CONVERGENCES: BETWEEN ART AND ARCHITECTURE. 3 Hours.**

This course explores the convergences of artist methods of production with the processes of architectural practices. The course traces the work of leading filmmakers, both artistic and documentarian, whose professional leanings verge on the province of the architect.

**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 5357. BUILDING INFORMATION MODELING & VISUALIZATION. 3 Hours.**

To gain a working knowledge of Autodesk Revit and 3D Studio Max. Prerequisites: ARCH 3343 or ARCH 5343 or INTD 3343.

**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 5364. SITE DESIGN. 3 Hours.**

The related site design process includes site planning pertaining to land use, case studies, siting of structures, codes, and topography.



**ARCH 5365. CATALYTIC MAPPING. 3 Hours.**

An advanced theory elective course and workshop using the potential of mapping as a design, analytic and research mechanism for exploring complex contexts.

**ARCH 5366. RADICAL URBANISM. 3 Hours.**

An advanced theory course focused on the exposure to and critical analysis of some of the most radical, inspirational, and transformative urban design ideas and projects from Vitruvius to today.

**ARCH 5367. HIGH PERFORMANCE FACADE SYSTEMS. 3 Hours.**

Examines the role of the façade and building envelope as it relates to design, indoor comfort, energy and carbon usage, and overall performance through an exploration of materiality, assembly, and construction. The course also introduces the potential of generative technologies, smart materials, passive-active combinations, and integrated systems.

**ARCH 5368. GREEN DESIGN + CONSTRUCTION. 3 Hours.**

Green building design, construction, and operation is an opportunity to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. It provides cost savings to all tax-payers through improved human health and productivity, lower cost building operations, and resource efficiency. Green design and construction focuses on strategies and technologies to improve the energy efficiency and performance of buildings, and to reduce the environmental impact of buildings. The course emphasizes on different aspects of green building during all phases of a building's life-cycle, including design, construction, operation and decommissioning. All LEED categories are covered throughout the course and students get prepared to take LEED Green Associate exam by the end of the semester.

**ARCH 5369. TERRITORIAL STRATEGIES. 3 Hours.**

Territorial Strategies focus on climate resilience of the built environment on the territorial scale. In Territorial Strategies, students explore how macro-level drivers of spatial (trans)formation impact micro-level strategies and actions in distinct climatic regions. Students apply a systems-thinking approach to map, diagram, model, draw, and visualize project outcomes, research findings, and data through various media. Prerequisite: Graduate level in Architecture, Landscape Architecture, Urban Planning, and Public Administration and Public Policy majors.

**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 5371. FUTURE CITIES. 3 Hours.**

Future Cities focus on climate resilience of the built environment on the urban scale. In Future Cities, students explore historical and contemporary concepts of ecological design and combine mitigative and adaptive strategies and actions for urban landscapes in the age of anthropogenic climate change. Students apply a participatory mixed-methods approach to map, diagram, model, draw, and visualize project outcomes, research findings, and data through various media. Prerequisite: Graduate level in Architecture, Landscape Architecture, Urban Planning, and Public Administration and Public Policy majors.

**ARCH 5372. ADAPTIVE TYPOLOGIES. 3 Hours.**

Adaptive Typologies focus on climate resilience of the built environment on the architectural object scale. In Adaptive Typologies, students explore architectural objects, their characteristics, and their performative aspects as integrated parts of the urban ecosystem. Students analyze, transform, and develop hybrid typologies merging physical, digital, and biological concepts and apply a digital mixed-methods approach, utilizing analytical, representational, and generative tools. Prerequisite: Graduate level in Architecture, Landscape Architecture, Urban Planning, and Public Administration and Public Policy majors.

**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. Prerequisite: ARCH 5593.

**ARCH 5665. INTERMEDIATE DESIGN STUDIO. 6 Hours.**

Advanced architectural design problems in programming, schematic organization, synthesis and design of buildings in their environmental context.

**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 5671. INTEGRATIVE DESIGN STUDIO I. 6 Hours.**

Introduces the design of a small to moderate scaled architectural building program. Focus on pre-design, site design, structural resolution, building assembly, building performance, detailing and materiality will be made through graphical identification, analysis, and evaluation. Additional considerations of codes, regulations, cost analysis, and life-cycle cost, are areas of emphasis informing the design process. Prerequisite: ARCH 5325 or ARCH 4325, ARCH 5327, and ARCH 5670. Credit or concurrent enrollment in ARCH 5357, ARCH 4357, or INTD 3357.

**ARCH 5672. INTEGRATIVE DESIGN STUDIO II. 6 Hours.**

Introduces the design of a larger-scaled architectural project with more complex programming requirements. Focus on the integration of environmental stewardship, accessibility, site conditions, life safety, environmental systems, structural systems, and building envelope systems will be made through graphical identification, analysis, and evaluation, and technical documentation. Project demonstration includes problem identification, contextual evaluative criteria, analyzing solutions, and predicting the effectiveness of implementation. Prerequisite: ARCH 5671 with a grade of C or above.

**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.**