

Department of Kinesiology

Department Overview

The undergraduate programs within the Department of Kinesiology are organized into four areas: exercise science, physical education teacher education, sports leadership & management and public health. The graduate programs include a Graduate Certificate in Public Health, a Master of Science in Exercise Science, a Master of Science in Athletic Training and a PhD in Kinesiology. Each of these academic programs provide students with a strong foundation in the sciences of their respective fields and provides a comprehensive discipline-specific program of study designed to prepare students for a specific career path. Some of the degree options work towards meeting the prerequisite requirements for admission to physical therapy, occupational therapy and physician's assistant graduate programs, as well as medical and dental schools (e.g., BS in Exercise Science - Clinical Health Professions). Other degree plans prepare students for state and national certification/licensure (e.g., Physical Education Teacher Education and Athletic Training) programs. The Public Health programs prepare students for careers in public health, as well as preparation for advanced degrees in public health. The PhD in Kinesiology prepares students for careers in research, academic and related industry settings.

Graduate Programs (<https://catalog.uta.edu/archives/2025-2026/nursing/kinesiology/graduate/>)

Undergraduate Programs (<https://catalog.uta.edu/archives/2025-2026/nursing/kinesiology/undergraduate/>)

Contact Information

For additional information not found within these catalog pages, students may refer to the website or contact the Department of Kinesiology directly.

Kinesiology website (<https://www.uta.edu/academics/schools-colleges/conhi/academics/kinesiology/>)

Email:

Phone: 817-272-3288

Address: 147 Maverick Activities Center, Box 19259, Arlington, Texas 76019, USA

COURSES

KINE 1100. LAB SKILLS IN KINESIOLOGY AND EXERCISE SCIENCE. 1 Hour.

The course is designed to provide basic lab measurement and testing experiences for Kinesiology and Exercise Science students. Prerequisite: or Co-requisite: KINE 1300.

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 1300. INTRODUCTION TO KINESIOLOGY AND EXERCISE SCIENCE. 3 Hours. (TCCN = PHED 1301)

Introduction to key concepts concerning the anatomical, motor, biomechanical, and physiological basis of exercise science. The student is introduced to cardiovascular responses to training, analysis of human and motor behavior, and basic principles of exercise prescription.

KINE 1315. INTRODUCTION TO PHYSICAL EDUCATION AND SPORT. 3 Hours.

This course is an introduction to, and observation of, practices in pedagogical kinesiology and sports leadership.

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. KINE 1315 is a co-requisite for this course. Prerequisite: Co-requisite KINE 1315.

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. Prerequisite: Co-requisite KINE 1315.

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. (TCCN = PHED 2356)

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 2350. PUBLIC HEALTH: PRINCIPLES AND POPULATIONS. 3 Hours.

This course will provide students with an overview of Public Health: what it is, how it works, and why it is important. Topics include current health issues, global health, health disparities and how Public Health impacts community settings. Class requirement includes participation in community-based, experiential-learning activities. Examination of public health concepts, values and functions. Exploration of the underlying science of human health and disease as that is impacted by socioeconomic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities. This course satisfies the University of Texas at Arlington core curriculum requirement in Social and Behavioral Sciences.

KINE 2351. HEALTH ISSUES IN DIVERSE & VULNERABLE POPULATIONS. 3 Hours.

Cultural competence is attracting increased attention across the spectrum of public health. However, many vulnerable populations continue to be "invisible," resulting in a lack of awareness and knowledge in public health and healthcare workers. This course provides students with information related to the multi-faceted disparities that exist beyond ethnic differences to investigate the many other facets of cultural diversity and health issues.

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: KINE 1300, KINE 1100 and BIOL 2457.

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 EDUCATION & SPORT. 3 Hours.

Analysis of conditions that impact individuals with disabilities in society, schools and disability sport. Emphasis is placed on adapted physical education and sport strategies that facilitate the learning of this population. Prerequisite: Instructor Permission.

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. SPORTS LEADERSHIP AND COACHING. 3 Hours.

This course will provide students with theoretical concepts and principles to design, lead, and manage sport programs. The instructor will use expertise from given sports and invasion games to help students learn and apply coaching strategies and leadership principles in a collaborative community sport program.

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 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 1300, KINE 1100, MATH 1302 OR MATH 1402, MATH 1308.

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 3350. URBANIZATION AND VULNERABLE POPULATIONS. 3 Hours.

Investigation of diversity of individuals and populations in a community, including how diversity may influence policies, programs, services, and the health of a community, and the importance for a diverse public health workforce.

KINE 3352. INTRODUCTION TO PUBLIC HEALTH EPIDEMIOLOGY. 3 Hours.

Analysis of factors that affect the health of a community, including how disease spreads, legal aspects of epidemics, and how data is used to drive public health decision making. Overview of how public health practice and science come together to protect the health of the public, or of a specific population. Prerequisite: MATH 1301 or MATH 1302 or MATH 1303 or MATH 1426 and MATH 1308 and KINE 2350 required.

KINE 3353. HEALTH AND THE HUMAN CONDITION IN THE GLOBAL COMMUNITY. 3 Hours.

Study of the history, philosophy and contemporary issues of public health as those apply to public health in both urban and global societies.

KINE 3354. EMERGENCY PREPAREDNESS & MANAGEMENT. 3 Hours.

Inquiry into the structures, functions, and authorizations of governmental public health programs. Identification of tools, processes, and activities related to both practice and policy used to support community responses to public health emergencies and other disasters. Prerequisite: KINE 2350.

KINE 3355. ADDICTIVE BEHAVIORS. 3 Hours.

Students will examine substance abuse including alcohol, drugs (illegal and prescription), smoking, vaping, and gaming from a population-based approach. There will also be a focus on compulsive behaviors including topics such as food over- and undereating, gambling, shopping and internet/technology addictions. While the course emphasis is on addictive behaviors, material and learning activities will also address how diverse and vulnerable populations are impacted by addictive behaviors as those relate to injury and illness prevention.

KINE 3356. PUBLIC HEALTH IN ACADEMIC SETTINGS. 3 Hours.

Public Health in Academic Settings This course addresses common health issues found throughout educational settings. Topics include chronic stress, health and well-being, school violence and the roles of hunger and obesity as concerns in the school environment. A focus on school climate, the role of school-based healthcare and preventing dropout from public health perspectives will be included.

KINE 3357. PHYSICAL ACTIVITY IN PUBLIC HEALTH. 3 Hours.

Designed for public health and health/fitness/wellness professionals who are interested in the promotion of physical activity in a variety of areas of public health. Emphasis on advocating for the importance of integration of physical activity in community health. This course prepares students to sit for the American College of Sports Medicine/National Physical Activity Society Physical Activity in Public Health Specialist certification examination.

KINE 3358. COMMUNICATION FOR HEALTH PROFESSIONALS. 3 Hours.

Information and experiences that identify the health literacy of populations, including assessment of barriers and unique situations for vulnerable populations. Communication of information through appropriate, culturally competent methodologies. Integration of basic concepts of public health-specific communication into technical and professional writing. The use of mass media and electronic technology. Prerequisite: KINE 2350 and KINE 3350.

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. Prerequisite: KINE 1100 and KINE 1300.

KINE 3401. BIOMECHANICS OF HUMAN MOVEMENT. 4 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. Course credit may not be granted for both KINE 3301 and KINE 3401. Prerequisite: KINE 1300, KINE 1100, BIOL 2457 and MATH 1302 OR MATH 1402.

KINE 3415. PHYSIOLOGY OF EXERCISE. 4 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. Course credit may not be granted for both KINE 3315 and KINE 3415. Prerequisite: Restricted to Kinesiology, Athletic Training and Exercise Science Majors. KINE 1300, KINE 1100, BIOL 2457, BIOL 2458, and MATH 1302 OR MATH 1402 required.

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 internal or external clinical health professions setting (e.g. university, hospital, physical therapy clinic, or physician's office) under the direct supervision of a health care professional (MD, PT, OT, PA). Prerequisite: Corequisite: KINE 4315 or successful completion of KINE 4315 and proof of sufficient professional liability insurance.

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 and prepared for the professional dispositions associated with being a Physical Educator with an emphasis on ethics, interviewing, and role modeling. 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. This course is to be taken the semester immediately prior to the student teaching semester.

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 4307. OVERVIEW OF MEDICINE. 3 Hours.

This course is designed to provide undergraduate students an overview of the basic, preclinical, and clinical sciences, emphasizing the main principles and logic of medicine, how doctors think, and how the healthcare system works. Specific topics covered include an Introduction to Medicine, Embryology & Principles of Anatomy, General & Systems Physiology, Molecular Biology & Biochemistry, Neuroscience, Microbiology & Immunology, Pathology, Pharmacology, Epidemiology & Public Health, Internal Medicine specialties (Cardiology, Pulmonology, Nephrology, Gastroenterology, Infectious Diseases, Endocrinology, Rheumatology, Hematology / Oncology), Neurology, Pediatrics, Obstetrics & Gynecology, Surgery, Anesthesiology, Surgical Subspecialties (Cardiovascular Surgery, Orthopedic Surgery, Ophthalmology, Otorhinolaryngology, Dermatology, Urology, Neurosurgery), Psychiatry, Radiology and Radiation Oncology. Importantly, it spans both the scientific and humanistic aspects of medicine, referencing the visual arts, music, film, and other forms of art to highlight key points. Though primarily designed for students aiming for a career in the health professions, it should appeal to anyone curious about how health and medicine works. Prerequisite: Instructor Approval.

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, children, older adults, fibromyalgia, multiple sclerosis and cardiac disease. Prerequisite: MATH 1302, MATH 1308, BIOL 2457, BIOL 2458, KINE 3300, KINE 3415 and KINE 3325.

KINE 4319. FITNESS, HEALTH 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 2301 and 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 3304, KINE 3388.

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 and KINE 3388.

KINE 4323. MOTOR CONTROL AND LEARNING. 3 Hours.

This course will expose students to the theoretical perspectives and current principles associated with the control and learning of movement skills. Specifically, the neural and mechanical mechanisms underlying motor behavior and the variables influencing motor learning will be addressed. Throughout the course, application of theoretical concepts to instructional and clinical settings will be emphasized. Prerequisite: KINE 1300, KINE 1100, MATH 1308, and KINE 3325.

KINE 4329. STRENGTH & CONDITIONING IN SPORT AND PERFORMANCE. 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: MATH 1302, MATH 1308, BIOL 2457, BIOL 2458, KINE 3300, KINE 3415, 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 3415 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, metabolic factors promoting obesity, the role of obesity in metabolic and cardiovascular disease, traditional and non-traditional weight loss programs, economic consequences and contributors of obesity, and psychosocial consequences and contributors of obesity. Prerequisite: KINE 3415 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 4337. STRENGTH AND CONDITIONING IN GENERAL POPULATIONS: HEALTH AND DISEASE. 3 Hours.

This course covers the physiology and biomechanics of strength training and conditioning as it applies to the general populations across the spectrum of health and disease. This includes: testing, evaluation, resistance training techniques and training program design for individuals with orthopedic injuries and rehabilitation concerns, metabolic conditions (e.g., diabetes), youth, elderly, and pregnant or post-prenatal women. This course is designed to prepare students to take the NSCA-CPT, and apply the skills needed to be a leader within the personal training and physical therapy career paths. Prerequisite: KINE 3415 and KINE 3325.

KINE 4339. SPORTS LEADERSHIP AND MANAGEMENT INTERNSHIP. 3 Hours.

Individualized training and experience in a youth, college, professional or other sport-based organization. Students will work with a mentor and university supervisor in a community-based setting to better understand, explore, and apply principles of coaching and operations. Prerequisite: KINE majors and Senior standing.

KINE 4349. PUBLIC HEALTH INFORMATICS. 3 Hours.

Explain and apply ethical principles that apply to the use of information technology as those pertain to accessing, collecting, analyzing, using, maintaining, and disseminating data and information. Prerequisite: KINE 2350, KINE 3350, KINE 3358, KINE 3352, and KINE 3353.

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 4351. PUBLIC HEALTH ETHICS. 3 Hours.

Study of ethical standards and how those are incorporated into practice and decision-making that relate to interactions with individuals, organizations, and communities. Exploration of strategies for public health, health care, and other allied healthcare organizations to work together or individually to impact the health of a community. Prerequisite: Junior status, KINE 2350 and KINE 3350.

KINE 4352. PUBLIC HEALTH SCIENCES AND METHODS. 3 Hours.

Identify scientific concepts and research methods of population health, along with the basic processes, approaches, and interventions that identify and address the major health-related needs and concerns of populations. Analysis of project implementation such as planning, assessment and evaluation. Prerequisite: KINE 2350, KINE 3350, KINE 3352, KINE 3353, and KINE 3358. Minimum GPA of 2.5 required to enroll in the course.

KINE 4353. EMERGENCY PREPAREDNESS & MANAGEMENT. 3 Hours.

Inquiry into the structures, functions, and authorizations of governmental public health programs. Identification of tools, processes, and activities related to both practice and policy used to support community responses to public health emergencies and other disasters. Credit may not be given for both KINE 3354 and KINE 4353. Prerequisite: KINE 2350, KINE 3350, KINE 3352, KINE 3353, and KINE 3358.

KINE 4354. PUBLIC HEALTH ADVOCACY AND LEADERSHIP. 3 Hours.

Appraisal of leadership philosophies and actions that reflect and model effective strategies for protecting and promoting the public's health. Prerequisite: KINE 2350, KINE 3350, KINE 3352, KINE 3353, KINE 3354, KINE 3358, MANA 4326, KINE 4352, KINE 4349, KINE 4357. Concurrent enrollment in KINE 4359 recommended. 2.5 GPA required for course enrollment.

KINE 4356. PUBLIC HEALTH PROJECT DESIGN & ADMINISTRATION. 3 Hours.

This course includes content designed to develop the knowledge, skills and competencies necessary for public health project management. The course includes experiential learning activities and case studies that integrate practice-based learning on topics such as project design, team dynamics, project evaluation and quality improvement measures. Prerequisite: KINE 2350 and junior status.

KINE 4357. PREPARATION FOR THE PUBLIC HEALTH WORKFORCE. 3 Hours.

The development and operational systems and processes in public health programs and facilities will be presented, including: concepts and experiences necessary for success in the workplace, community dynamics, independent work and development of a personal work ethic, networking and professional communication, and teamwork. The student will participate in multiple career readiness learning experiences through a co-curricular collaboration with UTA Career Services. Prerequisite: KINE 2350, KINE 3350, KINE 3352, KINE 3353, KINE 3358, and MANA 4326.

KINE 4358. APPLIED APPROACHES TO DIVERSITY AND CULTURAL AWARENESS IN PUBLIC HEALTH ORGANIZATIONS. 3 Hours.

Applied Approaches to Diversity and Cultural Awareness in Public Health Organizations This course examines the changing demographics of the public health workforce and organizations, presenting students with varied perspectives, approaches and competencies required for understanding and appreciation of greater diversity across the public health and healthcare systems.

KINE 4359. PUBLIC HEALTH CUMULATIVE EXPERIENCE. 3 Hours.

Individualized learning opportunity to integrate, synthesize and apply knowledge through cumulative and experiential activities. All students complete a cumulative, integrative and scholarly or applied experience or inquiry project that serves as an optimum point to the education experience. These experiences may include, but are not limited to, internships, service-learning projects, senior seminars, portfolio projects, research papers or honors theses. Students are encouraged to gain exposure to local-level public health professionals and/or agencies that engage in public health practice. To be taken during the final semester prior to graduation. Prerequisite: KINE 2350, KINE 3350, KINE 3352, KINE 3353, KINE 3358, KINE 4352, KINE 4349, KINE 4357 and MANA 4326 required. Corequisite: KINE 4354. Minimum GPA of 2.5 required for enrollment.

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, cardiac rehabilitation, fitness center) under the direct supervision of an exercise science professional or licensed therapist. Proof of sufficient professional liability insurance is required for enrollment. A minimum of 135 hours in the field is required for completion of the course. Prerequisite: KINE 4415 (or Corequisite).

KINE 4389. FITNESS MANAGEMENT INTERNSHIP. 3 Hours.

Individualized academic training in an external professional exercise science setting (e.g., hospital, physical therapy, cardiac rehabilitation, fitness center) under the direct supervision of an exercise science professional or licensed therapist. Proof of sufficient professional liability insurance is required for enrollment. A minimum of 135 hours in the field is required for completion of the course. Prerequisite: KINE 4415 (or Corequisite).

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, 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: KINE 3415, KINE 3325, MATH 1302 (or MATH 1402) and MATH 1308. KINE 4415 is a co/pre-requisite.

KINE 4415. FITNESS ASSESSMENT/PROGRAMMING. 4 Hours.

Classroom and laboratory experiences provide the student with an opportunity to become familiar with the assessment of physical fitness including graded exercise testing, metabolic studies, basic ECG interpretation, and body composition. The student will also learn risk factor identification and exercise prescription. Course credit may not be granted for both KINE 4315 and KINE 4415. Prerequisite: KINE 3415 and KINE 3325.

KINE 4420. APPLIED MOTOR BEHAVIOR. 4 Hours.

Application of motor behavior and biomechanical principles as well as factors influencing learning, re-learning and enhancing motor skills will be examined. Students will craft a research project to enhance their understanding of principles of motor behavior and will be involved in several case studies that can help understand how to apply motor behavior in their career paths. Prerequisite: KINE 3325; KINE 3388; KINE 4323.

KINE 4490. EXERCISE SCIENCE INTERNSHIP. 4 Hours.

Individualized academic training in an external professional exercise science setting (e.g., hospital, physical therapy, cardiac rehabilitation, fitness center) under the direct supervision of an exercise science professional or licensed therapist. Proof of sufficient professional liability insurance is required for enrollment. A minimum of 180 hours in the field is required for completion of the course. Prerequisite: KINE 4415 (or Corequisite).

KINE 4491. MRS INTERNSHIP. 4 Hours.

Individualized academic training in an external professional movement or rehabilitation setting (e.g., hospital, OT clinic, SLP clinic, school, recreation center, therapy setting, etc) under the direct supervision of an exercise science professional or licensed therapist. Proof of sufficient professional liability insurance is required for enrollment. A minimum of 180 hours in the field is required for completion of the course. Prerequisite: KINE 3388; KINE 3415.

KINE 4589. EXERCISE SCIENCE INTERNSHIP. 5 Hours.

Individualized academic training in an external professional exercise science setting (e.g., hospital, physical therapy, cardiac rehabilitation, fitness center) under the direct supervision of an exercise science professional or licensed therapist. Proof of sufficient professional liability insurance is required for enrollment. A minimum of 225 hours in the field is required for completion of the course. Prerequisite: KINE 4415 (or Corequisite).

KINE 4639. SPORTS LEADERSHIP AND MANAGEMENT INTERNSHIP II. 6 Hours.

Individualized training and experience in a youth, college, professional or other sport-based organization. Students will work with a mentor and university supervisor in a community-based setting to better understand, explore, and apply principles of coaching and operations. Prerequisite: KINE majors and Senior standing.

KINE 4647. CLINICAL TEACHING PHYSICAL EDUCATION EC-12. 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 4193, KINE 4319, KINE 4320, KINE 4321, LIST 4343, and EDUC 4340.

KINE 4659. PUBLIC HEALTH EXTENDED CUMULATIVE EXPERIENCE. 6 Hours.

Individualized practice-based public health work experience in a professional public health-related setting (e.g., public health agency, nonprofit organization, legislative representative office, hospital) under the direct supervision of a public health professional. To be taken during the final semester prior to graduation. Prerequisite: KINE 2350, KINE 3350, KINE 3351, KINE 3352, KINE 3353, KINE 3354, KINE 4352, KINE 4355, KINE 4357 and MANA 4326 required. Corequisite: KINE 4354.

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 professionally 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 professionally liability insurance, and permission of instructor.

KINE 5120. ATHLETIC TRAINING CLINICAL I. 1 Hour.

An introduction to clinical experiences in athletic training. Students will be introduced to ethical and confidentiality standards, basic clinical skills, communication and interprofessional practice skills, and cultural competency and humility. Prerequisite: Admission to the MSAT Program. Prerequisite: Admission to the MSAT Program.

KINE 5121. FUNCTIONAL ANATOMY AND BIOMECHANICS FOR THE ATHLETIC TRAINER II. 1 Hour.

This course builds on prerequisite knowledge of human musculoskeletal anatomy to describe human movement. Principles of biomechanics and kinesiology will guide an advanced, applied understanding of arthrokinematics, kinetic chain principles, functional movement, and the anatomy of common musculoskeletal injuries. Prerequisite: KINE 5229.

KINE 5122. DOCUMENTATION AND HEALTH INFORMATICS FOR THE ATHLETIC TRAINER. 1 Hour.

This course is designed to introduce and develop effective medical documentation skills. Health informatic concepts and disablement classification models will be introduced to support quality of care and to measure functional outcomes/treatment goals. Prerequisite: KINE 5120, KINE 5229, KINE 5230, KINE 5236.

KINE 5123. PHARMACOLOGY IN ATHLETIC TRAINING. 1 Hour.

This course will provide background information on pharmacological agents for the management of general medical and orthopedic conditions. Emphasis will be placed on the development of patient education in the areas of indication, contraindication, dosing, interaction, route of administration, and adverse reaction related to various medications and therapeutic agents. Prerequisite: KINE 5222, KINE 5237, KINE 5324, KINE 5325.

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 5128. CLINICAL DIAGNOSTIC PROCEDURES. 1 Hour.

This course provides fundamental clinical knowledge of commonly utilized diagnostic procedures and tests in medical practice. Emphasis will be placed on understanding of indications, contraindications, and clinical implications of diagnostic tests and understanding of normal and diseased states. Correlation and integration of test results into clinical examination findings and clinical plan of care will be addressed. Prerequisite: Admission to MSAT Program.

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 5170. JOURNAL CLUB IN PHYSIOLOGY. 1 Hour.

This course is designed to provide the students an opportunity to learn the art of critically reading and interpreting research articles. There will be emphasis on identifying strengths and weakness of research studies. There will also be an opportunity for the students to present their research study ideas and / or their preliminary findings of their research to the class. This will provide an opportunity for students to interact and receive / provide feedback regarding methodological approaches and interpretation of findings. Lastly, the student will learn how to prepare and deliver presentations to an audience.

KINE 5171. JOURNAL CLUB IN MOVEMENT & REHABILITATION SCIENCES. 1 Hour.

There is a growing emphasis on research and in particular student involvement in research at UTA. A fundamental skill that will be critical in the successful growth of student involvement in research is their ability to read and critically analyze / interpret journal articles. In addition to this important skill set the students will also gain valuable experience by presenting their research study ideas and / or their preliminary findings of their research to the class. This will provide an opportunity for students to interact and receive / provide feedback regarding methodological approaches and interpretation of findings.

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 5221. CLINICAL ATHLETIC TRAINING II. 2 Hours.

This course will include clinical experiences and simulation, providing 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 clinical experience under the supervision of a program approved preceptor. The course will also provide opportunities for simulation and mastery of clinical skills. Prerequisite: KINE 5120, KINE 5229, KINE 5230, KINE 5236.

KINE 5222. CLINICAL ATHLETIC TRAINING III. 2 Hours.

This course will include clinical experiences and simulation, providing 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 clinical experience under the supervision of a program approved preceptor. Prerequisite: KINE 5121, KINE 5221, KINE 5321, KINE 5332.

KINE 5224. CLINICAL ATHLETIC TRAINING V. 2 Hours.

This course will include clinical experiences and simulation providing 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 as well as exam review and test-taking strategies. This course requires the completion of clinical experience under the supervision of a program approved preceptor. Prerequisite: KINE 5123, KINE 5306, KINE 5339, KINE 5343.

KINE 5226. PATHOPHYSIOLOGY AND PHARMACOLOGY II. 2 Hours.

Further 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 5348.

KINE 5227. LITERATURE AND RESEARCH FOR THE ATHLETIC TRAINER. 2 Hours.

This course is an overview of concepts and procedures necessary for designing, conducting, and critically appraising research in Athletic Training 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. Prerequisite: KINE 5223, KINE 5234, KINE 5341, KINE 5356.

KINE 5228. SEMINAR IN ATHLETIC TRAINING. 2 Hours.

A capstone course designed to provide students the opportunity to synthesize and integrate the athletic training theories and concepts taught in the previous courses. Class discussions and projects will emphasize health care administration, professional development, cultural competence, transition to practice, inter-professional education and skills required of the entry-level athletic trainer. Prerequisite: KINE 5333, KINE 5227, KINE 5224.

KINE 5229. FUNCTIONAL ANATOMY AND BIOMECHANICS FOR THE ATHLETIC TRAINER. 2 Hours.

This course builds on prerequisite knowledge of human musculoskeletal anatomy to describe human movement. Principles of biomechanics and kinesiology will guide the understanding of mechanical and physiologic interactions between muscles and joints to form the basis of understanding normal and pathological movement. This course will specifically focus on identifying musculoskeletal landmarks through lecture, virtual cadaver learning, and hands-on palpation. Prerequisite: Admission to MSAT Program.

KINE 5230. FOUNDATIONS OF ORTHOPEDIC ASSESSMENT AND THERAPEUTIC INTERVENTIONS. 2 Hours.

This course is designed to develop foundational skills in orthopedic injury assessment and an understanding of the theory and the basic principles of diagnostic testing and therapeutic interventions for the rehabilitation and reconditioning of injuries and illnesses of those involved with physical activity. The focus of the course is on patient-centered care and will include principles related to the injury evaluation process, healing and pain physiology, and therapeutic interventions commonly utilized during the initial phases of acute and chronic injuries and conditions. The use of patient rated outcome scales along with quality improvement through planning, implementing, documenting, and evaluating clinical techniques used in orthopedic injury assessment and intervention programs will be discussed. Prerequisite: Admission to MSAT Program.

KINE 5231. FUNDAMENTALS OF ATHLETIC TRAINING I. 2 Hours.

This course is designed to provide the entry level athletic training student with classroom and laboratory experiences to provide an introduction to the profession and the role of athletic trainers in the overall health care environment. Emphasis will be placed on the epidemiology of orthopedic injuries, orthopedic trauma, emergency planning and care, cold and hot therapeutic modalities, and prevention of sudden death. Prerequisite: Admission to MSAT Program.

KINE 5232. FUNDAMENTALS OF ATHLETIC TRAINING II. 2 Hours.

This course is designed to provide the entry level athletic training student with classroom and laboratory experiences to further their development as an athletic trainer in a dynamic health care system. Emphasis will be placed on interprofessional practice, prevention of sudden death, nutrition for the physically active, ergonomics, body composition assessment, and fitness assessment/programming. Prerequisite: Admission to MSAT Program.

KINE 5233. THERAPEUTIC MODALITIES. 2 Hours.

This course is designed to provide the entry level athletic training student with classroom and laboratory experiences to provide an understanding of the theory and application of common therapeutic modalities for the treatment of musculoskeletal injuries. Emphasis will be placed on using the disablement model to plan, implement, and document the use of therapeutic modalities for the treatment and rehabilitation of injuries and illnesses of those involved with physical activity. Critical appraisal of research studies regarding the effectiveness and efficacy of therapeutic modalities will also be emphasized. Prerequisite: Admission to MSAT Program.

KINE 5234. CLINICAL REASONING AND DECISION MAKING. 2 Hours.

This course is designed to provide an understanding and application of theories and frameworks to clinical decision making. Students will work toward becoming an effective practitioner, able to make clinical decisions by studying clinical situations and how health care professionals make clinical decisions. Emphasis will be placed on problem solving strategies, decision making and evidence based rationale. Clinical reasoning will be developed while integrating knowledge and skills in management of complex clinical conditions using scientific and contemporary evidence-based clinical knowledge. Prerequisite: Admission into MSAT Program.

KINE 5235. ADVANCED FUNCTIONAL ASSESSMENT AND CORRECTIVE EXERCISE. 2 Hours.

This course will introduce functional movement assessments and corrective exercises as a preventative and therapeutic approach to musculoskeletal conditions. Specific topics will include advanced techniques designed to restore body symmetry and theories of functional movement. Evidence-based application of functional assessment, evaluation and assignment of corrective exercises will be emphasized. Prerequisite: KINE 5123, KINE 5306, KINE 5339, KINE 5343.

KINE 5236. PREVENTION, HEALTH PROMOTION, AND WELLNESS. 2 Hours.

This course will highlight the athletic trainer's role in promoting and maintaining the health and well-being of individuals and populations before and after injuries and illnesses. Emphasis will be placed on the epidemiology and prevention of musculoskeletal injuries, medial conditions, and chronic disease, emergency planning and care, environmental monitoring, nutrition and dietary interventions, biometrics, and other determinants including social, economic, and individual factors that affect health outcomes. Prerequisite: Admission to the MSAT Program.

KINE 5237. BEHAVIORAL AND POPULATION HEALTH. 2 Hours.

This course will highlight the athletic trainer's role in promoting and maintaining the health and well-being of individuals and populations. The athletic trainer's role in behavioral health will be emphasized, as well as development, implementation, and assessment of preventative measures to reduce injury risk and long-term health conditions across the lifespan. Emphasis will also be placed on population-level problems, including health risks and determinants as well as individual and behavioral factors that affect health outcomes. Prerequisite: KINE 5121, KINE 5221, KINE 5321, KINE 5332.

KINE 5238. ADVANCED MANUAL THERAPY AND INTEGRATED MODALITIES. 2 Hours.

This course is designed to introduce students to advanced manual therapy and integrated therapeutic modalities that are currently used in musculoskeletal rehabilitation. Both the theoretical and scientific basis of novel therapeutic interventions will be examined using an evidence-based approach. Emphasis will be placed on the foundational concepts and techniques associated with selection and application and how to make effective clinical decisions. Prerequisite: KINE 5123, KINE 5306, KINE 5339, KINE 5343.

KINE 5239. HEALTH CARE ADMINISTRATION. 2 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. Prerequisite: KINE 5123, KINE 5306, KINE 5339, KINE 5343.

KINE 5240. ADVANCED IMMEDIATE AND EMERGENCY CARE. 2 Hours.

This course is designed to provide knowledge and skills related to the immediate and emergent care of injuries/conditions in work settings of athletic trainers. Prerequisite: KINE 5123, KINE 5306, KINE 5339, KINE 5343.

KINE 5241. PERFORMANCE ENHANCEMENT FOR THE ATHLETIC TRAINER. 2 Hours.

Concepts, theories, and foundational background information will be presented to optimize human movement and performance. An emphasis on sports science, technology and data analysis will be discussed to enhance program design and patient goals. Prerequisite: KINE 5123, KINE 5306, KINE 5339, KINE 5343.

KINE 5250. PUBLIC HEALTH PRACTICUM I. 2 Hours.

This is a required community-based internship for all students pursuing the Master of Public Health degree. Students will complete 150 to 200 hours of their internship during the semester in which they are enrolled in this course. Prerequisite: KINE 5375 and KINE 5376 and KINE 5372 and KINE 5377 and KINE 5378.

KINE 5252. PUBLIC HEALTH INTEGRATED LEARNING EXPERIENCE. 2 Hours.

This course is the culmination of all previous coursework for Master of Public Health (MPH) students, requiring the student to complete a final paper, poster and oral presentation about the project completed as part of the Community-Based Internship. In addition, the student will complete a professional portfolio comprised of work illustrating the competencies learned during the MPH program and applied during the Internship. Prerequisite: KINE 5375 and KINE 5376 and KINE 5372 and KINE 5377 and KINE 5378.

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. 3 Hours.**

This course is an overview of concepts and procedures necessary for designing, conducting, and analyzing hypothesis driven research across multiple academic disciplines with a focus on 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 5306. CLINICAL ATHLETIC TRAINING IV. 3 Hours.

This course will include clinical experiences, providing 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 clinical experience under the supervision of a program approved preceptor. Prerequisite: KINE 5222, KINE 5237, KINE 5324, KINE 5325.

KINE 5307. OVERVIEW OF MEDICINE. 3 Hours.

This course is designed to provide undergraduate students an overview of the basic, preclinical, and clinical sciences, emphasizing the main principles and logic of medicine, how doctors think, and how the healthcare system works. Specific topics covered include an Introduction to Medicine, Embryology & Principles of Anatomy, General & Systems Physiology, Molecular Biology & Biochemistry, Neuroscience, Microbiology & Immunology, Pathology, Pharmacology, Epidemiology & Public Health, Internal Medicine specialties (Cardiology, Pulmonology, Nephrology, Gastroenterology, Infectious Diseases, Endocrinology, Rheumatology, Hematology / Oncology), Neurology, Pediatrics, Obstetrics & Gynecology, Surgery, Anesthesiology, Surgical Subspecialties (Cardiovascular Surgery, Orthopedic Surgery, Ophthalmology, Otorhinolaryngology, Dermatology, Urology, Neurosurgery), Psychiatry, Radiology and Radiation Oncology. Importantly, it spans both the scientific and humanistic aspects of medicine, referencing the visual arts, music, film, and other forms of art to highlight key points. Though primarily designed for students aiming for a career in the health professions, it should appeal to anyone curious about how health and medicine works. Prerequisite: Instructor Permission.

KINE 5308. ADVANCED STATISTICAL ANALYSIS. 3 Hours.

This course presents an applied approach on the use of mixed effects and/or multilevel models for clustered, repeated, and longitudinal experimental designs. Develops the skills to implement and interpret random effects, variance component models of time varying and time invariant predictors on outcome variables. Included topics: transitioning from general linear model to mixed effects model, interpretation of population-average and subject specific models containing random intercept and random slopes. Discussion of special topics including importance of graphing data, model fitting, centering, variance/covariance matrix, sample size, sample power, missing data in repeated measures designs. Prerequisite: Instructor Approval.

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 5321. THERAPEUTIC INTERVENTIONS I. 3 Hours.

This course will present the theoretical and scientific basis for traditional therapeutic interventions including taping, wrapping, padding, durable medical equipment, cryotherapy, thermotherapy, joint mobilizations, exercise, and manual therapy techniques commonly used in the treatment of orthopedic injuries and conditions. Discussions will include the study of physical rehabilitation theory including basic physics, physiological effects, indications, and contraindications for traditional therapeutic interventions. Emphasis will be placed on the critical analysis of clinical practice and existing research to establish quality patient care. This course includes the execution of clinical and home care plans, the use of patient rated outcome scales, and the integration of pharmacological interventions. Prerequisite: KINE 5120, KINE 5229, KINE 5230, KINE 5236.

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 5324. ASSESSMENT AND MANAGEMENT II. 3 Hours.

This course will focus on examination and initial management of chronic musculoskeletal pathologies. Emphasis will be placed on diagnostic testing and development of a care plan. Prerequisite: KINE 5121, KINE 5221, KINE 5321, KINE 5332.

KINE 5325. THERAPEUTIC INTERVENTIONS II. 3 Hours.

This course will present the theoretical and scientific basis for traditional therapeutic interventions including taping, wrapping, padding, durable medical equipment, thermotherapy, electrotherapy, acoustic therapy, exercise, and manual therapy techniques commonly used in the treatment of orthopedic injuries and conditions. Discussions will include the study of physical rehabilitation theory including basic physics, physiological effects, indications, and contraindications for traditional therapeutic interventions. Emphasis will be placed on the critical analysis of clinical practice and existing research to establish quality patient care. This course includes the execution of clinical and home care plans, the use of patient rated outcome scales, and the integration of pharmacological interventions. Prerequisite: KINE 5121, KINE 5221, KINE 5321, KINE 5332.

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 IN SPORT AND PERFORMANCE. 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 5330. ENVIRONMENTAL PHYSIOLOGY OF EXERCISE. 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. *Doctoral students will be required to complete an additional research-related assignment.

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 5332. ASSESSMENT AND MANAGEMENT I. 3 Hours.

This course builds on the foundation from functional anatomy and biomechanics. Examination skills and immediate management interventions that apply to acute orthopedic and medical conditions are reviewed.

KINE 5334. SEMINAR IN ATHLETIC TRAINING. 3 Hours.

Graduate seminar discussing current issues in athletic training. Class discussions and projects will prepare students for entry-level practice.

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 5337. STRENGTH AND CONDITIONING IN GENERAL POPULATIONS: HEALTH AND DISEASE. 3 Hours.

This course covers the physiology and biomechanics of strength training and conditioning as it applies to the general populations across the spectrum of health and disease. This includes: testing, evaluation, resistance training techniques and training program design for individuals with orthopedic injuries and rehabilitation concerns, metabolic conditions (e.g., diabetes), youth, elderly, and pregnant or post-prenatal women. This course is designed to prepare students to take the NSCA-CPT, and apply the skills needed to be a leader within the personal training and physical therapy career paths. Prerequisite: KINE 3300, KINE 3315, and KINE 3325.

KINE 5338. 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, children, older adults, fibromyalgia, multiple sclerosis and cardiac disease.

KINE 5339. ASSESSMENT AND MANAGEMENT III. 3 Hours.

This course introduces the study of acute and chronic illnesses and their response to, and impact on, physical activity. An emphasis will be placed on clinical examination skills and tools to screen patients for the presence of signs and symptoms related to acute and chronic illness. Prerequisite: KINE 5222, KINE 5237, KINE 5324, KINE 5325.

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 5342. IMMEDIATE AND EMERGENCY CARE 2. 3 Hours.

This course is designed to build off of Immediate and Emergency Care 1 and include didactic and clinical experiences surrounding best practices in general emergency care and acute management of injuries and illness. Students will also be required to complete a scholarship project concerning general emergency care and acute management of injuries and illnesses. Clinical hours will be required in an emergency medicine environment.

KINE 5343. LITERATURE AND RESEARCH FOR THE ATHLETIC TRAINER. 3 Hours.

This course is an overview of concepts and procedures necessary for designing, conducting, and critically appraising research in Athletic Training 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. Prerequisite: KINE 5222, KINE 5237, KINE 5324, KINE 5325.

KINE 5344. SCHOLARSHIP IN ATHLETIC TRAINING PRACTICE. 3 Hours.

This course is designed to build off of the foundations of Literature and Research for the Athletic Trainer with further study of data collection and analysis as well as evidence-based practice principles. Students will be expected to complete a scholarship project related to athletic training practice. Prerequisite: KINE 5227.

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 5346. ADVANCED FUNCTIONAL ASSESSMENT AND CORRECTIVE EXERCISE. 3 Hours.

Classroom and laboratory experiences that provide an introduction to functional assessment and corrective exercises. Specific topics will include an analysis of common biomechanics of movement and the evidence-based application of functional assessment and assignment of corrective exercises. Prerequisite: KINE 5420, KINE 5430, KINE 5431, KINE 5433, KINE 5434.

KINE 5347. ADVANCED FUNCTIONAL ASSESSMENT AND CORRECTIVE EXERCISE. 3 Hours.

Classroom and laboratory experiences that provide an introduction to functional assessment and corrective exercises. Specific topics will include an analysis of common biomechanics of movement and the evidence-based application of functional assessment and assignment of corrective exercises. Prerequisite: KINE 5420, KINE 5430, KINE 5431, KINE 5433, KINE 5434.

KINE 5348. PATHOPHYSIOLOGY AND PHARMACOLOGY I. 3 Hours.

This course provides an introduction to the study of acute and chronic illnesses and their response to, and impact on, physical activity. Discussion of pharmacological principles will be incorporated as it relates to the care of general illnesses and musculoskeletal disorders in the physically active. Prerequisite: KINE 5120, KINE 5231.

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 5353. LOWER EXTREMITY ASSESSMENT AND REHABILITATION. 3 Hours.

This course will focus on common orthopedic injuries involving the lower extremities, with a special emphasis on recognition, evaluation, diagnosis, and initial management. Additionally, students will learn to implement rehabilitation programs and therapeutic techniques for lower extremity injuries. Prerequisite: Admission to MSAT Program.

KINE 5354. UPPER EXTREMITY ASSESSMENT AND REHABILITATION. 3 Hours.

This course will focus on common orthopedic injuries involving the upper extremities, with a special emphasis on recognition, evaluation, diagnosis, and initial management. Additionally, students will learn to implement rehabilitation programs and therapeutic techniques for upper extremity injuries. Prerequisite: Admission to MSAT Program.

KINE 5355. PATHOPHYSIOLOGY & PHARMACOLOGY II. 3 Hours.

This course provides further study of acute and chronic illnesses and their response to, and impact on, physical activity. Discussion of pharmacological principles will be incorporated as it relates to the care of general illnesses and musculoskeletal disorders in the physically active. Prerequisite: KINE 5348.

KINE 5356. HEAD AND SPINE ASSESSMENT AND REHABILITATION. 3 Hours.

This course will focus on common orthopedic injuries involving the head and spine, with a special emphasis on recognition, evaluation, diagnosis, and initial management. Additionally, students will learn to implement rehabilitation programs and therapeutic techniques for head and spine injuries. Prerequisite: KINE 5353, KINE 5354.

KINE 5357. PREVENTATIVE MEDICINE AND POPULATION HEALTH. 3 Hours.

This course will highlight the athletic trainer's role in promoting and maintaining the health and well-being of individuals and populations. Development, implementation, and assessment of preventative measures to reduce injury risk and long-term health conditions across the lifespan will be addressed. Emphasis will also be placed on population-level problems, including health risks and determinants as well as individual and behavioral factors that affect health outcomes. Prerequisite: Admission to MSAT Program.

KINE 5360. FUNDAMENTAL PRINCIPLES OF INTEGRATIVE PHYSIOLOGY. 3 Hours.

This course is designed to provide a fundamental understanding of human physiology. Physiological function is a complex process that involves a complex interaction among the various physiological systems. As such there will be an emphasis on the integration of cellular, cardiovascular, renal, autonomic, respiratory, and endocrine physiology.

KINE 5362. PRINCIPLES OF MOVEMENT NEUROSCIENCE. 3 Hours.

This course focuses on principles of movement that have emerged from the computational study of motor control. The principles and application to processes such as motor planning, control, estimation, prediction and learning are explored.

KINE 5363. CONDITIONS OF THE MOTOR SYSTEM IN CHILDHOOD. 3 Hours.

This course explores a prevalent dysfunction of the motor system in childhood, known as Developmental Coordination Disorder (DCD). This class explores potential causes of DCD, common mechanisms and impairments, intervention methods and their effectiveness, and associated co-morbidities. In addition, students will understand the current state of research in the field and understand future avenues for research.

KINE 5364. CURRENT PERSPECTIVES IN MOTOR LEARNING AND CONTROL. 3 Hours.

This course explores five aspects of the new directions in research in the Motor Learning and Control field: Perception-Action mechanisms, Dynamical systems, Motor disorders, Learning and intervention for motor behavior, and neural mechanisms.

KINE 5365. ADVANCED MOTOR DEVELOPMENT. 3 Hours.

This course explores the current field of research in Motor Development applied to typical and special populations. More specifically, it discusses issues related to motor skill learning in childhood, the development of motor control, the relationship between motor competence and general health, and how lack of appropriate motor skills affect several domains of development (Developmental Coordination Disorder). To that, we use current research articles that discuss each one of these topics from different perspectives.

KINE 5370. GLOBAL HEALTH. 3 Hours.

Today's public health practice requires an awareness of health threats beyond U.S. borders. "Global health" implies health concerns and solutions that are shared worldwide. In this course, students will study global health priorities among different populations, cultures, and health systems. Students will examine health challenges and disease threats faced in resource-constrained countries, and the roles of health determinants, socioeconomics and health equity in improving health outcomes. In addition, students will learn about the foundational elements of global health, including globalization and health, water, sanitation, the burden of infectious and chronic diseases, human rights and global health partnerships.

KINE 5371. PUBLIC HEALTH PROGRAM PLANNING AND EVALUATION. 3 Hours.

Before we can effectively receive funding and implement programs that benefit our communities, we have to answer many questions. Who is the target audience? What are the program's goals? What are the intended outcomes of the program? How can we measure program effectiveness? Program evaluation is the methodology to developing scientifically sound answers to these questions. This course will teach you how evaluators work with stakeholders and project teams to tailor an intervention to a target audience, and document program activities, outcomes and impact on a community health issue. This course will allow you to have hands-on experience designing and conducting program evaluation.

KINE 5372. INTRODUCTION TO EPIDEMIOLOGY. 3 Hours.

By participating in this course students will learn the critical role that epidemiology plays in preventing and controlling disease. This course provides students with a foundation of the methods and concepts used in epidemiology. Students will learn the measures used in epidemiology and apply principles of causality, study design, disease surveillance, and outbreak investigations. In addition, students will be introduced to sources of data used in epidemiologic studies. The major course project will provide students with hands-on experience using skills sought by employers in public health agencies.

KINE 5373. INTRODUCTION TO ENVIRONMENTAL AND OCCUPATIONAL HEALTH. 3 Hours.

This course provides an overview of the critical environmental health problems in industrialized and developing countries, discusses their causes and solutions, and emphasizes the role of science in environmental policy decisions. Topics include climate change, water and air contaminants, injury risk and prevention in the workplace, food and water-borne disease, toxic metals, and how the body reacts to environmental pollutants.

KINE 5374. RACE, ETHNICITY AND HEALTH. 3 Hours.

Despite advances in medicine and health policies, racial and ethnic health disparities persist. Americans of color have higher mortality rates and an unequal burden of many health concerns compared to their white counterparts. Such health inequities compromise the cultural and economic fabric of our country. This course will discuss the complex relationship between socioeconomic status, race/ethnicity, and health. In addition, this course will examine the economic and societal threats that health disparities pose to our communities and nation, as well as policies and approaches to addressing such disparities.

KINE 5375. COMMUNITY HEALTH. 3 Hours.

This course explores population health, providing students with learning experiences that facilitate an understanding of what public health is and why it is important. Course activities guide students in exploring their role in population health dynamics of their communities. The course will provide students an investigation of theoretical and evidence-based strategies designed to improve community health from population-based approaches. Students will then narrow those areas of foci to contemplate real-world, practice-based learning experiences.

KINE 5376. INTRODUCTION TO BIostatISTICS. 3 Hours.

The course will introduce students to analysis skills applied in the public health sciences. Students will learn how to apply descriptive statistics, t-tests, ANOVA, correlation, multiple regression, and non-parametric statistics to public health problems.

KINE 5377. INTRODUCTION TO HEALTH SYSTEMS AND POLICY. 3 Hours.

What is "population health" and why does it matter? Why are U.S. health care costs so high? How is the U.S. health system financed? What are the basic principles of health insurance? Who are the uninsured? It is critical that public health professionals be able to answer these questions and understand the basic functions that comprise the U.S. health care system. This course will help students answer these questions through an introduction to health systems and policy, including the delivery, quality and costs of health care for individuals and populations. The course will also examine the structure, processes and outcomes of health services, financing, organization, outcomes and accessibility of care.

KINE 5378. FOUNDATIONS OF PUBLIC HEALTH. 3 Hours.

This courses teaches students what public health is and how it works. The mission of public health is to assure conditions in which people can be healthy. This course will present the history, frameworks, values, and goals of public health which support this mission. Students will study the principles and core responsibilities of public health from a multidisciplinary perspective, with emphasis on the public health core functions of assessment, policy development, and assurance. This course will provide the foundation for further studies in public health practice through developing public health problem solving and decision-making skills through case studies and applied coursework.

KINE 5379. FUNDAMENTALS OF POPULATION HEALTH. 3 Hours.

Public health is charged with advancing health while reducing health care costs. This requires us to move away from a reactionary model of health care delivery and towards models of disease prevention and health promotion. Students will consider how collaborations among organizations within and outside the health care system, and the integration of public health into clinical care, impacts population health. The course will use case studies and applied learning to discuss the role of incentives, financing, data, measurement, structure of health care delivery, and policy in advancing population health.

KINE 5380. URBAN COMMUNITY HEALTH ASSESSMENT. 3 Hours.

We must learn the health needs in a community before we can address those needs to improve the health of the community. Assessment skills allow us to learn what health needs exist in a community by using sound scientific methods to collect evidence about gaps in health. In this course, students will apply quantitative and qualitative methods, data analysis, community mobilization, and capacity building to assess community health needs and strategies for health improvement.

KINE 5381. SOCIAL AND BEHAVIORAL EPIDEMIOLOGY. 3 Hours.

Social epidemiology considers how social determinants impact population health. Behavioral epidemiology studies how lifestyle and behaviors affect health conditions. The class will explore how social, political, cultural and economic forces influence our health and health behaviors. The course will focus on social and health inequities, and resulting health behaviors. Theory from social science is integrated with epidemiological methods to learn how social circumstances influence behavior and health, and determine how we can target interventions to reduce health inequities in our community, nation and world. Prerequisite: KINE 5372 Introduction to Epidemiology.

KINE 5382. CHRONIC DISEASE EPIDEMIOLOGY. 3 Hours.

Chronic diseases are the leading causes of death in the United States and globally. Chronic diseases, such as cardiovascular disease, cancer, diabetes, HIV/AIDS, respiratory conditions, and neurologic disorders have devastating consequences for population health. This class will explore and apply epidemiologic methods which help identify strategies to prevent and treat chronic diseases, emphasizing modifiable risk factors. Coursework will aim to increase student understanding of how epidemiologic methods are used to identify determinants of chronic diseases, and how to identify and target interventions to reduce the burden of chronic disease locally, nationally, and across the globe. Prerequisite: KINE 5372.

KINE 5383. COMMUNITY-BASED INTERNSHIP. 3 Hours.

This course is a required 200-hour service learning experience for Master of Public Health (MPH) students which combines specific learning objectives with reflection. The student will apply skills learned in the MPH program in a "real-life" environment. The student will complete a defined project, mutually agreed upon between the MPH Graduate Advisor and the partner organization, which benefit both the student and the partner organization. Students will keep a log of hours, work performed, and competencies addressed throughout the internship experience, and comply with specified reporting periods. Prerequisite: KINE 5372, KINE 5373, KINE 5376, KINE 5305, KINE 5377, KINE 5375, KINE 5371, and KINE 5378.

KINE 5384. PUBLIC HEALTH CAPSTONE EXPERIENCE. 3 Hours.

This course is the culmination of all previous coursework for Master of Public Health (MPH) students, requiring the student to complete a final paper, poster and oral presentation about the project completed as part of the Community-Based Internship. In addition, the student will complete a professional portfolio comprised of work illustrating the competencies learned during the MPH program and applied during the Internship. Prerequisite: KINE 5372, KINE 5373, KINE 5376, KINE 5305, KINE 5377, KINE 5375, KINE 5371, KINE 5378, and KINE 5383, and completion of all MPH coursework required for graduation, or concurrent enrollment in final courses needed for graduation.

KINE 5385. COMMUNICATION AND HEALTH. 3 Hours.

Students will learn how interpersonal, organizational and mass media communications influence health behaviors and health outcomes. Students will study theories and applied techniques of interpersonal communication in health care and health education settings, as well as the theory and practice of media in achieving desired effects from public health messages.

KINE 5386. BIG DATA FOR EPIDEMIOLOGY. 3 Hours.

Big Data have revolutionized science, including the future of public health. This course prepares future public health practitioners to integrate knowledge of epidemiology methods with the data analytics savvy. Students will gain competence in conducting analysis using large, commonly used health-related databases. Learn how to use large datasets to advance your practice of epidemiology by enrolling in this course. Prerequisite: KINE 5376 or KINE 5305. Prior completion or concurrent enrollment in KINE 5372.

KINE 5387. INFECTIOUS DISEASE EPIDEMIOLOGY. 3 Hours.

From Ebola to COVID-19, tuberculosis to hepatitis A--every outbreak has a team of behind-the-scenes disease detectives tracking its source and pathways. Students will learn the methods of infectious disease epidemiology, studying outbreak investigations, disease surveillance, study designs, laboratory diagnosis, and dynamics of transmission. Students must have completed KINE 5372 Introduction to Epidemiology to enroll in this course. Prerequisite: Prior or concurrent enrollment in KINE 5372.

KINE 5388. GLOBAL HEALTH ON-SITE EXPERIENCE ABROAD. 3 Hours.

Students will study the factors impacting health for populations in a selected country outside of the U.S. Then, students will travel to that country at the end of the course for a real life experience learning from people who are impacted by, and/or who help address the health factors in that region. Prerequisite: MPH student or Instructor Permission.

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 5391. INTERMEDIATE BIOSTATISTICS FOR PUBLIC HEALTH. 3 Hours.

This course builds on the foundational skills taught in Intro to Biostatistics. Students will learn how to conduct multivariate regression analysis and code using the statistical analysis program "R." It counts towards the required coursework for the Epidemiology concentration in the MPH. It is open to all graduate students who have completed an introductory statistics course at the graduate level. Prerequisite: KINE 5376 Intro to Biostatistics and KINE 5372 Intro to Epidemiology.

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 5395. EPIDEMIOLOGIC METHODS. 3 Hours.

This course will teach students how to craft research questions, research objectives, plans for data analysis, and other important skills needed when designing original research. Examples and objectives will be tailored to the field of public health. Prerequisite: KINE 5376 Intro to Biostatistics and KINE 5372 Intro to Epidemiology.

KINE 5396. RESEARCH IN ATHLECTIC 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.

This is a thesis course for student to take to satisfy their MS in Exercise Science degree requirements.

KINE 5399. MENTAL HEALTH IN PUBLIC HEALTH. 3 Hours.

This course explores topics in mental health facing public health researchers and practitioners, including substance use disorder, interpersonal violence, suicidality, and other topics. These topics are explored from the perspective of public health practice.

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 5498. THESIS. 4 Hours.**KINE 5520. CLINICAL ATHLETIC TRAINING VI. 5 Hours.**

This course will include clinical experiences providing 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 clinical experience under the supervision of a program approved preceptor. Prerequisite: KINE 5123, KINE 5306, KINE 5339, KINE 5343.

KINE 5598. THESIS. 5 Hours.**KINE 5647. CLINICAL TEACHING PHYSICAL EDUCATION EC-12. 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 school settings with a mentor teacher. Applied experience will be attained in both Elementary and Secondary settings. Additionally, a field-research project will be required to be arranged with course supervisor. Criminal background check required. Prerequisite: KINE 1315, KINE 2301, KINE 2302, KINE 3304, KINE 3388, KINE 4319, KINE 4320, KINE 4321, EDUC 5310, EDUC 5314, and LIST 5345.

KINE 5693. PHYSIOLOGY OF EXERCISE INTERNSHIP. 6 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 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.

KINE 6100. SEMINAR IN KINESIOLOGY. 1 Hour.

Implements the research process with faculty guidance. Students will attend regularly scheduled lectures from internal and external faculty members. Learning activities based on student and faculty interest.

KINE 6105. LABORATORY TECHNIQUE ROTATIONS IN KINESIOLOGY I. 1 Hour.

A primary objective of this course is to further your understanding of lab work in Kinesiology. A second objective is to enhance your ability for critical thinking in Kinesiology 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 kinesiology principles. Prerequisite: Consent of faculty.

KINE 6106. LABORATORY TECHNIQUE ROTATIONS IN KINESIOLOGY II. 1 Hour.

A primary objective of this course is to further your understanding of lab work in Kinesiology. A second objective is to enhance your ability for critical thinking in Kinesiology 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 kinesiology principles. This section must occur in a different laboratory than KINE 6105. Prerequisite: KINE 6105 and consent of faculty.

KINE 6126. JOURNAL CLUB IN EX PHYSIOL. 1 Hour.

This course is designed to provide doctoral students an opportunity to learn the art of critically reading and interpreting research articles. There will be emphasis on identifying strengths and weakness of research studies. There will also be an opportunity for the students to present their research study ideas and/or their preliminary findings of their research to the class. This will provide an opportunity for students to interact and receive/provide feedback regarding methodological approaches and interpretation of findings. Lastly, the student will learn how to prepare and deliver presentations to an audience. Prerequisite: Instructor Approval.

KINE 6170. JOURNAL CLUB IN PHYSIOLOGY. 1 Hour.

There is a growing emphasis on research and in particular student involvement in research at UTA. A fundamental skill that will be critical in the successful growth of student involvement in research is their ability to read and critically analyze / interpret journal articles. In addition to this important skill set the students will also gain invaluable experience by presenting their research study ideas and / or their preliminary findings of their research to the class. This will provide an opportunity for students to interact and receive / provide feedback regarding methodological approaches and interpretation of findings. *Doctoral students will be required to complete an additional research related topic.

KINE 6171. JOURNAL CLUB IN MOVEMENT & REHABILITATION SCIENCES. 1 Hour.

There is a growing emphasis on research and in particular student involvement in research at UTA. A fundamental skill that will be critical in the successful growth of student involvement in research is their ability to read and critically analyze / interpret journal articles. In addition to this important skill set the students will also gain invaluable experience by presenting their research study ideas and / or their preliminary findings of their research to the class. This will provide an opportunity for students to interact and receive / provide feedback regarding methodological approaches and interpretation of findings. *Doctoral students will be required to complete an additional research related topic.

KINE 6194. RESEARCH IN KINESIOLOGY. 1 Hour.

Individually approved research projects selected from the various areas of Kinesiology. May be repeated for credit with consent of the Graduate Advisor. Graded P/F/R. Prerequisite: Consent of Instructor.

KINE 6293. GRANT WRITING. 2 Hours.

Students will learn strategies associated with grant applications. Students will prepare an individual proposal associated with a research grant application. Although submission for funding (e.g., pre-doctoral fellowship) is not required for the course, students will develop and complete a grant application.

KINE 6294. RESEARCH IN KINESIOLOGY. 2 Hours.

Individually approved research projects selected from the various areas of Kinesiology. May be repeated for credit with consent of the Graduate Advisor. Graded P/F/R. Prerequisite: Consent of the instructor.

KINE 6300. 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. *Doctoral students will be required to complete an additional research related topic. Prerequisite: Instructor Approval.

KINE 6303. PROFESSIONAL DEVELOPMENT. 3 Hours.

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.

KINE 6305. 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. *Doctoral students will be required to complete an additional research related topic. Prerequisite: Instructor Permission.

KINE 6308. ADVANCED STATISTICAL ANALYSIS. 3 Hours.

This course presents an applied approach on the use of mixed effects and/or multilevel models for clustered, repeated, and longitudinal experimental designs. Develops the skills to implement and interpret random effects, variance component models of time varying and time invariant predictors on outcome variables. Included topics: transitioning from general linear model to mixed effects model, interpretation of population-average and subject specific models containing random intercept and random slopes. Discussion of special topics including importance of graphing data, model fitting, centering, variance/covariance matrix, sample size, sample power, missing data in repeated measures designs. *Doctoral students will be required to complete an additional research related topic. Prerequisite: Instructor Approval.

KINE 6320. 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. *Doctoral students will be required to complete an additional research related topic. Prerequisite: Instructor Approval.

KINE 6322. 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. *Doctoral students will be required to complete an additional research-related assignment. Prerequisite: Instructor Approval.

KINE 6323. 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. *Doctoral students will be required to complete an additional research-related assignment. Prerequisite: Instructor Approval.

KINE 6326. 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. *Doctoral students will be required to complete an additional research-related assignment. Prerequisite: Instructor Approval.

KINE 6327. 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. *Doctoral students will be required to complete an additional research-related assignment. Prerequisite: Instructor Approval.

KINE 6328. 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. *Doctoral students will be required to complete an additional research-related assignment. Prerequisite: Instructor Approval.

KINE 6330. ENVIRONMENTAL PHYSIOLOGY OF EXERCISE. 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. *Doctoral students will be required to complete an additional research-related assignment. Prerequisite: Instructor Approval.

KINE 6338. 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, children, older adults, fibromyalgia, multiple sclerosis, and cardiac disease. *Doctoral students will be required to complete an additional research-related assignment. A student may not receive course credit for both KINE 5338 and KINE 6338. Prerequisite: Instructor Approval.

KINE 6350. 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. *Doctoral students will be required to complete an additional research-related assignment. Prerequisite: Instructor Approval.

KINE 6360. FUNDAMENTAL PRINCIPLES OF INTEGRATIVE PHYSIOLOGY. 3 Hours.

This course is designed to provide a fundamental understanding of human physiology. Physiological function is a complex process that involves a complex interaction among the various physiological systems. As such there will be an emphasis on the integration of cellular, cardiovascular, renal, autonomic, respiratory, and endocrine physiology. *Doctoral students will be required to complete an additional research-related assignment. Prerequisite: Instructor Approval.

KINE 6362. PRINCIPLES OF MOVEMENT NEUROSCIENCE. 3 Hours.

This course focuses on principles of movement that have emerged from the computational study of motor control. The principles and application to processes such as motor planning, control, estimation, prediction and learning are explored. *Doctoral students will be required to complete an additional research-related assignment. A student may not receive course credit for both KINE 5362 and KINE 6362.

KINE 6363. CONDITIONS OF THE MOTOR SYSTEM IN CHILDHOOD. 3 Hours.

This course explores a prevalent dysfunction of the motor system in childhood, known as Developmental Coordination Disorder (DCD). This class explores potential causes of DCD, common mechanisms and impairments, intervention methods and their effectiveness, and associated co-morbidities. In addition, students will understand the current state of research in the field and understand future avenues for research. *Doctoral students will be required to complete an additional research-related assignment. A student may not receive course credit for both KINE 5363 and KINE 6363.

KINE 6364. CURRENT PERSPECTIVES IN MOTOR LEARNING AND CONTROL. 3 Hours.

This course explores five aspects of the new directions in research in the Motor Learning and Control field: Perception-Action mechanisms, Dynamical systems, Motor disorders, Learning and intervention for motor behavior, and neural mechanisms. *Doctoral students will be required to complete an additional research-related assignment. A student may not receive course credit for both KINE 5364 and KINE 6364.

KINE 6365. ADVANCED MOTOR DEVELOPMENT. 3 Hours.

This course explores the current field of research in Motor Development applied to typical and special populations. More specifically, it discusses issues related to motor skill learning in childhood, the development of motor control, the relationship between motor competence and general health, and how lack of appropriate motor skills affect several domains of development (Developmental Coordination Disorder). To that, we use current research articles that discuss each one of these topics from different perspectives. *Doctoral students will be required to complete an additional research-related assignment. A student may not receive course credit for both KINE 5365 and KINE 6365.

KINE 6389. 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. *Doctoral students will be required to complete an additional research-related assignment. Prerequisite: Instructor Approval.

KINE 6394. RESEARCH IN KINESIOLOGY. 3 Hours.

Individually approved research projects selected from the various areas of Kinesiology. May be repeated for credit with consent of the Graduate Advisor. Graded P/F/R. Prerequisite: Consent of the instructor.

KINE 6399. DISSERTATION. 3 Hours.

Preparation and submission of a doctoral dissertation in an area of kinesiology. Graded R/F only. Prerequisite: Admission to candidacy for the Ph.D. in Kinesiology.

KINE 6694. RESEARCH IN KINESIOLOGY. 6 Hours.

Individually approved research projects selected from the various areas of Kinesiology. May be repeated for credit with consent of the Graduate Advisor. Graded P/F/R. Prerequisite: Consent of the instructor.

KINE 6699. DISSERTATION. 6 Hours.

Preparation and submission of a doctoral dissertation in an area of kinesiology. Graded R/F only. Prerequisite: Admission to candidacy for the Ph.D. in Kinesiology.

KINE 6999. DISSERTATION. 9 Hours.

Preparation and submission of a doctoral dissertation in an area of kinesiology. Graded R/F only. Prerequisite: Admission to candidacy for the Ph.D. in Kinesiology.

KINE 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 twice. 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.

COURSES

KINE-HI 5373. INTRODUCTION TO HEALTH INTELLIGENCE AND PUBLIC HEALTH INFORMATICS. 3 Hours.

This course provides the foundation for the study of health intelligence and public health informatics and prepares students to effectively use public health data to create more timely actionable intelligence for emergency responses while addressing inequities and health disparities.

KINE-HI 5374. HEALTH LITERACY AND SOCIAL MEDIA LISTENING FOR PUBLIC HEALTH. 3 Hours.

This course provides an overview of the role played by health literacy in public health and safety and how social media and other emerging communication technologies can connect millions of voices to create a more adaptive and effective public health response.