

KINE - KINESIOLOGY

KINE 601 Reading Research Publications in Kinesiology

Credits 3. 3 Lecture Hours. Instruction in, and development of, research skills through the study of published reports and readings in kinesiology.

KINE 606 Motor Neuroscience I

Credits 3. 3 Lecture Hours. Neurophysiology of the neuromuscular system with emphasis on motor control; topics include organization of the CNS; reflexes; integration of sensory information; experimental approaches to study neuromuscular control and neurophysiology of contemporary motor control theories. **Prerequisite:** KINE 406 or equivalent.

KINE 609 Professional and Career Development in Health and Kinesiology

Credits 3. 3 Lecture Hours. Development of skills and knowledge on developing an academic and research career; structure of academics; strategies for securing an academic position; tenure and promotion process. **Prerequisite:** Graduate classification.

KINE 614 External Research Fund Development

Credits 3. 3 Lecture Hours. Preparation of external research funding applications with emphasis on NIH proposals and other external funding sources; methods and commonly used processes of federal grant review and the funding decision process. **Prerequisite:** Graduate classification.

KINE 626 Exercise for Clinical Population

Credits 3. 3 Lecture Hours. Principles relevant to exercise programming for persons with chronic disease/disability; includes information for each condition: pathophysiology, effect on exercise response, effects of exercise on disease process, and recommendation for exercise testing and programming. **Prerequisite:** KINE 433 or instructor approval.

KINE 627 Exercise Biomechanics

Credits 3. 3 Lecture Hours. Integrated, mechanistic study of biomechanics of human motion during physical activity and exercise; investigation of biology and mechanical properties of the human movement system including bones, tendons, ligaments, cartilage, skeletal muscles, joints, and whole body systems. **Prerequisites:** KINE 426 or equivalent.

KINE 628 Nutrition in Sport and Exercise

Credits 3. 3 Lecture Hours. Interaction between nutrition, exercise, and athletic performance; including: biochemical and physiological aspects of nutrition and exercise; nutrition for training and competition; exercise and oxidant stress; nutritional supplements and ergogenic acids; and nutritional aspects of body composition and weight control. **Prerequisite:** Graduate classification; BIOL 320; KINE 433 or approval of instructor.

KINE 629 Physiology of Strength and Conditioning

Credits 3. 3 Lecture Hours. Physiological, bio-mechanical, and metabolic aspects of muscular strength and conditioning programs for various athletic and non-athletic populations; review of resistance training based on scientific literature; promote the use of a structured scientific approach in the prescription of progressive resistance training.

Prerequisite: Graduate classification, BIOL 320; KINE 433 or approval of instructor.

KINE 630 Periodized Models

Credits 3. 3 Lecture Hours. Scientific principles and procedures relating to detailed cutting edge periodized training designs; emphasis on researched based periodized program designs and implementation regarding the background/history, concepts, variations and application of relevant periodization models. **Prerequisite:** Graduate classification or approval of instructor.

KINE 631 Specialized Strength and Conditioning Techniques

Credits 3. 3 Lecture Hours. Research based physiological responses and adaptations associated with power, speed, quickness, flexibility and mobility; laboratory demonstration/implementation and specific practical experiences based on available scientific research. Practical mastery as well as theoretical understanding required. **Prerequisite:** KINE 629 or approval of instructor.

KINE 637 Exercise Physiology I

Credits 3. 3 Lecture Hours. Functional changes brought about by acute and chronic exercise; topics include muscle structure/function, energy transduction, biochemistry of exercise, muscle mechanics, fatigue and adaptation. **Prerequisite:** KINE 433 or equivalent.

KINE 638 Exercise Physiology II

Credits 3. 3 Lecture Hours. Functional changes brought about by acute and chronic exercise; topics include pulmonary and cardiovascular physiology, training and detraining, and special topics. **Prerequisite:** KINE 433 or equivalent.

KINE 639 Exercise Electrocardiography

Credits 3. 3 Lecture Hours. Electrocardiography (ECG) for the exercise scientist; emphasis on recognition and interpretation of normal and aberrant ECG patterns encountered during the graded exercise test; physiologic mechanisms underlying the normal and abnormal ECG. **Prerequisites:** KINE 638 and 648 or approval of instructor.

KINE 640 Motor Neuroscience II

Credits 3. 3 Lecture Hours. Contemporary theories of motor learning that link behavioral analysis to underlying neural correlates of control; topics include memory; physical, mental and observational practice; internal models, motor planning-programming; and self-organization in perception-action systems; emphasis on cognitive and behavioral neuroscience. **Prerequisite:** KINE 406 or equivalent.

KINE 641 Motor Neuroscience: Development Issues

Credits 3. 3 Lecture Hours. Explores the contemporary developmental issues associated with motor behavior (perception to action) across the lifespan; topics include physical and neurological growth, perception, motor control, and environmental influence. **Prerequisite:** KINE 307 or equivalent.

KINE 642 Self-organization in Motor Neuroscience

Credits 3. 3 Lecture Hours. Application of the concepts of non-linear dynamical systems theory and self-organization to the study of biological motion and learning; topics include perception-action coupling, phrase transitions and stability, sensori-motor transformations. **Prerequisites:** KINE 406 and KINE 641.

KINE 646 Fundamentals of Space Life Sciences

Credits 3. 3 Lecture Hours. Integrates nutrition, physiology, and radiation biology to define major biological problems in long duration space flight; provide an overview of the problems of bone loss, muscle wasting, and radiation-enhanced carcinogenesis along with potential countermeasures; focus on nutritional interventions and exercise protocols. **Cross Listing:** NUTR 646 and NUEN 646.

KINE 647 Instrumentation and Techniques in Exercise Physiology I

Credits 2. 1 Lecture Hour. 3 Lab Hours. Theory, experiments and demonstrations in exercise physiology; laboratory experience in the use of metabolic and biochemical instrumentation commonly found in a modern exercise physiology laboratory. **Prerequisite:** Concurrent enrollment in KINE 637.

KINE 648 Instrumentation and Techniques in Exercise Physiology II

Credits 2. 1 Lecture Hour. 3 Lab Hours. Theory, experiments and demonstrations in exercise physiology; laboratory experience in the use of metabolic and biochemical instrumentation commonly found in a modern exercise physiology laboratory. A continuation of KINE 647. **Prerequisite:** KINE 637 or concurrent enrollment.

KINE 649 Applied Exercise Physiology

Credits 3. 3 Lecture Hours. Investigate how the acute physiological responses to exercise and the chronic physiological adaptations to exercise training are altered by environmental factors—heat, cold, altitude, and microgravity, and by age and sex; addresses the physiological bases for reducing the risk of cardiovascular, metabolic and bone disease through physical activity. **Prerequisite:** KINE 433 or equivalent.

KINE 651 Introduction to Human Clinical Research

Credits 3. 3 Lecture Hours. Fundamentals of initiating and conducting a human clinical research; topics include subject recruitment and (medical) screening, clinical study design, preparations and procedures; federal and institutional policies, budget, role of pharmacy and laboratory in clinical research. **Prerequisites:** Graduate classification in Biomedical Sciences, Kinesiology, Nutrition, Health Science Center, College of Engineering, College of Science, or approval of instructor.

KINE 652 Methods in Human Clinical Research

Credits 3. 3 Lecture Hours. Commonly used methods in biomedical human research to obtain data from human samples and clinical measurements; discussion of various ways to process and analyze these data associated with human sample collection including blood, muscle and urine and preparation, lab processing and clinical chemistry and mass spectrometry analysis methods. **Prerequisite:** Graduate classification or approval of instructor.

KINE 681 Seminar

Credit 1. 1 Lecture Hour. Reports and discussions of topics of current interest in kinesiology.

KINE 682 Seminar in...

Credit 1. 1 Other Hour. Reports and discussions of topics of current interest in kinesiology. Students may register in up to but not more than four sections of this course in the same semester.

KINE 683 Practicum in Kinesiology

Credits 3. 3 Other Hours. Observation and study of rehabilitation and kinesiology programs in schools and other institutions. May be repeated twice for credit. **Prerequisite:** Approval of department head.

KINE 684 Professional Internship

Credits 1 to 6. 1 to 6 Other Hours. Supervised experiences in application of formal training to performing professional functions consistent with career goals. **Prerequisites:** 12 semester hours of selected graduate work; approval of department head.

KINE 685 Directed Studies

Credits 1 to 12. 1 to 12 Other Hours. Directed study of selected problems in kinesiology not related to thesis. May be repeated for credit. **Prerequisite:** Approval of department head.

KINE 689 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of kinesiology. May be repeated for credit. **Prerequisite:** Approval of department head.

KINE 690/HLTH 690 Theory of Research in Discipline

Credits 3. 3 Lecture Hours. Theory and design of research problems and experiments in various subfields of the discipline; communication of research proposals and results; evaluation of current research of faculty and students and review of current literature. May be repeated for credit. **Cross Listing:** HLTH 690/KINE 690.

KINE 691 Research

Credits 1 to 23. 1 to 23 Other Hours. Research for thesis or dissertation. **Prerequisite:** Approval of committee chair.