KINESIOLOGY DEPARTMENT GRADUATE COURSES

KINE5125 – IMMUNOLOGY
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.

KINE5190 – SPECIAL TOPICS IN KINESIOLOGY
In-depth study of selected topics in physical education and exercise science. May be repeated when topics vary. Prerequisite: consent of instructor.

KINE5191 – INTERNSHIP IN CARDIOPULMONARY REHABILITATION
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.

KINE5192 – INTERNSHIP IN GRADED EXERCISE TESTING FOR HIGH RISK POPULATIONS
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.

KINE5193 – PHYSIOLOGY OF EXERCISE INTERNSHIP
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.

KINE5194 – RESEARCH IN KINESIOLOGY
Individually approved research projects selected from the various areas of Kinesiology.

KINE5195 – INTERNSHIP IN GRADED EXERCISE TESTING FOR HIGH RISK POPULATIONS
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.

KINE5290 – SPECIAL TOPICS IN KINESIOLOGY
In-depth study of selected topics in physical education and exercise science. May be repeated when topics vary. Prerequisite: consent of instructor.

KINE5291 – INTERNSHIP IN CARDIOPULMONARY REHABILITATION
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.
KINE5292 – SPECIAL TOPICS IN KINESIOLOGY

KINE5293 – PHYSIOLOGY OF EXERCISE INTERNSHIP
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.

KINE5294 – RESEARCH IN KINESIOLOGY
Individually approved research projects selected from the various areas of Kinesiology.

KINE5300 – RESEARCH METHODS IN KINESIOLOGY
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.

KINE5305 – APPLIED STATISTICAL PRINCIPLES IN KINESIOLOGY
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.

KINE5320 – ADVANCED PHYSIOLOGY OF EXERCISE
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.

KINE5322 – METABOLISM & EXERCISE BIOCHEMISTRY
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.

KINE5326 – CARDIOCIRCULATORY PHYSIOLOGY OF EXERCISE
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.

KINE5327 – PULMONARY PHYSIOLOGY OF EXERCISE
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.

KINE5328 – NEUROMUSCULAR PHYSIOLOGY OF EXERCISE
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.

KINE5329 – STRENGTH & CONDITIONING
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.

KINE5331 – OBESITY & WEIGHT MANAGEMENT
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.

KINE5335 – GRADED EXERCISE TESTING AND PRESCRIPTION
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.

KINE5336 – ECG INTERPRETATION
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.

KINE5338 – EXERCISE PRESCRIPTION FOR SPECIAL POPULATIONS
This course will discuss the pathophysiology of cardiovascular, metabolic and pulmonary diseases. Methods of exercise prescription and issues of concern will also be presented for these populations, as well as, low back pain, pregnancy, osteoporosis, cancer, anorexia and bulimia, children, adolescents, teens, older adults, fibromyalgia, multiple sclerosis, and chronic fatigue syndrome. Practical application of leadership skills and hands-on instruction will be addressed in the laboratory portion of this course.

KINE5345 – SPORT NUTRITION
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.

KINE5350 – APPLIED BIOMECHANICS
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.

KINE5389 – RESEARCH MANUSCRIPT SUBMISSION
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.

KINE5390 – SPECIAL TOPICS IN KINESIOLOGY
In-depth study of selected topics in physical education and exercise science. May be repeated when topics vary. Prerequisite: consent of instructor.

KINE5392 – SPECIAL TOPICS IN KINESIOLOGY

KINE5393 – PHYSIOLOGY OF EXERCISE INTERNSHIP
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.

**KINE5394 – RESEARCH IN KINESIOLOGY**
Individually approved research projects selected from the various areas of Kinesiology.

**KINE5694 – RESEARCH IN KINESIOLOGY**
Individually approved research projects selected from the various areas of Kinesiology.

**KINE5698 – THESIS**