Health Sciences--Exercise Physiology (HSEP)

HSEP 3010. Exercise Testing and Prescription I. 3 Hours.
Prerequisite: A grade of "C" or better in HSEP 3020 and HSEP 3420. A concentrated study of the principles of exercise testing and prescription for the apparently healthy adult including the health appraisal, risk assessment and interpretation of data. The American College of Sports Medicine exercise guidelines are emphasized.

HSEP 3011. Exercise Testing and Prescription II. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3010. A continuation of HSEP 3010, with emphasis on cardiovascular, pulmonary, and metabolic disease; the role the mechanism of action for medications such as alpha and beta blockers, calcium channel blockers, ACE inhibitors, nitrated, peripheral vasodilators, and diuretics. Additional classifications to be reviewed include inotropic, anti-arrhythmic, anti-thrombosis, lipid-lowering, hypo/hyperglycemic, anti-inflammatory, and bronchodilators.

HSEP 3020. Assessments in Exercise Physiology. 3 Hours.
Prerequisites: Admission to the Exercise Physiology Program. Development of knowledge, skills, and abilities in selecting, administering, and interpreting standardized health, athletic, and physiological-related physical fitness tests.

HSEP 3050. Care and Prevention of Exercise-Related Injuries. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3430. Basic knowledge, skills, and abilities required for the prevention, treatment, and rehabilitation of common injuries related to physical activity.

HSEP 3200. Nutrition for Health and Human Performance. 3 Hours.
Prerequisites: HSEP 3420 with a grade of "C" or better, or permission of instructor and Exercise Physiology Program Coordinator if admitted Nutriton minor. An introdution to the characteristics of the essential dietary nutrients and their respective roles in the body. Emphasis is placed on the effects of nutritional practices on health and human performance.

HSEP 3360. Chronic Disease Epidemiology. 3 Hours.
Prerequisites: Acceptance to the Exercise Physiology Program. Introduction to the distribution and determinants of chronic diseases in the population. Causal relationships laying the groundwork for programs of prevention and control emphasized. Commonly used epidemiological statistics and research methods discussed.

HSEP 3410. Biomechanics. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3430. A concentrated study of the dynamics and mechanical analysis of human movement.

HSEP 3420. Exercise Physiology. 3 Hours.
Prerequisite: Admission to Exercise physiology. An understanding of how the body, from a functional standpoint, responds, adjusts, and adapts to exercise. Topics include bioenergetics, neuromuscular concepts, cardiorespiratory considerations, physical training, and environmental concerns involving physical activity, athletic performance, and health-related fitness.

HSEP 3430. Kinesiology. 3 Hours.
Prerequisites: Admission to the Exercise Physiology Program. Basic physical concepts as they apply to human movement are explored. Structural anatomy, neuromuscular physiology and biomechanical principles as they apply to sport skills and fitness activities are emphasized.

HSEP 3650. Resistance and Training Program Development. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3410 and HSEP 3430. Development, instruction, supervision, and evaluation of muscular fitness and flexibility programs for diverse populations and settings using a variety of training modalities. Based upon competencies required for ACSM, NATA, and MSCA certifications.

HSEP 4040. Pediatric Exercise Physiology. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3420. The physiological differences between children and adults relative to exercise performance. Variables such as size, biomechanics, neuromuscular, reproductive, hormonal, and cardiovascular-respiratory differences will be examined.

HSEP 4070. Exercise Cardiopulmonary Physiology. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3420 and HSEP 3360. A concentrated study in the exercise physiology of the healthy and diseased cardiopulmonary system. Emphasis on cardiopulmonary adaptations to acute and chronic exercise and on normal versus abnormal conditions and their effects on exercise testing and training.

HSEP 4080. Exercise Electrocardiography. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3420. A basic understanding of the 12-lead electrocardiogram as it relates to graded exercise testing, training, and functional evaluation. The course is designed particularly to assist the clinical exercise physiologist in developing the skills required for quickly identifying electrocardiographic patterns at rest and during exercise.

HSEP 4130. Exercise Cardiopulmonary Rehabilitation. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3011, and HSEP 4080. A study of multi-phasic and multi-disciplinary programs designed to restore to a productive life the individual with cardiopulmonary disease. Common medical treatments and diagnostic procedures and treatments reviewed. Emphasis on the American College of Sports Medicine and the American Association of Cardiovascular and Pulmonary Rehabilitation guidelines.

HSEP 4210. Clinical Exercise Physiology. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3010, and HSEP 4070. An advanced course in the physiology of exercise as it relates to the clinical exercise physiologist or health care professional. The integration of the body's various systems relative to the prevention and therapeutic role of exercise will be examined. Case study assignments will focus on problem-oriented management of subjective and objective data.

HSEP 4510. Exercise Physiology Practicum. 3 Hours.
Prerequisites: A grade of "C" or better in HSEP 3010, 3011, 3020, 3050, 3420, and 4080. Students must also have a completed graduation checklist returned from the Registrar and current CPR card. A laboratory capstone course for evaluation, review, and mastery of the competencies required for the clinical and applied exercise physiologist per ACSM guidelines prior to enrollment in HSEP 4550.

HSEP 4550. Exercise Physiology Internship. 12 Hours.
Pre-requisites: A grade of "C" or better in all course requirements for the Exercise Physiology Bachelors of Science degree except HSEP 4550; current AHA Basic Life Support for Health Care Providers CPR certification; current liability insurance; and any other requirements specific to internship site. The student is required to work 40 hours per week for a minimum of 10 weeks, or 400 cumulative hours. Students must complete a major project or paper related to some aspect of the internship site, teach at least two educational classes, and submit a weekly log of their daily activities. The internship site must reflect an area directly related to the field of clinical or applied exercise physiology. Each student is required to sit for at least one of the following professional certification examinations: American College of Sports Medicine Health Fitness Specialist or Clinical Exercise Specialist prior to the end of the semester in which the course is taken and submit copies of the certification exam results, preceptor evaluation, and an exit survey to the course instructor before an final grade can be assigned.