GRADUATE COURSES OF STUDY

EXERCISE SCIENCE

EXSC 602.PRINCIPLES OF STRENGTH AND CONDITIONING
Knowledge and application of processes and principles of health-related physical fitness in physical education and sport settings. This course is designed to investigate current techniques and theories of strength training and conditioning for various sports and activities from physiological and biomechanical perspectives. Prerequisites: PEES 144 and PEES 311, or equivalent courses to PEES 144 and PEES 311, or approval by instructor. ***Three credit hours.***

EXSC 605.SUPERVISION AND ASSESSMENT IN PHYSICAL EDUCATION
Theory and practice of supervision of clinical practice in physical education. This course will provide the student with the basic knowledge and skills necessary to assess K-12 student performance in physical education. Emphasis is given to the analysis of skills through the selection and/or development of alternative assessments. ***Three credit hours***.

EXSC 618.STUDY OF THE TEACHING OF PHYSICAL EDUCATION
Study of the analysis of teaching applied to the development of effective teaching/coaching skills in physical education and/or other sport related settings. ***Three credit hours***.

EXSC 624.SPORT PSYCHOLOGY
An analysis of the psychological factors involved in sport and physical activity with emphasis on performance enhancement. ***Three credit hours*.**

EXSC 626.ADVANCED MOTOR DEVELOPMENT AND MOTOR LEARNING
A study of sequential changes and characteristics of physical growth, motor development, and motor learning across the lifespan relative to physical activity. An examination of factors associated with individual differences in acquiring and learning motor skills during childhood, adolescence, and adulthood. Emphasis is given to current theoretical frameworks (i.e., dynamical systems and information processing) as they are applied to the instruction and evaluation of motor skills. ***Three credit hours.***

EXSC 652.SPECIAL TOPICS IN EXERCISE AND SPORT STUDIES
This course will involve in-depth study of selected contemporary topics. Topics to be covered will be selected by the PEES Department in cooperation with other educational agencies. This course may be repeated for additional credit as topics change. ***Three credit hours***.

EXSC 700.SEMINAR IN EXERCISE SCIENCE
This course investigates topics in the sub-disciplines of the field of Exercise Science, such as biomechanics, exercise physiology, and nutrition. Topics will vary from semester to semester. ***Three credit hours.***

EXSC 701.INTERNSHIP
This course provides students with hands-on experience in a work environment under the supervision of an academic coordinator and a site supervisor. After these experiences, the successful student will be able to demonstrate knowledge of practical work experience in fields related to exercise science, human performance, medical research, or cardiac rehabilitation. Students who wish to attempt the Clinical Exercise Physiology (CEP) Certification Exam are required to enroll in 6 credits to satisfy the American College of Sports Medicine (ACSM) requirements. Graded pass/fail. This course may be repeated for additional credit. Prerequisite: PEES 712 or Program Director permission. ***Three to six credits hours.***

EXSC 702.ADVANCED METHODS OF STRENGTH AND CONDITIONING
This course examines advanced theory, controversies, and techniques utilized in the design of strength and conditioning programs. Validity and reliability of common performance tests and training techniques will be explored. The laboratory portion of the course includes administration of performance tests and instruction in program design and technique. ***Three credit hours***.

EXSC 710.APPLIED BIOMECHANICS

This course provides a thorough evaluation of the mechanical basis of human movement. Fundamental mechanical principles affecting human movement during locomotion and a variety of daily activity are considered. Techniques and methods of mechanics, quantitative video analysis, isometric and isokinetic muscle force, electromyography, and research evaluation are incorporated into laboratory projects. ***Three credit hours***.

EXSC 711.ADVANCED EXERCISE PHYSIOLOGY

This course offers an in-depth overview of work physiology, including cellular respiration, ventilation, cardiovascular dynamics, muscle physiology, the endocrine system, environmental aspects of exercise, and the anthropometric, histologic, and biochemical adaptive response to physical training. ***Three credit hours***.

EXSC 712.CARDIOVASCULAR PHYSIOLOGY

This course covers every aspect of the heart and circulatory system from the anatomical, biophysical, molecular, and cellular underpinning of function to the integrative nature of each component of cardiovascular regulation. ***Three credit hours***.

EXSC 713.REHABILITATIVE EXERCISE

This course provides practical experience in kinesiology. It offers instruction leading to rehabilitation proficiency in a framework for the observation, analysis, and description of human movement on the normal pathological spectrum. ***Three credit hours***.

EXSC 714.EXERCISE AND IMMUNE FUNCTION

This course begins with a description of the immune responses to exercise and then proceeds to an in-depth study of the underlying physiological, biochemical, and molecular biological processes involved in these responses. ***Three credit hours.***

EXSC 726.NUTRITION, HEALTH, AND DISEASE

This course investigates the dietary influences on prominent chronic diseases (e.g., cardiovascular disease, cancer, neurodegenerative diseases, and osteoporosis). Additional emphases is placed on understanding disease mechanisms, developing a wide spectrum of food knowledge, exploring functional foods to avoid rigid diets, and analyzing various types and fundamental flaws of nutrition research. ***Three credit hours***.

EXSC 727.NUTRITION AND HUMAN PERFORMANCE

This course studies the effects of acute and chronic exercise on nutrient requirements and fluid needs. Macronutrient metabolism, the influence of nutrient timing, and the ergogenic efficacy of dietary supplements receive substantial attention. ***Three credit hours***.

EXSC 728.MOTOR LEARNING

This course explores theories and current literature in the sub-discipline of motor skill acquisition and focuses on factors influencing motor learning. ***Three credit hours***.

EXSC 730.HEALTHY AGING

This course investigates the effects of age, physical activity, and nutrition on physical functions of elderly individuals. It provides an overview on aging from different perspectives: demography, biology, epidemiology of diseases, physical and mental disorders, functional capacity, and disability. ***Three credit hours***.

EXSC 731.NUTRITION AND CHRONIC DISEASE

This course surveys trends in current research that relate to diet and lifestyle choices to the increased or decreased risk of various health conditions. The main topic areas include obesity, digestive health, type 2 diabetes, cardiovascular disease, cancer, and cognitive decline. ***Three credit hours***.

EXSC 732.HEALTH PROMOTION ACROSS THE LIFESPAN

This course considers the relationship between physical activity and diseases, common fitness assessments that can be used in healthcare settings, and strategies for the promotion of effective physical activity. ***Three credit hours***.

EXSC 733.PUBLIC HEALTH AND PHYSICAL ACTIVITY

This course studies the epidemiology of physical activity. It focuses on the relationship between exercise and health for the promotion of physical activity in clinical and public health settings. ***Three credit hours.***

EXSC 741.ADVANCED RESEARCH METHODS AND DESIGN

This course examines research concepts, research designs (experimental, non-experimental, and epidemiological), internal and external validity, and manuscript format and preparation. Added emphasis will be placed on data evaluation and statistical analysis. ***Three credit hours***.

EXSC 753.PSYCHOLOGY FOR CLINICAL POPULATIONS IN CLINICAL EXERCISE PHYSIOLOGY

This course investigates the behavior of patients in a clinical setting. Students will learn to use observation and evaluation tools to assess a patient's understanding of their disease and/or disability. Various education and behavior change techniques to promote adherence to healthy behaviors through a patient-centered approach will be explored. ***Three credit hours.***

EXSC 754.SCIENTIFIC FOUNDATIONS OF SPORT PSYCHOLOGY

This course addresses the evolution of sport psychology as a science. It pays special attention to the psychological variables associated with successful performance in sport and other physical activities. ***Three credit hours***.

EXSC 760.ENTREPRENEURSHIP IN THE FITNESS INDUSTRY

This course offers a comprehensive examination of all aspects of fitness management and establishing a health and fitness related. ***Three credit hours***.

EXSC 761. MANAGEMENT AND LEADERSHIP IN CLINICAL EXERCISE SETTINGS

This course is designed to provide an in-depth understanding of the government and industry standards and guidelines within the clinical setting. Students will learn industry-accepted scopes of practice, ethical, legal, and business standards. ***Three credit hours.***

EXSC 762.ADVANCED EXERCISE/FITNESS ASSESSMENT

This course provides an in-depth study and analysis of the principles and techniques used to assess physical fitness and health, as well as the design of conditioning programs and physical activities. ***Three credit hours***.

EXSC 763.EXERCISE PRESCRIPTION AND CHRONIC DISEASE MANAGEMENT

This course investigates chronic conditions and illnesses, and how exercise may be used to treat them. Emphasis is placed on the theoretical and practical knowledge necessary to conduct and interpret a wide variety of screenings and exercise tests commonly used in clinical practice. Coursework includes applying research on chronic disease management to clinical decision making, in order to develop skills in evidence-based practice. ***Three credit hours***.

EXSC 764.PERSPECTIVES FOR SPECIAL POPULATIONS

This course explores in detail specialized exercise science considerations for diverse populations, including an overview of pathophysiology, groups, with an emphasis given to the elderly, females, children, and other unique populations including an overview of the pathophysiology, epidemiology, diagnosis, and treatment of common chronic diseases. ***Three credit hours***.

EXSC 765.EXERCISE TESTING FOR CLINICAL POPULATIONS

This course provides experience in typical clinical exercise testing procedures and their interpretation for various chronic disease populations. Emphasis will be placed on the ability to conduct a range of clinical exercise tests to assess common cardiopulmonary and metabolic chronic diseases in a variety of clinical and hospital settings. ***Three credit hours.***

EXSC 798.THESIS I

This course covers the initial stages in the preparation of a Master's Thesis. Stages include the selection of a thesis advisor and committee, the development and acceptance of a thesis proposal, and the development of a research plan. ***Three credit hours***.

EXSC 799.THESIS PREPARATION II

This course covers the final stages in the preparation of a Master's Thesis. Stages include implementation of a research plan, data collection and analysis, development of the thesis manuscript according to program requirements and guidelines, thesis defense, and final submission of the manuscript. ***Six credit hours***.