Exercise Science (EXSC)

Courses

EXSC 50203. Advanced Teaching in Exercise Science. 3 Hours.
Examination and practical exposure to the principles and practices of undergraduate teaching in exercise science. Includes course planning, teaching techniques, assessment strategies, and supervised practice. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 hours of degree credit.

EXSC 51403. Pediatric Exercise Science. 3 Hours.
This course explores exercise and physical activity in children and adolescents. Students will survey the anatomical, physiological and psychosocial issues related to exercise and physical activity in children such as effects of maturation, growth and puberty on the fitness components (body composition, cardiorespiratory endurance, muscle strength, muscle endurance and flexibility), normal responses to exercise, and adaptations of exercise training in healthy and clinical pediatric populations. The course will include a discussion of national physical activity recommendations and the local and national policies and programs to promote physical activity in diverse youth populations. Prerequisite: Instructor consent. (Typically offered: Irregular)

EXSC 53203. Biomechanics I. 3 Hours.
Intended to serve as an introduction to biomechanics and focuses on the scientific principles involved in understanding and analyzing human motion. (Typically offered: Spring)

EXSC 53303. Instrumentation in Biomechanics. 3 Hours.
The application of knowledge and skills necessary for data collection for sports analysis. Provides valuable information on instrumentation used specifically in biomechanics. Prerequisite: EXSC 53203. (Typically offered: Irregular)

EXSC 53503. Exercise Psychology. 3 Hours.
Exercise Psychology is a lecture and discussion format for students interested in learning about theoretical and research information related to exercise adherence. (Typically offered: Irregular)

EXSC 54503. Physical Activity and Health. 3 Hours.
The course is designed to give graduate students from a variety of disciplines a broad introduction to the role of physical activity and how it affects the public's health across the lifespan. Throughout the semester, we will cover topics such as the current recommendations for physical activity, the beneficial effects of physical activity on various health-related outcomes, determinants of physical activity, how to measure physical activity at both the individual and population levels, and strategies used to promote physical activity. Graduate students within all areas of exercise science, public health and disciplines outside of public health (e.g., education, healthcare, social work, and psychology) could benefit from this course at the Masters or Doctoral level. Students will complete a physical activity research project in their field of study and review both historical and current literature. (Typically offered: Irregular)

EXSC 54603. Promoting Physical Activity in the Community. 3 Hours.
This course will give students in the area of public health or physical activity the opportunity to survey community physical activity interventions in diverse settings and populations (i.e. workplaces, schools, urban planning, children). The course will examine evidence-based strategies to promote physical activity, and students will apply program planning and physical activity evaluation skills in the field of physical activity. (Typically offered: Irregular)

EXSC 55103. Physiology Exercise I. 3 Hours.
A study of the foundation literature in exercise physiology. Emphasis is placed on the muscular, cardiovascular, and respiratory systems. (Typically offered: Fall)

EXSC 55203. Muscle Metabolism in Exercise. 3 Hours.
A study of the metabolic changes that occur in muscle as a result of exercise, exercise training, and other stressors. Prerequisite: EXSC 55103 or equivalent. (Typically offered: Irregular)

EXSC 55303. Cardiac Rehabilitation Program. 3 Hours.
An examination of the concepts, design, and implementation of cardiac rehabilitation programs. Emphasis on exercise programs but reference to nutrition, psychology, and other lifestyle interventions. (Typically offered: Irregular)

EXSC 55403. Cardiovascular Function in Exercise. 3 Hours.
Study of the effects of exercise training and other stressors on the cardiovascular system. Detailed study of the components of the cardiovascular system and the responses and adaptations of those components to selected stimuli. Corequisite: EXSC 55103 or equivalent. (Typically offered: Irregular)

EXSC 55903. Advanced Exercise Testing and Prescription. 3 Hours.
Practical experience in testing physical fitness utilizing laboratory equipment. Objective is to quantify physiological parameters, leading to the individualized exercise prescription. (Typically offered: Fall)

EXSC 56103. Physical Dimensions of Aging. 3 Hours.
This course will focus on the physiological changes with healthy aging, pathophysiology of age-related diseases, testing issues, exercise interventions, and the psychosocial aspects of aging. Prerequisite: EXSC 55103. (Typically offered: Irregular)

EXSC 56403. Advanced Psychology of Sports Injury and Rehabilitation. 3 Hours.
The purpose of this course is to explore and discuss factors related to the psychological aspects of athletic injuries. These factors include the sociocultural, mental, emotional, and physical dimensions of injury rehabilitation. (Typically offered: Irregular)

EXSC 57703. Performance and Drugs. 3 Hours.
The pharmacological and physiological effects of ergogenic aids upon the athlete and performance coupled with the ethical and moralistic viewpoints of drug taking. Practical laboratory experiences are provided with pertinent statistical surveys of athletes; their drug taking habits and relevant psychological impact on performance. (Typically offered: Irregular)

EXSC 63103. Muscle Physiology. 3 Hours.
To expand the student's knowledge of the skeletal muscle form and function. Specifically, how muscle is formed to how it can adapt as a post-mitotic tissue. This course will focus on the morphological, physiological, cellular, and molecular factors that affect skeletal muscle form and function. (Typically offered: Irregular)

EXSC 63403. Physiology of Exercise II. 3 Hours.
Detailed study of the body systems affected by exercise, the functions of these systems during exercise, the effects of age, sex, body type, and nutrition on capacity for exercise, the techniques of assessing work capacity, and a critical analysis of research literature in this area. (Typically offered: Irregular)

EXSC 64403. Thermoregulation and Fluid Balance. 3 Hours.
Comprehensive overview of human thermoregulatory responses to exercise in heat and cold. (Typically offered: Irregular)