Exercise Science (EXSC)

Michelle Gray
Interim Department Head
306 HPER Building
479-575-6713
Email: gray@uark.edu

Paul Calleja
Assistant Department Head
306C HPER Building
479-575-2854
Email: pcallej@uark.edu

Degree Conferred:
M.S. in Exercise Science (EXSC)

Program Description: The Exercise Science master's program prepares students with the competencies necessary to pursue .... . The minimum number of credit hours for the M.S. degree is 33 hours.

Requirements for M.S. in Exercise Science

Application to Degree Program:

The Exercise Science program undertakes a holistic review of applicants. For acceptance to the program, a student must meet the general requirements for admission to the Graduate School, have earned an undergraduate degree in exercise science (or in a related field) and meet the following admission standard: a 3.00 GPA on the last 60 hours of undergraduate course work. Further, the student will also need to submit a resume/curriculum vitae, 500-word interest statement, and the contact information for three references to be considered for program admission consideration.

Application to Accelerated Degree Program (4+1 Program):

Applicants for the Exercise Science M.S. under the Accelerated Program must be a University of Arkansas undergraduate pursuing a bachelor's degree in exercise science, completed at least 60 credit hours towards the EXSCBS degree, enrolled in or has completed EXSC 31503, and must have a cumulative GPA of at least 3.25.

All prospective students who apply through the Accelerated program are evaluated by the Exercise Science Program faculty and using a variety of factors including GPA, resume/Curriculum vita, 500 word interest statement, and the contact information for three references. GRE Scores are not required to apply to M.S. program through the Accelerated program.

Courses Completed during the Final Undergraduate Year:

Accelerated students may take up to 12 hours of graduate coursework (5000 and 6000 level coursework) in the last 12 months of their undergraduate degree that will be counted toward both their B.S. and M.S. degrees. The three required courses and timing of completion are EXSC 55103 (Fall), EXSC 55903 (Fall), and HHPR 53503 (Spring). The final course which is taken in the spring can be chosen from the following: EXSC 53303, EXSC 55203, EXSC 55303, EXSC 56403, EXSC 57703, and EXSC 64403. All 12 hours are taken in lieu of general and EXSC-related electives. Upon completion of the B.S. degree (including the graduate courses), the Accelerated students who have at least an average 3.0 GPA in EXSC and HHPR graduate courses will be accepted by the program faculty into the EXSC M.S. degree program after admittance into the Graduate School.

Requirements for the Master of Science Degree: Candidates for the M.S. degree in Exercise Science must complete 24 semester hours of graduate work and a thesis (6 credit hours) or 30 semester hours without a thesis. A graduate GPA of 3.0 or better is required for graduation. In addition, non-thesis candidates must successfully complete a written comprehensive examination.

Students should also be aware of Graduate School requirements with regard to master's degrees (http://catalog.uark.edu/graduatecatalog/degreerequirements/#mastersdegreestext).

Required Research Component (6 hours)		
ESRM 53903	Statistics in Education and Health Professions	3
HHPR 53503	Research in Health, Human Performance and Recreation	3
Required Core Courses (9 hours)		
EXSC 53203	Biomechanics I	3
EXSC 55103	Physiology Exercise I	3
EXSC 55903	Advanced Exercise Testing and Prescription	3
Thesis Track (6 hours)		
KINS 6000V	Master's Thesis	6
Approved Electives (9 hr if thesis;15 hr if non-thesis)		**9-15**
EXSC 53303	Instrumentation in Biomechanics	
EXSC 53503	Exercise Psychology	
EXSC 55203	Muscle Metabolism in Exercise	
EXSC 55303	Cardiac Rehabilitation Program	
EXSC 55403	Cardiovascular Function in Exercise	
EXSC 56103	Physical Dimensions of Aging	
EXSC 56403	Advanced Psychology of Sports Injury and Rehabilitation	
EXSC 57703	Performance and Drugs	
EXSC 63103	Muscle Physiology	
EXSC 63403	Physiology of Exercise II	
EXSC 64403	Thermoregulation and Fluid Balance	
KINS 5890V	Independent Research	
Total Hours		**30**

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 in introduction to biomechanics and focuses on scientific principles involved in understanding and analyzing human motion. (Typically offered: Fall)

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: Fall)

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: Fall)

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: Spring)

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: Spring Even Years)

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: Fall Even Years)

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 and Summer)

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: Spring Odd Years)

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: Spring)

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: Spring)

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: Fall Even Years)

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: Spring Even Years)