

## **Applied Exercise and Health Science, MS (Concentration in Exercise Physiology)**

Link:

### *Program Description:*

The Master of Science with a major in Applied Exercise and Health Science (AEHS) is a 36-semester hour graduate study program. Majors select a concentration area in either Exercise Physiology or Sport Management. Exercise Physiology students specifically focus on the physiological responses/adaptations to exercise through laboratory-based activities and exposure to research investigation. Sport Management students focus on sport and the sport industry through the study of managerial principles and participating in applied experiences to prepare for careers in the sport, recreation, and fitness industries. Students will benefit from a curriculum suited for many employment opportunities including clinical settings, strength and conditioning, fitness and wellness related fields, and research. Also, the program features a choice among three capstone experiences: 1) Administrative Field Experience, 2) Master's Project, or 3) Master's Thesis.

The program is delivered in a state-of-the-art Health Sciences building that provides study areas, computer labs, a graduate lounge, and private group meeting areas for students. There is a 6,250 square foot Exercise Science laboratory complex which includes a Biomechanics lab, Exercise Physiology lab (instructional area and four independent research spaces), and research offices. Graduate Research and Teaching Assistantship opportunities are available but competitive. Graduate Assistants work with individual faculty members in research labs and/or assist with course instruction.

### *Course Catalog w/ Descriptions:*

EHS 6100: Research Methods in Sports and Exercise; This course is designed to discuss concepts and methodologies employed in research design typically applied in studies dealing in exercise science and sport management. The intent is to provide the student with an intuitive or conceptual understanding of theory, tools, and processes involved in designing research studies relevant to these disciplines.

EHS 6200: Statistical Methods in Sports and Exercise; This course focuses on statistical methods used in the fields of sports and exercise science. Students will be introduced to basic statistical

concepts including organizing and displaying data, mode, median, and mean, and measures of variability. More advanced topics including correlation and regression, t tests, analysis of variance, and analysis of nonparametric data will be explored. Students will calculate and interpret data along with using the statistical software SPSS.

EHS 6300: Leadership and Administration in Sports and Exercise; This course introduces issues and skills relevant to leadership and administration in the sports and exercise industries. Topics covered include leadership styles, interpersonal communication, fiscal management, policy formulation and implementation, decision-making models, and strategic planning.

EHS 6510: Advanced Exercise Physiology; An advanced study through readings, discussion and laboratory experiences of select and recent topics in exercise physiology. Topics include metabolic responses to exercise; neuromuscular and molecular physiology related to exercise; temperature regulation during exercise; acute and chronic physiological responses to altitude; exercise during pregnancy; and body composition and weight control.

EHS 6520: Exercise Psychology; This course will address physical activity and exercise as they relate to psychological health issues. Factors related to physical activity and exercise adoption and adherence and intervention planning also will be addressed. The course will be taught with an emphasis on application of concepts and discussion and evaluation of the scientific research.

EHS 6530: Advanced Laboratory Techniques in Exercise Physiology; Techniques and research applications for measuring, assessing, and evaluating physiological parameters.

EHS 6540: Bioenergetic and Neuromuscular Aspects of Exercise; Examination of acute and chronic bioenergetic and muscular adaptations to the performance of work.

EHS 6550: Cardiovascular and Clinical Physiology; Examination of the mechanisms of cardiovascular dynamics and metabolic function at rest and during exercise in healthy and associated diseased populations.

EHS 7800: Administrative Field Experience; Internship as Exercise Specialist at Wellstar Health Place (description can be located on resume)

EHS Elective 1: Nutrition and Performance; No course description available on website

EHS Elective 2: Environmental Physiology; No course description available on website

## Exercise Science, BS

Link:

### *Program Description:*

The Exercise Science program is a scientifically based program designed to prepare competent entry-level Exercise Science professionals in the cognitive (knowledge), psychomotor (skills), and affective (abilities) learning domains. The Exercise Science program offers a diversified program that includes both introductory and advanced coursework, laboratory experiences and the opportunity for practical application of knowledge through community and research-based experiences. The program can also be used as pre-professional preparation for post graduate study in exercise science or other health related disciplines including physical therapy, occupational therapy and medical programs. The Exercise Science program is designed to prepare students for appropriate professional organization certifications

### *Course Catalog w/ Descriptions:*

BIOL 2221: Human Anatomy & Physiology I; The course begins with cellular chemistry and function, tissues, and continues through the nervous, skeletal and muscular systems. Homeostasis and structural and functional relationships will be emphasized. Primarily recommended for students interested in nursing, physical therapy, occupational therapy, exercise science, and sports management. Cannot be used for credit toward a degree in Biology.

BIOL 2221: Human Anatomy & Physiology I Laboratory; Basic anatomy and physiology of the skeletal, nervous, and muscular systems as well as basic histology. Structural and functional relationships will be emphasized.

BIOL 2222: Human Anatomy & Physiology II; A continuation of Biology 2221. Emphasizes homeostasis and structural and functional relationships in the study of cardiovascular, respiratory, urinary, digestive, endocrine, and reproductive systems.

BIOL 2222: Human Anatomy & Physiology II Laboratory; Basic anatomy and physiology of the cardiovascular, respiratory, digestive, urinary endocrine, and reproductive systems. Structural and functional relationships will be emphasized.

ES 2100: Physical Activity in Health and Disease; This course provides an epidemiological foundation to physical activity research specific to public health. Participants will examine the

literature relative to the physiological impact of regular physical activity on chronic diseases (e.g., cardiovascular diseases, diabetes, cancer, etc.).

ES 2200: Safety Training for Exercise Safety; The purpose of this course is to provide students with the knowledge and skills necessary for using the Exercise Physiology Laboratory safely. Students will learn and practice the emergency action plan. This course will provide students with the knowledge and skills necessary to help provide a safe environment for athletes when they are participating in sport/exercise and, in an emergency, to help sustain life and minimize the consequences of injury or sudden illness until advanced medical help arrives.

ES 2300: Medical Terminology; This course will cover the basic techniques for anatomical, physiological, and medical word-building. The course will teach a systematic approach to defining general medical terms and terms for pathological disorders by dividing them into word roots, combining forms and prefixes.

ES 2500: Principals of Nutrition; This course is designed to introduce students to the basic principle of nutrition as needed for general health. Topics include the role of diet in the development and prevention of chronic diseases, such as cardiovascular disease, cancer, diabetes, etc.; macro- and micro-nutrient needs for optimum health; U.S. dietary guidelines (and international equivalents); tools to assist with menu planning; and dietary analysis.

ES 3600: Health Fitness Management; This course provides an introduction to the professional standards and guidelines that assist a health and fitness facility with providing quality service and program offerings in a safe environment. Course content will include an overview of risk management and emergency policies, operating practices, facility design and construction, equipment concerns and signage issues related to health and fitness facilities.

ES 3700: Strength and Conditioning; This course offers students an introduction to scientific and practical foundations associated with strength and conditioning programs. The course content promotes the use of a structured scientific approach in the prescription of progressive resistance training and cardiorespiratory conditioning.

ES 3750: Strength and Conditioning Laboratory; This laboratory course provides an introduction to techniques commonly associated with instructing strength and conditioning programs. The laboratory content promotes the use of a structured scientific approach in the prescription of progressive resistance training and cardiorespiratory conditioning.

ES 3800: Biomechanics; This course introduces students to the study of neuromuscular and mechanical principles of motion related to the analysis of human movement.

ES 3900: Physiology of Exercise; This course provides an overview of the human body's responses to the stress of physical exercise. Students are introduced to the metabolic, cardiovascular, pulmonary and neuromuscular adaptations to acute and chronic exercise.

ES 4200: Nutrition and Performance; This course covers the nutritional needs of individuals participating in exercise and sport. Topics include but are not limited to the dietary needs of the human body before, during and after various modalities and intensities of athletics in order to optimize performance.

ES 4300: Physiology of Exercise and Aging; This course provides an overview of exercise physiology and healthy aging. The course emphasizes special considerations during fitness assessment, exercise prescription, and health promotion for special populations including the older adult, children, adolescents, and females during pregnancy and the post-partum period.

ES 4500: Physiology of Exercise II: This course examines the study of the physiological basis of training and factors limiting human performance. Students are introduced to concepts of neuromuscular function, hormonal control, environmental conditions and ergogenic aids as they relate to acute and chronic exercise.

ES 4550: Exercise Science Laboratory Techniques; This course provides an introduction to laboratory techniques commonly used in the field of exercise science. The course includes an overview of ergometry, energy expenditure, blood pressure, cardiovascular, pulmonary, and musculoskeletal responses during exercise. The topics within the course include safe, legal, and ethical practices required when working in an exercise physiology laboratory.

ES 4600 Exercise Prescription; This course introduces students to methods utilized in creating exercise prescriptions and developing exercise programs. Emphasis is placed on developing and delivering safe and valid exercise prescriptions.

ES 4650: Exercise Testing; Exercise Testing is a detailed examination of various fitness assessments. This course emphasizes current test procedures used for determining body fat percentage, maximum oxygen uptake, maximum power output, and muscular strength and endurance. This course thoroughly familiarizes students with lab procedures, test protocol, and the interpretation.

ES 4700: Clinical Exercise Physiology; This course is designed to address the clinical aspects and implications of exercise physiology principles for those with or at risk of developing cardiovascular, pulmonary or metabolic disease.

ES 4900: Senior Seminar in Exercise Science; This course is a capstone course designed as a culminating experience for the major by integrating the student's prior academic experience in Exercise Science. Students are provided an overview of contemporary issues, trends, theories, and research related to Exercise Science. This course is delivered in a seminar format to encourage student participation and interaction with peers and faculty.