

Exercise Science (EX)

Courses

EX 101 Introduction to Exercise Science: 3 semester hours

Exercise science is an interdisciplinary field that spans the physiological, psychological, nutritional, motor, and functional adaptations and responses to exercise, physical activity, and sport. This course introduces students to foundational terms and concepts in the field. A broad overview of the various subdisciplines in exercise science is provided. Career opportunities within exercise science will be reviewed and explored so that students can make informed decisions regarding their academic and professional goals.

EX 255 Prevention and Care of Athletic Injuries: 3 semester hours

This course provides instruction and practice in the prevention, care, and evaluation of common sport-related injuries. Students gain familiarity with managing injury and emergency situations when an athletic trainer or physician is not available.

EX 275 Human Nutrition: 3 semester hours

This course provides an overview of food and metabolism, particularly as it pertains to exercise, health, and performance. Biochemical and physiological processes in digestion are addressed. Students learn how to calculate nutritional intake and caloric expenditure based on professional guidelines. Psychosocial factors influencing diet are also discussed. Prerequisite: BI 125.

EX 280 Practical Skills in Exercise Science: 3 semester hours

The course is offered to introduce students to the concepts of resistance training, translational and dynamic movement assessments, speed and agility, power training, and professional practices in exercise science. Students will actively engage in hands-on application and work to develop practical cueing and observational assessment skills. Prerequisite: EX 101.

EX 300 Principles of Personal Training: 4 semester hours

A study of the scientific principles related to physical fitness, fitness programming, and personal training in fitness, recreation, and corporate settings. This course provides an overview of functional anatomy, exercise physiology, health and physical fitness, weight management, exercise prescription, and programming considerations. Students will be prepared to sit for a personal training certification following completion of the course. Students will be involved in setting up, participating in, and evaluating physical fitness in a lab setting. Prerequisite: EX 101.

EX 305 Exercise Physiology: 4 semester hours

This course provides information on the nature and function of metabolism, circulation, respiration, and acid-base balance as it pertains to exercise. In the laboratory portion, students are exposed to research methods and equipment evaluating physiological responses at rest and during exercise. Prerequisite: BI 274 OR BI 374.

EX 307 Environmental Exercise Physiology: 3 semester hours

This course offers an exploration of the acute and chronic effects of exercise on physiological systems under various environmental conditions, including heat, cold, hypoxia, hyperbaria, microgravity, and pollution. Prerequisite: EX 305.

EX 308 Motor Learning and Control: 3 semester hours

The course is offered to introduce students to the concepts of teaching motor skills, neuroanatomy, neurophysiology, and methodology for motor learning in human performance, coaching, and/or therapeutic setting. Students will engage in hands-on learning and application using a clinical or performance lens to assess human movement and motor control/learning. Prerequisite: EX 101.

EX 309 Exercise for Special Populations: 3 semester hours

The course is offered to introduce students to the concepts of special populations in exercise and human performance. Special populations include but are not limited to: older adults, children, obesity, diabetes, CVD, cancer, multiple sclerosis, COPD, arthritis, and musculoskeletal injuries. Basic principles of exercise programming for optimal health will be reviewed. Evidence-based, advanced programming for population-specific considerations will be discussed and applied. It is vital for Human and Sport Performance Coaches, Athletic Trainers, and Exercise Science professionals have a full understanding of how to utilize effective exercise programs in specialized conditions. Prerequisite: EX 101.

EX 315 Structural and Functional Kinesiology: 4 semester hours

Kinesiology is the study of human movement. This course specifically applies anatomical principles to examine the causes and effects of motion produced by human biological systems. Functional movements pertaining to physical activity, human performance, and physical rehabilitation are emphasized. Three hours of lecture and two hours of laboratory per week. Prerequisite: BI 273.

EX 350 Sport and Exercise Behavior: 3 semester hours

This course explores the basic concepts and principles essential to understanding the behavioral aspects of sport and exercise. Current concepts and research are presented to develop an understanding of behaviors in sport and exercise settings. Emphasis is given to the applied aspects of sports performance enhancement and mental skills, sport and exercise behavior, motivation, and coaching skills. Prerequisite: EX 101, PS 101.

EX 355 Principles of Strength and Conditioning: 4.5 semester hours

This course explores scientific theories and principles of strength and conditioning for the purposes of optimizing health and human performance. Students evaluate popular (mis)conceptions of resistance training by examining scholarly evidence in the discipline. Instruction on proper form and technique is also provided. Students gain hands-on experience by participating in multiple resistance training activities and assignments. Prerequisite: EX 315.

EX 375 Exercise Testing and Prescription: 3 semester hours

This course includes an overview of testing protocols for assessing health-related components of physical fitness, including cardiovascular endurance, muscular strength, muscular endurance, flexibility, and body composition. Exercising prescription principles (frequency, intensity, time, and mode) are also addressed. Students gain experience working with a client, assessing their health/fitness and creating an appropriate exercise plan using American College of Sports Medicine guidelines. Co-requisite: EX 305.

EX 450 Exercise Science Internship: 3 semester hours

Students gain direct and indirect educational experience by working with a professional in an exercise science-related career. Students are jointly supervised by a faculty member and an employer. Typically completed during the senior year. Prerequisite: EX 395.