

Exercise Science (EXSC)

Courses

EXSC 26603. Terminology for the Health Professions. 3 Hours.

Emphasis is on word roots and combined forms of words describing various facets of health and disease. Descriptive definitions with application of practical significance included for the health professional. (Typically offered: Irregular)
This course is cross-listed with PBHL 26603.

EXSC 27303. Introduction to Exercise Science. 3 Hours.

This class will cover introductory topics for the Exercise Science students in preparation for entry into the profession. In addition to specific topics, students will prepare their resumes and make a formal presentation. Prerequisite: EXSC major or instructor consent. (Typically offered: Fall and Spring)

EXSC 273H3. Honors Introduction to Exercise Science. 3 Hours.

This class will cover introductory topics for the Exercise Science students in preparation for entry into the profession. In addition to specific topics, students will prepare their resumes and make a formal presentation. (Typically offered: Fall and Spring)
This course is equivalent to EXSC 27303.

EXSC 30103. Functional Anatomy for Exercise Science. 3 Hours.

This course will include the study of functional human anatomy with emphasis on musculoskeletal and neurological systems. There will be an introduction to the clinical application and location of anatomical structures with some common injuries from a health professions perspective. Prerequisite: BIOL 24003 and BIOL 24001. (Typically offered: Spring)

EXSC 31503. Exercise Physiology. 3 Hours.

Examination of effects of exercise on the physiology of the systems of the body. The exploration includes effects during, immediately after, and as long term results of work and exercise. Prerequisite: (BIOL 24103 and BIOL 24101) and (BIOL 24003 and BIOL 24001). (Typically offered: Fall and Spring)

EXSC 33503. Mechanics of Human Movement. 3 Hours.

An introduction to basic analysis of motor skills. No credit given toward major in Zoology. Prerequisite: (BIOL 24103 and BIOL 24101), (BIOL 24003 and BIOL 24001), and KINSBS or EXSCBS or PHEDBS majors or by instructor consent. (Typically offered: Fall and Spring)

EXSC 33903. Prevention and Care of Athletic Injuries. 3 Hours.

Introduction to the prevention and care of athletic related injuries. Includes athletic injury recognition and management. Prerequisite: BIOL 24003 and BIOL 24001. (Typically offered: Irregular)

EXSC 34201. Principles and Theories of Strength and Conditioning Laboratory. 1 Hour.

This course will provide the practical skills necessary to design and implement strength and conditioning programs. Students will put principles of cardiovascular, speed, agility, and strength training into practice as they relate to sport team training. Special emphasis is placed on the ability to evaluate exercise movements, prescribe appropriate exercise programs, administer tests, and support program prescription with a sound knowledge of anatomical and physiological adaptations to exercise. Students will learn various skills such as how to set up and run speed, agility, and quickness drills, how to select and administer the appropriate tests for athletic performance, and how to evaluate Olympic lifting technique. Corequisite: EXSC 34203. (Typically offered: Spring)

EXSC 34203. Principles and Theories of Strength and Conditioning. 3 Hours.

This course will provide the practical skills necessary to design strength and conditioning programs. Special emphasis is placed on the ability to evaluate exercise movements, prescribe appropriate exercise programs, administer tests, and support program prescription with a sound knowledge of anatomical and physiological adaptation to exercise. The course will include laboratory experiences integrated with didactic learning. The laboratory experiences will in teach students various skills such as how to set up and run speed, agility, and quickness drills, how to select and administer the appropriate tests for athletic performance, and how to evaluate Olympic lifting technique. Everyone must participate in the labs as subjects. Come to lab prepared to exercise. When students are finished with this course, they will be well prepared to take the CSCS exam given by the National Strength and Conditioning Association. Corequisite: EXSC 34201. Prerequisite: (BIOL 24003 and BIOL 24001) and (BIOL 24103 and BIOL 24101). (Typically offered: Spring)

EXSC 35303. Laboratory Techniques. 3 Hours.

Practical experience in testing physical fitness in both the laboratory and non-laboratory settings. Pre- or Corequisite: EXSC 31503. (Typically offered: Fall, Spring and Summer)

EXSC 372H3. Honors Research Methods in Exercise Science. 3 Hours.

This course will provide an overview of research methods for experimental research designs in exercise science. The students will learn facets of research including: developing a research idea, getting funding for research, obtaining IRB/IACUC approval, data collection, data input, statistical analyses, and preparing manuscripts for publication. Designed for exercise science honors students in spring of their junior year or the summer prior to their senior year to prepare them for their honor's thesis. Prerequisite: Honors standing. (Typically offered: Spring)
This course is cross-listed with PBHL 372H3.

EXSC 390H1. Exercise Science Honors Thesis Tutorial. 1 Hour.

Designed to provide the foundation for the Honors Thesis/Project. Students and faculty tutors work "one-on-one" exploring a specific topic which has been agreed upon by the student and the professor. Prerequisite: Honors candidacy and EXSCBS major. (Typically offered: Fall, Spring and Summer)

EXSC 3910V. Special Topics in EXSC. 1-3 Hour.

Designed to cover specialized topics not presented in exercise science coursework. (Typically offered: Irregular) May be repeated for up to 9 hours of degree credit.

EXSC 40103. Clinical Exercise Physiology. 3 Hours.

The course is designed to build upon prior knowledge of Exercise Physiology and Exercise Testing. We will examine the physiological impacts of exercise and exercise training with specific emphasis on how they relate to clinical outcomes and clinical testing. At the end of the course students should have developed competencies congruent with the objectives of the American College of Sports Medicine's (ACSM) certification for Clinical Exercise Physiologist. Prerequisite: EXSC 31503 and EXSC 35303. (Typically offered: Fall)

EXSC 4050V. Independent Study. 1-3 Hour.

Provides students an opportunity to pursue special study of research problems. (Typically offered: Fall, Spring and Summer) May be repeated for up to 12 hours of degree credit.

EXSC 405HV. Honors Independent Study. 1-4 Hour.

Provides students an opportunity to pursue special study of research problems. Prerequisite: Instructor consent. (Typically offered: Fall, Spring and Summer) May be repeated for up to 4 hours of degree credit.
This course is equivalent to EXSC 4050V.

EXSC 43203. Exercise Prescription. 3 Hours.

This course is designed to provide knowledge and application of sound exercise prescription principles and design of exercise programs in cardiorespiratory fitness, muscular fitness, body composition, flexibility, and balance. Pre- or corequisite: EXSC 35303. Prerequisite: EXSC 31503. (Typically offered: Fall and Spring)

EXSC 432H3. Honors Exercise Prescription. 3 Hours.

This course is designed to provide knowledge and application of sound exercise prescription principles and design of exercise programs in cardiorespiratory fitness, muscular fitness, body composition, flexibility, and balance. Pre- or corequisite: EXSC 35303. Prerequisite: EXSC 31503. (Typically offered: Fall and Spring)
This course is equivalent to EXSC 43203.

EXSC 44403. 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. Corequisite: EXSC 35303. Prerequisite: EXSC 31503. (Typically offered: Irregular)

EXSC 47703. Performance and Drugs. 3 Hours.

The pharmacological and physiological effects of ergogenic aids upon the athlete and sport performance, coupled with the ethical and moralistic viewpoints of drug taking. Explores the historic and contemporary doping scandals in sport and the efforts towards anti-doping. Prerequisite: EXSC 31503. (Typically offered: Fall and Spring)

EXSC 477H3. Honors Performance and Drugs. 3 Hours.

The pharmacological and physiological effects of ergogenic aids upon the athlete and sport performance, coupled with the ethical and moralistic viewpoints of drug taking. Explores the historic and contemporary doping scandals in sport and the efforts towards anti-doping. Prerequisite: EXSC 31503 and honors standing. (Typically offered: Fall and Spring)
This course is equivalent to EXSC 47703.

EXSC 47803. Sport and Exercise Psychology. 3 Hours.

This course examines how individuals behave in physical activity, exercise, and sport settings. Psychological antecedents and consequences of primary and secondary involvement in exercise, sport, and related physical activities will be introduced. Prerequisite: PSYC 20003. (Typically offered: Fall and Summer)

EXSC 478H3. Honors Sport and Exercise Psychology. 3 Hours.

This course examines how individuals behave in physical activity, exercise, and sport settings. Psychological antecedents and consequences of primary and secondary involvement in exercise, sport, and related physical activities will be introduced. Prerequisite: Honors standing and PSYC 20003. (Typically offered: Fall)
This course is equivalent to EXSC 47803.

EXSC 48303. Exercise Applications for Special Populations. 3 Hours.

The study of the effects of exercise, exercise training, and other stressors in special groups. A detailed study of the biomechanical and physiological effects of exercise on the elderly, the diabetic, the post-coronary, and the individual with functional limitations. Prerequisite: EXSC 33503, EXSC 31503, EXSC 35303, and EXSC 43203. (Typically offered: Fall and Spring)

EXSC 483H3. Honors Exercise Applications for Special Populations. 3 Hours.

The study of the effects of exercise, exercise training, and other stressors in special groups. A detailed study of the biomechanical and physiological effects of exercise on the elderly, the diabetic, the post-coronary, and the individual with functional limitations. Prerequisite: EXSC 33503, EXSC 31503, EXSC 35303, EXSC 43203 and honors standing. (Typically offered: Fall and Spring)
This course is equivalent to EXSC 48303.

EXSC 49003. Internship in Exercise Science. 3 Hours.

Provides opportunities for students in Exercise Science to gain experience in clinics, hospitals, fitness centers, athletic training facilities or related settings. Pre- or Corequisite: EXSC 35303. Prerequisite: EXSC 33503 and EXSC 31503. (Typically offered: Fall, Spring and Summer)

EXSC 498HV. Exercise Science Honors Thesis/Project. 1-3 Hour.

Designed to provide facilitation of the Honors Thesis/Project. Students and faculty work "one-on-one" to complete the honors thesis/project. Prerequisite: Honors candidacy, EXSCBS, KINSBS, or PHEDBS major, and EXSC 390H1 or EXSC 372H3. (Typically offered: Fall, Spring and Summer) May be repeated for up to 3 hours of degree credit.

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 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)