Exercise Science (EXSC)

Courses

EXSC 2663. 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 2663.

EXSC 2733. 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 2733H. 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 2733.

EXSC 3013. 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 2443 and BIOL 2441L. (Typically offered: Spring)

EXSC 3153. 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 2213 and BIOL 2211L) and (BIOL 2443 and BIOL 2441L). (Typically offered: Fall and Spring)

EXSC 3353. Mechanics of Human Movement. 3 Hours.
An introduction to basic analysis of motor skills. No credit given toward major in Zoology. Prerequisite: (BIOL 2213 and BIOL 2211L), (BIOL 2443 and BIOL 2441L), and KINSBS or EXSCBS or PHEDBS majors or by instructor consent. (Typically offered: Fall and Spring)

EXSC 3393. 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 2443 and BIOL 2441L. (Typically offered: Irregular)

EXSC 3421L. 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 3423. (Typically offered: Spring)

EXSC 3423. 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 3421L. Prerequisite: (BIOL 2443 and BIOL 2441L) and (BIOL 2213 and BIOL 2211L). (Typically offered: Spring)

EXSC 3533. Laboratory Techniques. 3 Hours.
Practical experience in testing physical fitness in both the laboratory and non-laboratory settings. Pre- or Corequisite: EXSC 3153. (Typically offered: Fall, Spring and Summer)

EXSC 3723. Research Methods in Exercise Science. 3 Hours.
This course will provide an overview of research methods for experimental research designs in an exercise science setting. 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 honor students in spring of their junior year or the summer prior to their senior year to prepare them for their honor's thesis. (Typically offered: Spring)

EXSC 3723H. Honors Research Methods in Exercise Science. 3 Hours.
This course will provide an overview of research methods for experimental research designs in an exercise science setting. 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 honor students in spring of their junior year of the summer prior to their senior year to prepare them for their honor's thesis. Prerequisite: Honors standing. (Typically offered: Spring)
This course is equivalent to EXSC 3723.

EXSC 391V. 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 4013. 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 3153 and EXSC 3533. (Typically offered: Fall)

EXSC 405V. 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 405VH. 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 405V.

EXSC 4323. Exercise Prescription. 3 Hours.
This course is designed to provide knowledge and application of sound exercise prescription principles and design of exercise programs in cardiorespitory fitness, muscular fitness, body composition, flexibility, and balance. Pre- or corequisite: EXSC 3533. Prerequisite: EXSC 3153. (Typically offered: Fall and Spring)

EXSC 4323H. 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 cardiorespitory fitness, muscular fitness, body composition, flexibility, and balance. Pre- or corequisite: EXSC 3533. Prerequisite: EXSC 3153. (Typically offered: Fall and Spring)
This course is equivalent to EXSC 4323.

EXSC 4353. Advanced Mechanics of Human Movement. 3 Hours.
Students will build upon their foundation in qualitative biomechanics to quantitatively analyze human movement. Biomechanics of the musculoskeletal system will be covered in the first half of the course, and fundamental laws and principles of mechanics will be covered in the second course half of the course. Examples will be provided throughout the course to demonstrate how biomechanics can be used to enhance and maintain human health, fitness, and performance. Prerequisite: EXSC 3353 and PHYS 2013. (Typically offered: Irregular)

EXSC 4643. 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 4773. 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. Prerequisite: EXSC 3153. (Typically offered: Fall and Spring)

EXSC 4773H. Honors 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. Prerequisite: EXSC 3153 and honors standing. (Typically offered: Fall and Spring)
This course is equivalent to EXSC 4773.

EXSC 4783. 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 2003. (Typically offered: Fall and Summer)

EXSC 4783H. 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. (Typically offered: Fall)
This course is equivalent to EXSC 4783.

EXSC 4833. 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 3353, EXSC 3153, and EXSC 3533. (Typically offered: Fall and Spring)

EXSC 4833H. 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 3353, EXSC 3153, EXSC 3533 and honors standing. (Typically offered: Fall and Spring)
This course is equivalent to EXSC 4833.

EXSC 4903. 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 3533. Prerequisite: EXSC 3353 and EXSC 3153. (Typically offered: Fall, Spring and Summer)

EXSC 5023. 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 5323. 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 5333. 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 5323. (Typically offered: Irregular)

EXSC 5353. 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 5443. Seminar in Brain Injury and Behavior. 3 Hours.
The Brain Injury and Behavior Seminar will immerse you in specific topics pertaining to the study of human brain-behavior relationships. Emphasis will be placed on traumatic brain injury (TBI), including moderate-to-severe injuries, as well as mild TBI or concussion. The first half of the course will focus on research related to how individuals sustain and recover from TBI. The second half of the course will focus on sports-related concussion in youth, collegiate, and professional athletes, with an emphasis on how athletes sustain concussions, how concussions are assessed, treated, and managed, and how return-to-play decision are made. This course will introduce you to research in a variety of fields that include physiology, neurology, and neuropsychology through primary source material in the form of book chapters and journal articles. (Typically offered: Irregular)

EXSC 5453. 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 5513. 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 5523. 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 5513 or equivalent. (Typically offered: Spring)

EXSC 5533. 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 5543. 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 5513 or equivalent. (Typically offered: Fall Even Years)

EXSC 5593. Practicum in Laboratory Instrumentation. 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 5613. 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 5513. (Typically offered: Spring Odd Years)

EXSC 5643. 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 5773. 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 6313. 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 6323. Biomechanics II. 3 Hours.
Analysis of human movement with emphasis on sports skills by application of principles of anatomy, kinesiology, and cinematographical analysis. Prerequisite: EXSC 5323. (Typically offered: Irregular)

EXSC 6343. 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 6443. Thermoregulation and Fluid Balance. 3 Hours.
Comprehensive overview of human thermoregulatory responses to exercise in heat and cold. (Typically offered: Spring Even Years)