

EXSC - Exercise Science

Courses numbered 100 to 299 = *lower-division*; 300 to 499 = *upper-division*; 500 to 799 = *undergraduate/graduate*.

EXSC 113. Introduction Exercise Science (3). ▸

An overview of the basic physiological, neurological and biomechanical processes associated with physical activity and human movement.

EXSC 302. Administration in Exercise Science (3).

Examines the various issues, policies and procedures involved with administration in exercise science. Emphasis is on facility organization and design, legal liability, personnel management, budgeting, equipment purchasing, and record keeping and promotions. Special topics are related to fitness and wellness center administration.

EXSC 313. Exercise and Sport Nutrition (3). ▸

Study of the role of nutrition as a means to enhance performance in exercise and sport. Topics include principles of healthful nutrition, energy metabolism and nutrients, regulation of metabolism by macro and micro nutrients, weight control and analysis of the validity and safety of proposed nutritional ergogenic aids. In addition, regulatory (FDA and FTC) aspects of sports nutrition are reviewed.

EXSC 313H. Exercise and Sport Nutrition Honors (3).

Study of the role of nutrition as a means to enhance performance in exercise and sport. Topics include principles of healthful nutrition, energy metabolism and nutrients, regulation of metabolism by macro and micro nutrients, weight control and analysis of the validity and safety of proposed nutritional ergogenic aids. In addition, regulatory (FDA and FTC) aspects of sports nutrition are reviewed.

EXSC 328. Kinesiology (3).

Serves as a link between the general aspects of anatomy and biomechanics, and specific applications in the fields encompassing exercise science. Provides an in-depth review of musculoskeletal anatomy as a foundation for learning components of simple and complex human movement. Emphasizes the qualitative analysis of human movement, while also incorporating quantitative analysis techniques. Prerequisite(s): BIOL 223 or HS 290.

EXSC 331. Care and Prevention of Athletic Injuries (3). ▸

The study of acute injury care, prevention and recognition methods for the coach, athletic trainer and physical educator to aid in the management of athletic related injuries. This course has a lab component. Prerequisite(s): BIOL 223 or HS 290.

EXSC 440. Concepts in the Prescription of Exercise (3).

An introduction of techniques appropriate for screening, health appraisal and fitness assessment as required for prescribing exercise programs for persons without disease or with controlled disease, and provision for practical experience in a supervised setting outside the class. Prerequisite(s): EXSC 113, BIOL 223, HS 290 or departmental consent.

EXSC 440H. Concepts in the Prescription of Exercise Honors (3).

An introduction of techniques appropriate for screening, health appraisal and fitness assessment as required for prescribing exercise programs for persons without disease or with controlled disease, and provision for practical experience in a supervised setting outside the class. Prerequisite(s): EXSC 113, BIOL 223, HS 290 or departmental consent.

EXSC 461. Biomechanics of Human Movement (3).

Introduces students to concepts of mechanics as they apply to human movement, particularly those pertaining to exercise, sport and physical activity. Students should gain an understanding of the mechanical and anatomical principles that govern human motion and develop the

ability to link the structure of the human body with its function from a mechanical perspective. Prerequisite(s): EXSC 328 or departmental consent.

EXSC 461H. Biomechanics of Human Movement Honors (3).

Introduces students to concepts of mechanics as they apply to human movement, particularly those pertaining to exercise, sport and physical activity. Students should gain an understanding of the mechanical and anatomical principles that govern human motion and develop the ability to link the structure of the human body with its function from a mechanical perspective. Prerequisite(s): EXSC 328 or departmental consent.

EXSC 470. Experiential Fitness Practicum in Exercise Science (2-3).

Application of theory to practice by assisting in various activities associated with the field of exercise science (e.g., fitness instruction, weight management, weight training, athletic training, etc.). Minimum of 15 hours per week. Prerequisite(s): EXSC 440 or EXSC 440H with grade of C or departmental consent.

EXSC 481. Cooperative Education (1-8).

Academic program that expands a student's learning experiences through paid employment in a supervised educational work setting related to the student's major field of study or career focus. Repeatable for a total of 8 credit hours. Prerequisite(s): 2.500 GPA and admission to College of Education.

EXSC 490. Physiology of Exercise (3).

Provides a working knowledge of human physiology as it relates to exercise. Prerequisite(s): BIOL 223 or HS 290. Corequisite(s): EXSC 490L.

EXSC 490H. Physiology of Exercise Honors (3).

Provides a working knowledge of human physiology as it relates to exercise. Prerequisite(s): BIOL 223 or HS 290. Corequisite(s): EXSC 490L.

EXSC 490L. Physiol of Exercise Lab (0).

A laboratory course designed to provide students the opportunity to learn basic skills relevant to an exercise physiologist. The student learns these skills through observation as well as through hands-on opportunities to perform as the technician and/or the client during the structured weekly activities. Students will experience, first hand, the neuromuscular, metabolic, and cardiorespiratory responses to acute exercise. Laboratory to be taken concurrently with HPS 490 lecture. Prerequisite(s): BIOL 223, or HS 290. Corequisite(s): EXSC 490.

EXSC 495. Internship in Exercise Science (8).

Culminating activity for students completing the BA in exercise science. Students spend the equivalent of full-time employment in an appropriate agency for one full semester. Prerequisite(s): senior standing, departmental consent, EXSC 470, 2.500 minimum GPA overall and for major, admission to College of Education.

EXSC 510. Coaching Principles (3).

Provides the skills and knowledge necessary for individuals to successfully coach and officiate both elementary and secondary school interscholastic and intramural athletics. Instruction for coaching and officiating techniques, coaching progression, skill analysis and skill development is provided. Management techniques for interscholastic and intramural athletics are included. A variety of coaching strategies as well as discipline and motivation techniques are discussed.

EXSC 541. Seminar in Strength and Conditioning (3).

Helps prepare students for the National Strength and Conditioning Association (NSCA) Certification Commission's Certified Strength and Conditioning Specialist (CSCS) examination and/or the NSCA-Certified Personal Trainer certification examination. Anatomy,

biochemistry, biomechanics, endocrinology, nutrition, exercise physiology, psychology and the other sciences that relate to the principles of designing safe and effective training programs are covered. Prerequisite(s): EXSC 440 or EXSC 440H, junior standing, graduate standing or departmental consent.

EXSC 541H. Seminar in Strength and Conditioning Honors (3).

Helps prepare students for the National Strength and Conditioning Association (NSCA) Certification Commission's Certified Strength and Conditioning Specialist (CSCS) examination and/or the NSCA-Certified Personal Trainer certification examination. Anatomy, biochemistry, biomechanics, endocrinology, nutrition, exercise physiology, psychology and the other sciences that relate to the principles of designing safe and effective training programs are covered. Prerequisite(s): EXSC 440 or EXSC 440H, junior standing, graduate standing or departmental consent.

EXSC 542. Advanced Strength and Conditioning (3).

Helps prepare students for the NSCA Certified Strength and Conditioning Specialist (CSCS) examination. Covers advanced concepts and skills related to strength and conditioning including test selection and administration, program design, needs analysis, administration and nutrition. For undergraduate credit only. Prerequisite(s): EXSC 541/541H and admission in the BS in exercise science with a concentration in strength and conditioning program, or departmental consent.

EXSC 543. Professional Development in Strength and Conditioning (3).

Helps prepare students to study for and pass the NSCA Certified Strength and Conditioning Specialist (CSCS) examination. This course also helps students develop professional materials and skills to obtain employment upon graduation. For undergraduate credit only. Prerequisite(s): admission in the BS in exercise science with a concentration in strength and conditioning program, or departmental consent.

EXSC 590. Independent Study (1-3).

Arranged individual independent study in specialized content areas under the supervision of a faculty member. Prerequisite(s): departmental consent.

EXSC 591. Internship in Strength and Conditioning I (2).

Complements and enhances the student's academic program by providing an opportunity to apply and acquire knowledge in a workplace environment as an intern. For undergraduate credit only. Prerequisite(s): EXSC 440 and admission to the BS in exercise science with a concentration in strength and conditioning program, or departmental consent.

EXSC 592. Internship in Strength and Conditioning II (3).

Complements and enhances the student's academic program by providing an opportunity to apply and acquire knowledge in a workplace environment as an intern. For undergraduate credit only. Prerequisite(s): EXSC 591 and admission to the BS in exercise science with a concentration in strength and conditioning program, or departmental consent.

EXSC 593. Internship in Strength and Conditioning III (3).

Complements and enhances the student's academic program by providing an opportunity to apply and acquire knowledge in a workplace environment as an intern. For undergraduate credit only. Prerequisite(s): EXSC 542 and admission to the BS in exercise science with a concentration in strength and conditioning program, or departmental consent.

EXSC 595. Human Performance Research (3).

Experiential learning course provides opportunities to engage in research activities conducted in the Human Performance Laboratory. Repeatable for a total of 6 credit hours. Prerequisite(s): departmental consent.

EXSC 595H. Human Performance Research Honors (3).

Experiential learning course provides opportunities to engage in research activities conducted in the Human Performance Laboratory. Repeatable for a total of 6 credit hours. Prerequisite(s): departmental consent.

EXSC 715. Body Composition and Weight Management (3).

A comprehensive coverage of the theoretical and scientific aspects of body composition assessment and current strategies for effective weight management. The limitations and usefulness of reference and field methods for assessing body composition in research, clinical and health/fitness settings are addressed. The overall intent of this course is not only to provide classroom-based theory regarding body composition assessment, but also hands-on experience and training in applying the different assessment techniques.

EXSC 716. Psychosocial Aspects of Sports Injury, Illness and Rehabilitation (3).

Cross-listed as CLES 750AF. Explores the psychosocial factors related to sport injury and illness and their effects on the rehabilitation process, mostly connected to sports and physical culture. Offers an opportunity to develop critical thinking and applicable skills as students consider the place of injury, illness and pain within the social and psychological worlds of sport. Explores the mechanisms through which psychosocial factors influence sports injury, illness, understanding, prevention, treatment and rehabilitation outcomes.

EXSC 732. Pathophysiology of Cardiovascular Disease (3).

Introduces the pathophysiology of multiple cardiovascular conditions and the developing industry of cardiac rehabilitation. Introduces assessment techniques in electrocardiography (ECG) to assist in the diagnosis of cardiovascular disease. Includes an introduction to ECG leads, rate and rhythm, ECG complexes and intervals, conduction disturbances, arrhythmia, ECG identification of myocardial infarction location and drug effects on an ECG. Pre- or corequisite(s): EXSC 490 or EXSC 490H.

EXSC 750L. Motivation (3).

This course is designed to provide the skills and knowledge necessary to properly motivate individuals, groups and teams in a leadership role. Focus is placed on enhancing, creating or maintaining intrinsic motivation through the comprehension of motivation theory, primarily Self-Determination Theory, Achievement Goal Theory and The Progressive Motivation Cycle. In addition, techniques will be developed to apply concepts learned from theory and research to real situations. The knowledge and skills gained from this course will help students excel as leaders in sport, education, business or any chosen career.

EXSC 750Q. ACE Personal Training Course (1-2).

Gives students the knowledge and understanding necessary to prepare for the ACE personal training certification exam. Students learn a comprehensive system for designing individualized programs based on the unique health and fitness goals of clients. Students can take the exam for an additional \$249.

EXSC 762. Statistical Concepts in Human Performance Studies (3).

Covers descriptive statistics, elementary probability, distributional properties, one- and two-population mean and variance comparisons, ANOVA, linear regression and correlations. In addition, more advanced

principles in parametric and nonparametric statistics are emphasized. Prerequisite(s): junior classification or graduate student status.

EXSC 780. Physical Dimensions of Aging (3).

Cross-listed as PHS 780. Develops an understanding of the complex physiological changes that accompany advancing age and the effects of physical activity on these factors. Also develops an appreciation for how functional consequences affect mental and social dimensions of life. Attention is given to sensory, motor, cognitive and psychological changes. Emphasizes factors associated with the preparation, implementation and evaluation of research projects involving older adult populations.

EXSC 781. Cooperative Education (1-3).

Academic program that expands a student's learning experiences through paid employment in a supervised educational work setting related to the student's major field of study or career focus. Repeatable for credit. A maximum of 3 credit hours (for nonthesis option) or 6 credit hours (for thesis option) may count toward the graduate degree.

EXSC 790. Applied Exercise Physiology (3).

Focuses on the applied aspect of exercise physiology. Includes the areas of environmental influences on performance; optimizing performance through training, nutrition and ergogenic aids; training and performance of the adolescent athlete and the differences in performance and training between genders. Pre- or corequisite(s): EXSC 490 or EXSC 490H or EXSC 830.

EXSC 795. Physiology of Athletic Performance (3).

Explores the physiological responses involved with various athletic performances, including sports requiring endurance, speed and power. Includes such areas of physiological study as metabolic energy systems, cardiovascular and skeletal muscle adaptation, muscle fiber type differentiation and responses to extreme environmental conditions. Discovers parameters for performance and establishes guidelines for training at high levels of performance.

EXSC 797. Exercise in Health and Disease (3).

Introduction to the physiology of disease and the effects of short- and long-term exercise on specific conditions. Understanding the guidelines for exercise testing and prescription in high risk populations. Pre- or corequisite(s): EXSC 490 or EXSC 490H or departmental consent.