EXERCISE SCIENCE AND PRE-HEALTH PROFESSIONS

Chair: Joan Eckerson
Department Office: Kiewit Fitness Center, Room 225

The Department of Exercise Science and Pre-Health Professions offers a Bachelor of Science degree with a major in Exercise Science and Pre-Health Professions. The Exercise Science and Pre-Health Professions major prepares students for careers in several health-fitness fields such as corporate/community/commercial fitness, personal training, and strength training and conditioning. This major is also an attractive option for students seeking an advanced degree in exercise science/exercise physiology or who intend to pursue careers in physical therapy, occupational therapy, nursing, cardiopulmonary rehabilitation, medicine, dentistry, pharmacy, and physician assistant. Coursework provided in this major also prepares students for national certifications offered by the American College of Sports Medicine and the National Strength and Conditioning Association.

Major in Exercise Science and Pre-Health Professions

Specific Requirements for Admission to Exercise Science and Pre-Health Professions

Enrollment is based upon the following requirements: A minimum of 30 credits in Creighton University coursework with a cumulative GPA of 2.75 or higher; a grade of “C” or better in CHM 203 General Chemistry I/CHM 204 General Chemistry I Laboratory or CHM 205 General Chemistry II/CHM 206 General Chemistry II Laboratory and BIO 202 General Biology: Cellular and Molecular/BIO 206 General Biology: Cellular and Molecular Laboratory or BIO 201 General Biology: Organismal and Population/BIO 205 General Biology: Organismal and Population Laboratory. Students apply for admission to the major through the College of Arts and Sciences website.

- B.S., Major in Exercise Science and Pre-Health Professions (http://catalog.creighton.edu/undergraduate/arts-sciences/exercise-science/exercise-science-bs)

Courses

EXS 125. First Aid. 2 credits. FA, SP, SU
American Red Cross Responding to Emergencies, Cardiopulmonary Resuscitation and Automated External Defibrillator Certification may be earned. Emphasis on recognizing an emergency and providing care until professional medical help arrives. Students should expect to pay an additional fee for first aid supplies used and Red Cross Certification fee.

EXS 142. Personal Weight Training. 1 credit. FA, SP
Principles, techniques, and participation in weight-training activities for both men and women. Emphasis on improving muscular endurance, strength and flexibility.

EXS 144. Aerobics. 2 credits. FA, SP
Designed to increase cardiovascular fitness, flexibility, and muscular endurance. Includes instruction in high and low impact aerobic dance, step training, kick boxing, and circuit training. Lectures over essential fitness concepts are also included. Open to all.

EXS 151. Beginning Tennis. 1 credit. FA, SP
Instructional techniques, analysis, demonstration, and practice in the basic skills of tennis. Includes rules, selection and care of equipment, strategy on the court.

EXS 152. Intermediate Tennis. 1 credit. OD
Instructional techniques, analysis, demonstration, and practice in the intermediate skills of tennis. Some advanced strategies and skills. P: EXS 151 or IC.

EXS 161. Life Skills for Student Athletes. 1 credit. FA, SP
This course is designed to educate student-athletes in the dynamics of intercollegiate athletics through participation in all aspects of their respective sport, including conditioning, team drills and activities, academic enrichment, community service, and life skills training. Graded Satisfactory/Unsatisfactory.

EXS 195. Introduction To Athletic Training. 3 credits. FA, SP
Cognitive and practical experiences designed to introduce basic athletic training principles and skills to students entering the field of sports medicine and other health care careers.

EXS 240. Designing A Personalized Fitness Program. 3 credits. FA, SP
Assessment of individualized fitness level and the development of a personal fitness program. Lecture topics include physiological testing protocols, the explanation and evaluation of various forms of exercise, training guidelines for aerobic and anaerobic exercise programs and risk factors associated with cardiovascular disease. Two lectures and two activity sessions per week.

EXS 305. Therapeutic Modalities. 3 credits. OD
The purpose of this course is to educate the student pursuing a career in sports medicine in the basic principles of the use of therapeutic modalities as it relates to the athletic setting. An emphasis will be placed upon the practical use of these principles in the athletic training room setting in conjunction with associated program coursework. P: EXS 195, EXS 331 or IC.

EXS 306. Therapeutic Exercise. 3 credits. OD
The purpose of this course is to educate the student pursuing a career in Athletic Training in the basic principles of rehabilitation and specific therapeutic exercise techniques as they relate to the care of the physically active. Special emphasis will be placed upon the practical use of these principles and techniques in laboratory settings and in the collegiate athletic training room setting in conjunction with practical experience. P: EXS 195, EXS 331 or IC.

EXS 310. Practicum in Exercise Science. 1 credit. FA, SP
Depending upon area of interest, provides students with practical experience in areas such as athletic training, fitness testing, personal training, strength and conditioning, and wellness programming with professionals affiliated with Creighton University. May be repeated three times. P: EXS major, Jr. stdg. and DC.

EXS 320. Human Physiology. 4 credits. FA, SP, SU
An undergraduate human physiology course providing detailed coverage on the normal function of the human organ systems, while also incorporating discussion on physiological changes with physical activity and certain diseases. Information is presented from the cellular level to the entire organism. P: BIO 202/BIO 206 or BIO 201/BIO 205; CHM 203/CHM 204 or CHM 205/CHM 206; EXS major or IC.
EXS 331. Human Anatomy. 0-4 credits. FA, SP, SU
Provides students with a basic knowledge of the structure and function of the human body. Lecture topics range from anatomical terminology to comprehensive overviews of the individual systems. Dissected cadaver specimens and anatomical models are used as learning aids. P: BIO 202/BIO 206 or BIO 201/BIO 205; CHM 203/CHM 204 or CHM 205/CHM 206.

EXS 334. Biomechanics. 4 credits. FA, SP
Introduction to the biomechanics of human movement. Study of the musculo-skeletal system with special emphasis on the application of physical laws and principles that govern movement and of the body. P: EXS 331, EXS major, or IC.

EXS 335. Exercise Physiology. 0-4 credits. FA, SP
Study of the major physiological systems in the body and their response to acute and chronic exercise. Students will be introduced to laboratory techniques to assess body composition anaerobic power and cardio vascular fitness. P: BIO 202/BIO 206 or BIO 201/BIO 205; CHM 203/CHM 204 or CHM 205/CHM 206, EXS 240 and EXS 320 or IC; EXS major.

EXS 350. Nutrition For Health And Sports Performance. 3 credits. FA, SP, SU
Considerable information is provided regarding the six classes of nutrients. Lectures focus on applying knowledge in nutrition into a framework upon which performance and conditioning strategies can be based or from which recommendations can be made for health enhancement. P: EXS 320, EXS 335, EXS major or IC.

EXS 395. Lower Body Evaluation. 3 credits. OD
The study of the evaluation, assessment, and recognition of athletic injuries involving the lower body. Uses knowledge of regional anatomy to assist with learning specific evaluation techniques. Special emphasis is placed on emergency management. P: EXS 195, EXS 331 or IC.

EXS 396. Upper Body Evaluation. 3 credits. OD
The study of the evaluation, assessment and recognition of athletic injuries involving the upper body. Uses knowledge of regional anatomy to assist with learning specific evaluation techniques. Special emphasis is placed on emergency management. P: EXS 195, EXS 331 or IC.

EXS 401. Exercise Prescription. 3 credits. FA, SP
Case study scenarios preliminary health screening, risk stratification, fitness evaluations, and the design of exercise prescriptions for both general and special populations. Lecture topics include acute and chronic physiological responses to exercise, cardiorespiratory responses, resistance training, weight management, coronary heart disease and an introduction to metabolic equations and caloric expenditure. P: EXS 142, EXS 331, EXS 335, EXS Major or IC.

EXS 407. Basic Statistics And Research Design. 3 credits. FA, SP
Designed to develop skills to read and interpret research reports effectively. Principles of experimental research design utilized in exercise science will be discussed. General statistical concepts will be introduced, including central tendency, variance, correlation, regression, and means comparison. Students will develop a research proposal and presentation based on a topic in exercise science or related field. P: EXS 335; EXS Major or IC.

EXS 409. Research Topics in Exercise Science and Pre-Health Professions. 3 credits.
The course provides the opportunity for students to conduct research with the assistance of fellow students and the instructor. Students will become directly involved in the review of literature, study design, subject recruitment, data collection, statistical analysis, and manuscript or poster preparation. Departmental faculty will lead lecture/discussion sessions detailing their current research agenda and previous experience. Students will also gain an understanding of the use of equipment and testing/assessment methodologies associated with exercise science research. P: EXS major and EXS 407 or equivalent, or IC.

EXS 420. Essentials Of Strength And Conditioning. 3 credits. SP
Theory and practice of designing and administering strength training and conditioning programs for athletes and non-athletes, including special populations. Course content from exercise physiology, anatomy, biomechanics, nutrition and exercise prescription is used in the formulation of programs; instruction of strength training exercises is provided. P: EXS 142, EXS 331, EXS 335, EXS major or IC.

EXS 489. Laboratory Methods And Procedures. 0-4 credits. FA, SP
Course designed to develop practical skills and knowledge in laboratory technique, procedures, protocols and exercise prescription in the areas of cardiorespiratory fitness, body composition, muscular fitness, flexibility and basic EKG interpretation. Additional laboratory testing will be required outside of regular class time. P: EXS 401, EXS major or IC, and current CPR/AED certification.

EXS 491. Exercise Leadership And Program Administration. 3 credits. FA, SP
Integrates knowledge and experiences from EXS courses and provides opportunities to critically discuss and analyze career issues and opportunities associated with health/wellness/fitness-related professions. Emphasis is given to acquainting students to professionals in EXS-related professions and strategies for being successful. P: EXS major; Junior or Senior standing; One Magis Core Oral Communication course.

EXS 492. Exercise Science Internship. 3-5 credits. FA, SP, SU
Students are to spend up to 20 hours per week working in one of several areas as such as: strength training and conditioning; employee/corporate fitness; or in one of the allied health professions (e.g., physical therapy, medicine, physician assistant, cardiac rehabilitation, etc.)Students will assume positions of responsibility and will demonstrate appropriate leadership skills and knowledge. Placement of students will be based upon course-work selection, grade point, and demonstrated leadership, and will be determined by the Chair of the Department. Students who want to commit to 200, 250 or 300 contact hours should register for 3, 4 or 5 credit hours, respectively. P: Jr. stdg.; EXS major or IC.

EXS 493. Directed Independent Readings. 1-4 credits. OD
May be repeated to a limit of four credits. P: Jr. stdg.; EXS Major, IC.

EXS 495. Directed Independent Study. 1-4 credits. OD
May be repeated to a limit of four credits. P: Jr. stdg.; EXS major; IC.

EXS 497. Directed Independent Research. 1-3 credits. FA, OD, SP
Designed to assist students in demonstrating the knowledge and skills associated with research techniques and methods, including testing protocols, statistical design, review of literature, and discussion of results. May be repeated to a limit of four credits. P: Jr. stdg.; EXS Major; IC.