

EXERCISE SCIENCE

Department Website (<http://www.sph.sc.edu/exsc/>)

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The mission of the Department of Exercise Science (EXSC) is to promote an environment of excellence and achievement in human health and performance. As part of our forward-thinking vision, EXSC is used as a resource to train the next generation of scientists and practitioners in the latest techniques and technologies in the field. In addition to advancing the science, we emphasize translation of this research for greater integration into practice and application.

Programs of Study

The undergraduate program leading to a Bachelor of Science degree with a major in exercise science is a science-based program designed primarily to prepare students for entry into post-baccalaureate/graduate programs in health-related fields. A departmental core curriculum provides comprehensive mastery of exercise science.

Entrance Requirements

New freshmen who meet University admissions standards are eligible for admission to the degree program offered by the Department of Exercise Science. Transfer admission requires department approval as well as prerequisites.

Transfer Admission

1. Students enrolled in other colleges on the Columbia campus must have a minimum cumulative GPA of 2.75 and must have at least 12 USC credit hours.
2. Students from other USC campuses must have a cumulative GPA of 2.75 and must have taken at least 12 USC credit hours. Additionally, students from other USC campuses who have fewer than 30 semester hours must also meet Columbia campus freshman admission requirements.
3. Transfer students from regionally accredited institutions must present a minimum cumulative GPA of 2.75 on all college work taken. Students who have fewer than 30 semester hours of college work must also meet Columbia campus freshman admission requirements.

Retention and Progression Standards

1. If the semester, yearly, or cumulative grade point average of a student is below 2.00, the student will be notified in writing.
2. An exercise science major must receive a grade of C or higher in any course in order for it to serve as a prerequisite.
3. A student in exercise science must earn a grade of C or higher in all EXSC departmental course work (EXSC) and in required cognates.
4. An exercise science major may attempt an EXSC course and any prerequisites a maximum of two times to fulfill the requirement. A grade of W will be included as an attempt.
5. A student may obtain a maximum of 7 credits hours with a letter grade of C or below of required courses (excluding cognate courses) before the student is removed from the BS Exercise Science program.

Attendance Requirements

Students enrolled in the Department of Exercise Science are subject to attendance regulations of the University described elsewhere in the

bulletin. When a student enrolls in a particular course, the student is obligated for all the work which may be assigned. Punctual and regular attendance is vital to the discharge of this obligation. The student is responsible for all assigned work in a course, and absences, excused or not, do not absolve the student of this responsibility.

Minors

Students majoring in Exercise Science may pursue minors offered by other units. In completing a minor, students may apply advisor-approved courses to both the minor and cognate, or elective requirements.

Programs

- Exercise Science, B.S. (<https://academicbulletins.sc.edu/undergraduate/public-health/exercise-science/exercise-science-bs/>)

Courses

EXSC 110 - Holistic Health and Fitness (2 Credits)

Focusing on the mind-body-spirit connection, individuals assume responsibility for their health through everyday choices. Students learn about and expand on the pillars of holistic health.

EXSC 110L - Holistic Health and Fitness Lab (1 Credit)

Lab focusing on how to implement and practice techniques that promote health and well-being through the holistic practices.

EXSC 191 - Physical Activity and Health (3 Credits)

Concepts of exercise, nutrition, behavior changes, and skills to promote lifelong physical activity and health.

EXSC 200 - Introduction to Sports Medicine and Athletic Training (3 Credits)

Examination of careers and specific practices within sports medicine, specifically athletic training.

Prerequisites: C or better in EXSC 223 and EXSC 223L.

EXSC 201 - Foundations of Physical Therapy (3 Credits)

Introduction to the profession and practice of physical therapy detailing the functions, disorders, and therapies of the major organ systems in applied context.

EXSC 210 - Effective Learning Strategies (1 Credit)

Students enrolled in this course will discuss and learn how to apply evidence-based learning strategies that will increase the likelihood of success in the pursuit of a college degree.

EXSC 223 - Anatomy and Physiology I (3 Credits)

The structure and functions of the human body: tissues, integument, skeletal, muscular, respiratory, and reproductive systems, and regulation of eating and metabolism.

Prerequisites: ENGL 102; BIOL 102; CHEM 111; MATH 122 or MATH 141.

EXSC 223L - Anatomy and Physiology I Laboratory (1 Credit)

Hands-on activities covering micro- and macroscopic anatomical topics including identification of tissues, bones and markings of the skeletal system, the joints, and the skeletal muscles of the body.

Prerequisites: ENGL 102; BIOL 102; CHEM 111; MATH 122 or MATH 141.

Prerequisite or Corequisite: EXSC 223.

EXSC 224 - Anatomy and Physiology II (3 Credits)

The structure and functions of the human body: nervous, cardiovascular, digestive, immune, urinary, and endocrine systems.

Prerequisites: C or better in EXSC 223 and EXSC 223L.

EXSC 224L - Anatomy and Physiology II Lab (1 Credit)

Hands-on activities covering the gross anatomy nervous, cardiovascular, digestive, and muscular systems.

Prerequisites: C or better in both EXSC 223 and EXSC 223L.

EXSC 275 - Functional Musculoskeletal Anatomy (2 Credits)

Human anatomy for allied health professions. Focus on anatomy relevant to providing health services; knowledge and skills of orthopedic anatomy relative to muscle, ligament, and tendon; muscle origins, insertions, innervations, and actions pertaining to joint motion.

Prerequisites: EXSC 223 and EXSC 223L.

Corequisite: EXSC 275L.

EXSC 275L - Functional Musculoskeletal Anatomy Lab (1 Credit)

Clinical application of human anatomy for allied health care professions using discussion, models, and charts. Anatomy relevant to providing health care to individuals.

Prerequisites: EXSC 223 and EXSC 223L.

Corequisite: EXSC 275.

EXSC 303 - Perceptual-Motor Development (3 Credits)

Theoretical foundations and observation of growth and motor development of children, age birth to 10 years. Observation will be provided via video and live subjects provided by the instructor.

Prerequisites: C or higher in both EXSC 224 and EXSC 224L.

EXSC 330 - Exercise Physiology (3 Credits)

The individual and combined roles of the major organ systems of the body in maintaining homeostasis during muscular exercise.

Prerequisites: C or better in EXSC 224 and EXSC 224L.

Corequisite: EXSC 330L.

EXSC 330L - Exercise Physiology Lab (1 Credit)

Laboratory procedures in exercise physiology; measurement of physical fitness components.

Prerequisites: EXSC 224 and EXSC 224L.

Corequisite: EXSC 330.

EXSC 335 - Biomechanics of Human Movement (3 Credits)

Kinetic and kinematic principles governing efficient human movement. Selected methods of analyzing human movement will be reviewed.

Prerequisites: C or better in EXSC 224, EXSC 224L, PHYS 201 and PHYS 201L.

EXSC 341A - Health Fitness Practicum (1 Credit)

First hour of a supervised practicum in a clinical setting for the Health Fitness Track.

Prerequisites: EXSC 223, EXSC 224.

EXSC 351 - Acquisition of Motor Skills (3 Credits)

Scientific and behavioral foundation of the learning and performance of motor skills.

Prerequisites: C or higher in EXSC 224 and EXSC 224L.

Graduation with Leadership Distinction: GLD: Research

EXSC 355 - Special Topics in Exercise Science (1-3 Credits)

Novel and emerging themes in exercise science. Content varies by instructor and title. May be repeated for a total of 6 credit hours as content varies by title.

EXSC 395 - Research Seminar in Exercise Science (3 Credits)

The research process in exercise science; participation in, presentation and discussion of current research.

Prerequisites: EXSC 223, EXSC 224.

Graduation with Leadership Distinction: GLD: Research

EXSC 401 - Practicum Preparation (1 Credit)

Integration of major program of study and general education; issues of transition into senior practicum - EXSC 444.

Prerequisites: C or better in EXSC 330.

EXSC 407 - Calling Bull in the Age of Big Data, Social Media, and False Claims (3 Credits)

Introduction to the large scientific and philosophical literature base related to bull, with a focus on the occurrence of bull in exercise science. Defining, identifying, and refuting bull when it is encountered in scientific literature, the news, social media, and casual conversation.

Prerequisites: C or better in EXSC 330 and EXSC 330L; C or better in STAT 201 or STAT 205.

EXSC 410 - Psychology of Physical Activity (3 Credits)

Introduction to psychosocial factors in physical activity. Topics include mental health effects of exercise, behavior change theories applied to physical activity, and physical activity determinants and interventions.

Prerequisites: PSYC 101.

Cross-listed course: PSYC 401

EXSC 444 - Exercise Science Practicum (6 Credits)

Supervised experience in a field, clinical, or research setting. EXSC majors only.

Prerequisites: EXSC 401.

EXSC 454 - Health/Fitness Programs (3 Credits)

Design and implementation of health/fitness programs.

Prerequisites: EXSC 223, EXSC 224.

EXSC 464 - Conditioning Methods in Athletic Performance (3 Credits)

Students will learn how to perform pre-exercise assessments, develop appropriate exercise training programs based on these assessments, as well as lead and demonstrate safe and effective methods of exercise by the application of the primary theories and principles of exercise science.

Prerequisites: C or better in both EXSC 224 and EXSC 224L.

EXSC 465 - Exercise Testing and Prescription (4 Credits)

The art of exercise testing and prescription for athletes, general and special populations through classroom and hands on experience.

Prerequisites: C or better in EXSC 330 and EXSC 330L.

EXSC 499 - Independent Study (1-3 Credits)

Enrollment and topic to be approved in advance by advisor and instructor.

Prerequisites: EXSC 223, EXSC 224.

Graduation with Leadership Distinction: GLD: Research

EXSC 507 - Exercise, Sport, and Nutrition (3 Credits)

The relationship between exercise, sport performance, and nutrient metabolism.

Prerequisites: EXSC 223, EXSC 224, EXSC 330, EXSC 330L.

EXSC 531 - Clinical Exercise Physiology (3 Credits)

Scientific bases of clinical exercise programming. The fitness instructor's role in encouraging changes in exercise behavior.

Prerequisites: EXSC 223, EXSC 224, EXSC 330, EXSC 330L.

Corequisite: EXSC 531L.

EXSC 531L - Clinical Exercise Physiology Lab (0 Credits)

Prerequisite: EXSC 223, EXSC 224, EXSC 330, EXSC 330L.

EXSC 541 - Physiological Basis for Strength and Conditioning (3 Credits)

Investigation on the physiological basis for strength and conditioning. Principles of strength and conditioning through lecture based learning, demonstrations, and through laboratory activities.

Prerequisites: C or better in EXSC 330.

EXSC 555 - Current Topics in Exercise Science (1-3 Credits)

Content varies by title. Course may be repeated for a total of 6 credit hours.

EXSC 562 - Impairments of the Human Motor System (3 Credits)

Role of motor development in the growth and development of individuals exhibiting impaired motor control.

Prerequisites: biology, anatomy, physiology, or the equivalent.

EXSC 563 - Physical Activity and the Physical Dimensions of Aging (3 Credits)

The effects of age and physical activity on physical and motor functions of elderly individuals.

Prerequisites: EXSC 223, EXSC 224, EXSC 351, EXSC 330, EXSC 330L.

EXSC 585 - Women's Health and Physical Activity (3 Credits)

Sex differences in diseases, physiological function of sex hormones, hormonal changes in a woman's life, specific women's health issues, and role of physical activity and exercise in prevention and treatment of conditions and diseases specific to women or related to sex hormones. Restricted to 30 students, Special Permission by Instructor.

EXSC 608 - Apps, Wearables and Technology for Lifestyle Behavior Change and Weight Loss (3 Credits)

The course will increase students' understanding of the theoretical foundations, scientific evidence and practical application of technology-assisted lifestyle interventions, with an emphasis on behavioral weight control for adults.

Prerequisites: C or better in EXSC 410.

EXSC 610 - Neuroscience of Human Performance (3 Credits)

Application of neuroscientific theories and measurements to human performance and expertise.

Prerequisites: C or better in EXSC 330, EXSC 330L, EXSC 351, and EXSC 410.

EXSC 620 - Nutrition and Immunology (3 Credits)

Examination of the interrelationships that link human nutrition to the immune system in health and disease. Topics will include basic immunology, overview of nutritional sources, deficiencies and excesses, and the impact on public health issues such as exercise, disease and aging.

Prerequisites: EXSC 330.

EXSC 641 - Neuromuscular Basis of Functional Strength Training (3 Credits)

The aim of this course is to acquire a fundamental understanding of how concepts from motor learning, neurophysiology, and muscle physiology are applied to functional strength training.

Prerequisites: C or better in EXSC 330, EXSC 330L, EXSC 351.

EXSC 651 - Analysis of Everyday Motor Behavior (3 Credits)

Students in this course will analyze everyday activities to gain insight into how humans plan, initiate, execute and refine motor skills. Students will also learn how to evaluate research on motor behavior and how to create novel studies aimed at advancing our understanding of everyday motor behavior.

Prerequisites: C or better in EXSC 351.

EXSC 663 - Environmental Exercise Physiology (3 Credits)

This course is designed to provide students a survey of physiological responses to a variety of environments, such as heat, cold, altitude, and microgravity environments, and how the body acclimatizes to these environments with regards to exercise training.

Prerequisites: C or better in EXSC 330 and EXSC 330L.

EXSC 666 - Cardiorespiratory Exercise Physiology (3 Credits)

Examination of the anatomy and function of the cardiovascular and respiratory systems of the exercising human organism, including acute adjustments and chronic adaptations to the systems.

Prerequisites: EXSC 330.

EXSC 669 - Skeletal Muscle Physiology: Form and Function (3 Credits)

Skeletal muscle physiology and exercise through select laboratory experiences and discussion of related research literature.

Prerequisites: C or better in both EXSC 330 and EXSC 330L.

EXSC 695 - Writing and Presenting in Research (3 Credits)

The research process in Exercise Science through participation, presentation, and discussion of current research.

Prerequisites: EXSC 224.