

Department of Health Sciences

EXERCISE SCIENCE MAJOR

Bachelor of Science

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Exercise Science Mission Statement

The mission of the Exercise Science Program is to prepare graduates entering health-related disciplines with the knowledge and skills needed to continue open-minded pursuits, including the development of human movement and the promotion of a healthy lifestyle in practice and throughout the community.

Program Description

The Exercise Science Program at the University of Charleston offers students interested in pursuing a career in fitness/wellness, strength & conditioning, and rehabilitation sciences as an interdisciplinary approach to healthcare. Academic coursework in biology, exercise physiology, motor development, movement analysis, fitness, kinesiology, psychology, and strength & conditioning provide students with a strong educational foundation followed by real-world, hands-on experience.

Exercise Science focuses on the understanding and promotion of human movement and a healthy lifestyle.

A strong health science emphasis provides students with a robust Exercise Science foundation.

Students will have the opportunity to work in collaboration with Strength & Conditioning Coaches and Human Movement Specialists from the University of Charleston and the surrounding area during practicum experiences and immersed internships.

Eligible for certifications through the American College of Sports Medicine (ACSM), the National Strength and Conditioning Association (NSCA), and the National Academy of Sports Medicine (NASM).

Enrolled students have opportunities to work with clientele of all ages, athletic ability, and motivation.

Exercise Science graduates will acquire the skills and knowledge for a wide range of career opportunities.

Sample jobs titles include:

Strength & Conditioning Coach/Specialist

Fitness Personal Trainer

Corrective Exercise Specialist

Health & Fitness Educator

Wellness Coordinator

Exercise Science graduates will have the foundation to pursue graduate programs in the following areas (additional prerequisites may be required)

Athletic Training

Exercise Physiology

Occupational Therapy

Health and Fitness

Physical Therapy

Exercise Science Program Learning Outcomes

The Exercise Science graduate will:

1. Assemble, identify, and define a body of knowledge in exercise science and related fields.
2. Evaluate and develop exercise programs addressing all paradigms of fitness and wellness.
3. Investigate technical assessment skills of human movement.
4. Understand utilizing a holistic approach to health and wellness and examine its effects on mental health.

Strength and Conditioning Concentration Outcomes

The Strength and Conditioning concentration graduate will:

1. Synthesize performance-based exercise programming.
2. Investigate principles of biomechanical and bioenergetic specificity.

Preprofessional Concentration Outcomes

The Preprofessional concentration graduate will:

1. Demonstrate a readiness in STEM courses for acceptance into an allied health professional pathway.

2. Differentiate between chronic health conditions, medications, and explore their impact on human movement.

Occupational Concentration Outcomes

The Occupational concentration graduate will:

1. Demonstrate a readiness in STEM courses for acceptance into a Master of Occupational Therapy program.
2. Differentiate between chronic health conditions, medications, and explore their impact on human movement.

Admission and Successful Progression

All undergraduate students admitted to the University of Charleston are eligible to declare Exercise Science with the concentration of their choice as their major. To progress in the Exercise Science Program and graduate, students must pass their required courses, with a letter grade of C or better and meet the institutional academic requirement of maintaining a minimum cumulative 2.0 GPA. Students must meet all General Education Outcomes required for graduation by the University of Charleston.

What You Will Study

Exercise Science offers integrated coursework from exercise science, health sciences, and biology. Students can further personalize their academic experience by selecting their preferred concentration and utilizing elective credits, which may be applied toward completing a minor. While the program is structured to be completed in the traditional four-year (eight-semester) timeframe, it allows students to progress at their own pace. Although summer coursework is not required, it is recommended for students seeking to better balance academic and extracurricular opportunities or for those aiming to accelerate their degree completion. Each student is paired with an academic advisor who provides individualized support for degree planning, course selection, and career development.

Exercise Science Core– Required Courses in Major – 36 credit hours		
Course	Title	Credits
EXER 101	Introduction to Exercise Science	3
EXER 113	Structural Kinesiology	3
EXER 201	Training Concepts	3
EXER 225	Medical Terminology in Exercise Science and Healthcare	3
EXER 252	Foundations of Injury Management	3
EXER 325	Exercise Prescription	3
EXER 340	Exercise and Psychological Mindfulness	3
EXER 370	Physiology of Exercise	3
EXER 452	Organization & Administration in Exercise Science	3
EXER 475	Exercise Science Capstone	3
Students must select one of the following:		
HSCI 204	Nutrition	3
EXER 304	Sports Nutrition	3

Exercise Science – Required Courses in Health Sciences - 6 credit hours		
Course	Title	Credits
HSCI 230	Interprofessional Practice and Collaboration	3
HSCI 302	Health Ethics and Policy	3

Strength and Conditioning Concentration

The Strength and Conditioning concentration within the Exercise Science program is designed for students passionate about promoting physical performance, injury prevention, and overall well-being. This program combines scientific coursework in areas such as kinesiology, exercise physiology, and exercise prescription with practical, hands-on training in advanced strength and conditioning techniques. Students gain the foundational knowledge and applied skills necessary to pursue nationally recognized fitness certifications and

engage in experiential learning throughout their coursework. Graduates are prepared for various career paths, including roles as strength and conditioning coaches, personal trainers, performance enhancement specialists, and health and wellness directors. This concentration provides a strong foundation for those seeking to make a lasting impact in athletic, clinical, and community health settings.

Strength and Conditioning Concentration Specific Required Courses – 29 credit hours		
Course	Title	Credits
BIOL 251	Human Anatomy & Physiology I	3
BIOL 251L	Human Anatomy & Physiology I lab	1
BIOL 252	Human Anatomy & Physiology II	3
BIOL 252L	Human Anatomy & Physiology II lab	1
EXER 275	Program Design and Implementation	3
EXER 400	Exercise Metabolism and Energy Systems	3
EXER 412	Advanced Strength and Conditioning	3
PSCY 212	Life-Span Development	3
	Statistics elective	3
MATH 1XX	Math elective	3
PUBH XXX	Public Health elective	3
PUBH XXX	Public Health elective	3

Preprofessional Concentration

The Preprofessional concentration within the Exercise Science program is designed for students preparing for advanced study in fields such as physical therapy, athletic training, chiropractic, and other allied health professions. This concentration emphasizes a strong foundation in the biological and health sciences, including anatomy, physiology, biology, chemistry, and physics, with a core in exercise science, while integrating evidence-based practices in exercise and rehabilitation. Through a combination of rigorous coursework and experiential learning opportunities, students develop the analytical and clinical reasoning skills essential for graduate and professional programs. Graduates are equipped with the academic preparation needed to succeed in competitive healthcare environments, where they play a critical role in restoring function, enhancing performance, and improving quality of life across diverse populations.

Preprofessional Concentration Specific Required Courses – 53 credit hours		
Course	Title	Credits
BIOL 130	Biology for Majors	3
BIOL 130L	Biology for Majors lab	1
BIOL 251	Human Anatomy & Physiology I	3
BIOL 251L	Human Anatomy & Physiology I lab	1
BIOL 252	Human Anatomy & Physiology II	3
BIOL 252L	Human Anatomy & Physiology II lab	1
CHEM 101	General Chemistry I	3
CHEM 101L	General Chemistry I lab	1
CHEM 102	General Chemistry II	3
CHEM 102	General Chemistry I lab	1
EXER 330	Special Populations	3
EXER 355	Motion Analysis	3
EXER 497	Exercise Science Internship	3
HSCI 402	Research I	3
PSYC 101	Introduction to Psychology	3
PSCY 212	Life-Span Development	3

MATH 123	Precalculus	4
PHSC 201	Introductory Physics	3
PHSC 201L	Introductory Physics lab	1
PHSC 202	Introductory Physics II	3
PHSC 202L	Introductory Physics II lab	1
	Statistics elective	3

Occupational Concentration

The Occupational concentration within the Exercise Science program is designed for students aspiring to enter graduate programs in occupational therapy. This concentration offers a comprehensive foundation in human movement, anatomy, psychology, and therapeutic exercise, emphasizing the physical, cognitive, and emotional aspects of health and rehabilitation. Students are well-positioned to pursue advanced training and careers focused on enhancing individuals’ ability to perform daily activities, promote independence, and improve quality of life across the lifespan.

Occupational Concentration Specific Required Courses – 45 credit hours		
Course	Title	Credits
BIOL 130	Biology for Majors	3
BIOL 130L	Biology for Majors lab	1
BIOL 251	Human Anatomy & Physiology I	3
BIOL 251L	Human Anatomy & Physiology I lab	1
BIOL 252	Human Anatomy & Physiology II	3
BIOL 252L	Human Anatomy & Physiology II lab	1
EXER 355	Motion Analysis	3
EXER 400	Exercise Metabolism and Energy Systems	3
EXER 412	Advanced Strength and Conditioning	3
EXER 497	Exercise Science Internship	3
HSCI 402	Research I	3
PSYC 101	Introduction to Psychology	3
PSCY 212	Life-Span Development	3
PSYC 362	Abnormal Psychology	3
MATH 120	Intermediate Algebra	3
	Sociology or social science elective	3
	Statistics elective	3

Internships

Exercise Science students have the opportunity for hands-on client interactions with community-based engagement. Students will obtain knowledge in anaerobic and aerobic training throughout their coursework which will allow them to develop an understanding and ability to practically apply concepts to promote healthy living across the lifespan.

Professional Certifications

- National Strength & Conditioning Association Certified Strength & Conditioning Specialist (CSCS)
- National Strength & Conditioning Association Certified Personal Trainer (NSCA-CPT)
- American College of Sports Medicine Certified Personal Trainer (CPT)
- National Academy of Sports Medicine Corrective Exercise Specialist (CES)
- National Academy of Sports Medicine Performance Enhancement Specialist (PES)
- Athletics and Fitness Association of America Group Fitness Instructor (GFI)
- Functional Movement Specialist (FMS)
- Selective Functional Movement Assessment (SFMA)

Strength and Conditioning Minor

The Strength & Conditioning minor at the University of Charleston will expand students’ knowledge of performance enhancement through interdisciplinary coursework in Exercise Science.

Students completing the Strength & Conditioning minor can take recognized credentialing certification exams offered by the National Strength & Conditioning Association (NSCA), American College of Sports Medicine (ACSM) and the National Academy of Sports Medicine (NASM).

The Strength & Conditioning minor consists of 18 credit hours. Course requirements:

Strength & Conditioning Minor	
The following courses are required:	
EXER 201 Training Concepts	3
EXER 225 Medical Terminology in Exercise Science and Healthcare	3
EXER 275 Program Design & Implementation	3
HSCI 204 Nutrition or EXER 304 Sports Nutrition	3
	12
Choose two (2) elective courses from the list below based on individual student goals for implementing this minor into their future career:	
EXER 252 Foundations of Injury Management	3
EXER 325 Exercise Prescription	3
EXER 330 Special Populations	3
EXER 340 Exercise & Psychological Mindfulness	3
EXER 370 Physiology of Exercise	3
EXER 400 Metabolism and Energy Systems	3
EXER 412 Advanced Strength and Conditioning	3
Total	18