

# Exercise and Sport Science

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## School

School of Science, Engineering and Technology (<http://www.stmarytx.edu/set/>)

## School Interim Dean

Thomas "Ted" Macrini ([tmacrini@stmarytx.edu](mailto:tmacrini@stmarytx.edu)), Ph.D. ([nlagreca@stmarytx.edu](mailto:nlagreca@stmarytx.edu))

## Department

Exercise and Sport Science (<https://www.stmarytx.edu/academics/departments/exercise-sport-science/>)

## Department Chair

Kelvin Wu, Ph.D. ([cwu2@stmarytx.edu](mailto:cwu2@stmarytx.edu))

The Exercise and Sport Science program at St. Mary's University is an excellent choice for students interested in pursuing careers in the fitness/health industry. The program prepares students for a wide range of careers, from fitness specialist to strength and conditioning specialist. Students can even continue their education with graduate training and pursue careers in athletic training, sport nutrition, exercise physiology, cardiac rehabilitation, physical therapy, occupational therapy, or physician assistant. Moreover, the program provides students with the necessary knowledge and skills to take either the NSCA's certified strength and conditioning specialist exam (CSCS) or the ACSM's certified physiologist (EP-C) exam, which can greatly increase their chances of finding a job in the field. In addition, students interested in teaching physical education and/or coaching in secondary schools often choose this major as a first or second teaching field.

Gary Guerra, Ph.D.  
Associate Professor

Susanna Guzman Moczygemba, M.S.  
Lecturer

Sven Hoekstra, Ph.D.  
Assistant Professor

Kelvin Wu, Ph.D.  
Associate Professor

## Majors in Exercise and Sports Science

- B.A. in Exercise and Sports Science with Teacher Certification (<https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/exercise-sport-science/exercise-sports-science-teacher-certification-ba/>)
- B.S. in Exercise and Sports Science - Generalist Track (<https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/exercise-sport-science/exercise-sports-science-bs-gen-track/>)
- B.S. in Exercise and Sports Science - Pre-Physical Therapy Track (<https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/exercise-sport-science/exercise-sports-science-bs-pt-track/>)

## Minor in Exercise and Sport Science

Exercise and Sports Sciences (<https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/exercise-sport-science/exercise-sports-sciences-minor/>)

### EX 1302. Foundations of Exercise & Sport Science. 3 Semester Hours.

Historical and philosophical background of Exercise and Sport Science examined as well as current career options within the discipline.

### EX 1312. Lifelong Health and Wellness. 3 Semester Hours.

The course introduces studies of lifetime fitness and wellness. Topics covered include nutrition, cardiovascular health and wellness, stress management, body composition, substance abuse, lifestyle management, and other pertinent topics. Students will take fitness and wellness measurements which incorporate these areas as well as design a fitness and wellness plan in the topical areas.

### EX 1411. Human Anatomy & Physiology I. 4 Semester Hours.

This is the first part of a two-course sequence. It is a study of the structure and function of the human body including cells, tissues and organs of the following systems: integumentary, skeletal, muscular, nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. This course is intended for Nursing and Exercise & Sport Science majors.

**EX 1412. Human Anatomy & Physiology II. 4 Semester Hours.**

This is the second part of a two-course sequence. It is a study of the structure and function of the human body including the following systems: endocrine, cardiovascular, immune, lymphatic, respiratory, digestive (including nutrition), urinary (including fluid and electrolyte balance), and reproductive (including human development and genetics). Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. This course is intended for Nursing and Exercise & Sport Science majors. Prerequisites: BL1411 with a "C" or better.

**EX 2304. Medical Terminology. 3 Semester Hours.**

This course introduces students to medical terminology used in the healthcare field. Students will learn relevant prefixes, suffixes, word roots, descriptive terms, and eponyms so that they can define, pronounce, and spell medical terms.

**EX 2306. Instruction of Sports Activities and Games. 3 Semester Hours.**

The course offers a comprehensive exploration of the expertise, abilities, and anticipations linked to being a proficient group fitness instructor. Students will participate sport activities such as flag football, volleyball, basketball, field hockey, wrestling, archery, swimming, bowling, or gymnastics to learn how to design, implement, and modify diverse group fitness sessions tailored to factors like group size, skill levels, available equipment, and facility dimensions.

**EX 2308. Introduction to Athletic Training. 3 Semester Hours.**

This course is designed to provide students with a comprehensive understanding of the foundational principles and practices involved in the field of athletic training. This course serves as a gateway for individuals interested in pursuing careers in sports medicine, physical therapy, coaching, or related health and wellness professions.

**EX 2310. Motor Learning. 3 Semester Hours.**

This course is designed to introduce human factors that play a role in the growth, development process, and aging as well as processes that are fundamental to human movement and motor performances. Students will engage in a multidisciplinary study that draws from fields such as psychology, physiology, neuroscience, and biomechanics to understand how individuals acquire, refine, and optimize motor skills throughout their lifespan.

**EX 2399. Topics in Exercise & Sport Science. 3 Semester Hours.**

Topics in Exercise & Sport Science (Elective credit only).

**EX 3112. Selected Topics. 1 Semester Hour.**

Courses under this number will address a variety of topics such as Sport Sociology, Dance, etc.

**EX 3212. Selected Topics. 2 Semester Hours.**

Courses under this number will address a variety of topics such as Sport Sociology, Dance, etc.

**EX 3302. Prevention & Care of Activity-Related Injuries. 3 Semester Hours.**

The relationship of proper conditioning and protective equipment to injury prevention is stressed. Basic First-aid instruction and taping techniques are covered.

**EX 3304. Biomechanics of Human Movement. 3 Semester Hours.**

Study of the inter-relationships of structure and function in the living being. Study of the physics of motion of the human being with emphasis placed on the forces produced by the acting upon the human body. Prerequisite: EX 1411.

**EX 3306. Current Issues in Exercise & Sport Science. 3 Semester Hours.**

Addresses topics such as working with special populations, legal issues, ethical decision-making (e.g., use of steroids, drug-testing of athletes, women in sports).

**EX 3307. Prosthetics and Orthotics. 3 Semester Hours.**

Prosthetics and Orthotics addresses the opportunity for students to understand the relationship between disease, trauma and congenital anomalies and assistive technology. This course overviews the intersections of biomedical engineering, and clinical prosthetics and orthotics rehabilitation. Demonstrations of assistive technology, patient devices and research are provided.

**EX 3308. Statistics for Exercise Science. 3 Semester Hours.**

Descriptive and inferential statistics: standard scores, characteristics of the normal curve, correlation and regression, quantifying reliability, t-test and analysis of variance, to include repeated measures and covariance designs. Application of statistical software (SPSS) is used by students to solve problems within the course.

**EX 3310. Field Experience. 3 Semester Hours.**

The course is designed to provide students with a unique opportunity to bridge theoretical knowledge gained in the classroom with real-world applications in their chosen field. Through hands-on immersion or observations in professional environments, students will refine their skills, gain practical insights, and develop a deeper understanding of the challenges and opportunities within their field. (Registration requires approval. Consult academic advisor).

**EX 3312. Selected Topics. 3 Semester Hours.**

Courses under this number will address a variety of topics such as Sport Sociology, Dance, etc.

**EX 3314. Exercise and Sport Psychology. 3 Semester Hours.**

The course offers a comprehensive exploration of psychological theories and concepts that impact human behavior in the realms of sports and physical activity. Topics emphasized will be two main areas: (1) assisting individuals apply psychological principles and skills to attain peak performance and satisfaction through sports involvement, and (2) comprehending the psychological effects of participating in sports, exercise, and physical activity on personal growth, well-being, and health.

**EX 3376. Human Anatomy and Physiology of Exercise. 3 Semester Hours.**

Basic concepts of the structure and function of the human body, as related to exercise.

**EX 3401. Exercise Physiology. 4 Semester Hours.**

The course introduces the physiological function of muscular, cardiovascular, and respiratory systems during exercise. Includes discussion of the metabolic systems that produce energy needed to perform vigorous exercise, the cardiovascular, muscular, and hormonal adaptations that result from various forms of training and the effects of various environmental conditions on human performance. Lab experience will be included. (Lecture 3 hours, Lab 1 hour). Prerequisite: EX 1411 Human Anatomy and Physiology I. An additional fee is associated with this course. See the fee schedule for details at <https://www.stmarytx.edu/admission/financial-aid/tuition/>.

**EX 4208. Coaching Practicum. 2 Semester Hours.**

Students desiring a more intensive study of coaching may register for an intern - ship from the following: football, basketball, volleyball, baseball, softball, soccer and track & field.

**EX 4301. Wellness. 3 Semester Hours.**

Study of lifetime fitness and wellness. Topics covered include nutrition, cardiovascular health and wellness, stress management, body composition, substance abuse, lifestyle management, and other pertinent topics. Students will design curriculum materials which incorporate these areas as well as practice teaching lessons in the topical areas.

**EX 4302. Advanced Exercise Physiology. 3 Semester Hours.**

This course offers in-depth research-based discussion of the physiological responses and adaptations that occur in the human body during exercise and physical activity. Complex topics include cardiovascular dynamics, respiratory adaptations, neuromuscular coordination, energy metabolism, and the endocrine response to exercise. Prerequisite: EX 3401 Exercise Physiology.

**EX 4304. Advanced Principles of Exercise and Sport Science. 3 Semester Hours.**

Organization and administration of effective programs. Assessment of individual needs and planning for instruction to meet those needs; program evaluation.

**EX 4306. Sport Nutrition. 3 Semester Hours.**

This course examines the relationship between nutrition and athletic performance. Designed for athletes, fitness enthusiasts, and health professionals, this course introduces the essential principles of fueling the body for optimal performance and recovery. Discover the role of macronutrients and micronutrients, hydration strategies, pre- and post-event nutrition, dietary supplements, and specialized dietary considerations for various sports. Students will develop a comprehensive understanding of how nutrition can elevate athletic achievement and overall well-being. Prerequisite: EX 3401 Exercise Physiology.

**EX 4308. Research Seminar. 3 Semester Hours.**

This is an advanced course designed to introduce integration of Exercise and Sport Science-related knowledge through involvement in the research process. The seminar-style course includes training on the IRB approval process, data collection and analysis, and verbal presentation of research results. Prerequisites: Senior standing.

**EX 4310. Internship in Recreation & Fitness Management. 3 Semester Hours.**

(Open to seniors only) This course supplements academic work by providing students with practical career experience in the areas of Recreation and Fitness Management.

**EX 4311. Internship in Exercise and Sport Science. 3 Semester Hours.**

This course is designed for EXSS majors interested in pursuing Doctor of Physical Therapy or related degrees. Students successfully completing EX 4311 will have satisfied at least 130 hours of observation in physical therapy or related allied health clinics. EX 4311 must be repeated for credit in a subsequent semester in order to satisfy the observation hours required as prerequisite for entry into physical therapy school or related allied health graduate programs. This course offers students a unique opportunity to gain invaluable practical experience in their chosen focus area. It is designed to bridge the gap between classroom learning and real-world application, providing students with guided, hands-on experience in a supervised setting tailored to their individual interests and career aspirations. May be repeated once for credit. Prerequisite: Seniors only.

**EX 4404. Exercise Testing and Prescription. 4 Semester Hours.**

This advanced course is designed to provide students with a comprehensive understanding of the principles and practices involved in assessing and prescribing exercise for individuals across diverse populations. Emphasizing evidence-based approaches, this course equips students with the knowledge and practical skills required to excel in the field of exercise physiology and prepares them to pass the prestigious ACSM (American College of Sports Medicine) Exercise Physiologist Certificate exam. Lab experience will be included. (Lecture 3 hours, Lab 1 hour). Prerequisite: EX 3304 & EX 3401 An additional fee is associated with this course. See the fee schedule for details at <https://www.stmarytx.edu/admission/financial-aid/tuition/>.

**EX 4408. Essentials of Strength and Conditioning. 4 Semester Hours.**

This course introduces theories and practices of strength and conditioning for physical fitness and holistic health and lifelong wellness. Demonstration of training methods and exercise techniques for a variety of populations through laboratory experiences. Prepares students to sit for the NSCA's Certified Strength and Conditioning Specialist exam. Lab experience will be included. (Lecture 3 hours, Lab 1 hour). Prerequisite: EX 3304 and EX 3401. An additional fee is associated with this course. See the fee schedule for details at <https://www.stmarytx.edu/admission/financial-aid/tuition/>.

**EX 4611. Internship in Exercise and Sport Science. 6 Semester Hours.**

This course is designed for EXSS majors interested in pursuing Doctor of Physical Therapy or related degrees. Students successfully completing EX 4611 will have satisfied at least 260 hours of observation in physical therapy or related allied health clinics. This course offers students a unique opportunity to gain invaluable practical experience in their chosen focus area. It is designed to bridge the gap between classroom learning and real-world application, providing students with guided, hands-on experience in a supervised setting tailored to their individual interests and career aspirations, all while satisfying the observation hours required as prerequisite for entry into physical therapy school or related allied health graduate programs. Prerequisite: Seniors only.