EXERCISE SCIENCE

The Exercise Science (EX) major is designed for those students who are seeking a broad background in exercise and fitness. It can also serve as a foundation for graduate study in athletic training, physical therapy, exercise physiology, biomechanics, cardiac rehabilitation, wellness, strength & conditioning and nutrition. The didactic and clinical components allow students the opportunity to explore related areas of study, including exercise physiology, strength & conditioning training, exercise prescription and fitness assessment. Graduates from the EX major are prepared to pursue either employment opportunities in health and fitness settings, or graduate school in those health professions noted above. Two accelerated pathways culminating in either a graduate professional degree in Physical Therapy or in Exercise Science and Nutrition are available as an EX major. Students interested in pursuing either accelerated program should contact the Exercise Science program for additional information.

The EX program has a competitive admissions process. Students interested in pursuing EX at Sacred Heart University should consult with the Office of Admissions and the EX program for current admission criteria. Two routes of EX program admission are available, early acceptance as a high school senior or as a first-year Sacred Heart University student.

Early acceptance into the undergraduate EX program is available for high school seniors. Early admission is based on several factors including: high school academic performance (3.0 cumulative GPA), completion of three years of high school science, SAT (1050) or equivalent ACT scores, and an expressed interest in the EX program. For students who qualify, a seat will be reserved in the program and they will be designated as an EX major upon entry to the University. Additionally, to retain early acceptance status in the program, students must meet and maintain the following criteria as they move through their first year of study at Sacred Heart University:

- Complete the required First year prerequisites and meet or exceed a minimum GPA of 2.5, with no grade lower than a C in the science course prerequisites and EX 100 (Introduction to Health & Fitness).

Students who do not meet the early admission criteria, or who decide to apply during their first year or who are transfer students should apply by completing the formal application for admission to the EX program. The application can be found on the program’s website. Transfer students should inquire with the Undergraduate EX Program Director regarding their potential admission status before applying.

Majors are required to take all EX required courses as well as five EX Elective courses. All students are required to maintain current CPR for the Professional Rescuer certification (or its equivalent) and annual PPD verification throughout the clinical experience. Students will not be allowed to participate in the clinical experience without current certification. Students are responsible for providing transportation to off-campus sites.

Differential Tuition

Sacred Heart University has implemented a differential tuition for the EX program. The cost of EX education is increased relative to other majors due to intensive clinical laboratory courses and clinical supervision required to maintain the professional standards of exercise science education in addition to the associated expenses.
of clinical education. This charge will be reflected as a program fee each semester in addition to undergraduate tuition and fees. The fee will be initiated for EX students starting their Sophomore year.

All EX students must maintain a minimum grade point average (GPA) of 2.5 and receive a C or better in all prerequisite and required courses. This undergraduate program leads to a Bachelor of Science (BS) degree in Exercise Science.

**PPD and CPR Requirement**

All EX students are required to have current PPD (Tuberculosis Testing) and CPR for the Professional Rescuer certification or its equivalent certification when engaged in clinical rotations or clinical-related activities where patient interaction may occur. The EX program offers the CPR certification annually and PPD testing can be obtained from University Health Services. EX students are required to have the certification prior to EX 366 (Clinical Rotation).

**Faculty**

**WENDY BJERKE, PH.D.**
Clinical Associate Professor

**BEAU GREER, PH.D., C.S.C.S.**
Graduate Program Director
Associate Professor

**MATTHEW MORAN, PH.D.**
Undergraduate Program Director
Assistant Professor

**ANNA PRICE, PH.D., C.H.E.S., H.F.S.**
Assistant Professor

**PETER RONAI, M.S., R.C.E.P., C.S.C.S.-D**
Clinical Associate Professor

**ERIC SCIBEK, M.S., A.T.C., C.S.C.S.**
Clinical Assistant Professor

**VALERIE WHERLEY, PH.D.**
Clinical Assistant Professor

**Exercise Science Required Courses:**

- EX 100 Introduction to Health and Fitness
- EX 230 Research and Evaluation for Health Professionals, with lab
- EX 250 Exercise Physiology, with lab
- EX 260 Kinesiology, with lab
- EX 362 Exercise Testing and Prescription, with lab
- EX 363 Developing Strength and Conditioning Programs, with lab
- EX 366 Clinical Rotation

**Exercise Science Electives**

- EX 253 Pathophysiology and Pharmacology
- EX 255 Nutritional Aspects of Human Health and Performance
- EX 270 Neural Control of Human Movement
- EX 290 Behavioral Aspects of Exercise Science
- EX 299 Special Topics in Exercise Science
- EX 320 Pediatric Exercise Science
- EX 358 Exercise and Aging
- EX 361 Functional Gait Analysis
- EX 365 Clinical Exercise Science

**Required Supporting Courses**

- BI 111/113 Concepts of Biology I, with lab
- BI 112/114 Concepts of Biology II, with lab
- BI 131/133 Human Anatomy and Physiology I, with lab
- BI 132/134 Human Anatomy and Physiology II, with lab
CH 117/119 General Organic Biochemistry, an Overview, with lab or CH 151/153 General Chemistry I, with Lab
MA 140 Precalculus
PS 110 Introduction to Psychology
PS 295 Health Psychology
PY 100 Elements of Physics or PY 111/113 General Physics I, with lab

Exercise Science Course Descriptions

EX 100 Introduction to Health and Fitness 3 CR
Aspects of a healthy lifestyle including epidemiology, basic cardiovascular and musculoskeletal fitness principles, energy systems, and an introduction to exercise prescription are presented in addition to strategies to promote wellness. This course is intended for students pursuing a degree in Exercise Science.

EX 101 Health, Fitness, and Recreation 1 CR
This course includes baseline and subsequent individualized physical fitness assessments, exercise programming, and recreational activities at the William H. Pitt Center, Human Performance Laboratory, and within Fairfield County. Be prepared to exercise on campus and participate in optional hiking, cycling, and other recreational sports and activities in the area. All fitness levels welcome to enroll.

EX 230 Research and Evaluation for Health Professional with Lab 4 CR
An introduction to quantitative and qualitative research methods relevant to exercise science. Topics will include: conducting literature searches, scientific writing style, proper citation, study design, levels of measurement, parametric and non-parametric biostatistics, qualitative data analysis, and ethical considerations in exercise science research.
Prerequisites: EX 100

EX 250 Exercise Physiology with Lab 4 CR
Presents a workable knowledge of the body’s response to physical activity. Exercise metabolism, cardiopulmonary function, adaptations to training and environmental factors are addressed as well as exercise training guidelines. Assessment, clinical skills, aerobic testing, strength and power testing, and flexibility testing are among lab activities.
Prerequisites: BI 132/134, EX 230 (Pre- or Corequisite)

EX 253 Pathophysiology and Pharmacology 3 CR
A systematic study of the disease process and disorders commonly seen in an exercise setting. Emphasis is on the effect of disease symptoms, management, and pharmacological agents on physical activity.
Prerequisites: EX 250

EX 255 Nutritional Aspects of Human Health and Performance 3 CR
Provides an examination of the six classes of nutrients with strong emphasis on chronic disease prevention and improving athletic performance. Issues concerning dietary supplements, functional foods, and the ethics of food choices are also explored.
Prerequisites: BI 132/134 and EX 230

EX 260 Kinesiology with Lab 4 CR
Investigates basic mechanical and kinesiological principles and their functions, interrelationships, and involvement with the mechanics of human motion.
Prerequisites: EX 230 (Pre- or Corequisite),
EX 270 Neural Control of Human Movement 3 CR
This course investigates neuromuscular integration and motor learning as it relates to skill acquisition, skill refinement, and teaching motor skills.
Prerequisites: EX 230, BI 131/133

EX 290 Behavioral Aspects of Exercise 3 CR
This course will examine psychosocial and behavioral factors that influence physical activity, exercise, and rehabilitation, as well as individual, interpersonal, community, environmental, and policy approaches to promoting physical activity. Additional topics include mental health effects of exercise and sport psychology.
Prerequisites: EX 230 (Pre- or Corequisite)

EX 299 Special Topics in Exercise Science 1-3 CR
In-depth exploration of a specific, applied exercise science topic. Course can be repeated if topic varies.
Prerequisites: Consent of instructor.

EX 320 Pediatric Exercise Science 3 CR
This course will provide an introduction to the field of pediatric exercise science. Topic areas will include: growth and development in children and adolescents, puberty and endocrine influences on pediatric exercise responses, physical activity on the growing child, resistance training and muscular strength in youth, exercise training for aerobic endurance in children, and patterns of motor development. This course includes a service learning component in addition to a weekly seminar.
Prerequisite: EX 250

EX 358 Exercise and Aging 3 CR
Examines changes occurring in anatomical and physiological systems as adults mature, their effects on performance, and explores the theory and practice of selecting age-appropriate fitness-promoting activities.
Prerequisites: EX 250, EX 260

EX 361 Functional Gait Analysis 3 CR
This course is designed to provide a comprehensive investigation of normal and pathological human locomotion patterns from a biomechanical perspective. Upon completion of this course the student will be proficient in (1) practical gait analysis techniques, (2) analysis of gait patterns, (3) etiology of pathological gait, and (4) the efficacy of certain surgical, orthopedic or footwear treatments.
Prerequisites: EX 260

EX 362 Exercise Testing and Prescription with Lab 4 CR
Reviews the scientific basis and practical concerns related to the development of safe and effective strength and conditioning programs. Emphasis is on both proper exercise technique/instruction and the creation of programs utilizing physiological and biomechanical principles and numerous modalities.
Prerequisites: EX 250

EX 363 Developing Strength and Conditioning Programs with Lab 4 CR
Reviews the scientific basis and practical concerns related to the development of safe, effective strength, and conditioning programs. Emphasis is on both proper exercise technique/instruction and the creation of programs utilizing numerous systems and modalities.
Prerequisites: EX 250, EX 260
EX 365 Clinical Exercise Science 3 CR
Explores diagnostic testing, exercise prescription, and lifestyle modification in health and chronic disease rehabilitation. Primary and secondary prevention and treatment of heart, lung, immune, and metabolic diseases are also addressed.

EX 250, EX 260

EX 366 Clinical Rotation 1 CR
Off campus clinical rotation surveys the scope of practice that characterizes Exercise Science. Specifically students visit cardiopulmonary rehabilitation centers, corporate fitness centers, strength and conditioning facilities, and health and wellness programs for special populations including children and geriatric patient/clients.

Prerequisite: CPR/AED, proof of up-to-date vaccinations (PPD, measles, mumps, rubella, varicella, Hep B), EX 250