

## EXERCISE SCIENCE

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wp.stolaf.edu/exercise-science (<http://wp.stolaf.edu/exercise-science>)

Exercise Science is the study of human movement, from its analysis to application in educational and sport settings. Its aim is the improvement of human performance and the enhancement of human development through the medium of physical activity throughout the lifespan. St. Olaf offers an exercise science major, a variety of activity courses to meet the general education requirements for graduation, intramural and club sports, and twenty-seven varsity sports.

### Overview of the Major

The exercise science major at St. Olaf is designed for students interested in the advanced and specialized study of the biophysical aspects of exercise. The major supports academic linkages across the disciplines and provides excellent preparation in a wide variety of fields (such as physical therapy and rehabilitation, biomechanics, nutrition, exercise physiology, sport medicine, chiropractics, cardiac rehabilitation).

It is recommended that this major be complemented by other majors or concentrations of interest to the student.

### Intended Learning Outcomes for the Major (<http://wp.stolaf.edu/curriculum-committee/exercise-science-major-ilos>)

### Distinction

See Academic Honors (<http://catalog.stolaf.edu/archive/2016-2017/academic-regulations-procedures/academic-honors/#distinction>)

### Related Program

### Neuroscience Concentration

See Neuroscience (<http://catalog.stolaf.edu/archive/2016-2017/academic-programs/neuroscience>)

### Requirements

Students majoring in exercise science complete eight core courses and two electives. The courses include:

#### Core courses

BIO 143	Human Anatomy and Physiology: Cells and Tissues	1.00
BIO 243	Human Anatomy and Physiology: Organs and Organ Systems	1.00
NURS 110	Nutrition and Wellness	1.00
ESTH 374	Biomechanics	1.00
ESTH 255	Prevention and Care of Athletic Injuries	1.00
ESTH 375	Physiology of Exercise	1.00
ESTH 390	Exercise Science Seminar	1.00
PSYCH 125	Principles of Psychology	1.00

#### Electives

Select two of the following: 2.00

ESTH 290	Sport Ethics in Society
ESTH 373	Motor Learning
ESTH 376	Fitness Assessment and Exercise Prescription
PSYCH 230	Research Methods in Psychology
NEURO 239	Cellular and Molecular Neuroscience
PSYCH 241	Developmental Psychology
PSYCH 247	Psychopathology
STAT 110	Principles of Statistics
or STAT 212	Statistics for the Sciences
or STAT 214	Honors Statistics for the Sciences

Total Credits 10

### The department also recommends:

ESTH 394 Academic Internship

ESTH 398 Independent Research

CHEM 121 General Chemistry

### Courses

### Physical Activities

- SPM (<http://wp.stolaf.edu/curriculum-committee/files/2013/12/SPM.pdf>)

The following courses fulfill Studies in Physical Movement (SPM) (<http://wp.stolaf.edu/curriculum-committee/files/2013/12/SPM.pdf>) general education requirement. See also Dance (<http://catalog.stolaf.edu/archive/2016-2017/academic-programs/dance>) Department.

All .25 credit activities courses are repeatable; up to a total of four registrations are allowed. Students may only repeat an activity after the SPM requirement has been completed with two courses that differ from each other.

#### ESAC 103: Golf (0.25)

This course presents an introduction/review of beginning golf skills, rules, and strategies. The course is not intended for the experienced golfer. Equipment available. Course fee.

#### ESAC 106: Rock Climbing (0.25)

Students learn basic rock climbing skills, techniques, and safety procedures.

#### ESAC 108: In-Line Skating (0.25)

Students learn basic skills and techniques of in-line skating. Equipment is required for participation.

**ESAC 110: Triathlon Training (0.25)**

Students learn and practice the skills and techniques involved in completing a triathlon. Triathlon training is designed to introduce fitness-oriented swimming, cycling, and running as a means of acquiring cardio respiratory endurance, muscle strength, and proper weight and body maintenance. Along with training, class sessions include race strategy discussion, transitioning techniques, training plan formation, event planning, and an in-class or community triathlon event. Before enrolling, students should be able to swim at least 100 yards, cycle for at least 3 miles, and run at least 1 mile without stopping to rest. Students must provide their own equipment, including a bicycle. Offered annually in the spring semester.

**ESAC 111: Basketball (0.25)**

This course offers an introduction/review of fundamental skills, rules, and drills. Students focus on basic strategy in games playing.

**ESAC 117: Ultimate Frisbee (0.25)**

Students learn the fundamental skills, rules, techniques, and strategies associated with the sport of ultimate frisbee.

**ESAC 118: Lifetime Sports and Games (0.25)**

This course introduces students to a wide range of lifetime sports and games. Students learn the history and origin of these activities along with the basic rules, etiquette, and strategies.

**ESAC 121: Beginning Swimming (0.25)**

This course is for the non-swimming and the novice swimmer only.

**ESAC 122: Lifeguard Training (0.25)**

This course teaches the skills necessary for lifeguarding, first aid, AED, CPR, and waterfront guarding certification.

**Prerequisite:** must be able to swim 550 yards (22 lengths).

**ESAC 128: Fly-Fishing/Fly-Tying (0.25)**

This course introduces students to the lifetime sport of fly-fishing and fly-tying. Equipment available. Course fee.

**ESAC 130: Swim Fitness (0.25)**

This is an aerobic-based course utilizing swimming and water excersises.

**Prerequisite:** be able to swim 300 yards.

**ESAC 131: Aerobics (0.25)**

Students learn and apply the basic principles of fitness through a variety of aerobic activities.

**ESAC 133: Individual Fitness (0.5)**

Students personally apply the basic principles of exercise through conditioning, strength development, endurance training, and aerobic activities. Students participate in a wide range of assessments designed to enhance physical fitness.

**ESAC 135: Jogging/Running (0.25)**

This is an aerobic-based course utilizing instruction and participation in running and jogging to enhance personal fitness and training knowledge.

**ESAC 136: Fitness Walking (0.25)**

This is an aerobic-based course utilizing instruction and participation in walking to enhance personal fitness and training knowledge.

**ESAC 140: Weight Training (co-ed) (0.50)**

Students learn the principles, techniques and safety aspects of weight-training and implement a personal training plan. Students participate in a wide range of assessments (strength, power, endurance, nutrition, flexibility, body composition, stress).

**ESAC 141: Weight Training Men (0.25)**

Students learn the principles of training, basic techniques, and safety procedures. Students develop and implement a personal training plan during the course.

**ESAC 142: Weight Training Women (0.25)**

Students learn the principles of training, basic techniques, and safety procedures. Students develop and implement a personal training plan during the course.

**ESAC 150: Racquet Sports (0.50)**

This course offers instruction in basic strokes, history, rules, etiquette, and terminology of racquet sports (tennis, racquetball, badminton, pickleball, table tennis). Students participate in a wide range of assessments designed to enhance physical fitness (strength, endurance, nutrition, flexibility, body composition, stress).

**ESAC 151: Badminton (0.25)**

This course offers instruction/review of fundamental skills, rules, and etiquette of badminton. Students focus on basic strategy in games playing.

**ESAC 157: Tennis (0.25)**

This course offers instruction/review of basic strokes, history, rules, etiquette, and terminology of tennis. Students learn basic competition strategies in singles and doubles match play.

**ESAC 158: Intermediate Tennis (0.25)**

This course is for students who can already serve, score, play the net, and know basic singles and doubles strategy.

**Prerequisite:** ESAC 157, or permission of instructor.

**ESAC 162: Clasical Hatha Yoga (0.25)**

Students learn and apply yoga principles of physical fitness and emotional wellness through a blend of yoga postures, movements, relaxation, breathing techniques, and mindfulness.

**170-190 Intercollegiate Athletics (0.25)**

Students competing in intercollegiate athletics may use the season of participation in a varsity sport for 0.25 course credit in exercise science activity. Only one 0.25 course can be applied toward the two 0.25 course Studies in Physical Movement (SPM) graduation requirement. It can only be used once as one-half of the two-course SPM requirement. Fall: varsity football, soccer, cross-country, women's volleyball; spring: remainder of intercollegiate sports. Participants in club sports are not eligible for academic credit. Students must register for the course during the competitive season, not afterward.

## Professional Program

**ESTH 238: Introduction to Coaching (0.50)**

This course introduces students to the areas of sport psychology, sport administration, sport physiology, and sport pedagogy and serves as a foundation to the series of courses required for coaching certification. Successful completion of the course may include certification in the American Sport Education Program (ASEP). Offered alternate years. Counts toward educational studies and management studies concentrations.

**ESTH 255: Prevention and Care of Athletic Injuries**

Students study principles pertinent to prevention of injuries in sports and physical education; treatment and care of minor injuries. The course utilizes both lecture and laboratory. Offered annually.

**ESTH 290: Sport Ethics in Society**

Students examine the conceptual framework for ethical decision-making using sports as a prism to examine normative perspectives. Varied ethical perspectives are analyzed through the conflicts presented in sports-related questions. Course readings and lectures examine the theoretical constructs of ethical decision-making from Christian and non-Christian positions. Offered annually. Counts toward management studies and media studies concentrations.

**Prerequisite:** completion of BTS-T or permission of instructor.

**ESTH 294: Academic Internship****ESTH 295: Internship and Reflection Seminar**

This seminar integrates the liberal arts with the experience of work and the search for a vocation or career. Course content will include both an off-campus internship and on-campus class sessions that connect academic theories/analyses of work with their particular internship experience. Students will also consider and articulate the value of the liberal arts for their pursuit of a creative, productive, and satisfying professional life.

**ESTH 298: Independent Study****ESTH 373: Motor Learning**

This course offers a basic study in motor skill acquisition and motor control. Topics include methods of assessment, evaluation and research in the areas of motor learning and control, the learning environment, and discussion of factors that influence the acquisition and performance of motor skills. Offered alternate years.

**Prerequisite:** Psychology 125.

**ESTH 374: Biomechanics**

Students analyze mechanical principles in depth as they affect human motion. Topics include study of muscular and skeletal systems, skill analysis, and motion measurement techniques. The course includes a laboratory component. Counts toward neuroscience concentration. Offered annually.

**Prerequisite:** BIO 143 and junior standing.

**ESTH 375: Physiology of Exercise**

Students study in-depth the physiology of exercise, covering cardiovascular and muscular adaptations to exercise and factors affecting performance, including body composition, environmental influences, training implications across gender and age, and the assessment of fitness. The course includes a laboratory component. Offered annually. Counts toward neuroscience concentration.

**Prerequisite:** junior standing and BIO 143 and BIO 243 or permission of instructor.

**ESTH 376: Fitness Assessment and Exercise Prescription**

This course presents the fundamental principles of exercise testing and prescription for both healthy and special needs individuals. Students explore techniques for assessing fitness and prescribing exercise using a variety of ergometers for improvement of health fitness parameters. Students also utilize case studies and laboratory experiences. Topics include health/medical histories, submaximal graded exercise testing, and assessment of strength, flexibility, pulmonary functions, and body composition. Offered annually.

**Prerequisites:** BIO 143, BIO 243 and ESTH 375.

**ESTH 390: Exercise Science Seminar**

Students may be co-registered for the capstone course and their final core courses in the major. Students conduct semester-long research on a topic and present their findings in the form of a research paper. Offered annually.

**Prerequisite:** senior standing.

**ESTH 394: Academic Internship****ESTH 396: Directed Undergraduate Research**

This course provides a comprehensive research opportunity, including an introduction to relevant background material, technical instruction, identification of a meaningful project, and data collection. The topic is determined by the faculty member in charge of the course and may relate to his/her research interests. Offered based on department decision. May be offered as a 1.00 credit course or .50 credit course.

**Prerequisite:** determined by individual instructor.

**ESTH 398: Independent Research**

## Faculty

**Chair, 2016-2017**

**Cynthia Book**

Associate Professor of Exercise Science  
exercise science

**Shahram S. Ahrar**

Instructor in Exercise Science, Head Wrestling Coach  
wrestling; strength and conditioning

**Kurt Anderson**

Instructor in Exercise Science, Head Men's Soccer Coach  
coaching; men's soccer

**John A. Bazzachini**

Instructor in Exercise Science, Head Women's Hockey Coach  
women's hockey

**Dennis R. Bengtson**

Instructor in Exercise Science  
yoga

**Christine Daymont** (on leave spring)

Associate Professor of Exercise Science; Head Women's Cross Country Coach  
physiology of exercise; women's cross country; track and field

**Daniel Hagen**

Instructor in Exercise Science; Head Athletic Trainer  
certified athletic trainer

**Kayla Hatting**

Instructor in Exercise Science; Head Softball Coach  
weight training; aerobics

**Robert Hauck**

Instructor in Exercise Science; Head Men's and Women's Swim Coach  
aquatics; men's and women's swimming

**Jennifer Holbein**

Instructor in Exercise Science  
biomechanics; exercise physiology

**Daniel P. Kosmoski**

Instructor in Exercise Science; Head Men's Basketball Coach  
administration; men's basketball

**Justin P. Lerfald**

Instructor in Exercise Science, Assistant Football Coach  
football; strength and conditioning

**Kathleen Luckcraft**

Head Women's Golf Coach

**Philip N. Lundin**

Instructor in Exercise Science; Head Men's Cross Country Coach; Head Track and Field Coach  
cross country; track and field

**Matthew C. McDonald**

Instructor in Exercise Science, Head Baseball Coach  
athletics administration; baseball

**Scott Nesbit**

Instructor in Exercise Science; Head Men's and Women's Tennis Coach  
tennis; fly fishing

**Glen W. Peterson**

Head Men's Golf Coach  
golf

**Craig D. Stern**

Instructor in Exercise Science; Head Football Coach  
football; strength and conditioning

**David A. Stromme**

Instructor in Exercise Science, Head Women's Basketball Coach  
basketball

**Judith Tegtmeier**

Instructor in Exercise Science; Director of recreation  
recreation; wellness