

# Exercise Science

Exercise science is an interdisciplinary field which spans the physiological, psychological, nutritional, motor, and functional adaptations and responses to exercise, physical activity, and sport. Mount Mercy University's exercise science program prepares students interested in pursuing careers and graduate/professional degrees in athletic training, physical therapy, occupational therapy, cardiac rehabilitation, dietetics, personal training, health promotion, strength and conditioning, coaching, and sport & performance psychology. Students choose electives that support their desired career path. In their final year of study, students complete an internship to increase practical understanding of course knowledge and help gain insight into their work world.

## Exercise Science Major

BI 125	Foundations of Biology & Scientific Inquiry I	3
BI 125L	Biostatistics and Scientific Investigation I	1.5
BI 273	Human Anatomy	4.5
Choose One:		3 - 4.5
BI 274	Human Physiology	
BI 374	Integrated Physiology	
EX 101	Introduction to Exercise Science	3
EX 255	Prevention and Care of Athletic Injuries	3
EX 275	Human Nutrition	3
EX 280	Practical Skills in Exercise Science	3
EX 305	Exercise Physiology	4
Choose One:		3
EX 307	Environmental Exercise Physiology	
EX 308	Motor Learning and Control	
EX 309	Exercise for Special Populations	
EX 315	Structural and Functional Kinesiology	4
EX 355	Principles of Strength and Conditioning	3
EX 375	Exercise Testing and Prescription	3
EX 450	Exercise Science Internship	3
PS 101	Introductory Psychology	3
Choose One:		3
PS 211	Sport Psychology	
PS 212	Exercise Psychology	
PS 259	Health Psychology: Health & Wellness Applied	
Choose One:		3
PS 306	Abnormal Psychology	
PS 311	Psychology of Coaching	
PS 315	Psychology of Sport Injury and Rehabilitation	
PS 386	Biological Psychology	
PS 390	Critical Perspectives in Sport and Physical Activity	

**Total Hours** 53-54.5

## Academic Requirement

All **exercise science majors** must achieve a minimum grade of C (C- does not count) in all courses required for the major. This requirement applies equally to any course equivalents that may be accepted by transfer from any other college/university.

The following is the typical sequence of courses required for the major\*:

## Exercise Science

Freshman					
Fall	Hours	Winter	Hours	Spring	Hours
BI 125		3 CO 101		3 EX 255	3
BI 125L	1.5			Literature Domain	3
EX 101	3			MA 135	3
Portal	3			PS 101	3
Writing Competency	4			SO 122	3
<b>14.5</b>		<b>3</b>		<b>15</b>	
Sophomore					
Fall	Hours	Winter	Hours	Spring	Hours
Historical Roots Domain		3 EX 275		3 BI 273	4.5
Ultimate Questions - Religion Domain	3			EX 280	3
Holistic Health Domain	3			PL 269	3
Elective	3			PS 224	3
Elective	3				
<b>15</b>		<b>3</b>		<b>13.5</b>	
Junior					
Fall	Hours	Winter	Hours	Spring	Hours
EX 315	4	Elective		3 EX 305	4
BI 274 or 374	3			EX 375	3
Psychology Elective <sup>1</sup>	3			Psychology Elective <sup>2</sup>	3
Elective	3			Elective	3
<b>13</b>		<b>3</b>		<b>13</b>	
Senior					
Fall	Hours	Winter	Hours	Spring	Hours
EX 308 or 309		3 Elective		3 ME 450	1
EX 355	3			EX 450	3
Fine Arts Domain	3			Elective	3
Global Awareness Domain	3			Elective	3
Elective	3			Elective	2
<b>15</b>		<b>3</b>		<b>12</b>	

**Total Hours: 123**

*Note: Elective courses could be used for a second major, a minor, a course of interest, internship or study abroad experience.*

*Note: See the Curriculum section (<http://catalog.mtmercy.edu/curriculum/#corecurriculumtext>) for more information on Portal, Competency, Domain, and Capstone courses.*

1

Psychology elective - Select from: PS 211, PS 212, or PS 259

2

Psychology elective - Select from: PS 306, PS 311, PS 315, PS 386, or PS 390

## \*Disclaimer

The course offerings, requirements, and policies of Mount Mercy University are under continual examination and revision. This *Catalog* presents the offerings, requirements, and policies in effect at the time of publication and in no way guarantees that the offerings, requirements, and policies will not change.

This plan of study represents a typical sequence of courses required for this major. It may not be applicable to every student. Students should contact a department faculty member to be sure of appropriate course sequence.

## Courses

### **EX 101 Introduction to Exercise Science: 3 semester hours**

Exercise science is an interdisciplinary field that spans the physiological, psychological, nutritional, motor, and functional adaptations and responses to exercise, physical activity, and sport. This course introduces students to foundational terms and concepts in the field. A broad overview of the various subdisciplines in exercise science is provided. Career opportunities within exercise science will be reviewed and explored so that students can make informed decisions regarding their academic and professional goals.

### **EX 255 Prevention and Care of Athletic Injuries: 3 semester hours**

This course provides instruction and practice in the prevention, care, and evaluation of common sport-related injuries. Students gain familiarity with managing injury and emergency situations when an athletic trainer or physician is not available.

### **EX 275 Human Nutrition: 3 semester hours**

This course provides an overview of food and metabolism, particularly as it pertains to exercise, health, and performance. Biochemical and physiological processes in digestion are addressed. Students learn how to calculate nutritional intake and caloric expenditure based on professional guidelines. Psychosocial factors influencing diet are also discussed. Prerequisite: BI 125.

### **EX 280 Practical Skills in Exercise Science: 3 semester hours**

The course is offered to introduce students to the concepts of resistance training, translational and dynamic movement assessments, speed and agility, power training, and professional practices in exercise science. Students will actively engage in hands-on application and work to develop practical cueing and observational assessment skills. Prerequisite: EX 101.

### **EX 305 Exercise Physiology: 4 semester hours**

This course provides information on the nature and function of metabolism, circulation, respiration, and acid-base balance as it pertains to exercise. In the laboratory portion, students are exposed to research methods and equipment evaluating physiological responses at rest and during exercise. Prerequisite: BI 274 OR BI 374.

### **EX 307 Environmental Exercise Physiology: 3 semester hours**

This course offers an exploration of the acute and chronic effects of exercise on physiological systems under various environmental conditions, including heat, cold, hypoxia, hyperbaria, microgravity, and pollution. Prerequisite: EX 305.

### **EX 308 Motor Learning and Control: 3 semester hours**

The course is offered to introduce students to the concepts of teaching motor skills, neuroanatomy, neurophysiology, and methodology for motor learning in human performance, coaching, and/or therapeutic setting. Students will engage in hands-on learning and application using a clinical or performance lens to assess human movement and motor control/learning. Prerequisite: EX 101.

### **EX 309 Exercise for Special Populations: 3 semester hours**

The course is offered to introduce students to the concepts of special populations in exercise and human performance. Special populations include but are not limited to: older adults, children, obesity, diabetes, CVD, cancer, multiple sclerosis, COPD, arthritis, and musculoskeletal injuries. Basic principles of exercise programming for optimal health will be reviewed. Evidence-based, advanced programming for population-specific considerations will be discussed and applied. It is vital for Human and Sport Performance Coaches, Athletic Trainers, and Exercise Science professionals have a full understanding of how to utilize effective exercise programs in specialized conditions. Prerequisite: EX 101.

### **EX 315 Structural and Functional Kinesiology: 4 semester hours**

Kinesiology is the study of human movement. This course specifically applies anatomical principles to examine the causes and effects of motion produced by human biological systems. Functional movements pertaining to physical activity, human performance, and physical rehabilitation are emphasized. Three hours of lecture and two hours of laboratory per week. Prerequisite: BI 273.

### **EX 355 Principles of Strength and Conditioning: 3 semester hours**

This course explores scientific theories and principles of strength and conditioning for the purposes of optimizing health and human performance. Students evaluate popular (mis)conceptions of resistance training by examining scholarly evidence in the discipline. Instruction on proper form and technique is also provided. Students gain hands-on experience by participating in multiple resistance training activities and assignments. Prerequisite: EX 315.

### **EX 375 Exercise Testing and Prescription: 3 semester hours**

This course includes an overview of testing protocols for assessing health-related components of physical fitness, including cardiovascular endurance, muscular strength, muscular endurance, flexibility, and body composition. Exercising prescription principles (frequency, intensity, time, and mode) are also addressed. Students gain experience working with a client, assessing their health/fitness and creating an appropriate exercise plan using American College of Sports Medicine guidelines. Co-requisite: EX 305.

### **EX 450 Exercise Science Internship: 3 semester hours**

Students gain direct and indirect educational experience by working with a professional in an exercise science-related career. Students are jointly supervised by a faculty member and an employer. Typically completed during the senior year. Prerequisite: EX 395.