EXERCISE AND SPORT PHYSIOLOGY (BS)

Health and Human Enrichment

This major provides a strong science-based curriculum of advanced courses in exercise physiology, exercise testing and prescription, strength and conditioning, and research methodology with an emphasis on the improvement and understanding of human performance. Laboratory activities, research, and clinical applications are components of this program. Majors will be prepared for careers in clinical research settings, strength and conditioning, and the health/fitness industry. The major also provides a strong foundation for future graduate studies in Exercise Science, Physical Therapy, Occupational Therapy, and other allied health related fields. In addition, the program prepares students to challenge select certification examinations such as the American College of Sports Medicine's Certified Exercise Physiologist (EP-C) and the National Strength and Conditioning Association's Certified Strength and Conditioning Specialist (CSCS).

3+2 BS/MS Degree Option
Students interested in graduate study in exercise science who have completed all prerequisite courses at the end of the 3rd year of study can apply to the MS degree program for their 4th year of study. Students who complete all requirements will earn the BS in Exercise & Sport Physiology at the completion of their 4th year and the MS in Applied Exercise Physiology & Human Performance at the completion of their 5th year.

Degree Requirements

Exercise & Sport Physiology

Course	Title	Credits
Major Requirements		
EX 2755	Introduction to Exercise Science	3
EX 3580	Physiology of Exercise	3
EX 3750	Physiology of Exercise Laboratory	1
EX 3860	Exercise Testing and Prescription	3
EX 3865	Exercise Testing and Prescription Laboratory	1
EX 4520	Principles and Theories of Strength and Conditioning	3
EX 4525	Principles and Theories of Strength and Conditioning Laboratory	1
EX 4760	Exercise Physiology for Special Populations	3
EX 4840	Research Methods in Exercise Science (WRCO)	3
BI 2110 & BI 2130	Human Anatomy and Physiology I and Human Anatomy and Physiology Laboratory I	4
BI 2120 & BI 2140	Human Anatomy and Physiology II and Human Anatomy and Physiology Laboratory II	4
CH 2335	General Chemistry I (QRCO)	4
CH 2340	General Chemistry II	4
HE 2500	First Aid and CPR/AED	1.5
HE 3220	Applied Nutrition for Healthy Living (TECO)	3
MA 2300	Statistics I (QRCO)	3
PE 3570	Kinesiology	3
PE 3720	Motor Learning	3
Professional Skills - choose two:		**3**
PE 2428	Flexibility, Core, and Balance Training	
PE 2640	Burdenko Conditioning	
PE 2831	Resistance Training Techniques	
Psychology Choice		
CC 3860	Psychological Aspects of Sports	3-4
or PBH 3200	Social and Behavioral Health Psychology (INCO,INCP)	
General Education (https://coursecatalog.plymouth.edu/general-education/)		
EN 1400	Composition	4
IS 1115	Tackling a Wicked Problem	4
CTDI (https://coursecatalog.plymouth.edu/general-education/#CTDI)	Creative Thought Direction	3-4
PPDI (https://coursecatalog.plymouth.edu/general-education/#PPDI)	Past and Present Direction	3-4
SSDI (https://coursecatalog.plymouth.edu/general-education/#SSDI)	Self and Society Direction	3-4
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/) [1]		4-8
DICO (https://coursecatalog.plymouth.edu/general-education/#DICO)	Diversity Connection	3-4
GACO (https://coursecatalog.plymouth.edu/general-education/#GACO)	Global Awareness Connection	3-4
INCO (https://coursecatalog.plymouth.edu/general-education/#INCO)	Integration Connection	3-4
WECO (https://coursecatalog.plymouth.edu/general-education/#WECO)	Wellness Connection	3-4
Option Requirements		
Complete one from the following required options		27.5-33.5
BS in Exercise & Sport Physiology		
3+2 BS to MS in Applied Exercise Physiology & Human Performance		
Total Credits		**120**

[1] Directions should total 16-17 credits because SIDI is waived for BS Exercise and Sport Physiology.

BS in Exercise & Sport Physiology Option

Course	Title	Credits
EX 4820	Advanced Exercise Physiology	3
EX 4825	Advanced Exercise Physiology Laboratory	1
Capstone Experience - Complete one:		
EX 4830	Applied Research in Exercise Science	4-12
or EX 4880	Exercise & Sport Physiology Internship	
Electives		**19.5-21.5**
Total Credits		**27.5-37.5**

3+2 Option

BS year four requirements for students planning to continue on to the MS are listed here. Additional details and full requirements of the MS in Applied Exercise Physiology and Human Performance can be found here (https://coursecatalog.plymouth.edu/graduate-programs/applied-exercise-physiology-ms/).

Course	Title	Credits
EX 5210	Advanced Exercise Physiology	3
EX 5220	Advanced Exercise Physiology Laboratory	1
EX 5500	Graduate Seminar in Exercise Science	3
EX 5610	Advanced Strength and Conditioning	4
EX 5410	Applied Research in Exercise Science	4
EX 5520	Advanced Exercise Testing & ECG	4
EX 5730	Advanced Topics in Exercise Physiology	4
EX 5700	Advanced Practicum in Exercise Science I	4
Electives		**4.5-6.5**
Total Credits		**31.5-33.5**

Recommended Course Sequence

Check all course descriptions for prerequisites before planning course schedule. Course sequence is suggested but not required.

To complete the bachelor's degree in 4 years, you must successfully complete a minimum of 15 credits each semester or have a plan to make up credits over the course of the 4 years. For example, if you take 14 credits one semester, you need to take 16 credits in another semester. Credits completed must count toward your program requirements (major, option, minor, certificate, general education or free electives).

BS Option

Course	Title	Credits
Year One		
Fall		
EX 2755	Introduction to Exercise Science	3
IS 1115	Tackling a Wicked Problem	4
EN 1400	Composition	4
BI 2110 & BI 2130	Human Anatomy and Physiology I and Human Anatomy and Physiology Laboratory I	4
	Credits	**15**
Spring		
Professional Skills Course		1.5
MA 2300	Statistics I (QRCO)	3
BI 2120 & BI 2140	Human Anatomy and Physiology II and Human Anatomy and Physiology Laboratory II	4
SSDI (https://coursecatalog.plymouth.edu/general-education/#SSDI)	Self and Society Direction	3-4
PPDI (https://coursecatalog.plymou general-education/#PPDI)	Past and Present Direction	3-4
	Credits	**14.5-16.5**
Year Two		
Fall		
PE 3570	Kinesiology	3
CH 2335	General Chemistry I (QRCO)	4
CTDI (https://coursecatalog.plymou general-education/#CTDI)	Creative Thought Direction	3-4
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/)		3-4
Professional Skills Course		1.5
	Credits	**14.5-16.5**
Spring		
EX 3580	Physiology of Exercise	3
EX 3750	Physiology of Exercise Laboratory	1
CH 2340	General Chemistry II	4
HE 2500	First Aid and CPR/AED	1.5
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/)		0-4
Elective		0-3
WECO (https://coursecatalog.plymou general-education/#WECO)	Wellness Connection	3-4
	Credits	**12.5-20.5**
Year Three		
Fall		
PE 3720	Motor Learning	3
EX 3860	Exercise Testing and Prescription	3
EX 3865	Exercise Testing and Prescription Laboratory	1
DICO (https://coursecatalog.plymouth.edu/general-education/#DICO)	Diversity Connection	3-4
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/)		0-4
Elective		0-3
HE 3220	Applied Nutrition for Healthy Living (TECO)	3
	Credits	**13-21**
Spring		
EX 4520	Principles and Theories of Strength and Conditioning	3

EX 4525	Principles and Theories of Strength and Conditioning Laboratory	1
EX 4760	Exercise Physiology for Special Populations	3
CC 3860 or PBH 3200	Psychological Aspects of Sports or Social and Behavioral Health Psychology (INCO,INCP)	3-4
GACO (https://coursecatalog.plymou general-education/#GACO)	Global Awareness Connection	3-4
	Credits	**13-15**
Year Four		
Fall		
EX 4820	Advanced Exercise Physiology	3
EX 4825	Advanced Exercise Physiology Laboratory	1
EX 4840	Research Methods in Exercise Science (WRCO)	3
Electives		6-8
INCO (https://coursecatalog.plymou general-education/#INCO)	Integration Connection	3-4
	Credits	**16-19**
Spring		
EX 4830 or EX 4880	Applied Research in Exercise Science or Exercise & Sport Physiology Internship	4
Electives		9-12
	Credits	**13-16**
	Total Credits	**120**

[1] Directions should total 16-17 credits because SIDI is waived for BS Exercise and Sport Physiology.

3+2 Option

Course	Title	Credits
Year One		
Fall		
EX 2755	Introduction to Exercise Science	3
IS 1115	Tackling a Wicked Problem	4
EN 1400	Composition	4
BI 2110 & BI 2130	Human Anatomy and Physiology I and Human Anatomy and Physiology Laboratory I	4
	Credits	**15**
Spring		
Professional Skills Course		1.5
MA 2300	Statistics I (QRCO)	3
BI 2120 & BI 2140	Human Anatomy and Physiology II and Human Anatomy and Physiology Laboratory II	4
SSDI (https://coursecatalog.plymouth.edu/general-education/#SSDI)	Self and Society Direction	3-4
PPDI (https://coursecatalog.plymou general-education/#PPDI)	Past and Present Direction	3-4
	Credits	**14.5-16.5**
Year Two		
Fall		
PE 3570	Kinesiology	3
CH 2335	General Chemistry I (QRCO)	4
CTDI (https://coursecatalog.plymou general-education/#CTDI)	Creative Thought Direction	3-4
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/)		3-4
Professional Skills Course		1.5
	Credits	**14.5-16.5**
Spring		
EX 3580	Physiology of Exercise	3
EX 3750	Physiology of Exercise Laboratory	1
CH 2340	General Chemistry II	4
HE 2500	First Aid and CPR/AED	1.5
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/)		0-4
Elective		0-3
WECO (https://coursecatalog.plymou general-education/#WECO)	Wellness Connection	3-4
	Credits	**12.5-20.5**
Year Three		
Fall		
PE 3720	Motor Learning	3
EX 3860	Exercise Testing and Prescription	3
EX 3865	Exercise Testing and Prescription Laboratory	1
DICO (https://coursecatalog.plymouth.edu/general-education/#DICO)	Diversity Connection	3-4
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/)		0-4
Elective		0-3
HE 3220	Applied Nutrition for Healthy Living (TECO)	3
	Credits	**13-21**
Spring		
EX 4520	Principles and Theories of Strength and Conditioning	3
EX 4525	Principles and Theories of Strength and Conditioning Laboratory	1

EX 4760	Exercise Physiology for Special Populations	3
CC 3860 or PBH 3200	Psychological Aspects of Sports or Social and Behavioral Health Psychology (INCO,INCP)	3-4
GACO (https://coursecatalog.plymou general-education/#GACO)	Global Awareness Connection	3-4
	Credits	**13-15**
Year Four		
Fall		
EX 5210	Advanced Exercise Physiology	3
EX 5220	Advanced Exercise Physiology Laboratory	1
EX 4840	Research Methods in Exercise Science (WRCO)	3
EX 5500	Graduate Seminar in Exercise Science	3
EX 5610	Advanced Strength and Conditioning	4
INCO (https://coursecatalog.plymouth.edu/general-education/#INCO)	Integration Connection	3-4
	Credits	**17-18**
Spring		
EX 5410	Applied Research in Exercise Science	4
EX 5220	Advanced Exercise Physiology Laboratory	1
EX 5730	Advanced Topics in Exercise Physiology	4
EX 5700	Advanced Practicum in Exercise Science I	4
	Credits	**13**
	Total Credits	**120**

Learning Outcomes

Upon completion of this major, exercise and sport physiology students will possess the necessary knowledge, skills, and abilities to:

- Demonstrate knowledge of general overall physiological principles associated with metabolic processes; musculoskeletal system; cardiovascular system; aerobic and anaerobic program design.
- Demonstrate knowledge of pathophysiology and risk factors associated with exercise and disease.
- Demonstrate the ability to administer and interpret health appraisals, fitness and clinical exercise testing.
- Demonstrate the ability to administer and interpret electrocardiography and other diagnostic techniques associated with physiological processes.
- Describe and understand issues involved with patient management and medications.
- Design and monitor exercise prescriptions and fitness programming.
- Assess and evaluate nutritional intake and demonstrate the ability to design weight management programs.
- Demonstrate knowledge of safety, injury prevention, and emergency procedures associated with laboratory activities and general exercise.
- Demonstrate knowledge of cardiovascular physiology, pulmonary physiology, metabolic processes and associated pathophysiology and risk factors for disease.
- Demonstrate knowledge of orthopedic/musculoskeletal issues including pathophysiology and risk factors for injury.
- Demonstrate proficiency in performing laboratory techniques and subsequent analysis of data commonly used in a Human Performance Laboratory.
- Demonstrate knowledge of and show ability to carry out the research process in a collaborative environment.

Career Pathways

Exercise and Sport Physiology prepares you for careers in the fitness industry, strength and conditioning field, human performance laboratory research, clinical exercise physiology, and others, such as the pharmaceutical industry. The degree prepares you for future graduate studies in Exercise Science and is designed to allow you the flexibility to complete prerequisites that may be required for professional post-baccalaureate programs such as Physical Therapy, Occupational Therapy, Doctor of Chiropractic, etc.