

HEALTH SCIENCES EMPHASIS (WITH A 3+2 MS IN APPLIED EXERCISE SCIENCE AND PERFORMANCE)

The Health Sciences Emphasis allows students to complete the BS in Biology and the MS in Applied Exercise Science and Performance (AESP) in five years. To remain qualified for the Health Sciences Emphasis, students must meet requirements at certain points in their academic progression. By the end of the second academic year, the student must have earned 63 credits and completed ESS 185 Lifetime Wellness; BIOL 372 Human Anatomy and Physiology I (with laboratory) and BIOL 373 Human Anatomy and Physiology II (with laboratory); CHEM 331 Organic Chemistry I, CHEM 332 Organic Chemistry II, CHEM 334 Organic Chemistry Laboratory I, and CHEM 335 Organic Chemistry Laboratory II; all 100-level required science courses; and 15 credits of Liberal Arts General Education courses in Areas I and III. By the end of the third academic year, the student must have earned 95 credits and fulfill all the AESP application requirements listed below.

Upon earning 95 credits by the end of the third year, the student must have:

- Maintained a 3.0 cumulative GPA and a 3.25 GPA within the major.
- Earned a C or better in all major coursework.
- Completed all General Education requirements.
- Completed all but 6 credits of the undergraduate course requirements for the Health Sciences Emphasis. See MAJOR MAP at western.edu/biol.
- Completed the application for the 3+2 AESP program by satisfying the following:
 - Written, submitted and discussed a Letter of Intent with the AESP program Director and his or her advisor. The Letter of Intent should include preliminary research interests and career goals. This letter will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the AESP program.
 - Requested, and the School of Graduate Studies must have received, two letters of recommendation. At least one letter must be from a Western faculty member. Recommendation letters will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the AESP program.
 - Submitted a current résumé. The resume will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the AESP program.
 - Paid the \$50 School of Graduate Studies application fee.

Upon satisfying all the requirements listed above, the School of Graduate Studies will consider the student a "AESP candidate with provisional acceptance."

Upon earning 120 credits by the end of the fourth year, the student must have:

- Completed all undergraduate Health Sciences Emphasis coursework.
- Maintained a 3.0 cumulative GPA and a 3.25 GPA within the major.
- Completed 18 graduate level ESS credits, with at least a 3.0 GPA.

At this time, the School of Graduate Studies will consider the student a "AESP M.S. degree seeking student."

The Health Sciences Emphasis requires a minimum of 83 credits, including the 26-credit Biology Nucleus, 8 additional credits in Biology, 31 credits of supporting courses, and 18 credits of AESP coursework.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
Biology Nucleus		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
Required Biology Courses:		
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
Total Credits		8

Code	Title	Credits
Minimum supporting courses:		
CHEM 331	Organic Chemistry I	3
CHEM 332	Organic Chemistry II	3
CHEM 334	Organic Chemistry Laboratory I	1
CHEM 335	Organic Chemistry Laboratory II	1
CHEM 471	Biochemistry I	3
ESS 185	Lifetime Wellness	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 380	Biomechanics	3
MATH 213	Probability and Statistics (GT-MA1)	3
PSY 100	General Psychology (GT-SS3)	3
	Select one of the following:	4-8
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	
OR		
PHYS 170 & PHYS 185	Principles of Physics I (GT-SC2) and Laboratory Physics I (GT-SC1)	
AND		
PHYS 171 & PHYS 186	Principles of Physics II (GT-SC2) and Laboratory Physics II (GT-SC1)	
Total Credits		31-35

Code	Title	Credits
Year four AESP courses:		
ESS 600	Advanced Statistics	3

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ESS 601	Quantitative Research Methods	3
ESS 605	Exercise and Sport Science Testing and Instrumentation-Lab	3
ESS 606	Exercise and Sport Science Testing and Instrumentation-Field	3
ESS 640	Environmental Exercise Physiology I	3
ESS 675	Clinical Exercise Programming-Lab	3
Total Credits		18

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.S. conferral. Students electing to complete a MS in AESP must follow the balance of the AESP curriculum.

For a full description of the required Graduate coursework, please see the appropriate MS program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/high-altitude-exercise-physiology/#programrequirementstext>).

Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement: ESS 601 Quantitative Research Methods.

Course	Title	Credits
Year One		
Fall		
ENG 102	Writing and Rhetoric I (GT-C01)	3
HWTR 100	First Year Seminar	1
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
Elective		3
Credits		15
Spring		
ESS 185	Lifetime Wellness	3
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
ENG 103	Writing and Rhetoric II (GT-C02)	3
PSY 100	General Psychology (GT-SS3) ((Gen Ed))	3
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
Credits		17
Year Two		
Fall		
General Education courses		6
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
CHEM 331	Organic Chemistry I	3
CHEM 334	Organic Chemistry Laboratory I	1
Elective		3
Credits		17
Spring		
General Education courses		6
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
CHEM 332	Organic Chemistry II	3
CHEM 335	Organic Chemistry Laboratory II	1
Credits		14
Year Three		
Fall		
General Education courses		3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1

CHEM 471	Biochemistry I	3
BIOL 301	General Ecology	3
Elective		3
Credits		16
Spring		
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
BIOL 310	Cell Biology	3
Elective ⁶		
MATH 213	Probability and Statistics (GT-MA1)	3
Credits		10
Year Four		
Fall		
ESS 380	Biomechanics	3
ESS 601	Quantitative Research Methods	3
ESS 605	Exercise and Sport Science Testing and Instrumentation-Lab	3
ESS 640	Environmental Exercise Physiology I	3
Credits		12
Spring		
BIOL 312	Genetics (with recitation)	4
ESS 600	Advanced Statistics	3
ESS 606	Exercise and Sport Science Testing and Instrumentation-Field	3
ESS 675	Clinical Exercise Programming-Lab	3
Credits		13
Year Five		
Fall		
ESS 641	Environmental Exercise Physiology II	3
ESS 695	Thesis	1-9
ESS 699	Practicum/Internship	1-6
Credits		5-18
Spring		
ESS 612	Exercise Biochemistry	3
ESS 695	Thesis	6
Credits		9
Total Credits		128-141