

ENVIRONMENTAL BIOLOGY, BA AND BS

Both the BA and BS degrees in Environmental Biology are designed to meet the needs of students expressing an interest in environmental biology and preparing them to be competitive as applicants to graduate programs. This degree is built around a biology core emphasizing the principles of ecology and evolution with an orientation towards natural resources, conservation, and other environmental concerns.

Student Learning Outcomes

Environmental Biology majors at Washburn University, upon completion of the program will be able to:

- Describe or distinguish major biological principles in cell biology, genetics, organismal biology, ecology, and evolution.
- Demonstrate the complex interrelationships amongst ecological and evolutionary forces and how they influence organisms, populations, and community function.
- Explain the scientific process and be able to discriminate between different approaches to science.
- Identify, recognize, and recall the basic biology of at least one major taxonomic group.
- Design experiments and analyze and interpret basic scientific data.
- Explain scientific information in oral and written presentations in a clear and professional manner.

Degree Requirements

Environmental Biology, BA

In addition to the requirements stated below, students must complete 34-35 hours of General Education (<https://catalog.washburn.edu/undergraduate/programs-degrees-graduation-requirements/general-education-requirements/>), all requirements for a Bachelor of Arts (<https://catalog.washburn.edu/undergraduate/college-arts-sciences/degrees/bachelor-arts/>) degree, and any additional hours needed to reach the minimum 120 credit hours required for graduation. Some of the courses below may also fulfill general education or other degree requirements. Please see your advisor for more information.

Code	Title	Hours
Required Courses Inside Department		
BI 192	General Cellular Biology	5
BI 194	General Organismal Biology	5
BI 203	Human Impact on the Environment	3
BI 310	Ecology	4
BI 314	Statistics for Biologists	3
BI 333	General Genetics	4
BI 340	Evolutionary Biology	3
BI 390	Biology Seminar (Capstone Course)	1
BI 395	Research in Biology (Capstone Course)	1
Biology Electives ¹		10
Subtotal		39
Required Courses Outside Department		
CH 151 & CH 152	Fundamentals of Chemistry I and Fundamentals of Chemistry II	10

CH 340 & CH 342	Organic Chemistry I and Organic Chemistry Lab I	5
MA 116	College Algebra	3
Select one of the following physics sequences:		10
PS 261 & PS 262	College Physics I and College Physics II	
PS 281 & PS 282	General Physics I and General Physics II	
Subtotal		28
Total Hours		67

¹ With a minimum of 7 hours from the Organismal Biology Elective list, with at least 1 course from Field Electives Section.

Degree Requirements

Environmental Biology, BS

In addition to the requirements stated below, students must complete 34-35 hours of General Education (<https://catalog.washburn.edu/undergraduate/programs-degrees-graduation-requirements/general-education-requirements/>), all requirements for a Bachelor of Science (<https://catalog.washburn.edu/undergraduate/college-arts-sciences/degrees/bachelor-science/>) degree, and any additional hours needed to reach the minimum 120 credit hours required for graduation. Some of the courses below may also fulfill general education or other degree requirements. Please see your advisor for more information.

Code	Title	Hours
Required Courses Inside Department		
BI 192	General Cellular Biology	5
BI 194	General Organismal Biology	5
BI 203	Human Impact on the Environment	3
BI 310	Ecology	4
BI 314	Statistics for Biologists	3
BI 333	General Genetics	4
BI 340	Evolutionary Biology	3
BI 390	Biology Seminar (Capstone Course)	1
BI 395	Research in Biology (Capstone Course)	1
Biology Electives (p. 2) ¹		16
Subtotal		45
Required Courses Outside Department		
CH 151 & CH 152	Fundamentals of Chemistry I and Fundamentals of Chemistry II	10
CH 340 & CH 342	Organic Chemistry I and Organic Chemistry Lab I	5
MA 116	College Algebra	3
MA 151	Calculus & Analytic Geometry I	5
Select one of the following physics sequences:		10
PS 261 & PS 262	College Physics I and College Physics II	
PS 281 & PS 282	General Physics I and General Physics II	
Subtotal		33
Total Hours		78

¹ With a minimum of 11 hours from the Organismal Biology Elective list, with at least 1 course from the Field Electives Section.

Elective Supportive Organismal Courses for the BA/BS degree in Environmental Biology:

Code	Title	Hours
BI 301	General Microbiology	4
BI 303	Invertebrate Zoology	4
BI 305	Parasitology	4
BI 322	Advanced General Botany	4
BI 328	Plant Physiological Ecology	3
BI 330	Advanced Physiology	4
GG 300	Special Topics/Geography (Introduction to GIS)	3
Field Electives Section		
BI 300	Field Biology	3
BI 302	Entomology	4
BI 311	Field Ecology	3
BI 312	Behavioral Ecology	4
BI 315	Vertebrate Zoology	4
BI 324	Systematic Botany	3