

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 |