

BIOLOGY MAJOR WITH SECONDARY EDUCATION SPECIALIZATION, BS

The BS degree in Biology with Secondary Education Specialization is designed for those students seeking teaching certification in Biology and who wish to have a more extensive natural science foundation.

Student Learning Outcomes

Biology, Secondary Education Specialization 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 human anatomy, physiology, reproduction, and development.
- 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

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.

Students seeking certification to teach Biology must also be formally admitted to the University's Professional Teacher Education (<https://catalog.washburn.edu/undergraduate/school-applied-studies/education/#admissiontext>) Programs.

Code	Title	Hours
Required Courses Inside Biology Department		
BI 192	General Cellular Biology	5
BI 194	General Organismal Biology	5
BI 203	Human Impact on the Environment	3
BI 301	General Microbiology	4
BI 310	Ecology	4
BI 319	Biology for STEM Educators	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

Select a minimum of 6 credits of Biology at the 200 level or higher. One course must be animal focused and the other, plant focused.	6
Subtotal	39

Required Courses Inside Education Department		
ED 155	Teaching, Learning, Leadership	3
ED 165	Ed. 1, Examining Teaching as a Profession: Diversity 1, Literacy 1, Technology 1	3
ED 275	Ed. 2 Exploring Teaching as a Profession (Classroom Management 1, Diversity 2, Technology 2) Ed. 2	3
ED 285	Educational Psychology	3
ED 295	Ed. 3 Experiencing Teaching as a Profession (Classroom Management 2, Diversity 3, Literacy 2)	3
ED 302	Teaching Exceptional Learners	3
ED 350	General Secondary Methods	3
ED 354	Curriculum and Assessment	3
ED 395	Ed. 4 Extending Teaching as a Profession (Classroom Management 3, Literacy 3, Technology 3)	3

Professional Semester		
ED 410	Secondary Student Teaching	12
Subtotal		39

Required Courses Inside Other Departments ¹		
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 140 or MA 151	Statistics or Calculus & Analytic Geometry I	3-5
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		31-33

Total Hours **109-111**

¹ These courses may be used to partially satisfy the 30-hour Natural Sciences Concentration

NOTE: The number of credit hours to graduate with a B.S. in Biology with Secondary Education Specialization varies but is at least 140 credit hours.