BIOLOGY, MINOR

This minor may be completed only by students admitted to the Middle Childhood through Early Adolescence options of Elementary Education. Students may wish to consult with a biology undergraduate advisor (http://biologymajor.wisc.edu/advising) to discuss course selection and other issues related to this field of study. The Biology Major website (http://biologymajor.wisc.edu) is also a good resource, providing information about areas of study within biology and upcoming biology-related activities on campus. Biology is offered as a major in both the College of Letters & Science and the College of Agricultural and Life Sciences.

HOW TO GET IN

This minor may be completed only by students admitted to the Middle Childhood through Early Adolescence options of Elementary Education. Students admitted to the Content Focus option (http://guide.wisc.edu/undergraduate/education/curriculum-instruction/elementary-education-bse/elementary-education-middle-childhood-through-early-adolescence-content-focused-minor-bse) are asked to identify the minor of their choice when admitted to the program. Students admitted to the other Middle Childhood through Early Adolescence options should fill out a minor declaration form available in Education Academic Services, Room 139 Education Building.

REQUIREMENTS

The biology minor requires a minimum of 24 credits. A minimum cumulative grade point average of 2.75 is required, based on all biology minor coursework taken on the UW–Madison campus. Biocore sequence coursework may also be used to meet these requirements; consult with an advisor in Education Academic Services.

Discipline-related course work is also required, but not calculated into the minor credits or gpa.

REQUIRED DISCIPLINE-RELATED COURSES

Code	Title	Credits
Select a minimum of 6 credits in Mathematics and/or Statistics, college level, excluding MATH 130–MATH 132		
Select one of the following:		5-10
CHEM 103 & CHEM 104	General Chemistry I and General Chemistry II	
CHEM 109	Advanced General Chemistry	
CHEM 115 & CHEM 116	Chemical Principles I and Chemical Principles II	
Select one of the following:		8-10
PHYSICS 103 & PHYSICS 104	General Physics and General Physics	
PHYSICS 201 & PHYSICS 202	General Physics and General Physics	
PHYSICS 207 & PHYSICS 208	General Physics and General Physics	

MINOR REQUIREMENTS

INTRODUCTORY BIOLOGY. SELECT ONE OF THE FOLLOWING OPTIONS:

Code	Title	Credits
Option 1: [1]		
BIOLOGY/ ZOOLOGY 101	Animal Biology	3
BIOLOGY/ ZOOLOGY 102	Animal Biology Laboratory	2
BIOLOGY/ BOTANY 130	General Botany	5
Option 2:		
BIOLOGY/BOTANY/ ZOOLOGY 151	Introductory Biology	5
BIOLOGY/BOTANY/ ZOOLOGY 152	Introductory Biology	5

[1] Students earning Advanced Placement (AP) or International Baccalaureate (IB) Biology scores of 4 or above are given credit for BIOLOGY/BOTANY/ZOOLOGY 151 at UW–Madison. This course fulfills the entire 151–152 sequence. Students taking BIOLOGY/BOTANY/ZOOLOGY 151 coursework at UW–Madison or transfer it from another campus must complete both BIOLOGY/BOTANY/ZOOLOGY 151 and BIOLOGY/BOTANY/ZOOLOGY 152 to complete the 151–152 sequence.

GENETICS

Code	Title	Credits
GENETICS 466	Principles of Genetics	3

ELECTIVES

Complete biology elective coursework from the approved lists to reach a minimum of 24 credits. The courses must be numbered 300 and above and include at least one course from two of the following three areas: (1) Ecology, Evolution, Genetics, (2) Cell and Molecular Biology, and (3) Physiology. Additional courses may, with the consent of an advisor, be selected to meet the elective requirements.

Area 1: Ecology/Evolution/Genetics

Code	Title	Credits
BOTANY 300	Plant Anatomy [1]	4
BOTANY 305	Plant Morphology and Evolution [1]	4
BOTANY 330	Algae	3
BOTANY/ PL PATH 332	Fungi [1]	4
BOTANY 400	Plant Systematics [1]	4
BOTANY 401	Vascular Flora of Wisconsin [1]	4
BOTANY/ F&W ECOL 402	Dendrology [1]	2
BOTANY 403	Field Collections and Identification [1]	1-4
BOTANY 422	Plant Geography	3
BOTANY/ F&W ECOL 455	The Vegetation of Wisconsin [1]	4
BOTANY/F&W ECOL/ ZOOLOGY 460	General Ecology [1]	4

BOTANY 563	Phylogenetic Analysis of Molecular Data	3
ZOOLOGY/ ENTOM 302	Introduction to Entomology [1]	4
ZOOLOGY/ ENVIR ST 315	Limnology-Conservation of Aquatic Resources	2
ZOOLOGY 316	Laboratory for Limnology-Conservation of Aquatic Resources [1]	2-3
ZOOLOGY/ENTOM/ M M & I/PATH-BIO 350	Parasitology	3
ZOOLOGY/M M & I/ PATH-BIO 351	Parasitology Laboratory [1]	2
ZOOLOGY/ENVIR ST/ F&W ECOL 360	Extinction of Species	3
ZOOLOGY/ANTHRO/ BOTANY 410	Evolutionary Biology	3
ZOOLOGY 430	Comparative Anatomy of Vertebrates	5
ZOOLOGY/BOTANY/ F&W ECOL 460	General Ecology [1]	4
ZOOLOGY/ ENVIR ST 510	Ecology of Fishes	3
ZOOLOGY/ ENVIR ST 511	Ecology of Fishes Lab [1]	2
ZOOLOGY/AN SCI/ F&W ECOL 520	Ornithology	3
ZOOLOGY/AN SCI/ F&W ECOL 521	Birds of Southern Wisconsin [1]	3
ZOOLOGY 525	Tropical Herpetology	1
ZOOLOGY/ GENETICS/ MD GENET 562	Human Cytogenetics	2
MICROBIO/ GENETICS 607	Advanced Microbial Genetics	3
ENTOM 331	Taxonomy of Mature Insects [1]	4
ENTOM 342	Insect Ecology	3
ENTOM 468	Studies in Field Entomology [1]	3
GENETICS/ MD GENET 565	Human Genetics	3
GENETICS/ AN SCI 610	Quantitative Genetics	3
GENETICS/ BIOCHEM/ MICROBIO 612	Prokaryotic Molecular Biology	3
GENETICS/ BIOCHEM/ MD GENET 620	Eukaryotic Molecular Biology	3
HORT/ AGRONOMY 501	Principles of Plant Breeding	3
LAND ARC/ ENVIR ST 361	Wetlands Ecology [1]	3
PL PATH 300	Introduction to Plant Pathology [1]	4

[1] Courses are lab or field courses.

Area 2: Cell and Molecular Biology

Code	Title	Credits
MICROBIO 303	Biology of Microorganisms	3
MICROBIO/M M & I/ PATH-BIO 528	Immunology	3
MICROBIO/ GENETICS 607	Advanced Microbial Genetics	3
MICROBIO/ ONCOLOGY/ PL PATH 640	General Virology-Multiplication of Viruses	3
BOTANY 563	Phylogenetic Analysis of Molecular Data	3
GENETICS/ MD GENET/ ZOOLOGY 562	Human Cytogenetics	2
GENETICS/ BIOCHEM/ MICROBIO 612	Prokaryotic Molecular Biology	3
ZOOLOGY 430	Comparative Anatomy of Vertebrates	5
ZOOLOGY 570	Cell Biology	3

Area 3: Physiology

Code	Title	Credits
BOTANY 500	Plant Physiology	3-4
ZOOLOGY 611	Comparative and Evolutionary Physiology	3
ZOOLOGY 612	Comparative Physiology Laboratory [1]	2
ANAT&PHY 335	Physiology [1]	5

[1] Courses are lab or field courses.