

# BIOLOGY COMPREHENSIVE MAJOR, B.S.

Students with the Biology Comprehensive Major will complete the Biology Core Requirements (<http://catalog.uwplatt.edu/undergraduate/business-industry-life-science-agriculture/biology/#biology-core>) (32-34 credits) and one of the following emphases related to the student's field of interest.

## BOTANY EMPHASIS

Course	Title	Credits
<b>Additional Requirement</b>		
BIOLOGY 2040 or BIOLOGY 3240	Cell Biology Microbiology	4
<b>Advanced Plant-Based Courses</b>		
Select a minimum of 14 credits of the following:		14
BIOLOGY 2130	Plants and Society	
BIOLOGY 2450	Fungi, Algae and Bryophytes	
BIOLOGY 3550	Morphology and Evolution of Vascular Plants	
BIOLOGY 3650	Plant Communities of Wisconsin	
BIOLOGY 4150	Forensic Botany	
BIOLOGY 4530	Plant Pathology	
BIOLOGY 4920	Advanced Independent Research in Biology	
GEOGRPHY 1370	The Land Ethic	
SCSCI 3220	Plant Development and Biotechnology	
SCSCI 4240	Plant Breeding	
SCSCI 4340	Plant Physiology	
Approved field station course(s)		
<b>Broad-Based Biology Course(s)</b>		
Select a minimum of 3 credits of the following:		3
BIOLOGY 2040	Cell Biology	
BIOLOGY 3240	Microbiology	
BIOLOGY 3460	Ecological Methods and Research	
BIOLOGY 3530	Biotechnology	
BIOLOGY 3750	Freshwater Biology	
BIOLOGY 4410	Topics in Biology (advisor approval required)	
BIOLOGY 4520	Biotechnology Seminar	
BIOLOGY 4710	Selected Regional Habitats	
Approved field station course		
<b>Supporting Courses</b>		
Select a minimum of 8 credits of the following:		8
CHEMISTRY 3540 & CHEMISTRY 3510	Organic Chemistry I and Organic Chemistry I Lab	
CHEMISTRY 4630 & CHEMISTRY 4610	General Biochemistry and General Biochemistry Lab	
ENERGY 2130	Energy, Environment, and Society	
ENVHORT 2280	Woody Landscape Plants	
ENVHORT 3240	Herbaceous Plants	
GEOGRPHY 1040	Planet Earth	
GEOGRPHY 3140	Global Landforms	
GEOGRPHY 3230	Geographic Information Systems	
GEOGRPHY 3240	Weather and Climate	
GEOGRPHY 3330	Environmental Conservation	
GEOGRPHY 3340	Biogeography	
GEOGRPHY 4150	Global Environmental Change	
GEOLOGY 1140	Physical Geology	

GEOLOGY 1240	Historical Geology
SCSCI 2230	Soils
SCSCI 4250	Weed Science
SCSCI 4350	Soil and Water Conservation

**Total Credits** **29**

## RECOMMENDED MINORS

Biotechnology  
 Chemistry  
 Environmental Science  
 Geology  
 Environmental Horticulture  
 Renewable Energy

**Note:** Up to 6 credits total from BIOLOGY 2920, BIOLOGY 3920, BIOLOGY 4010, BIOLOGY 4660, or BIOLOGY 4920 may be counted toward the major.

## CYTOTECHNOLOGY EMPHASIS

A minimum of 82 semester credits must be completed at UW-Platteville, including all general education competencies and liberal arts areas as well as all biology requirements listed below; if accepted into an approved cytotechnology program, students will earn their final 38 credits of advanced biology from that professional cytotechnology school. At the end of the fourth year of study, students will earn a bachelor's from UW-Platteville as well as a certificate in cytotechnology from the professional cytotechnology school. If a student is not accepted into an approved program, then he/she is encouraged to complete the final year at UW-Platteville to earn a bachelor's in biology; to graduate, the student must fulfill the minimum requirements for the university and the biology program (either a non-emphasis biology degree, or another emphasis within the comprehensive major).

## CORE REQUIREMENTS

Students must complete at least 20 credits of undergraduate biology courses, including the required biology core courses, as well as the required supporting core courses (11 credits). Students in this emphasis DO NOT have to take the one-credit capstone experience.

Course	Title	Credits
<b>Recommended Cytotechnology Emphasis Core</b>		
BIOLOGY 2040	Cell Biology	4
BIOLOGY 3240	Microbiology	5
BIOLOGY 2140 or BIOLOGY 2340	Human Anatomy and Physiology I Essentials of Anatomy and Physiology	4
BIOLOGY 4340	Mammalian Histology	4
<b>Total Credits</b>		<b>17</b>

**Note:** Up to 6 credits total from BIOLOGY 2920, BIOLOGY 3920, BIOLOGY 4010, BIOLOGY 4660, or BIOLOGY 4920 may be counted toward the major.

## ECOLOGY EMPHASIS

Course	Title	Credits
<b>Additional Biology Courses</b>		
BIOLOGY 2040 or BIOLOGY 3240	Cell Biology Microbiology	4
<b>Advanced Ecology Courses</b>		
Select 6 credits of the following:		6
BIOLOGY 3460	Ecological Methods and Research	
BIOLOGY 3650	Plant Communities of Wisconsin	
BIOLOGY 3750	Freshwater Biology	
BIOLOGY 4710	Selected Regional Habitats	
GEOGRPHY 3340	Biogeography	
<b>Advanced Organismal, Identification, or Research Courses</b>		
Select 9 credits of the following:		9
BIOLOGY 2450	Fungi, Algae and Bryophytes	
BIOLOGY 2640	Invertebrate Zoology	
BIOLOGY 3030	Ornithology	

BIOLOGY 3040	Comparative Anatomy of the Vertebrates
BIOLOGY 3230	Mammalogy
BIOLOGY 3240	Microbiology
BIOLOGY 3550	Morphology and Evolution of Vascular Plants
BIOLOGY 4150	Forensic Botany
BIOLOGY 4530	Plant Pathology
BIOLOGY 4410	Topics in Biology
BIOLOGY 4660	Biology Internship Experience <sup>1</sup>
BIOLOGY 4920	Advanced Independent Research in Biology <sup>1</sup>
BIOLOGY 3###	Ichthyology <sup>2</sup>
BIOLOGY 3###	Herpetology <sup>2</sup>

### Non-Biology Supporting Courses

Select a minimum of 9 credits of the following:

CHEMISTRY 3110	Environmental Chemistry Lab <sup>3</sup>	9
CHEMISTRY 3130	Environmental Chemistry <sup>3</sup>	
CHEMISTRY 3510	Organic Chemistry I Lab <sup>3</sup>	
CHEMISTRY 3540	Organic Chemistry I <sup>3</sup>	
GEOGRPHY 3230	Geographic Information Systems	
GEOGRPHY 4330	Advanced Geographic Information Systems <sup>4</sup>	
or RECLAM 3010	Current Topics in Reclamation and Restoration	
CIVILENG 4630	Geographic Information Systems <sup>4</sup>	
PHYSICS 1050	Principles of Physics <sup>3</sup>	
or PHYSICS 1350	Introductory Physics I	
PHYSICS 1450	Introductory Physics II <sup>3</sup>	
GEOLOGY 1140	Physical Geology	
GEOGRPHY 3140	Global Landforms	
GEOGRPHY 3240	Weather and Climate	
GEOGRPHY 3330	Environmental Conservation	
RECLAM 3020	Reclamation Revegetation	

### Total Credits

28

- <sup>1</sup> No more than four credits of any combination of these courses can be applied to the required 12 credits.
- <sup>2</sup> Course may not be offered at UW-Platteville.
- <sup>3</sup> Students who expect to enter graduate or professional school should consider taking these courses.
- <sup>4</sup> This option requires instructor consent for both courses.

NOTE: Any of the courses above may also be taken at an accredited field station with departmental approval.

## RECOMMENDED MINORS

Biotechnology  
Chemistry  
Environmental Science  
Geology

**Note:** Up to 6 credits total from BIOLOGY 2920, BIOLOGY 3920, BIOLOGY 4010, BIOLOGY 4660, or BIOLOGY 4920 may be counted toward the major.

## HEALTH SCIENCES EMPHASIS

This emphasis is intended for students pursuing graduate school (human anatomy or human physiology) or professional school in healthcare (chiropractic, dentistry, medicine, nursing, occupational therapy, optometry, osteopathy, physical therapy, physician assistant, podiatry, etc.).

Course	Title	Credits
Biology Core ( <a href="http://catalog.uwplatt.edu/undergraduate/business-industry-life-science-agriculture/biology/#biology-core">http://catalog.uwplatt.edu/undergraduate/business-industry-life-science-agriculture/biology/#biology-core</a> )		32
<b>Health Sciences Emphasis Core Courses (19 credits)</b>		
BIOLOGY 2040	Cell Biology	4
BIOLOGY 2140	Human Anatomy and Physiology I	5

BIOLOGY 2240	Human Anatomy and Physiology II	5
BIOLOGY 3240	Microbiology	5

**Health Sciences Additional Required Supporting Courses 8-11**

Choose all of the courses in one of the options:

**Option A**

CHEMISTRY 3510	Organic Chemistry I Lab
CHEMISTRY 3540	Organic Chemistry I
CHEMISTRY 4610	General Biochemistry Lab
CHEMISTRY 4630	General Biochemistry

**Option B**

PHYSICS 1350	Introductory Physics I
PHYSICS 1450	Introductory Physics II

**Option C**

PHYSICS 2240	General Physics I
PHYSICS 2340	General Physics II

**Option D**

PSYCHLG 1130	General Psychology
PSYCHLG 2930 or PSYCHLG 2730	Human Behavior in the Social Environment Life Span Developmental Psychology
SOCIOLOGY 1030	Introduction to Sociology

**Option E**

HHP 3020	Physiology of Exercise
HHP 3720	Biomechanical Kinesiology
HHP 3950	Human Nutrition

**Electives to Complete the Emphasis 3-6**

Students may select any biology course above the 2000 level (except BIOLOGY 2340 or BIOLOGY 4010).

Relevant suggested classes:

BIOLOGY 3040	Comparative Anatomy of the Vertebrates
BIOLOGY 3530	Biotechnology
BIOLOGY 3620	Immunology
BIOLOGY 4040	Molecular Biology
BIOLOGY 4240	Advanced Physiology
BIOLOGY 4340	Mammalian Histology
BIOLOGY 4440	Human Gross Anatomy

**Total Credits****65****RECOMMENDED MINORS**

Applied Statistics  
 Biotechnology  
 Chemistry  
 Ethnic Studies  
 Foreign Languages  
 Mathematics  
 Psychology

Students planning to pursue graduate or professional school may need to complete additional coursework beyond the requirements of the major to make their application competitive. It is well worth the time and effort to investigate the prerequisites at 2 or 3 schools you are considering. Additionally, be aware that graduate and professional schools often have G.P.A. requirements and expectations that you gain educational experiences beyond the classroom. Your advisor will be able to help you as you plan your future.

**Note:** Up to 6 credits total from BIOLOGY 2920, BIOLOGY 3920, BIOLOGY 4010, BIOLOGY 4660, or BIOLOGY 4920 may be counted toward the major.

## MOLECULAR/GENETICS EMPHASIS

Course	Title	Credits
<b>Molecular/Genetics Core Courses</b>		
BIOLOGY 2040	Cell Biology	4
BIOLOGY 3240	Microbiology	5
BIOLOGY 4040	Molecular Biology	5
<b>Advanced Molecular/Genetics Courses</b>		
Select 8 credits of the following:		8
BIOLOGY 2140	Human Anatomy and Physiology I	
BIOLOGY 2240	Human Anatomy and Physiology II	
BIOLOGY 2340	Essentials of Anatomy and Physiology	
BIOLOGY 3040	Comparative Anatomy of the Vertebrates	
BIOLOGY 3120	Animal Tissue Culture	
BIOLOGY 3530	Biotechnology	
BIOLOGY 3620	Immunology	
BIOLOGY 4130	Mammalian Endocrinology	
BIOLOGY 4150	Forensic Botany	
BIOLOGY 4240	Advanced Physiology	
BIOLOGY 4340	Mammalian Histology	
BIOLOGY 4530	Plant Pathology	
BIOLOGY 4520	Biotechnology Seminar	
SCSCI 3220	Plant Development and Biotechnology	
SCSCI 4240	Plant Breeding	
SCSCI 4340	Plant Physiology	
<b>Additional Required Supporting Courses</b>		
CHEMISTRY 3540 & CHEMISTRY 3510	Organic Chemistry I and Organic Chemistry I Lab	5
CHEMISTRY 4630 & CHEMISTRY 4610	General Biochemistry and General Biochemistry Lab	4
<b>Electives</b>		
Electives to complete the emphasis <sup>1</sup>		3
<b>Total Credits</b>		<b>34</b>

<sup>1</sup> Students may select any biology course above the 2000 level (except BIOLOGY 4010).

## RECOMMENDED MINORS

Chemistry  
Criminal Justice

**Note:** Up to 6 credits total from BIOLOGY 2920, BIOLOGY 3920, BIOLOGY 4010, BIOLOGY 4660, or BIOLOGY 4920 may be counted toward the major.

## SECONDARY EDUCATION EMPHASIS

Note: Biology-secondary education majors must earn a minimum G.P.A. of 2.75 in the major coursework.

Course	Title	Credits
<b>Secondary Education Emphasis Core Courses</b>		
BIOLOGY 2040	Cell Biology	4
BIOLOGY 3240	Microbiology	5
BIOLOGY 2340	Essentials of Anatomy and Physiology	4
or BIOLOGY 2140/2240	Human Anatomy and Physiology I	
<b>Advanced Plant Course</b>		
Select a minimum of 3 credits of the following:		3
BIOLOGY 2130	Plants and Society	
BIOLOGY 2450	Fungi, Algae and Bryophytes	

BIOLOGY 3550	Morphology and Evolution of Vascular Plants	
BIOLOGY 3650	Plant Communities of Wisconsin	
ENVHORT 2280	Woody Landscape Plants	
ENVHORT 3240	Herbaceous Plants	
SCSCI 4340	Plant Physiology	
An approved course at a field station		
<b>Advanced Animal Course</b>		
Select a minimum of 3 credits of the following:		3
BIOLOGY 2640	Invertebrate Zoology	
BIOLOGY 3030	Ornithology	
BIOLOGY 3040	Comparative Anatomy of the Vertebrates	
BIOLOGY 3230	Mammalogy	
BIOLOGY 4130	Mammalian Endocrinology	
BIOLOGY 4240	Advanced Physiology	
BIOLOGY 4340	Mammalian Histology	
An approved course at a field station		
<b>Advanced Broad-Based Biology Course</b>		
Select a minimum of 2 credits of the following:		2
BIOLOGY 3460	Ecological Methods and Research	
BIOLOGY 3530	Biotechnology	
BIOLOGY 3750	Freshwater Biology	
BIOLOGY 4040	Molecular Biology	
BIOLOGY 4410	Topics in Biology (approval required)	
BIOLOGY 4710	Selected Regional Habitats	
BIOLOGY 4920	Advanced Independent Research in Biology (approval required)	
Additional Licensable Program (required)		
<b>Total Credits</b>		<b>21</b>

Biology-secondary education majors are required to earn an additional licensable degree. Although students are free to select any licensable major or minor offered at UW-Platteville, the biology department encourages students to pursue a science-related program to improve marketability. To this end, students may choose to minor in physics, chemistry or environmental science or double major in chemistry or broad field science.

**Note:** Up to 6 credits total from BIOLOGY 2920, BIOLOGY 3920, BIOLOGY 4010, BIOLOGY 4660, or BIOLOGY 4920 may be counted toward the major.

## ZOOLOGY EMPHASIS

Course	Title	Credits
<b>Additional Requirements</b>		
BIOLOGY 2040 or BIOLOGY 3240	Cell Biology Microbiology	4
<b>Anatomy and Physiology Courses</b>		
Select one of the following:		8
BIOLOGY 2340 & BIOLOGY 3040	Essentials of Anatomy and Physiology and Comparative Anatomy of the Vertebrates	
BIOLOGY 2140 & BIOLOGY 2240	Human Anatomy and Physiology I and Human Anatomy and Physiology II	
<b>Zoology Electives</b>		
Select a minimum of 9 credits of the following:		9
BIOLOGY 2640	Invertebrate Zoology	
BIOLOGY 3030	Ornithology	
BIOLOGY 3120	Animal Tissue Culture	
BIOLOGY 3620	Immunology	
BIOLOGY 3230	Mammalogy	
BIOLOGY 4130	Mammalian Endocrinology	
BIOLOGY 4340	Mammalian Histology	

BIOLOGY ####	Herpetology <sup>1</sup>
BIOLOGY ####	Ichthyology <sup>1</sup>
Approved field station course(s)	
<b>Additional Required Supporting Courses</b>	
Select a minimum of 12 credits of the following: 12	
BIOLOGY 4410	Topics in Biology <sup>2</sup>
BIOLOGY 4660	Biology Internship Experience <sup>2</sup>
BIOLOGY 4710	Selected Regional Habitats <sup>2</sup>
BIOLOGY 4920	Advanced Independent Research in Biology <sup>2</sup>
ANSCI 1000	Introduction to Animal Science
ANSCI 2120	Topics in Animal Health & Welfare
ANSCI 3000	Animal Nutrition
ANSCI 3070	Biotechnology in Animal Science
ANSCI 3100	Anatomy and Physiology of Domestic Animals
ANSCI 3110	Reproductive Physiology of Domestic Animals
ANSCI 4260	Companion Animal Care and Management
GEOGRPHY 1040	Planet Earth
GEOGRPHY 3140	Global Landforms
GEOGRPHY 3230	Geographic Information Systems
GEOGRPHY 4330	Advanced Geographic Information Systems
GEOGRPHY 3340	Biogeography

**Total Credits****33**

<sup>1</sup> Not currently offered on campus - may be taken from an accredited field station or other accredited program

<sup>2</sup> No more than 6 credits of any combination of these courses can be applied to the required 12 credits.

**RECOMMENDED MINORS**

Biotechnology

Chemistry

Environmental Science

**Note:** Up to 6 credits total from BIOLOGY 2920, BIOLOGY 3920, BIOLOGY 4010, BIOLOGY 4660, or BIOLOGY 4920 may be counted toward the major.