

# BIOLOGICAL SCIENCES MAJOR (BS)

Department website (<https://www.uwp.edu/learn/programs/biologicalsciences.cfm>)

College: College of Natural & Health Sciences

## Program Level Objectives for Biological Sciences

- Biological complexity and evolution:** students demonstrate expertise regarding the nature of living organisms and biological processes.
- Inquiry and research methods:** students develop analytical and critical thinking skills, including hypothesis generation and testing, and engage in the practice of biology.
- Scholarship and communication:** students develop the capacity to engage in current thinking, discoveries and methodologies via reading the scientific literature and communicating (discussion, writing, presentation).

## Requirements for the Biological Sciences Major

The major in biological sciences consists of a minimum of 43 credits in biological sciences with additional courses in mathematics, chemistry, and physics. Within the major, a minimum of 15 credits in courses numbered 300 or above must be completed at UW-Parkside.

Code	Title	Credits
<b>College of Natural and Health Sciences requirement</b>		
New entering students, and transfer students with less than 30 college credits, choosing a major in the College of Natural and Health Science are required to take this course.		
UWP 101	First Year Seminar: Natural and Health Sciences	1
<b>Required Core Courses</b> <sup>1</sup>		
BIOS 101	Bioscience	4
BIOS 102	Organismal Biology	4
BIOS 210	Biostatistics	4
BIOS 260	General Genetics	4
BIOS 435	Experimental Methods/Biochemistry Laboratory	2
BIOS 495	Senior Seminar	1
Required Core Courses Subtotal		20
<b>Mathematics, Chemistry and Physics Courses</b>		
<i>Mathematics Courses</i>		
MATH 221	Calculus and Analytic Geometry I	5
<i>Chemistry Courses</i> <sup>2</sup>		
CHEM 101	General Chemistry I	4
CHEM 102	General Chemistry II	4
CHEM 103	General Chemistry Lab I	1
CHEM 104	General Chemistry Lab II	1
CHEM 321	Organic Chemistry I	4
CHEM 322	Organic Chemistry II	4
<i>Physics Courses</i>		
Select one of the following:		10

PHYS 105 & PHYS 106	College Physics I and College Physics II	
PHYS 201 & PHYS 202	General Physics I and General Physics II	
Mathematics, Chemistry and Physics Courses Subtotal		33
<b>Elective Options</b>		
Complete twenty four credits with at least three credits from each of the following options:		24
Cell and Molecular Biology		
Organismal Structure and Function		
Biological Diversity		
Population Biology		
Elective Options Subtotal		24
<b>Total Credits</b>		<b>77</b>

1

Students must complete core courses numbered in the 200s and below before they enroll in 400-level biological sciences courses. Exception from this prerequisite requires approval from the program faculty. Students should consult with their academic advisor before registration if such a situation arises.

2

CHEM 323 Organic Chemistry Lab is strongly recommended, but not required. Most graduate and professional schools require an organic chemistry course with a laboratory component. Students who plan to do graduate work are also advised to take MATH 222 Calculus and Analytic Geometry II.

### Elective Options

Each student must complete a minimum of 24 elective credits selected from 200-400 level biological sciences courses. At least 3-credit hours must be obtained from each of the four designated areas listed below. BIOS 494 Internship, and BIOS 499 Independent Study, cannot be used to satisfy the requirement within these areas. Students are required to check with their advisors concerning biological sciences special topics courses (BIOS 290 Special Topics in Biological Sciences, BIOS 390 Special Topics in Biological Sciences, BIOS 490 Advanced Topics in Biological Sciences:) counting toward the topic areas listed below.

#### Cell and Molecular Biology

Code	Title	Credits
BIOS 301	Cell Biology	3
BIOS 307	Biochemical Metabolism	3
BIOS 309	Molecular Biology	3
BIOS 355	Biology of Cancer	3

#### Organismal Structure and Function

Code	Title	Credits
BIOS 300	Human Functional Anatomy (L)	4
BIOS 317	Developmental Biology	3
BIOS 341	Mammalian Physiology	3
BIOS 344	Plant Physiology	3

#### Biological Diversity

Code	Title	Credits
BIOS 303	Microbiology (L)	4
BIOS 311	Parasitology (L)	4

BIOS 313	Invertebrate Zoology (L)	4
BIOS 318	Vertebrate Zoology (L)	4
BIOS 324	Botany (L)	4
BIOS 329	Paleontology (L)	3
BIOS 351	Virology	3

**Population Biology**

Code	Title	Credits
BIOS 305	Principles of Ecology (L)	4
BIOS 314	Evolutionary Biology	3
BIOS 330	Topics in Field Biology: (L)	3
BIOS 333	Restoration Ecology (L)	4
BIOS 336	Conservation Biology	3
BIOS 340	Animal Behavior (L)	4
BIOS 414	Molecular Evolution	3

A course in each of the four areas is required. Students can select among any of the remaining 200-400 level biological sciences courses to complete the remaining 12 elective credits, which may include up to three credits each of BIOS 494 Internship and BIOS 499 Independent Study.

To complete the requirement of 24 elective credits, at least one 300 level or higher elective class must include a laboratory. Classes that meet this requirement are marked with an (L) in the list above as well as BIOS 453 Molecular Biology and Bioinformatics of Nucleic Acids and BIOS 455 Protein Biochemistry and Bioinformatics. BIOS 435 Experimental Methods/Biochemistry Laboratory Experimental Methods/Biochemistry Lab and BIOS 445 Experimental Methods in Ecology and Evolution Experimental Methods in Ecology and Evolution are core classes and do not satisfy this requirement.

Students pursuing careers in the health professions are strongly urged to contact the Pre-Health office at 262-595-2327 for advising.

**Optional Concentration in Pre-Health Professions**

Students who are planning to pursue graduate/professional work in health sciences should consider completing the biological sciences major with a concentration in pre-health professions. Students complete the same biological sciences major core course requirements and mathematics, physics and chemistry course requirements, but use the following course plan for the elective course requirements:

Code	Title	Credits
<b>Required Concentration Courses</b>		
BIOS 300	Human Functional Anatomy (L)	4
BIOS 303	Microbiology (L)	4
BIOS 307	Biochemical Metabolism	3
BIOS 341	Mammalian Physiology	3
CHEM 323	Organic Chemistry Lab	3
Required Concentration Courses Subtotal		17
<b>Elective Concentration Courses</b>		
Select at least seven credits of the following:		7
BIOS 301	Cell Biology	
BIOS 309	Molecular Biology	
BIOS 311	Parasitology (L)	
BIOS 314	Evolutionary Biology	
BIOS 317	Developmental Biology	
BIOS 342	Mammalian Physiology Laboratory	

BIOS 351	Virology	
BIOS 355	Biology of Cancer	
Elective Concentration Courses Subtotal		7
<b>Total Credits</b>		<b>24</b>

**General University Degree Requirements (Bachelor's Degree)**

In addition to individual program requirements, students must also fulfill the following requirements:

Requirement	Credits
Skills	7-8
General Education	36
Foreign Language**	6-8
Ethnic Diversity	3
Total	52-55

\*\* Transfer students in sustainable management, and health information management and technology collaborative, online degree-completion programs, the business management online degree-completion program, and the flexible option degree-completion program will be exempt from the university's foreign language requirement. See appropriate academic section for further information.

Skills Requirement (<https://catalog.uwp.edu/policies/#skills>)

Code	Title	Credits
<b>Reading and Writing</b>		
ENGL 101	Composition and Reading	3
<b>Computational Skills</b>		
Select one of the following:		4-5
MATH 102	Survey of Mathematics	
MATH 103	Elementary Statistics	
MATH 104	Quantitative Reasoning	
MATH 111	College Algebra I	
<b>Total Credits</b>		<b>7-8</b>

General Education (<https://catalog.uwp.edu/policies/#general>)

- General Education Course List (<https://catalog.uwp.edu/programs/general-education-program/#coursestext>)

Foreign Language (<https://catalog.uwp.edu/policies/#language>)

Ethnic Diversity (<https://catalog.uwp.edu/policies/#ethnic>)

Degree Requirements

Requirement	Credits
Minimum Total Credits	120
Upper Level Credits (300 level or above)	36
Residency	30 of final 60

Cumulative Degree GPA: 2.0 minimum