

# Biology Major

## Area of Emphasis

Students must complete requirements in one of the following areas of emphasis:

- Animal Biology\*
- Aquatic Ecology and Fisheries Emphasis
- Cell/Molecular
- Ecology and Conservation\*
- Microbiology
- Pre-Veterinary

\* includes an accelerated option - Integrated with graduate Environmental Science and Policy Program

## Animal Biology

Code	Title	Credits
<b>Supporting Courses</b>		<b>29-30</b>
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms and Evolution and Principles of Biology Lab: Organisms and Evolution	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
MATH 104	Precalculus	
MATH 260	Introductory Statistics	
<b>Mathematics (choose one course):</b>		
ENV SCI 250	Introduction to Geographic Information Systems (GIS)	
ENV SCI 336	Environmental Statistics	
MATH 202	Calculus and Analytic Geometry I	
<b>Upper-Level Courses <sup>1</sup></b>		<b>30-33</b>
<b>Required courses</b>		
BIOLOGY 303	Genetics	
BIOLOGY 306	Principles of Ecology	
BIOLOGY 309	Evolutionary Biology	
BIOLOGY 311/511 or BIOLOGY 346	Plant Physiology <sup>#</sup> Comparative Physiology	
<b>Cell or Microbiology (choose one):</b>		
BIOLOGY 307 & BIOLOGY 308	Cell Biology and Cell Biology Laboratory	
BIOLOGY 323 & BIOLOGY 324	Principles of Microbiology and Principles of Microbiology Laboratory	
BIOLOGY 322/522	Environmental Microbiology <sup>#</sup>	
HUM BIOL 323 & HUM BIOL 326	Medical Microbiology and Medical Microbiology Lab	
<b>Choose 12-14 credits from the following courses:</b>		
BIOLOGY 304	Genetics Laboratory	
BIOLOGY 310/510	Plant Biodiversity <sup>#</sup>	
BIOLOGY 320/520	Field Botany <sup>#</sup>	
BIOLOGY 322/522	Environmental Microbiology <sup>#</sup>	
BIOLOGY 340	Comparative Anatomy of Vertebrates	

BIOLOGY 341/541	Fish Biology and Ecology #
BIOLOGY 342/542	Ornithology #
BIOLOGY 343/543	Mammalogy #
BIOLOGY 345	Animal Behavior
BIOLOGY 346	Comparative Physiology
BIOLOGY 355/555	Entomology #
BIOLOGY 357/557	Marine Biology #
BIOLOGY 365/565	Aquatic Invertebrates #
BIOLOGY 401/601	Fish and Wildlife Population Dynamics #
BIOLOGY 449	Wetland Ecology
BIOLOGY 450	Ecological Restoration
ENV SCI 337/537	Environmental GIS #
ENV SCI 401/601	Stream Ecology #
ENV SCI 403	Limnology
HUM BIOL 402	Human Physiology
HUM BIOL 403	Human Physiology Laboratory
HUM BIOL 413	Neurobiology
HUM BIOL 422	Immunology
HUM BIOL 423	Immunology Lab
HUM BIOL 444	Endocrinology
<b>Seminar, 1 credit required</b>	
BIOLOGY 490	Biology Seminar

**Total Credits****59-63**

\* includes an Accelerated option - Integrated with graduate Environmental Science and Policy program

# Students must be granted permission through the department to enroll in graduate level coursework. For more information, contact the graduate Environmental Science & Policy office or refer to the graduate catalog (<https://catalog.uwgb.edu/archive/2025-2026/graduate/general-information/academic-rules-regulations/undergrad-in-accelerated/>).

<sup>1</sup> Research experience and/or Internships are highly recommended. Credits from research and internships may be counted toward upper-level electives.

Students planning to continue on to graduate school or a professional program are recommended to take calculus, physics and organic chemistry.

## Aquatic Ecology and Fisheries

Code	Title	Credits
<b>Supporting Courses</b>		<b>29-30</b>
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms and Evolution and Principles of Biology Lab: Organisms and Evolution	
CHEM 207	Laboratory Safety	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
MATH 104	Precalculus	
MATH 260	Introductory Statistics	
<b>Mathematics (choose one course):</b>		
ENV SCI 250	Introduction to Geographic Information Systems (GIS)	
ENV SCI 336	Environmental Statistics	
MATH 202	Calculus and Analytic Geometry I	
<b>Upper Level Courses <sup>1</sup></b>		<b>36</b>
<b>Required Courses</b>		
BIOLOGY 303	Genetics	

BIOLOGY 306	Principles of Ecology	
BIOLOGY 309	Evolutionary Biology	
BIOLOGY 322	Environmental Microbiology	
BIOLOGY 346	Comparative Physiology	
BIOLOGY 449	Wetland Ecology	
<b>Choose one of the following courses:</b>		
BIOLOGY 341	Fish Biology and Ecology	
BIOLOGY 360	Early Life History of Fish	
BIOLOGY 365	Aquatic Invertebrates	
<b>Choose two of the following courses:</b>		
BIOLOGY 449	Wetland Ecology	
ENV SCI 401	Stream Ecology	
ENV SCI 403	Limnology	
<b>Choose one of the following courses:</b>		
BIOLOGY 370	Restoration and Management of Aquatic Ecosystems	
BIOLOGY 401	Fish and Wildlife Population Dynamics	
ENV SCI 337	Environmental GIS	
<b>Seminar</b>		<b>1</b>
BIOLOGY 490	Biology Seminar	
<b>Total Credits</b>		<b>66-67</b>

- <sup>1</sup> Research experience and/or Internships are highly recommended. Credits from research and internships may be counted toward upper-level electives.  
Students planning to continue on to graduate school or a professional program are recommended to take calculus, physics and organic chemistry.

## Cell/Molecular

Code	Title	Credits
<b>Supporting Courses</b>		<b>29-30</b>
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms and Evolution and Principles of Biology Lab: Organisms and Evolution	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
MATH 104	Precalculus	
MATH 260	Introductory Statistics	
<b>Mathematics (choose one course):</b>		
ENV SCI 250	Introduction to Geographic Information Systems (GIS)	
ENV SCI 336	Environmental Statistics	
MATH 202	Calculus and Analytic Geometry I	
<b>Upper-Level Courses <sup>1</sup></b>		<b>34-35</b>
<b>Required courses</b>		
BIOLOGY 303	Genetics	
BIOLOGY 306	Principles of Ecology	
BIOLOGY 307	Cell Biology	
BIOLOGY 308	Cell Biology Laboratory	
BIOLOGY 309	Evolutionary Biology	
BIOLOGY 311 or BIOLOGY 346	Plant Physiology Comparative Physiology	
BIOLOGY 407	Molecular Biology	
<b>Microbiology (Choose one)</b>		

BIOLOGY 323 & BIOLOGY 324	Principles of Microbiology and Principles of Microbiology Laboratory
HUM BIOL 323 & HUM BIOL 326	Medical Microbiology and Medical Microbiology Lab
<b>Minimum of 4 credits of the following courses:</b>	
CHEM 300 & CHEM 301	Bio-Organic Chemistry and Bio-Organic Chemistry Laboratory
CHEM 302 & CHEM 304	Organic Chemistry I and Organic Chemistry Laboratory I
<b>Choose a minimum of 5 credits from the following courses:</b>	
BIOLOGY 304	Genetics Laboratory
BIOLOGY 312	Mycology
BIOLOGY 322	Environmental Microbiology
BIOLOGY 402	Advanced Microbiology
BIOLOGY 408	Molecular Biology Laboratory
CHEM 330	Biochemistry
CHEM 331	Biochemistry Laboratory
HUM BIOL 422	Immunology
HUM BIOL 423	Immunology Lab
HUM BIOL 444	Endocrinology
<b>Seminar, 1 credit required</b>	
BIOLOGY 490	Biology Seminar

**Total Credits****63-65**

- <sup>1</sup> Research experience and/or Internships are highly recommended. Credits from research and internships may be counted toward upper-level electives.  
Students planning to continue on to graduate school or a professional program are recommended to take calculus, physics and organic chemistry.

**Ecology and Conservation**

Code	Title	Credits
<b>Supporting Courses</b>		<b>29-30</b>
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms and Evolution and Principles of Biology Lab: Organisms and Evolution	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
MATH 104	Precalculus	
MATH 260	Introductory Statistics	
<b>Mathematics (choose one course):</b>		
ENV SCI 250	Introduction to Geographic Information Systems (GIS)	
ENV SCI 336	Environmental Statistics	
MATH 202	Calculus and Analytic Geometry I	
<b>Upper-Level Courses <sup>1</sup></b>		<b>30-31</b>
<b>Required Courses</b>		
BIOLOGY 303	Genetics	
BIOLOGY 306	Principles of Ecology	
BIOLOGY 309	Evolutionary Biology	
BIOLOGY 469	Conservation Biology	
<b>Cell or Microbiology (choose one):</b>		

BIOLOGY 307 & BIOLOGY 308	Cell Biology and Cell Biology Laboratory
BIOLOGY 322	Environmental Microbiology
BIOLOGY 323 & BIOLOGY 324	Principles of Microbiology and Principles of Microbiology Laboratory
HUM BIOL 323 & HUM BIOL 326	Medical Microbiology and Medical Microbiology Lab
<b>Physiology Course (choose one):</b>	
BIOLOGY 311 or BIOLOGY 346	Plant Physiology Comparative Physiology
<b>Choose a minimum of 8 credits from the following courses:</b>	
BIOLOGY 310/510	Plant Biodiversity #
BIOLOGY 311/511	Plant Physiology #
BIOLOGY 312/512	Mycology #
BIOLOGY 320/520	Field Botany #
BIOLOGY 322/522	Environmental Microbiology #
BIOLOGY 342/542	Ornithology #
BIOLOGY 343/543	Mammalogy #
BIOLOGY 355/555	Entomology #
BIOLOGY 357/557	Marine Biology #
BIOLOGY 365/565	Aquatic Invertebrates #
BIOLOGY 401/601	Fish and Wildlife Population Dynamics #
BIOLOGY 449/649	Wetland Ecology #
BIOLOGY 450/650	Ecological Restoration #
ENV SCI 337/537	Environmental GIS #
ENV SCI 401/601	Stream Ecology #
ENV SCI 403/603	Limnology #
ENV SCI 467	Research Experience in Environmental Science
ENV SCI 499	Travel Course
<b>Seminar, 1 credit required</b>	
BIOLOGY 490	Biology Seminar

**Total Credits****59-61**

\* includes an Accelerated option - Integrated with graduate Environmental Science and Policy program

# Students must be granted permission through the department to enroll in graduate level coursework. For more information, contact the graduate Environmental Science & Policy office or refer to the graduate catalog (<https://catalog.uwgb.edu/archive/2025-2026/graduate/general-information/academic-rules-regulations/undergrad-in-accelerated/>).

1 Research experience and/or Internships are highly recommended. Credits from research and internships may be counted toward upper-level electives.  
Students planning to continue on to graduate school or a professional program are recommended to take calculus, physics and organic chemistry.

**Microbiology**

Code	Title	Credits
<b>Supporting Courses</b>		<b>29-30</b>
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms and Evolution and Principles of Biology Lab: Organisms and Evolution	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
MATH 104	Precalculus	
MATH 260	Introductory Statistics	

<b>Mathematics (choose one course):</b>		
ENV SCI 250	Introduction to Geographic Information Systems (GIS)	
ENV SCI 336	Environmental Statistics	
MATH 202	Calculus and Analytic Geometry I	
<b>Upper-Level Courses <sup>1</sup></b>		<b>38-39</b>
<b>Required courses</b>		
BIOLOGY 303	Genetics	
BIOLOGY 306	Principles of Ecology	
BIOLOGY 309	Evolutionary Biology	
BIOLOGY 402	Advanced Microbiology	
BIOLOGY 311	Plant Physiology	
or BIOLOGY 346	Comparative Physiology	
<b>Microbiology (Choose one)</b>		
BIOLOGY 323 & BIOLOGY 324	Principles of Microbiology and Principles of Microbiology Laboratory	
BIOLOGY 322	Environmental Microbiology	
HUM BIOL 323 & HUM BIOL 326	Medical Microbiology and Medical Microbiology Lab	
<b>Chemistry (minimum of 8 credits of the following courses):</b>		
CHEM 302 & CHEM 304	Organic Chemistry I and Organic Chemistry Laboratory I	
CHEM 303 & CHEM 305	Organic Chemistry II and Organic Chemistry Laboratory II	
CHEM 330 & CHEM 331	Biochemistry and Biochemistry Laboratory	
<b>Electives (choose 8 or more credits from the following courses):</b>		
BIOLOGY 307	Cell Biology	
BIOLOGY 308	Cell Biology Laboratory	
BIOLOGY 312	Mycology	
BIOLOGY 322	Environmental Microbiology	
BIOLOGY 407	Molecular Biology	
BIOLOGY 408	Molecular Biology Laboratory	
BIOLOGY 497	Internship	
HUM BIOL 422	Immunology	
HUM BIOL 423	Immunology Lab	
<b>Seminar (1 credit required):</b>		
BIOLOGY 490	Biology Seminar	
<b>Total Credits</b>		<b>67-69</b>

<sup>1</sup> Research experience and/or Internships are highly recommended. Credits from research and internships may be counted toward upper-level electives.  
Students planning to continue on to graduate school or a professional program are recommended to take calculus, physics and organic chemistry.

## Pre-Veterinary

Code	Title	Credits
<b>Supporting Courses</b>		<b>36</b>
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms and Evolution and Principles of Biology Lab: Organisms and Evolution	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	

CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
MATH 104	Precalculus	
MATH 260	Introductory Statistics	
<b>Physics Lecture (choose one of the following options):</b>		
PHYSICS 103 & PHYSICS 104	Fundamentals of Physics I and Fundamentals of Physics II	
PHYSICS 201 & PHYSICS 202	Principles of Physics I and Principles of Physics II	
<b>Physics Labs</b>		
PHYSICS 203 & PHYSICS 204	Introductory Physics Lab I and Introductory Physics Lab II	
<b>Upper-Level Courses</b>		<b>36</b>
BIOLOGY 303	Genetics	
BIOLOGY 306	Principles of Ecology	
BIOLOGY 309	Evolutionary Biology	
BIOLOGY 346	Comparative Physiology	
CHEM 302 & CHEM 304	Organic Chemistry I and Organic Chemistry Laboratory I	
CHEM 303 & CHEM 305	Organic Chemistry II and Organic Chemistry Laboratory II	
CHEM 330	Biochemistry	
<b>Cell Biology (choose one of the following options):</b>		
BIOLOGY 307 & BIOLOGY 308	Cell Biology and Cell Biology Laboratory	
BIOLOGY 323 & BIOLOGY 324	Principles of Microbiology and Principles of Microbiology Laboratory	
HUM BIOL 323 & HUM BIOL 326	Medical Microbiology and Medical Microbiology Lab	
<b>Choose a minimum of 8 credits from the following courses:</b>		
BIOLOGY 304	Genetics Laboratory	
BIOLOGY 340	Comparative Anatomy of Vertebrates	
BIOLOGY 342	Ornithology	
BIOLOGY 343	Mammalogy	
BIOLOGY 345	Animal Behavior	
HUM BIOL 422	Immunology	
HUM BIOL 423	Immunology Lab	
<b>Seminar, 1 credit required</b>		<b>1</b>
BIOLOGY 490	Biology Seminar	
<b>Total Credits</b>		<b>73</b>