

GENERAL BIOLOGY

BACHELOR OF SCIENCE IN BIOLOGY

The *General Biology* option emphasizes breadth of training in biology. As the most flexible among the options leading to a science degree in biology, students have input in the composition of their degree by choosing from the wide range of electives available through several different departments.

Each option is complemented by the College of Arts and Sciences general educational requirements such as English Composition, Writing, Foreign Language, QSR, VLPA, and I&S.

Biology Department Admission Requirements

This competitive admission process is designed not to limit access to the major but to assist students in careful planning and preparation for success in the Biology Major. An electronic application can be found on the biology website and will be due the second Friday of Autumn, Winter, Spring, & Summer quarters by 11:59pm.

To apply for a Biology Major you must meet these minimum application requirements:

1. Be a matriculated student at the UW Seattle Campus and in good academic standing.
2. Complete the Introductory Biology series or equivalent courses to UW BIOL 180, 200, 220 and have a minimum grade of 2.0 in EACH course.
3. Have a minimum 2.5 Cumulative GPA for any supporting Chemistry, Physics, Math, Biology or other courses intended for use in the Biology major that are complete at the time of application.

Meeting these minimum requirements does not guarantee admission to the Biology major. Other factors in admission include review of essay questions, space availability in the major, and time to degree set by UW Satisfactory Progress Policy. We strongly encourage students who do not meet the minimum application requirements to meet with a Department of Biology Academic Adviser to discuss their options. If you plan to pursue a double major or degree, a detailed plan for all requirements is required upon admission.

Academic Advisers	EMAIL	PHONE	Biology Undergraduate Office
Jason Patterson	patterj@uw.edu	(206) 543-7767	318 Hitchcock Hall, Box 355320
Sheryl Medrano	smedrano@uw.edu	(206) 616-8147	University of Washington
Janet Germeraad	janetjg@uw.edu	(206) 543-6647	Office Phone 206-543-9120

Visit the Biology website for dept. info, scholarships, research, etc.: <http://www.biology.washington.edu/>

Appointments: Email adviser directly; each adviser makes their own appointments.

Walk In Advising Hours: Monday, Tuesday, Wednesday, Friday 9:00AM-12:00PM and 1:00PM-4:00PM
Thursday 9:00AM-12:00PM and 1:30PM-4:00PM in 318 Hitchcock Hall

List Serv: Join the Biology listserv: <https://mailman2.u.washington.edu/mailman/listinfo/biostudent>

Must be a UW address

Departmental Honors in Biology

Departmental honors allow students seeking extra challenges and opportunities to do so while completing a Biology Degree. Students may request an invitation to departmental honors in Biology once they have been admitted to the Biology Major. The request **must** be submitted 3 quarters prior to graduation; requests made later will not be reviewed. *More details about honors can be found in Section VII.*

Option Requirements. A minimum of **90 credits** to be distributed as follows:

I. SUPPORTING COURSES IN CHEMISTRY, PHYSICS, AND MATHEMATICS:

Chemistry (choose one option) (15-27 credits) 1. CHEM 120, 220 [^] , 221 (5,5,5) 2. CHEM 142/143, 152/153 ⁹⁰ (5,5) and CHEM 223, 224 (4,4) (<i>O Chem labs are not required for major</i>) 3. CHEM 142, 152 [^] , 162 (5,5,5) and CHEM 237, 238, 239 (4,4,4) (<i>O Chem labs are not required for major</i>)
Physics (choose one option): (8-10 credits) 1. PHYS 114, 115 (4,4) Algebra based physics (<i>labs are not required for the major</i>) 2. PHYS 121, 122 (5,5) Calculus based physics
Mathematics (choose one option): (9-10 credits) 1. MATH 124, 125 (5,5) Calculus with Analytic Geometry 2. QSCI 291, 292 (5,5) Calculus for Biologists (<i>May not be used for the Bio Chem 440 Series</i>) 3a. QSCI 381, 482 (5,5) Quantitative Statistical Reasoning 3b. STATS/QSCI 311, 482 (5,5) Introductory Statistics and Quantitative Statistical Reasoning 4. Combine 1 Stats and 1 Calculus class Calculus, (<i>124 or 291</i>) and Statistics (<i>381, 311 or B10ST. 310</i>)

A third quarter of calculus or a course in probability and statistics is strongly recommended.

II. INTRODUCTORY BIOLOGY: (15 credits)

BIOL 180 200 [^] , 220 (5,5,5) [^] CHEM 152, 153, or 220 can be a co-requisite of 200

III. GENETICS REQUIREMENT: (3-5 credits)

Select one of the following courses:
1. GENOME 361 (3) Fundamentals of Genetics and Genomics
2. GENOME 371 (5) Introductory Genetics (<i>Autumn only</i>)
3. BIOL/FISH 340 (5) Genetics and Molecular Ecology

IV. TAXONOMIC BREADTH REQUIREMENT:

Biologists often concentrate on one level of biological organization, but it is important to know about broader biological topics that can be studied. To broaden your perspective, you are required to take at least one biologically based course that provides taxonomic breadth outside the Animalia Kingdom; **you must take one asterisked (*) course** (*from any of the lists on this handout*) **which can be shared with either your Natural History/Biodiversity requirement or an Advanced Elective.**

IT IS YOUR RESPONSIBILITY TO REGULARLY ASSESS YOUR DEGREE PROGRESS BY REFRESHING AND CHECKING YOUR DEGREE AUDIT. SHOULD YOU HAVE A QUESTION OR NOTICE A DISCREPANCY IT IS YOUR RESPONSIBILITY TO ADDRESS THIS WITH A DEPARTMENT OF BIOLOGY ACADEMIC ADVISER.

Scheduling future classes:

Many elective courses have pre-requisite courses.

In planning your courses, be sure to use the course catalog and matrix to plan schedules that include the necessary pre-requisites so you are able to register for your chosen selections!

V. NATURAL HISTORY/BIODIVERSITY:

Natural History is the study of the characteristics, life cycles, and biological background of a particular taxonomic group. Biodiversity deals with a whole suite of organisms that inhabits a particular environment. These classes are often field oriented, in which students both observe and/or analyze both the organisms and their interactions in their natural habitats. *Natural history is a separate requirement from your advanced electives.*

Select **one** course:

(3 credits minimum)

BIOL	280	(4)	The History of Life
BIOL/FISH	311L	(3/5)	Biology of Fishes#
BIOL	317L	(5)	Plant Identification and Classification*
BIOL	397L	(5)	Avian Specimen Preparation
BIOL/FHL	430L	(5)	Marine Zoology (FHL)
BIOL/FHL	432L	(9)	Marine Invertebrate Zoology (FHL)
BIOL	433L	(5)	Marine Ecology
BIOL	434L	(5)	Invertebrate Zoology
BIOL	437L	(5)	Herpetology
BIOL	438L	(5)	Analytical Paleobiology
BIOL	439L	(5)	Functional Morphology
BIOL	440L	(5)	General Mycology*
BIOL	441L	(5)	Trends in Land Plant Evolution*
BIOL	442L	(5)	Mushrooms and Related Fungi*
BIOL	443L	(5)	Evolution of Mammals and Their Ancestors
BIOL	444L	(5)	Ornithology
BIOL/FHL	445L	(5)	Marine Botany* (FHL)
BIOL	448L	(5)	Mammalogy
BIOL/ESS	450/452L	(5)	Vertebrate Paleontology
BIOL/ESS	451L	(5)	Invertebrate Paleontology
BIOL	452L	(5)	Vertebrate Biology
BIOL	453L	(5)	Comparative Vertebrate Anatomy
BIOL	454L	(5)	Entomology
ESRM	435/436L	(3/2)	Insect Ecology
ESRM	452L	(3)	Field Ornithology (<i>must enroll in 456</i>)
ESRM	453	(3)	Biology & Ecology of Mammals
ESRM	456	(3)	Biology and Conservation of Birds
FISH	450L	(3/5)	Salmonoid Behavior and Life History#
FISH	475L	(5)	Marine Mammalogy

VI. ADVANCED BIOLOGY ELECTIVES:

(34 credits)

- You are required to have a minimum of **34 credits** from the selection below.
- Within these 34 credits students must select **one** course from **three** of the **five** areas:

1. Biology and Society Course Electives:

BIOL	305	(3)	Science Communication: Video Storytelling in Biology
BIOL	313L	(4)	Civilizational Biology
BIOL	380	(3)	Biomedical Advances and Society
BIOL/BIO A	385/355	(3)	Evolutionary Medicine and Public Health
BIOL	396	(1-4)	Peer Facilitation in Biology ¹
BIOL	399	(2-12)	Biology Internship Program
BIOL	419	(4)	Data Science for Biologists
BIOL	492	(3)	Teaching Biology Inclusively to Diverse Audiences
BIOL	494	(4)	Controversies in Biology
GENOME	475	(3)	Debates in Genetics
BH	311	(3)	Ethical Issues in Modern Medicine
BH	402	(5)	Ethical Theory
BH	404	(5)	Metaethical Theory
BH	421	(5)	History of Eugenics
PHIL	481	(5)	Philosophy of Biology
PSYCH	300	(5)	Animal Behavior
PSYCH/ GWSS	357	(5)	Psychobiology of Women (Registration is restricted through Psych)
PSYCH	416	(5)	Animal Communication

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VI. ADVANCED BIOLOGY ELECTIVES, continued:

2. Ecology and Evolution/Systematics Course Electives:

BIOL	315	(3)	Biological Impacts of Climate Change
BIOL	354	(3)	Foundations in Evolution and Systematics
BIOL	356L	(3)	Foundations in Ecology
BIOL/GENOME	414L	(5)	Molecular Evolution
BIOL	420	(4)	Game Theory in Biology
BIOL	423	(3)	Marine Ecological Processes
BIOL/ESRM	424/478L	(5)	Plant Eco-Physiology*
BIOL	433L	(5)	Marine Ecology
BIOL	438L	(5)	Quantitative Approach to Paleobio, Morph, & Systematics
BIOL	447L	(5)	Greening the Earth*
BIOL	449	(3)	Applied Phylogenetics
BIOL	469	(3)	Evolution & Medicine
BIOL	470	(4)	Biogeography
BIOL	472L	(5)	Community Ecology*
BIOL/FISH	473/474L	(3/2)	Limnology & Lab
BIOL	475L	(3-5)	Intensive Field Experience in Biology
BIOL	476L	(5)	Conservation Biology
BIOL/FISH/ENVIR	478	(3)	Topics in Sustainable Fisheries
BIOL	480L	(4)	Field Ecology
BIOL	481L	(5)	Experimental Ecology and Evolution
BIOL	482L	(2-5)	Advanced Experimental Ecology and Evolution
BIOL	483	(1-3)	Sr. Seminar in Paleobiology
BIOL	486	(1-3)	Senior Seminar in Ecology
BIOL	489	(1-3)	Sr. Seminar in Plant Biology*
ESRM	250	(5)	Introduction to Geographic Information
ESRM	350	(5)	Wildlife Biology and Conservation
ESRM	400	(3)	Natural Resource Conflict Management
ESRM	409	(5)	Soil Ecology
ESRM	411	(3)	Plant & Propagation: Principles and Practice*
ESRM	412	(3)	Native Plant Production*
ESRM	415	(5)	Terrestrial Invasion Ecology*
ESRM	430	(5)	Remote Sensing in the Environment
ESRM	450	(5)	Wildlife Ecology and Conservation
ESRM/FISH	457/455L	(3/5)	Fish and Wildlife Toxicology#
ESRM	458	(5)	Mgmt of Endangered, Threatened, and Sensitive Species
ESRM	465	(3)	Economics of Conservation
ESRM	470	(5)	Natural Resource Policy and Planning
ESS	450	(3)	Paleobiology
FISH	406L	(5)	Parasite Ecology
FISH	444L	(5)	Conservation Genetics
FISH	464	(4)	Arctic Vertebrate Ecology
GENOME	453	(3)	Genetics of the Evolutionary Process

3. Molecular, Cellular, and Developmental Biology Course Electives:

BIOL	302L	(4)	Laboratory Techniques in Cell and Molecular
BIOL	355	(3)	Foundations in Molecular Cell Biology
BIOL	380	(3)	Biomedical Advances and Society
BIOL	400L	(4)	Experiments in Cellular Biology
BIOL	401	(3)	Advanced Cell Biology
BIOL	402L	(4)	Functional Genomics
BIOL	405	(3)	Cell and Molecular Biology of Human Disease
BIOL	407L	(4)	Molecular Cell Biology of Neural Stem Cells
BIOL	410	(2)	Current Topics in Molecular and Cellular Biology Research
BIOL	411	(4)	Developmental Biology
BIOL	413L	(4)	Molecular Development of Genetics
BIOL	416	(3)	Molecular Genetics of Plant Development*
BIOL	431	(1)	Biology of Cannabinoids
BIOL	455	(4)	Human Immunology & Pathology of Infectious Diseases
BIOL	457	(3)	Chemical Communication
BIOL	459	(3)	Developmental Neurobiology
BIOL	485	(1-3)	Sr. Seminar in Molecular, Cellular & Dev. Biol.
BIOL	495	(2)	Biology of Fermentation*

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VI. ADVANCED BIOLOGY ELECTIVES, continued:

BIOC	405	(3)	Introduction to Biochemistry ²
BIOC	406	(3)	Introduction to Biochemistry ²
BIOC	426L	(4)	Basic Techniques in Biochemistry
BIOC	440	(4)	Biochemistry ²
BIOC	441	(4)	Biochemistry ²
BIOC	442	(4)	Biochemistry
ESRM	404L	(5)	Plant Microbiology Laboratory*
GENOME	372	(5)	Genomics and Proteomics
GENOME	373	(4)	Genomic Informatics
GENOME	453	(3)	Genetics of the Evolutionary Process
GENOME	465	(4)	Advanced Human Genetics
GENOME	466	(3)	Cancer Genetics
GENOME	490	(2)	Genetics Undergraduate Seminar
IMMUN	441	(4)	Introduction to Immunology
MICROM	301/302L	(3-2)	General Microbiology*/ General Microbiology Lab
MICROM	402L	(3)	Fundamentals of General Microbiology Lab
MICROM	410	(3)	Fundamentals of Microbiology *
MICROM	411L	(4)	Bacterial Genetics*
MICROM	412	(3)	Prokaryotic Diversity*
MICROM	431L	(3)	Prokaryotic Recombinant DNA Techniques*
MICROM	435	(3)	Microbial Ecology*
MICROM	442	(3)	Medical Bacteriology*
MICROM	445	(3)	Medical Virology
MICROM	450	(3)	Molecular Biology of Viruses
MICROM	460	(3)	Medical Mycology and Parasitology*
PHG	301	(5)	Introduction to Genetic Epidemiology

4. Physiology Course Electives:

BIOL	310L	(5)	Survey of Human Anatomy
BIOL	350	(3)	Foundations in Physiology
BIOL	360L	(4)	Cellular Anatomy
BIOL	404	(3)	Animal Physiology: Cellular Aspects
BIOL/PSYCH	408	(4)	Neuroethology
BIOL	417	(4)	Comparative Reproductive Physiology of Vertebrates
BIOL	418	(4)	Biological Clocks and Rhythms
BIOL	421L	(3)	Ecological and Evolutionary Physiology of Animals
BIOL	422	(3)	Physiology of Plant Behavior*
BIOL/ESRM	424/478L	(5)	Plant Eco-Physiology*
BIOL	425L	(5)	Adv. Plant Physiology and Development*
BIOL	427L	(5)	Biomechanics
BIOL	428	(3)	Sensory Neurophysiology and Ecology
BIOL	459	(3)	Developmental Neurobiology
BIOL	460	(3)	Mammalian Physiology
BIOL	461	(3)	Neurobiology
BIOL	462	(3)	Advanced Animal Physiology
BIOL	463L	(3)	Advanced Animal Physiology Lab
BIOL	465	(3)	Comparative Endocrinology
BIOL	466	(3)	Pathobiology of Emerging Diseases
BIOL	467	(3)	Comparative Animal Physiology
BIOL	468	(3)	Medical Physiology
BIOL	488	(1-3)	Sr. Seminar in Physiology
FISH	324L	(3/5)	Aquatic Animal Physiology and Reproduction [#]
FISH	441L	(3/5)	Environmental Physiology [#]
NUTR	405	(3)	Physical Activity in Health and Disease
NUTR	406	(3)	Sports Nutrition

5. Natural History/Biodiversity

Any additional course(s) from the Natural History/Biodiversity list after the initial requirement is completed.

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VII. LAB, RESIDENCY AND 400 LEVEL BIOLOGY REQUIREMENTS:

These requirements may overlap with other requirements such as Breadth, Natural History/Biodiversity, or Advanced Electives.

- A minimum of **15 credits** must be 400 level through the **Department of BIOLOGY**. Courses such as Biochemistry (BIOC) and Microbiology (MICROM) are from other departments and **will not** count toward this requirement.
- A minimum of **15 credits** of 300 and 400 level Advanced **BIOL** Electives must be taken in residency at the University of Washington-Seattle campus. This requirement **can be shared** with the departmental 400 level requirement above.
- At least **two laboratory courses**, chosen from any course marked with an “**L**”, must be taken. A minimum of four credits of 499 (*please read end note about approval process*) can substitute for one laboratory.

VIII. DEPARTMENTAL HONORS REQUIREMENTS

General Requirements for completing Departmental Honors include:

- UW Cumulative GPA: 3.3
- Major Cumulative GPA: 3.4
- Complete two 400 level BIOL courses for Ad Hoc credit (*Requires online agreement form*)
- Complete two approved Senior level BIOL Seminars
- Complete 9 credits of Undergraduate Research (*Research approval form required*)
- Complete a research paper based on approved research credits
- Present your research work at the Undergraduate Research Symposium or other approved venue

IX. ADDITIONAL NOTES:

- A cumulative GPA of a 2.0 is required for all classes counting toward the major and are taken at the University of Washington.
- Courses listed in more than one category **can only count for one area requirement.**
- Cross Campus equivalencies are not guaranteed outside the BIOL 180/200/220 and Genome equivalents. Complications may arise during registration if you have taken courses at other campuses and it is up to the student to inquire and be prepared. You will need to submit a petition for any other courses from the other campuses.
- **Experiential learning:** A maximum of 10 credits of a combined **396/399/498/499** can be applied to your degree. You will need a faculty code from your faculty sponsor to sign up for any of these credits.
- **Undergraduate Research:** Any 499 credit **must** be approved by petition; see a Biology Adviser or visit the website for a Research Approval Form. A minimum of 4 credits on the same project are required for a petition to count towards a lab.
- *For other classes of interest that are not listed, please contact an advisor about the possibility of petitioning. The course will need to be at the 300 to 400 level and have a biological basis to be considered.*

X. SYMBOLS

* Indicates course with non-animal emphasis to meet **taxonomic breadth** requirement of the General Biology Option.

(**FHL**) Indicates course taught at Friday Harbor Labs.

¹ This class is regulated and administered by professor permission. To Peer facilitate an introductory course, contact lab coordinator of the specific class. For other courses, prior experience with the class and permission of acting instructor is necessary for enrollment.

Indicates a class that has a lecture only (3 credits) or a lecture and lab component (5 credits).

2 Only 1 class per pair can count as an elective from 405/440 and 406/441