ZOOLOGY MAJOR (B.S.)

https://colsa.unh.edu/biological-sciences/program/bs/zoology-major

Description

The Bachelor of Science (B.S.) in Zoology builds from the common background of the biology core curriculum to provide ample time for third- and fourth-year students to concentrate in specialized disciplines such as marine and freshwater biology, behavior, cell and developmental biology, ecology, evolution, fisheries, physiology, and neurobiology while giving students the foundation from which they can specialize in the area of zoology. Undergraduate students are encouraged to conduct field or lab-based research which helps determine advanced education disciplines for graduate studies. Many students ultimately work in the government, environmental agencies, education as well as agricultural, pharmaceutical, and biotechnology industries, where they conduct advanced research and/or teaching. Zoology majors had the second highest income and lowest unemployment rate according to data from the 2016 U.S. Census Bureau's American Community Survey.

New England Regional Student Program

The bachelor's degree in zoology is one of the specialized curricula recognized by the New England Board of Higher Education and participates in the New England Regional Student Program. Please refer to the Tuition Break Online Database for a list of eligible New England States.

Requirements

Degree Requirements

Minimum Credit Requirement: 128 credits

Minimum Residency Requirement: 32 credits must be taken at UNH

Minimum GPA: 2.0 required for conferral*

Core Curriculum Required: Discovery & Writing Program Requirements

Foreign Language Requirement: No

All Major, Option and Elective Requirements as indicated.
**Major GPA requirements as indicated.*

Major Requirements

Minimum grade of D# or better is required in CHEM 403, CHEM 404, CHEM 545, CHEM 546, PHYS 401, PHYS 402, and MATH 424B (if taken); minimum grade of C# or better is required in all other courses. ZOOL 600, BIOL 695, ZOOL 795, or ZOOL 799H may substitute for one elective with academic advisor approval, but only if taken for at least four credits. These four credits may be spread over multiple semesters if they are consecutive and with the same faculty mentor.

Code	Title	Credits
Core Curriculum Courses		
BIOL 411	Introductory Biology: Molecular and Cellular	4
BIOL 412	Introductory Biology: Evolution, Biodiversity and Ecology	4
BIOL 528	Applied Biostatistics I	4
BIOL 541W	Ecology	0 or 4
BMCB 658A	General Biochemistry	3
CHEM 403	General Chemistry I	4
CHEM 404	General Chemistry II	4
CHEM 545 & CHEM 546	Organic Chemistry and Organic Chemistry Laboratory	5
GEN 604	Principles of Genetics	4
or ANSC 612	Genetics of Animals	
MATH 424B	Calculus for Life Sciences	4
or BIOL 633	Data Analysis for Life Science	
or BIOL 711	Experimental Design & Analysis	
PHYS 401	Introduction to Physics I	4
PHYS 402	Introduction to Physics II	4
ZOOL 400	Professional Perspectives in Zoology	1
ZOOL 518	Comparative Morphology and Biology of Vertebrates	4
ZOOL 625 & ZOOL 626W	Principles of Animal Physiology and Animal Physiology Laboratory	5
ZOOL 690	Evolution	4
Capstone		
BIOL 780	Capstone Companion Course	1
Zoology Electives		
Animal Survey Courses (Choose 1)		4-5
ZOOL 542	Ornithology	
ZOOL 555	Introduction to Entomology	
ZOOL 566	Herpetology	
MEFB 628	Marine Invertebrate Evolution and Ecology	
ZOOL 710	Sharks and Bony Fishes	
NR 712	Mammalogy	
Electives [1]		
Select three courses [1]		
BIOL 695	Biology Teaching Practices	1-4
BIOL 706	Data Science with R for the Life Sciences	4
BIOL 720	Plant-Animal Interactions (C)	4
BMS 718	Mammalian Physiology	4
BMS 503/504	General Microbiology	3
MEFB 503	Introduction to Marine Biology	0 or 4
MEFB 504	Field Wildlife Forensics	2
MEFB 510	Field Ornithology	4
MEFB 628	Marine Invertebrate Evolution and Ecology	5
MEFB 717	Lake Ecology	4
MEFB 755	Biological Oceanography	3
MEFB 772	Fisheries Biology: Conservation and Management	4
MEFB 773	Physiology of Fishes	4
NR 615	Wildlife Habitats	4
NR 640	Wildlife Population Ecology	4
NR 642	Introduction to Biogeography	4
NR 650	Principles of Conservation Biology	4
NR 712	Mammalogy	4
NSB 705	Molecular and Cellular Neurobiology (C)	4
NSB 727	Animal Communication (C)	4
NSB #728	Research Methods in Animal Behavior	4
TECH 797	Undergraduate Ocean Research Project [2]	2
ZOOL 529	Developmental Biology	0 or 4
ZOOL 542	Ornithology	0 or 4
ZOOL 555	Introduction to Entomology	4
ZOOL 613W	Animal Behavior	5
ZOOL 566	Herpetology	4
ZOOL 600	Field Experience [3]	1-4
ZOOL 708	Stream Ecology	4
ZOOL 710	Sharks and Bony Fishes	0 or 4
ZOOL 726	Conservation Behavior (C)	4
ZOOL 733W	Behavioral Ecology (C)	0 or 4
ZOOL 736	Genes and Behavior (C)	4
ZOOL 740	Acoustic Ecology	4
ZOOL 770	Senior Seminar in Zoology	2

ZOOL 777W	Neuroethology (C)	4
ZOOL 795	Independent Investigations in Zoology [3]	1-4
ZOOL 799H	Honors Senior Thesis	1-4
Shoals Courses:		
MEFB 500	Coastal Habitat Field Research Methods	4
MEFB 505	Introduction to Applied Science Communication	4
MEFB 506	Marine Parasitology and Disease	4
MEFB 510	Field Ornithology	4
MEFB 530	Evolution and Marine Diversity	4
MEFB 535	Marine Mammal Biology	4
MEFB #630	Biodiversity and Biology of Marine Invertebrates	4
MEFB 674	Ecology and Marine Environment	4
MEFB 702	Sustainable Marine Fisheries	4
MEFB 714	Field Animal Behavior	4
MEFB 730	Underwater Research	4
MEFB 741	Sharks: Biology and Conservation	4
MEFB 751	Research in Marine Biology	4
MEFB 754	Anatomy and Function of Marine Vertebrates	4
Study Abroad Courses:		
NR 660	Ecology and Biogeography of New Zealand	5
NR 661	Restoration Ecology and Ecosystem Management in New Zealand	4
NR 662	Environmental Policy, Planning and Sustainability in New Zealand	3
NR 663	Applied Directed Research in New Zealand	4

1 A single course cannot be used for both a core requirement and an elective (e.g., ZOOL 542 cannot be used to fulfill the animal survey requirement and as an elective).

2 This class requires enrollment in both fall and spring sections, 2 credits/semester for a total of 4 credits.

3 A 600, 695, 795, or 799 experience may substitute for one elective with academic advisor approval, but only if taken for at least four credits. These four credits may be spread over multiple semesters if they are consecutive and with the same faculty mentor.

Capstone Experience

As part of the University of New Hampshire's Discovery Program requirements, all students must complete a capstone experience during their senior year (after earning at least 90 credits). **The capstone experience for students majoring in ZOOLOGY BS consists of BOTH (1) an approved individual experience AND (2) the successful completion of the BIOL 780 Capstone Companion Course.** Students will not be approved for graduation until capstone certification has been granted.

1) The individual experience

The individual experience may be satisfied through various forms of experiential learning (e.g., Honors thesis, mentored research project, internship) or a course denoted with a "(C)" in the courses listed above. The individual experience must fulfill **at least one** of the University's capstone criteria:

- synthesizes and applies disciplinary knowledge and skills
- fosters reflection on undergraduate learning and experience
- demonstrates emerging professional competencies
- applies, analyzes, and/or interprets research, data, or artistic expression
- explores areas of interest based on the integration of the prior learning

Before beginning *any* capstone individual experience, students must submit a completed capstone approval form to their Program Coordinator.

Students can obtain this form on the Department's Capstone page or from their Program Coordinator. Here they will describe their proposed individual experience and how it fulfills at least one of the University's capstone criteria listed above. If the student is selecting a "C" course for their individual experience, they should obtain the course syllabus from the instructor for information about the course's content and learning objectives.

2) Enrollment in BIOL 780 Capstone Companion Course

Students will also be required to enroll in BIOL 780 Capstone Companion Course **during the semester of their individual experience.** BIOL 780 is offered every Fall and Spring semester.

- If the individual experience is a two-semester thesis, BIOL 780 should be taken during the second semester.
- If the individual experience occurs during the summer (e.g., internship), BIOL 780 should be taken during the Fall semester that immediately follows.
- Note: Because BIOL 780 is not offered during the summer, students cannot complete their individual experience during the summer *and graduate during that same August*. Summer experiences could only be used as individual capstone experiences if completed the summer before the student's senior year.

Student Learning Outcomes

Students demonstrate that they understand basic principles of Zoology.

- Understand the biodiversity and ecological roles of selected animal taxa.
- Demonstrate understanding of animal physiology and structure at the cellular and organismal levels.
- Describe and apply key principles and mechanisms of evolution and genetics.
- Comprehend the relationship between organisms and their environments.

Students demonstrate that they can undertake scientifically valid methods of inquiry.

- Demonstrate proficiency in searching, reading, and understanding scientific literature.

Students demonstrate that they can think critically and analytically.

- Analyze and present data using appropriate quantitative and graphical tools.

Students demonstrate that they can communicate effectively.

- Develop effective written and oral communication skills for conveying scientific information effectively to a wide audience.

Students practice science responsibly and ethically, and acknowledge the influence of cultural and historical biases in the sciences.