ZOOGOLOGY MAJOR (B.S.)

https://colsa.unh.edu/biological-sciences/program/bs/zoolgy-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 is New England Regional Student Program

Requirements

Degree Requirements

Minimum Credit Requirements: 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 at least for four credits. These four credits may be spread over multiple semesters if they are consecutive and with the same faculty mentor.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
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<tr>
<td>BIOL 412</td>
<td>Introductory Biology Evolutionary Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
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<tr>
<td>BIOL 541W</td>
<td>Ecology</td>
<td>4</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
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<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
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<td>CHEM 546</td>
<td>Organic Chemistry Laboratory</td>
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<tr>
<td>CHEM 548</td>
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<td>5</td>
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<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
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<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
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<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
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<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
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<tr>
<td>ZOOL 400</td>
<td>Professional Perspectives in Zoology</td>
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<tr>
<td>ZOOL 518</td>
<td>Comparative Morphology and Biology of Vertebrates</td>
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<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology</td>
<td>5</td>
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<tr>
<td>ZOOL 626W</td>
<td>Animal Physiology Laboratory</td>
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<tr>
<td>ZOOL 690</td>
<td>Evolution</td>
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</tbody>
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Capstone

BIOL 780  Capstone Companion Course  1

Zoology Electives

Animal Survey Courses (Choose 1)  4-5

ZOOL 542  Ornithology  4
ZOOL 555  Introduction to Entomology  4
ZOOL 566  Herpetology  4
MEFB 628  Marine Invertebrate Evolution and Ecology  5
ZOOL 710  Sharks and Bony Fishes  4
NR 712  Mammalogy  4

Electives 1  Select three courses

BIOL 665  Biological Teaching Practices  1-4
BIOL 706  Data Science for the Life Sciences  4
BIOL 720  Plant-Animal Interactions (C)  4
BMS 718  Mammalian Physiology  4
BMS 503/504  General Microbiology  3
MEFB 603  Introduction to Marine Biology  0 or 4
MEFB 604  Field Wildlife Forensics  2
MEFB 610  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

ZOOL 529  Developmental Biology  4
ZOOL 542  Ornithology  0 or 4
ZOOL 555  Introduction to Entomology  4
ZOOL 613W  Animal Behavior  5
ZOOL 666  Herpetology  4
ZOOL 670  Field Experience  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
Zoology Major (B.S.)

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.

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.

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.

- If the individual experience is a two-semester thesis, BIOL 780 should be taken during the second semester.
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