Zoology

Zoology, the study of animals, is a diverse field with specialties that range from cells (cytologists, molecular biologists, geneticists), to organisms (anatomists, physiologists, entomologists, mammalogists, ornithologists), to populations and their relation to each other and to their environment (ethologists, ecologists).

For Zoology, a grade-point average of 2.00 is required for courses taken to fulfill the 38 credits in the major. Graduate work in Zoology is offered at both the M.S. and Ph.D. levels. Zoology majors cannot pursue a minor in Biology or Zoology.

Option 1: General Zoology

This option includes elective choices that provide a broad and balanced education in Zoology from cellular and physiological mechanisms to ecological processes. This option is designed for students who wish to pursue an area not represented by the other two options or the Graduate School (http://www.ndsu.edu/bulletin/offices/gradschool). 

Option 2: Physiology, Cell Biology, or Health Sciences

This option is designed for students who are interested in physiology or cell and molecular biology or who plan to enter professional schools (e.g., medical, osteopathic, dental, optometry, chiropractic) or graduate programs in physiology and cell biology. The emphasis is on additional course work in cell biology, physiology, chemistry, and physics.

Option 3: Fisheries, Wildlife, Ecology, and Behavior

This option is designed for students who are interested in ecology, conservation, and wildlife biology. The core courses include basic and applied ecology and electives are focused on organismal biology and ecological levels. These studies prepare the student for research or management positions with federal, state, or other agencies such as the U.S. Fish and Wildlife Service, State Game and Fish Departments, State Conservation Departments, U.S. and State Forest Services, U.S. Bureau of Land Management, Natural Resources Conservation Service, and the Environmental Protection Agency, as well as national and state parks.

A wildlife or fisheries biologist participates in a wide range of activities including natural history, systematics, aquatic and terrestrial ecology, population dynamics, management techniques, pollution biology, and public relations. Some positions require advanced training at the master’s (M.S.) or doctoral (Ph.D.) level. In addition to the curriculum suggested, at least one summer or semester of field experience is recommended. Credits for field experience may be gained either at a biological field station or through employment approved by the adviser.

Major Requirements

Major: Zoology

Degree Type: B.A. or B.S.
Required Degree Credits to Graduate: 122

General Education Requirements

First Year Experience (F):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIV 189</td>
<td>Skills For Academic Success</td>
<td>1</td>
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Communication (C):

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 110</td>
<td>College Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 120</td>
<td>College Composition II</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 324</td>
<td>Writing in the Sciences</td>
<td>3</td>
</tr>
<tr>
<td>COMM 110</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
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Quantitative Reasoning (R):

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<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>STAT 330</td>
<td>Introductory Statistics</td>
<td>3</td>
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Science & Technology (S):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td></td>
<td></td>
<td>10</td>
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</table>

The 10 credits required in the Science and Technology category will be fulfilled with requirements of the major.

Humanities & Fine Arts (A): Select from current general education list

Social & Behavioral Sciences (B): Select from current general education list

Wellness (W): Select from current general education list

Cultural Diversity (D): Select from current general education list

Global Perspectives (G): Select from current general education list

Total Credits

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<th>Credits</th>
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<td>40</td>
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College Requirements

Bachelor of Science (BS) Degree – An additional 6 credits in Humanities or Social Sciences

Bachelor of Arts (BA) Degree – An additional 12 credits Humanities and Social Sciences and proficiency at the second year level in a modern foreign language.

- Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student’s major.

Major Requirements

- Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.
- A 2.00 GPA is needed in Zoology major courses; this does not include option courses.

General Education Requirements

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL 150</td>
<td>General Biology I</td>
<td>4</td>
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<tr>
<td>&amp; 150L</td>
<td>and General Biology I Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL 151</td>
<td>General Biology II</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 151L</td>
<td>and General Biology II Laboratory</td>
<td></td>
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<tr>
<td>BIOL 359</td>
<td>Evolution</td>
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Science and Mathematics College Requirements

<table>
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<tr>
<th>Credits</th>
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<td>6-12</td>
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Zoology Core Requirements

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL 150</td>
<td>General Biology I</td>
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<tr>
<td>&amp; 150L</td>
<td>and General Biology I Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL 151</td>
<td>General Biology II</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 151L</td>
<td>and General Biology II Laboratory</td>
<td></td>
</tr>
</tbody>
</table>
ZOO 315 Genetics and Genetics Laboratory 4
ZOO 315L 4
ZOO 491 Seminar (Must be taken during student's senior year) 2

Related Required Course for all Options

CHEM 121 General Chemistry I 4
& 121L General Chemistry I Laboratory
CHEM 122 General Chemistry II 4
& 122L General Chemistry II Laboratory
MATH 146 Applied Calculus I 4

Zoology Option: Select one of the options (General Zoology; Physiology, Cell Biology, and Health Science; or Fisheries, Wildlife, Ecology and Behavior) listed below to complete the zoology major

General Zoology Option (min. of 30 cr.):
CHEM 341 Organic Chemistry I 4
& 341L Organic Chemistry I Laboratory
PHYS 120 Fundamentals of Physics
ZOO 280 Comparative Chordate Morphology
ZOO 450 Invertebrate Zoology
ZOO/Biol Two courses from group one (see below)
ZOO/Biol Two courses from group three (see below)
ZOO/Biol One course from any group (see below)

Physiology, Cell Biology and Health Science Option (min. of 37 cr.):
CHEM 341 Organic Chemistry I 4
& 341L Organic Chemistry I Laboratory
CHEM 342 Organic Chemistry II 4
& 342L Organic Chemistry II Laboratory
PHYS 211 College Physics I 4
& 211L College Physics I Laboratory
PHYS 212 College Physics II 4
& 212L College Physics II Laboratory
ZOO 370 Cell Biology
ZOO 460 Animal Physiology
ZOO/Biol Two courses from group one (see below)
ZOO/Biol Two courses from group two (see below)
ZOO/Biol One course from group three (see below)

Fisheries, Wildlife, Ecology and Behavior Option (min. of 27 cr.):
BIOL/ZOO 364 General Ecology
CHEM 240 Survey of Organic Chemistry
PHYS 120 Fundamentals of Physics
ZOO 475 Conservation Biology
ZOO/Biol One course from group one (see below)
ZOO/Biol Two courses from group two (see below)
ZOO/Biol Two Courses from group three (see below)

Degree Requirements: Potential of 30 credits to reach 122 30
Total Credits 122-138

Option Electives

Group One

BIOL 478 Methods in Animal Physiology 3
ZOO 370 Cell Biology 3
ZOO 380 Vertebrate Histology 3

ZOO 460 Animal Physiology 3
ZOO 464 Endocrinology 3
ZOO 482 Developmental Biology 3

Group Two

ZOO 280 Comparative Chordate Morphology 4
ZOO 360 Animal Behavior 3
ZOO 450 Invertebrate Zoology 4
ZOO 452 Ichthyology 3
ZOO 454 Herpetology 3
ZOO 456 Ornithology 3
ZOO 458 Mammalogy 3

Group Three

BIOL/ZOO 364 General Ecology 3
BIOL 480 Ecotoxicology 3
BIOL 481 Wetland Science 3
ZOO 462 Physiological Ecology 3
ZOO 470 Limnology 4
ZOO 475 Conservation Biology 3
ZOO 476 Wildlife Ecology and Management 3
ZOO 477 Wildlife and Fisheries Management Techniques 3

Department Notes

• Students may not minor in biology or zoology with this major.

Minor Requirements

Zoology Minor

Required Requirements

Required Credits: 18

Required Courses

BIOL 150 General Biology I 4
& 150L General Biology I Laboratory
BIOL 151 General Biology II 4
& 151L General Biology II Laboratory
ZOO 315 Genetics 4
& 315L Genetics Laboratory

Electives: At least 3 credits in department approved 300-400 level courses 6

Total Credits 18

Minor Requirements and Notes

• A minimum of 8 credits must be taken at NDSU.
• Zoology majors may not minor in Zoology or Biology.