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):		
UNIV 189	Skills For Academic Success (Students transferring in 24 or more credits do not need to take UNIV 189.)	1
Communication (C):		
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
ENGL 324	Writing in the Sciences	3
COMM 110	Fundamentals of Public Speaking	3
Quantitative Reasoning (R):		
STAT 330	Introductory Statistics	3
Science & Technology (S):		10
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		6
Social & Behavioral Sciences (B): Select from current general education list		6
Wellness (W): Select from current general education list		2
Cultural Diversity (D): Select from current general education list		
Global Perspectives (G): Select from current general education list		
Total Credits		40

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		40
Science and Mathematics College Requirements		6-12
Zoology Core Requirements		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	4
BIOL 359	Evolution	3

ZOO 315 & 315L	Genetics and Genetics Laboratory	4
ZOO 491	Seminar (Must be taken during student's senior year)	2
Related Required Course for all Options		
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory	4
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory	4
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		27-37
General Zoology Option (min. of 30 cr.):		
CHEM 341 & 341L	Organic Chemistry I and 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 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	
CHEM 342 & 342L	Organic Chemistry II and Organic Chemistry II Laboratory	
PHYS 211 & 211L	College Physics I and College Physics I Laboratory	
PHYS 212 & 212L	College Physics II and 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

Minor Requirements

Required Credits: 18

Required Courses		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	4
ZOO 315 & 315L	Genetics and Genetics Laboratory	4
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.