ZOOLOGY, BA

The Zoology major is a gateway to the diverse areas of modern biology with a focus on animal biology. The major can be tailored to prepare students for advanced study and careers in many different areas: veterinary medicine; health professions and public health; law; life sciences research in university, government, and industrial settings; education including museum, nature center, secondary and college education; biotechnology; and environmental studies.

Students in the Zoology major have the flexibility to focus on various areas in biological science, including:

- ecology, evolution, and animal behavior;
- anatomy, physiology, and organismal biology;
- and cellular, molecular, and developmental biology.

Students in Zoology learn about aquatic ecosystems, vertebrate anatomy, identifying various birds, and the development of animals.

The department encourages undergraduate participation in research and offers summer research scholarships (https://integrativebiology.wisc.edu/undergraduate-student-scholarships/) to outstanding students.

The Zoology major emphasizes critical thinking and conceptual skills that come from an understanding of how scientific information is obtained and evaluated, and of how this information can be applied to societal issues. The major provides a solid foundation in genetic, cellular, physiological, ecological, and evolutionary principles, and in the related disciplines of chemistry, physics, and mathematics. As a result, the major fosters an understanding of biological complexity including the interrelationships among humans and natural systems.

The unique characteristics of the zoology major include:

- broad-based, yet integrated training in wide-ranging areas of biology;
- solid foundation of basic principles and processes in biology;
- flexibility and advising needed to allow students to tailor the major to their specific goals;
- wide range of opportunities for undergraduate involvement in independent research and senior thesis.

HOW TO GET IN

HOW TO GET IN

Requirements	Details
How to get in	No application required. All students who meet the requirements listed below are eligible to declare. For information on how to declare, visit Advising & Careers.
Courses required to get in	None
GPA requirements to get in	None
Credits required to get in	None
Other	None

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin-Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (https://guide.wisc.edu/undergraduate/#requirementsforundergraduatestudytext) section of the Guide.

General Education	• Breadth—Humanities/Literature/Arts: 6 credits • Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits • Breadth—Social Studies: 3 credits • Communication Part A & Part B * • Ethnic Studies * • Quantitative Reasoning Part A & Part B *

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

COLLEGE OF LETTERS & SCIENCE DEGREE REQUIREMENTS: BACHELOR OF ARTS (BA)

Students pursuing a bachelor of arts degree in the College of Letters & Science must complete all of the requirements below. The College of Letters & Science allows this major to be paired with either a bachelor of arts or a bachelor of science curriculum.

BACHELOR OF ARTS DEGREE REQUIREMENTS

Mathematics	Complete the University General Education Requirements for Quantitative Reasoning A (QR-A) and Quantitative Reasoning B (QR-B) coursework.
Language	• Complete the fourth unit of a language other than English; OR • Complete the third unit of a language and the second unit of an additional language other than English.

L&S Breadth	• 12 credits of Humanities, which must include 6 credits of literature; and • 12 credits of Social Science; and • 12 credits of Natural Science, which must include one 3+ credit Biological Science course and one 3+ credit Physical Science course.
Liberal Arts and Science Coursework	Complete at least 108 credits.
Depth of Intermediate/ Advanced work	Complete at least 60 credits at the intermediate or advanced level.
Major	Declare and complete at least one major.
Total Credits	Complete at least 120 credits.
UW-Madison Experience	• 30 credits in residence, overall; and • 30 credits in residence after the 86th credit.
Quality of Work	• 2.000 in all coursework at UW–Madison • 2.000 in Intermediate/Advanced level coursework at UW–Madison

NON–L&S STUDENTS PURSUING AN L&S MAJOR

Non–L&S students who have permission from their school/college to pursue an additional major within L&S only need to fulfill the major requirements. They do not need to complete the L&S Degree Requirements above.

REQUIREMENTS FOR THE MAJOR

MATH, CHEMISTRY & PHYSICS

Code	Title	Credits
Math–complete one:		**4-10**
MATH 112 & MATH 113	College Algebra and Trigonometry	
MATH 114	Precalculus	
MATH 171 & MATH 217	Calculus with Algebra and Trigonometry I and Calculus with Algebra and Trigonometry II	
MATH 211	Survey of Calculus 1	
Chemistry–complete one:		**5-9**
CHEM 103 & CHEM 104	General Chemistry I and General Chemistry II	
CHEM 109	Advanced General Chemistry	
Physics–complete one:		**8-10**
PHYSICS 103 & PHYSICS 104	General Physics and General Physics	
PHYSICS 201 & PHYSICS 202	General Physics and General Physics	
PHYSICS 207 & PHYSICS 208	General Physics and General Physics	
Total Credits		**17-29**

BIOLOGY AND ZOOLOGY

Complete 30 credits from the sections below.

Introductory Biology

Code	Title	Credits
Option 1: Introductory Biology		**10**
ZOOLOGY/ BIOLOGY/ BOTANY 151 & ZOOLOGY/ BIOLOGY/ BOTANY 152	Introductory Biology and Introductory Biology	
Option 2: BIOCORE–complete both:		**10**
BIOCORE 381 & BIOCORE 382	Evolution, Ecology, and Genetics and Evolution, Ecology, and Genetics Laboratory	
BIOCORE 383 & BIOCORE 384	Cellular Biology and Cellular Biology Laboratory	
Option 3: Animal Biology [1]		**5**
ZOOLOGY/ BIOLOGY 101 & ZOOLOGY/ BIOLOGY 102	Animal Biology and Animal Biology Laboratory	
Total Credits		**5-10**

[1] BOTANY/BIOLOGY 130 is recommended, but not required for students pursuing Option 3 (Animal Biology).

Electives

Code	Title	Credits
ZOOLOGY 299	Directed Studies in Zoology	
ZOOLOGY 300	Invertebrate Biology and Evolution	
ZOOLOGY 301	Invertebrate Biology and Evolution Lab	
ZOOLOGY/ ENTOM 302	Introduction to Entomology	
ZOOLOGY 303	Aquatic Invertebrate Biology	
ZOOLOGY 304	Marine Biology	
ZOOLOGY/ ENVIR ST 315	Limnology-Conservation of Aquatic Resources	
ZOOLOGY 316	Laboratory for Limnology-Conservation of Aquatic Resources	
ZOOLOGY 320	Field Marine Biology	
ZOOLOGY/ F&W ECOL 335	Human/Animal Relationships: Biological and Philosophical Issues	
ZOOLOGY/ ENTOM/M M & I/ PATH-BIO 350	Parasitology	
ZOOLOGY/ ENVIR ST/ F&W ECOL 360	Extinction of Species	
ZOOLOGY 370	General Molecular Biology	
ZOOLOGY/ ENTOM 371	Medical Entomology: Biology of Vector and Vector-borne Diseases	
ZOOLOGY 400	Topics in Biology	
ZOOLOGY 401	Topics in Biology	

ZOOLOGY 405	Introduction to Museum Studies in the Natural Sciences
ZOOLOGY/ ANTHRO/ BOTANY 410	Evolutionary Biology
ZOOLOGY 415	Genetics of Human History
ZOOLOGY 425	Behavioral Ecology
ZOOLOGY 430	Comparative Anatomy of Vertebrates
ZOOLOGY/ BOTANY 450	Midwestern Ecological Issues: A Case Study Approach
ZOOLOGY/ BOTANY/ F&W ECOL 460	General Ecology
ZOOLOGY 470	Introduction to Animal Development
ZOOLOGY/ BOTANY/ ENTOM 473	Plant-Insect Interactions
ZOOLOGY 500	Undergraduate Neurobiology Seminar
ZOOLOGY/ ENVIR ST 510	Ecology of Fishes
ZOOLOGY/ ENVIR ST 511	Ecology of Fishes Lab
ZOOLOGY/ BOTANY/ ENVIR ST/ F&W ECOL 516	Conservation Biology
ZOOLOGY/ AN SCI/ F&W ECOL 520	Ornithology
ZOOLOGY/ AN SCI/ F&W ECOL 521	Birds of Southern Wisconsin
ZOOLOGY/ PSYCH 523	Neurobiology
ZOOLOGY/ GEOSCI 542	Invertebrate Paleontology
ZOOLOGY 555	Laboratory in Developmental Biology
ZOOLOGY/ F&W ECOL/ LAND ARC 565	Principles of Landscape Ecology
ZOOLOGY 570	Cell Biology
ZOOLOGY 603	Endocrinology
ZOOLOGY 604	Computer-based Gene and Disease/Disorder Research Lab
ZOOLOGY 611	Comparative and Evolutionary Physiology
ZOOLOGY 612	Comparative Physiology Laboratory
ZOOLOGY/ ANTHRO/ PSYCH 619	Biology of Mind
ZOOLOGY 620	Neuroethology Seminar
ZOOLOGY/ ENTOM/ GENETICS 624	Molecular Ecology
ZOOLOGY 655	Modeling Neurodevelopmental Disease
ZOOLOGY/ F&W ECOL 660	Climate Change Ecology
ZOOLOGY/ BOTANY/ F&W ECOL 672	Historical Ecology
ZOOLOGY/ NEURODPT/ PSYCH 674	Behavioral Neuroendocrinology Seminar
ZOOLOGY 677	Internship in Ecology
ZOOLOGY 681 & ZOOLOGY 682	Senior Honors Thesis and Senior Honors Thesis
ZOOLOGY 691 & ZOOLOGY 692	Senior Thesis and Senior Thesis
ZOOLOGY 698	Directed Study
ZOOLOGY 699	Directed Studies in Zoology
ANAT&PHY 335	Physiology [1]
ANAT&PHY 338	Human Anatomy Laboratory
ANTHRO 458	Primate Behavioral Ecology
ANTHRO 668	Primate Conservation
BIOCHEM 501	Introduction to Biochemistry
BIOCHEM 507	General Biochemistry I
BOTANY 330	Algae
ENTOM 331	Taxonomy of Mature Insects
ENTOM 450	Basic and Applied Insect Ecology
ENVIR ST/ LAND ARC 361	Wetlands Ecology
ENVIR ST 375	Field Ecology Workshop
F&W ECOL 306	Terrestrial Vertebrates: Life History and Ecology
F&W ECOL/ SURG SCI 548	Diseases of Wildlife
GENETICS 466	Principles of Genetics
GENETICS 545	Genetics Laboratory
MICROBIO 303	Biology of Microorganisms
MICROBIO 304	Biology of Microorganisms Laboratory
MICROBIO 345	Introduction to Disease Biology
M M & I 341	Immunology
M M & I/PATH-BIO 528	Immunology
PSYCH 449	Animal Behavior
PSYCH 450	Primate Psychology: Insights into Human Behavior
PSYCH 454	Behavioral Neuroscience
PSYCH 513	Hormones, Brain, and Behavior
Total Credits	**20-25**

A maximum of 6 credits of approved non-ZOOLOGY subject courses count toward the 30 credits required for the major. Students can take ZOOLOGY/BIOLOGY 101 Animal Biology and ZOOLOGY/BIOLOGY 102 Animal Biology Laboratory for the Introductory Biology requirement is recommended for students who complete this sequence.

[1] Only 3 credits of ANAT&PHY 335 Physiology count toward the 6 credits of approved non-ZOOLOGY subject courses.

RESIDENCE AND QUALITY OF WORK

- 2.000 GPA in all ZOOLOGY and major courses
- 2.000 GPA on 15 Upper Level major credits, taken in Residence [1]
- 15 credits in ZOOLOGY, or courses that count for the major, taken on the UW–Madison campus

[1] ZOOLOGY 299–699, intermediate/advanced BIOCORE, and courses that count toward the major that have an intermediate/advanced designation are considered Upper Level in the major.

HONORS IN THE ZOOLOGY MAJOR

To earn Honors in the Major in Zoology, students must satisfy both the requirements for the major (above) and the following additional requirements:

- Earn a 3.300 University GPA
- Earn a 3.300 GPA in all courses that count toward the major
- Complete 12 credits, taken for Honors, with individual grades of B or better. Select 6 credits from ZOOLOGY 300-680 or approved non-ZOOLOGY subject courses (above).
- Complete ZOOLOGY 681 and ZOOLOGY 682, for a total of 6 credits.[1]

[1] A written thesis proposal must be approved by the thesis mentor and a department advisor. While most theses are completed during the fall and spring of a student's senior year, other combinations of terms are possible. More information about the proposal process, timing, and grading of a thesis can be found on the Department of Integrative Biology website.

UNIVERSITY DEGREE REQUIREMENTS

Total Degree	To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.
Residency	Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.
Quality of Work	Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.

LEARNING OUTCOMES

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1. Connect and describe the concepts that make up the structure and function of all living things through the principles of genetics, cellular biology, and physiology.
2. Demonstrate an understanding of the diversity of life through the principles of evolution.
3. Make connections between organisms, their habitats, and systems through the principles of ecology.
4. Make connections between the biological sciences to humans and ecological systems and appreciate the complexity of these systems.
5. Identify, think through, and solve a problem using quantitative reasoning and critical thinking skills.
6. Develop an ability to plan and carry out scientific experiments by obtaining and evaluating scientific information and effectively communicating information through oral and written presentations.
7. Understand current issues in biology and apply scientific knowledge to societal issues.
8. Make connections between self and natural world, and personal responsibility with social issues.
9. Develop a sense of competence in the field of study through research experiences and written and oral communication of findings.

FOUR-YEAR PLAN

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This Four-Year Plan is only one way a student may complete an L&S degree with this major. Many factors can affect student degree planning, including placement scores, credit for transferred courses, credits earned by examination, and individual scholarly interests. In addition, many students have commitments (e.g., athletics, honors, research, student organizations, study abroad, work and volunteer experiences) that necessitate they adjust their plans accordingly. Informed students engage in their own unique Wisconsin Experience by consulting their academic advisors, Guide, DARS, and Course Search & Enroll for assistance making and adjusting their plan.

Freshman

Fall	Credits	Spring	Credits
CHEM 103 or 109	4-5	CHEM 104	5
MATH 112, 114, or 171	3-5	MATH 113 or 217	3-5
Communication A[1]	3	L&S Breadth	3
Foreign Language (if required)	3-4	Social Science Breadth	3
	14		**14**

Sophomore

Fall	Credits	Spring	Credits
ZOOLOGY/BIOLOGY/ BOTANY 151[1]	5	ZOOLOGY/BIOLOGY/ BOTANY 152 (Satisfies Communication B)[1]	5
Ethnic Studies	3	L&S Breadth	3
INTER-LS 210	1	Social Science Breadth	3
Social Science Breadth	3	Elective	3

Elective	4		
	16		**14**

Junior

Fall	**Credits**	**Spring**	**Credits**
PHYSICS 103, 201, or 207	4-5	PHYSICS 104, 202, or 208	4-5
I/A COMP SCI, MATH, or STAT (if required for the BS)	3-5	I/A COMP SCI, MATH, or STAT (required for the BS)	3-5
I/A ZOOLOGY	3-6	I/A ZOOLOGY	4
Elective	3	L&S Breadth	3
	16		**14**

Senior

Fall	**Credits**	**Spring**	**Credits**
I/A ZOOLOGY	3-4	I/A ZOOLOGY	3-4
Elective	3-4	I/A ZOOLOGY	3-4
L&S Breadth	3	Elective	6
Elective	3-6	Social Science Breadth	3
	17		**15**

Total Credits 120

[1] Students can take ZOOLOGY/BIOLOGY 101 Animal Biology and ZOOLOGY/BIOLOGY 102 Animal Biology Laboratory for the Introductory Biology requirement is recommended for students who complete this sequence.

Student may also satisfy Introductory Biology with BIOCORE. Consult the advisor for the program regarding this option.

ADVISING AND CAREERS

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DECLARE OR CANCEL THIS MAJOR

Please follow the process described on the Zoology Major website (https://integrativebiology.wisc.edu/undergraduate-programs/zoology-major/).

DIRECTED STUDY

The Zoology major is an excellent choice for students interested in an undergraduate research experience.

Directed Studies allows students to gain experience in a wide range of research areas in biology and to learn research techniques that are not easily taught in the classroom. Such experiences allow students to make more informed decisions about their future goals and careers. Before students can enroll in Directed Study, they must set up an appointment with a professor/mentor of their choice.

Students interested in doing in-depth research as undergraduates in an area of interest can elect to do a Senior Thesis or Senior Honors Thesis. Students should contact a department advisor at the beginning of their junior year to explore possible research areas.

Senior Thesis

Students interested in making a longer term commitment to a research project may consider undertaking a Senior Thesis. Students should contact a department advisor during their junior year to explore possible research areas in zoology.

SUCCESSWORKS

SuccessWorks (https://successworks.wisc.edu/) at the College of Letters & Science helps you turn the academic skills learned in your classes into a fulfilling life, guiding you every step of the way to securing jobs, internships, or admission to graduate school.

Through one-on-one career advising, events, and resources, you can explore career options, build valuable internship and research experience, and connect with supportive alumni and employers who open doors of opportunity.

- What you can do with your major (https://successworks.wisc.edu/what-you-can-do-with-your-major/) (Major Skills & Outcomes Sheets)
- Make a career advising appointment (https://successworks.wisc.edu/make-an-appointment/)
- Learn about internships and internship funding (https://successworks.wisc.edu/finding-a-job-or-internship/)
- Try "Jobs, Internships, & How to Get Them," (https://successworks.wisc.edu/canvas/) an interactive guide in Canvas for enrolled UW–Madison students