

CONSERVATION BIOLOGY, BS

Conservation Biology is a science-based major designed to provide students broad training in biological, ecological, and related disciplines most relevant to conservation. The program emphasizes basic knowledge of natural history, whole organism biology, ecological interactions, and field biology. The major is characterized by flexibility with a broad range of opportunities allowing students to tailor the program to their interests. This major appeals to independent students capable of assembling a curriculum that takes maximum advantage of both strong background, diversity, and specialization, as well as the breadth available through an L&S major. The program has a unique appeal to students passionate about conservation biology, from the social scientist to the theoretical ecologist, and empowers students to act as informed citizens of the natural world.

Former UW professors Aldo Leopold and Norman Fassett first initiated this major in the 1940s to prepare individuals for careers as game wardens, ranger naturalists, and museum workers. These opportunities continue and have expanded to include work in environmental education; land restoration and park management; endangered species research and recovery efforts; private conservation organizations and government agencies; and many more. The major is recommended for those seeking a liberal education in the intrinsic values of natural resources and those preparing for graduate study in the rapidly developing field of conservation biology.

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/#requirementsforundergraduatetext>) section of the Guide.

General Education	<ul style="list-style-type: none"> 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 *
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* 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 SCIENCE (BS)

Students pursuing a Bachelor of Science 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 the Bachelor of Arts or the Bachelor of Science degree requirements.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

Mathematics	Complete two courses of 3+ credits at the Intermediate or Advanced level in MATH, COMP SCI, or STAT subjects. A maximum of one course in each of COMP SCI and STAT subjects counts toward this requirement.
Language	Complete the third unit of a language other than English.
L&S Breadth	Complete: <ul style="list-style-type: none"> 12 credits of Humanities, which must include at least 6 credits of Literature; and 12 credits of Social Science; and 12 credits of Natural Science, which must include 6 credits of Biological Science and 6 credits of Physical Science.
Liberal Arts and Science Coursework	Complete at least 108 credits.
Depth of Intermediate/Advanced Coursework	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	Complete both: <ul style="list-style-type: none"> 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

Conservation biology majors must take at least **50 credits** in the major. When selecting courses to meet major requirements, students are encouraged to meet with their Academic Advising Manager to discuss courses that align with their areas of academic interest.

INTRODUCTORY COURSES

Code	Title	Credits
Introductory Biology		10
Complete one of the following options:		
<i>Option 1:</i>		
BIOLOGY/ ZOOLOGY 101	Animal Biology	
BIOLOGY/ ZOOLOGY 102	Animal Biology Laboratory	
BIOLOGY/ BOTANY 130	General Botany	
<i>Option 2:</i>		
BIOLOGY/ BOTANY/ ZOOLOGY 151	Introductory Biology	
BIOLOGY/ BOTANY/ ZOOLOGY 152	Introductory Biology	
<i>Option 3:</i>		
Complete at least 10 credits from the following:		
BIOCORE 381	Evolution, Ecology, and Genetics	
BIOCORE 382	Evolution, Ecology, and Genetics Laboratory	
BIOCORE 383	Cellular Biology	
BIOCORE 384	Cellular Biology Laboratory	
BIOCORE 485	Principles of Physiology	
BIOCORE 486	Principles of Physiology Laboratory	
Chemistry		4-5
Complete one of the following:		
CHEM 103	General Chemistry I	
CHEM 108	Chemistry in Our World	
CHEM 109	Advanced General Chemistry (for those who might take more chemistry)	
Physical Environment		3-5
Complete one of the following:		
ATM OCN/ GEOSCI 105	Survey of Oceanography	

ENVIR ST/ GEOSCI 106	Environmental Geology
ENVIR ST/ GEOG 120	Introduction to the Earth System
ENVIR ST/ GEOG 127	Physical Systems of the Environment
GEOSCI 100	Introductory Geology: How the Earth Works
GEOSCI 109	Three billion years beneath your feet: Geology of the National Parks

Ecology and Evolution
6-7

Complete two of the following, each from a different category (students are encouraged to take courses in all three areas):

<i>Ecology:</i>	
BOTANY/ F&W ECOL/ ZOOLOGY 460	General Ecology
<i>Evolution:</i>	
GEOSCI 110 or ANTHRO/ BOTANY/ ZOOLOGY 410	Evolution and Extinction Evolutionary Biology
<i>Extinction:</i>	
ENVIR ST/F&W ECOL/ZOOLOGY 360	Extinction of Species

Statistics
3

Complete one of the following:	
STAT 240	Data Science Modeling I
STAT 301	Introduction to Statistical Methods
STAT 371	Introductory Applied Statistics for the Life Sciences

SPECIES & FIELD BIOLOGY

Code	Title	Credits
Complete 12 credits from:		
AGROECOL 370	Grassland Ecology	
AN SCI/ F&W ECOL/ ZOOLOGY 520	Ornithology	
AN SCI/ F&W ECOL/ ZOOLOGY 521	Birds of Southern Wisconsin	
ANTHRO 391	Bones for the Archaeologist	
ANTHRO 420	Introduction to Primatological Research	
ANTHRO 458	Primate Behavioral Ecology	
ANTHRO 668	Primate Conservation	
BOTANY 330	Algae	
BOTANY/ PL PATH 332	Fungi	
BOTANY/ PL PATH 333	Biology of the Fungi	
BOTANY 400	Plant Systematics	
BOTANY 401	Vascular Flora of Wisconsin	

BOTANY/ F&W ECOL 402	Dendrology: Woody Plant Identification and Ecology
BOTANY 422	Plant Geography
BOTANY/ F&W ECOL 455	The Vegetation of Wisconsin
BOTANY/ ENTOM/ ZOOLOGY 473	Plant-Insect Interactions
ENTOM/ ZOOLOGY 302	Introduction to Entomology
ENTOM 432	Taxonomy and Bionomics of Immature Insects
ENVIR ST/ ZOOLOGY 315	Limnology-Conservation of Aquatic Resources
ENVIR ST 375	Field Ecology Workshop
ENVIR ST/ ZOOLOGY 510	Ecology of Fishes
ENVIR ST/ ZOOLOGY 511	Ecology of Fishes Lab
F&W ECOL 306	Terrestrial Vertebrates: Life History and Ecology
F&W ECOL 401	Physiological Animal Ecology
F&W ECOL/ SURG SCI 548	Diseases of Wildlife
F&W ECOL 655	Animal Population Dynamics
GEOSCI/ ZOOLOGY 542	Invertebrate Paleontology
LAND ARC/ ENVIR ST 361	Wetlands Ecology
LAND ARC/ ENVIR ST 581	Prescribed Fire: Ecology and Implementation
MICROBIO 303	Biology of Microorganisms
MICROBIO 304	Biology of Microorganisms Laboratory
M M & I/ENTOM/ PATH-BIO/ ZOOLOGY 350	Parasitology
PSYCH 449	Animal Behavior ¹ or ZOOLOGY 422 Behavioral Ecology
PSYCH 450	Primate Psychology: Insights into Human Behavior
ZOOLOGY 303	Aquatic Invertebrate Biology
ZOOLOGY 304	Marine Biology
ZOOLOGY 320	Field Marine Biology
ZOOLOGY/ ENVIR ST 315	Limnology-Conservation of Aquatic Resources
ZOOLOGY 316	Laboratory for Limnology- Conservation of Aquatic Resources
ZOOLOGY 430	Comparative Anatomy of Vertebrates

CONSERVATION BIOLOGY CLASS REQUIREMENT

BOTANY/ENVIR ST/F&W ECOL/ZOOLOGY 516 Conservation Biology

ELECTIVES

Code	Title	Credits
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Social Science Electives

Complete at least one 3 credit course from Social Science
elective list:

A A E 101	Introduction to Agricultural and Applied Economics
A A E/ ENVIR ST 244	The Environment and the Global Economy
BOTANY/ AMER IND/ ANTHRO 474	Ethnobotany
C&E SOC/ SOC 140	Introduction to Community and Environmental Sociology
C&E SOC/ F&W ECOL/ SOC 248	Environment, Natural Resources, and Society
ECON 101	Principles of Microeconomics
ENVIR ST/ GEOG 139	Global Environmental Issues
ENVIR ST/ AMER IND 306	Indigenous Peoples and the Environment
ENVIR ST 308	Outdoors For All: Inequities in Environmentalism
ENVIR ST/ GEOG 339	Environmental Conservation
ENVIR ST/ PHILOS 441	Environmental Ethics
ENVIR ST/GEOG/ HISTORY 460	American Environmental History
GEOG 344	Changing Landscapes of the American West
GEOG 359	Australia: Environment and Society
GEOG 538	The Humid Tropics: Ecology, Subsistence, and Development
LAND ARC 363	Earth Partnership: Restoration Education for Equity and Resilience

Electives to attain 50 credits in the major

ANTHRO 405	Introduction to Museum Studies in Anthropology
ATM OCN 100	Weather and Climate
BOTANY/ PL PATH 123	Plants, Parasites, and People
BOTANY/ ENVIR ST/ ZOOLOGY 260	Introductory Ecology
BOTANY 300	Plant Anatomy
BOTANY 305	Plant Morphology and Evolution
BOTANY/ ZOOLOGY 450	Midwestern Ecological Issues: A Case Study Approach
ENTOM/ ENVIR ST 201	Insects and Human Culture-a Survey Course in Entomology
ENTOM/ ZOOLOGY 540	Theoretical Ecology
ENTOM 699	Special Problems
ENVIR ST/ILS 126	Principles of Environmental Science

ENVIR ST/GEOG/ Soil: Ecosystem and Resource
SOIL SCI 230

ENVIR ST 307 Literature of the Environment:
Speaking for Nature

ENVIR ST/
SOIL SCI 324 Soils and Environmental Quality

ENVIR ST/
CIV ENGR/
GEOG 377 An Introduction to Geographic
Information Systems

ENVIR ST/
POP HLTH 471 Introduction to Environmental
Health

ENVIR ST/
F&W ECOL 515 Natural Resources Policy

ENVIR ST/
GEOG 537 Culture and Environment

ENVIR ST/
SOIL SCI 575 Assessment of Environmental
Impact

F&W ECOL/
ZOOLOGY 335 Human/Animal Relationships:
Biological and Philosophical Issues

F&W ECOL 375 Special Topics (Freshwater
Conservation)

F&W ECOL 395 Data and GIS Tools for Ecology

F&W ECOL 561 Wildlife Management Techniques

F&W ECOL/
LAND ARC/
ZOOLOGY 565 Principles of Landscape Ecology

F&W ECOL 699 Special Problems

GENETICS 466 Principles of Genetics

GENETICS 467 General Genetics 1

GENETICS 527 Developmental Genetics for
Conservation and Regeneration

GEOG/
GEOSCI 420 Glacial and Pleistocene Geology

LAND ARC 211 Shaping the Built Environment

MICROBIO 101 General Microbiology

MICROBIO 102 General Microbiology Laboratory

PL PATH 300 Introduction to Plant Pathology

PL PATH 315 Plant Microbiomes

PLANTSCI 376 Tropical Horticultural Systems

SOIL SCI 301 General Soil Science

ZOOLOGY 405 Introduction to Museum Studies in
the Natural Sciences

RESIDENCE AND QUALITY OF WORK

- 2.000 GPA in all major courses
- 2.000 GPA on 15 upper-level major credits, taken in residence ²
- 15 credits in the major, taken on the UW-Madison campus

HONORS IN THE MAJOR

Students may declare Honors in the Conservation Biology Major in consultation with the Conservation Biology undergraduate advisor.

HONORS IN THE CONSERVATION BIOLOGY MAJOR REQUIREMENTS

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

- Earn a 3.300 overall university GPA
- Complete at least 16 credits, taken for Honors, with a grade of B or better, in the conservation biology major, to include a two-semester Senior Honors Thesis in an appropriate department ³

FOOTNOTES

- ¹ Students may NOT apply both ZOOLOGY 425 Behavioral Ecology and PSYCH 449 Animal Behavior in the conservation biology program.
- ² Courses in the major numbered 300 through 699 are considered upper level.
- ³ Examples include Botany, Zoology, Environmental Studies; see the Conservation Biology advisor to verify that your thesis department will be acceptable.

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. Explain the basic concepts of ecology and evolution and how they underpin and apply to the science of conservation biology.
2. Understand and explain the scientific process as related to conservation biology, including the relevance of theories and how hypotheses are tested.
3. Recognize species within some particular group of organisms and explain key aspects of their ecology, phylogeny, and conservation needs.
4. Apply general ecological principles to assess and address conservation threats to particular species, communities, and ecosystems.

- Investigate and communicate the connections between the biological and social sciences and humanities as they affect conservation programs and activities.
- Identify, interpret, and communicate conservation ideas, needs and programs to others.

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.

The Conservation Biology road map is a tool to assist you and your advisor in planning your academic career. Use it along with your DARS report and the Course Guide/Schedule of Classes. Your specific program of study could, and probably will, look different. You should customize the road map to fit your unique path at UW–Madison. Consult with your advisor about the best path for you.

Freshman

Fall	Credits Spring	Credits
Communication A ¹	3 I/A COMP SCI or MATH (if required for the BS)	3-5
Quantitative Reasoning A	3-5 Ethnic Studies ²	3
Foreign Language (if needed)	3-4 Social Science Breadth	3
CHEM 103	4 Elective	3
	16	14

Sophomore

Fall	Credits Spring	Credits
ZOOLOGY/ BIOLOGY 101 & ZOOLOGY/ BIOLOGY 102 ³	5 BOTANY/BIOLOGY 130	5
INTER-LS 210 ⁴	1 Communication B	3
STAT 301, 371, or 240	3-4 Physical Environment	3-5
Humanities Breadth	3 Social Science Elective in the Major	3-4
Elective	3	
	15	15

Junior

Fall	Credits Spring	Credits
Ecology and Evolution	3-4 Species & Field Biology	3
Species & Field Biology	3 Humanities Breadth	3-4
Humanities Breadth	3-4 Social Science Breadth	3-4
Elective	3-4 Elective	3-4
	15	15

Senior

Fall	Credits Spring	Credits
Ecology and Evolution	3-4 Species & Field Biology	3
Species & Field Biology	3 Elective credit in the major (if needed for 50 credits)	3-4
Humanities Breadth	3-4 Social Science Breadth	3-4
BOTANY/ENVIR ST/ F&W ECOL/ ZOOLOGY 516	3 Elective	4-5
	14	16

Total Credits 120

- While most incoming freshman are required to complete coursework to fulfill the Communication A requirement, students may be exempted by approved college coursework while in high school, AP test scores, or placement testing. Students are expected to satisfy this requirement by the end of their first year of undergraduate study.
- Students are expected to complete the Ethnic Studies requirement within the first 60 credits of undergraduate study.
- There are three options for Introductory Biology -- please consult the Requirements page of this Guide for more information. The Communication B requirement can be fulfilled by completion of ZOOLOGY/BIOLOGY/BOTANY 152 or BIOCORE 381, BIOCORE 382, or BIOCORE 384 if you choose to take those courses for Introductory Biology.
- INTER-LS 210 L&S Career Development: Taking Initiative is recommended, but not required for students pursuing the Conservation Biology major.

ADVISING AND CAREERS

ADVISING AND CAREERS DECLARE OR CANCEL THE MAJOR

Please follow the process described on the Conservation Biology website (<https://conservationbiology.ls.wisc.edu/requirements/>).

Conservation Biology majors are assigned a professional academic advisor to provide assistance with major declarations, course selection, registration, DARS, L&S degree and major requirements, and tracking progress toward graduation, as well as connecting students with important resources on campus. Because the major is so broad and involves so much choice, it is important for students to meet early and regularly with their academic advisor.

Students contemplating graduate work in a biological discipline are advised to take the following:

Code	Title	Credits
BIOLOGY/ BOTANY/ ZOOLOGY 151	Introductory Biology	
BIOLOGY/ BOTANY/ ZOOLOGY 152	Introductory Biology	
ANTHRO/ BOTANY/ ZOOLOGY 410	Evolutionary Biology	

BOTANY/
F&W ECOL/
ZOOLOGY 460

General Ecology

Although not required for the major, such students are also encouraged to consider the following classes:

Code	Title	Credits
CHEM 104	General Chemistry II	
GENETICS 466	Principles of Genetics	
PHYSICS 103	General Physics	
PHYSICS 104	General Physics	
MATH 221	Calculus and Analytic Geometry I	

INTERNSHIP/FIELD EXPERIENCE

Students in the Conservation Biology major are encouraged to take field courses when possible (including suitable study abroad and field-based programs) and to gain additional experience via research, jobs, and internships. Students who wish to obtain academic credit for internships can consider INTER-LS 260 Internship in the Liberal Arts and Sciences or arrange in advance to set up a Directed Study for research or internships with faculty to propose as elective credit in the major. Students pursuing funding for their experiences can refer to the SuccessWorks Internship Fund (<https://successworks.wisc.edu/ls-finding-an-internship/money-for-your-internship/>), study abroad resources for funding your experience (<https://studyabroad.wisc.edu/funding/>), and advising with the Office of Student Financial Aid (<https://financialaid.wisc.edu/>).

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

RESOURCES AND SCHOLARSHIPS

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Find scholarship and funding information on the Conservation Biology website (<https://conservationbiology.ls.wisc.edu/scholarships/>).

ROLAND H & MAUDE M. BECKER SCHOLARSHIP

Established by Barbara B. Glass in 1988 in memory of her parents, the Roland & Maude Becker Scholarship provides financial assistance to students with a major in conservation biology. The scholarship is a one-time award to help support a conservation experience related to the major. A conservation experience may include an undergraduate research experience, internship experience, study abroad program, etc. Awards will be in the amount of \$500 and up to two awards will be awarded per academic year.

SUCCESSWORKS INTERNSHIP FUND

This scholarship (<https://successworks.wisc.edu/ls-finding-an-internship/money-for-your-internship/>) provides amounts ranging from \$2,000 to \$5,000 each to help students take advantage of and enable them to participate in a first time internship opportunity that is unpaid or provides a limited stipend.

HILLDALE UNDERGRADUATE/FACULTY RESEARCH FELLOWSHIP

The Hilldale Undergraduate/Faculty Research Fellowships (<https://awards.advising.wisc.edu/all-scholarships/hilldale-undergraduatefaculty-research-fellowship/>) support undergraduate research done in collaboration with UW–Madison faculty or research/instructional academic staff. Approximately 100 Hilldale awards are available each year. The student researcher receives \$3,000, and the faculty/staff research advisor receives \$1,000 to help offset research costs (e.g., supplies, faculty or student travel related to the project).

HOLSTROM ENVIRONMENTAL RESEARCH FELLOWSHIP

The Holstrom Environmental Research Fellowship (<https://awards.advising.wisc.edu/all-scholarships/holstrom-environmental-research-fellowship/>) supports undergraduate research done in collaboration with UW–Madison faculty or research/instructional academic staff. Research proposals must have an environmental focus, and applicants must have at least a junior standing at the time of application. Apply spring semester to fund work on the project during the summer or the following academic year.

UNDERGRADUATE SYMPOSIUM

The annual Undergraduate Symposium (<https://ugradsymposium.wisc.edu/>) showcases undergraduate creativity, achievement, research, service-learning and community-based research from all areas of study at UW–Madison including the humanities, fine arts, biological sciences, physical sciences, and social sciences. Hundreds of students present, display, or perform their work for members of the university, the surrounding community, family, and friends.

WISCONSIN IDEA FELLOWSHIPS

Wisconsin Idea Fellowships (<https://morgridge.wisc.edu/get-connected-students/wisconsin-undergraduate-idea-fellowships/>) are awarded annually to undergraduate student projects working toward solving a challenge identified along with local or global community partners. Fellowships are awarded to semester-long or year-long projects designed by an undergraduate student (or group of students) in collaboration with a community organization and a UW–Madison faculty or academic staff member.