

# CONSERVATION BIOLOGY (B.S.)

It has never been more important to generate robust, unbiased information about the state of the biosphere. We face a biodiversity crisis, a "Sixth Extinction Event", but this crisis creates endless opportunities for scientists, policy makers, and other conservation professionals to make a real impact in maintaining the tapestry of our Earth's living heritage. To achieve this goal, we'll need professionals who can understand ecological principles, who can analyze and interpret ecological conditions, and who can predict the consequences of alternative natural resource management decisions. Understanding the importance of social values and policy for the management of rare, threatened, and endangered species and their habitat is necessary to reverse their decline.

In the Conservation Biology major, students learn to apply biological, ecological, social, and political tools towards integrated problem solving. As a discipline, Conservation Biology spans the components, patterns, and processes of biodiversity, from understanding the consequences of genetic inbreeding in isolated populations to evaluating the consequences of changing wildfire regimes at a global scale.

In this major, students will examine topics from molecular to landscape scales and integrate the social and biophysical worlds. Graduates will be equipped to address the issues and problems of sustainable resource use, conservation of rare, threatened, or endangered biota, management of ecosystems, and long-term conservation of biological diversity. This program is flexible enough to adapt to the interests of individual students, while remaining firmly grounded in ecological principles applicable to species, populations, communities, landscapes, and ecosystems.

Graduates with a Conservation Biology major often continue advanced studies at national and international universities. In fact, the program is broadly viewed as exceptional preparation for graduate school. At the same time, this natural resources, liberal science degree can also serve as pre-professional training for law school, or for professional positions in federal, state, and private environmental organizations including local and regional planning groups and consulting firms.

The program requires 120 credits. Students pursuing a B.S.Cons.Biol. must receive a grade of 'C' or better in each of the following 4 indicator courses to register in upper division courses in NRS/FISH/FOR/REM/WLF: BIOL 114, BIOL 213, FOR 221 or WLF 220, NR 321, and STAT 251.

Students must achieve a 'C' or better to graduate in the following seven core courses: BIOL 421, NR 200, PHIL 452, REM 429, WLF 440, and WLF 448.

Before students are allowed to begin their senior thesis or project (NRS 485 or NRS 497), they must attend two thesis/project sessions and one senior poster presentation.

Required course work includes the university requirements (see regulation J-3 (<https://catalog.uidaho.edu/general-requirements-academic-procedures/j-general-requirements-baccalaureate-degrees/#j3>)) and:

Code	Title	Hours
BIOL 114	Organisms and Environments	4
BIOL 115	Cells and the Evolution of Life	3

BIOL 115L	Cells and the Evolution of Life Laboratory	1
BIOL 213	Structure and Function Across the Tree of Life	4
BIOL 310	Genetics	3
or GENE 314	General Genetics	
BIOL 421	Advanced Evolution/Population Dynamics	3
COMM 101	Fundamentals of Oral Communication	3
ECON 202	Principles of Microeconomics	3-4
or ECON 272	Foundations of Economic Analysis	
ENGL 317	Technical Writing	3
or WLF 370	Management and Communication of Scientific Data	
or JAMM 328	Science Writing	
FOR 220	Forest Biology & Dendrology	3
or REM 341	Systematic Botany	
FOR 235	Society and Natural Resources	3
FOR 375	Fundamentals of Geomatics	3
MATH 160	Survey of Calculus	4
or MATH 170	Calculus I	
NR 101	Exploring Natural Resources	2
NR 200	Seminar	1-16
NR 300	Ecology and Conservation Biology Thesis Seminar	1
NRS 383	Natural Resource and Ecosystem Service Economics	3
PHIL 452	Environmental Philosophy	3
REM 429	Landscape Ecology	3
STAT 251	Statistical Methods	3
WLF 440	Conservation Biology	3
WLF 448	Fish and Wildlife Population Ecology	4
Select one of the following:		3-4
BIOL 314	Ecology and Population Biology	
FOR 221/ WLF 220	Principles of Ecology	
NR 321	Ecology	
Select one of the following:		4
CHEM 101 & 101L	Introduction to Chemistry and Introduction to Chemistry Laboratory	
CHEM 111 & 111L	General Chemistry I and General Chemistry I Laboratory	
Select one of the following:		1
FISH 473	ECB Senior Presentation	
FOR 473	ECB Senior Presentation	
FSP 473	Ecology and Conservation Biology Senior Thesis	
NRS 473	ECB Senior Presentation	
REM 473	ECB Senior Presentation	
WLF 473	ECB Senior Presentation	
Select one of the following:		3
FISH 497	Senior Thesis (Max 6 credits)	
FOR 497	Senior Thesis (Max 6 credits)	
NR 497	Senior Thesis (Max 3 credits)	
REM 497	Senior Research and Thesis	
WLF 497	Senior Thesis (Max 6 credits)	
Select one Quantitative Resource Analysis Restricted elective from the following:		2-4
ANTH 417	Social Data Analysis	

FOR 472	Remote Sensing of the Environment	
GEOG 385	Foundations of GIS	
NRS 310	Social Science Methods	
REM 410	Principles of Vegetation Monitoring and Measurement <sup>1</sup>	
REM 411	Wildland Habitat Ecology and Assessment <sup>1</sup>	
STAT 422	Survey Sampling Methods	
STAT 431	Statistical Analysis	
Select one Resource Management Restricted elective from the following:		3-4
FISH 418	Fisheries Management	
FOR 410	Fire Effects and Management	
FOR 424	Silviculture Principles and Practices	
FOR 462	Watershed Science and Management	
NRS 386	Managing Complex Environmental Systems	
NRS 476	Environmental Project Management and Decision Making	
NRS 490	Wilderness and Protected Area Management	
PLSC 419	Plant Community Restoration Methods	
REM 480	Ecological Restoration	
REM 456	Integrated Rangeland Management	
WLF 492	Wildlife Management	
Select 6 credits of Ecology Restricted electives from the following: <sup>2</sup>		6
BIOL 478	Animal Behavior	
ENT 469	Introduction to Forest Insects	
FISH 314	Fish Ecology	
FISH 315	Fish Ecology Field Techniques and Methods	
FISH 415	Limnology	
FISH 430	Riparian and River Ecology	
FISH 450	Ecology & Conservation of Freshwater Invertebrates	
FISH 451	Freshwater Invertebrate Field Methods	
FOR 330	Terrestrial Ecosystem Ecology	
FOR 326	Fire Ecology	
FOR 462	Watershed Science and Management	
GEOG 410	Biogeography	
GEOG 430	Climate Change Ecology	
PLSC 410	Invasive Plant Biology	
REM 440	Restoration Ecology	
REM 459	Rangeland Ecology	
REM 460	Integrated Field Studies in Rangelands	
WLF 314	Ecology of Terrestrial Vertebrates	
WLF 315	Techniques Laboratory	
Select one Organismal Biology Restricted elective from the following:		3-4
BIOL 483	Mammalogy	
BIOL 489	Herpetology	
FISH 481	Ichthyology	
WLF 482	Ornithology	
Select two Social/Political Restricted electives from the following:		4-6
AIST 344	Indigenous Ways of Knowing	
SOC 465	Environmental Justice	
COMM 410	Conflict Management	
ENVS 225	International Environmental Issues Seminar	

FOR 310	Indigenous Culture and Ecology	
ENVS 436	Principles of Sustainability	
FOR 484	Forest Policy and Administration	
GEOG 420	Land, Resources, and Environment	
HIST 424	American Environmental History	
IS 322	International Environmental Governance	
NRS 386	Managing Complex Environmental Systems	
NRS 387	Environmental Communication Skills	
NRS 462	Natural Resource Policy	
NRS 311	Public Involvement in Natural Resource Management	
POLS 364	Politics of the Environment	

**Total Hours** **92-115**

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Both REM 410 ([https://catalog.uidaho.edu/search/?P=REM %20410](https://catalog.uidaho.edu/search/?P=REM%20410)) and REM 411 ([https://catalog.uidaho.edu/search/?P=REM %20411](https://catalog.uidaho.edu/search/?P=REM%20411)) must be completed to satisfy Quantitative Resource Analysis Restricted Elective requirement.

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At least 2 credits from FISH 315, FISH 415, FISH 430, FISH 451, REM 460, and/or WLF 315.

### Courses to total 120 credits for this degree

Fall Term 1		Hours
BIOL 114	Organisms and Environments	4
ENGL 101	Writing and Rhetoric I	3
MATH 143	College Algebra	3
NR 101	Exploring Natural Resources	2
Elective Course		1
<b>Hours</b>		<b>13</b>
Spring Term 1		Hours
COMM 101	Fundamentals of Oral Communication	3
ENGL 102	Writing and Rhetoric II	3
NR 200	Seminar	1
MATH 160 OR MATH 170		4
(CHEM 101 AND CHEM 101L) OR (CHEM 111 AND CHEM 111L)		4
<b>Hours</b>		<b>15</b>
Fall Term 2		Hours
BIOL 115	Cells and the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
FOR 235	Society and Natural Resources	3
STAT 251	Statistical Methods	3
Humanistic and Artistic Ways of Knowing Course		3
ECON 202 OR ECON 272		3
<b>Hours</b>		<b>16</b>
Spring Term 2		Hours
BIOL 213	Structure and Function Across the Tree of Life	4
FOR 375	Fundamentals of Geomatics	3
NR 300	Ecology and Conservation Biology Thesis Seminar	1
BIOL 314 OR FOR 221 OR NR 321 OR REM 221 OR WLF 220		3
BIOL 310 OR GENE 314		3
<b>Hours</b>		<b>14</b>
Fall Term 3		Hours
PHIL 452	Environmental Philosophy	3
WLF 440	Conservation Biology	3
ENGL 317 OR WLF 370		3
FOR 220 OR REM 341		3

FOR 472 OR GEOG 385 OR NRS 310 OR REM 410 OR REM 411 OR STAT 422 OR STAT 431	3
<b>Hours</b>	<b>15</b>
<b>Spring Term 3</b>	
BIOL 421      Advanced Evolution/Population Dynamics	3
NRS 383      Natural Resource and Ecosystem Service Economics	3
WLF 448      Fish and Wildlife Population Ecology	4
BIOL 478 OR ENT 469 OR FISH 314 OR FISH 315 OR FISH 415 OR FISH 430 OR FOR 326 OR FOR 330 OR FOR 468 OR GEOG 410 OR PLSC 410 OR REM 440 OR REM 459 OR REM 460 OR WLF 314 OR WLF 315	3
COMM 410 OR ENVS 225 OR FOR 484 OR GEOG 420 OR HIST 424 OR NRS 311 OR NRS 386 OR NRS 387 OR NRS 462 OR POLS 364	3
<b>Hours</b>	<b>16</b>
<b>Fall Term 4</b>	
American Diversity Course	3
International Course	3
FISH 497 OR FOR 497 OR NR 497 OR REM 497 OR WLF 497	3
FISH 418 OR FOR 424 OR FOR 462 OR NRS 386 OR NRS 490 OR NRS 496 OR REM 456 OR WLF 492	3
BIOL 483 OR BIOL 489 OR FISH 481 OR WLF 482	3
<b>Hours</b>	<b>15</b>
<b>Spring Term 4</b>	
REM 429      Landscape Ecology	3
Humanistic and Artistic Ways of Knowing Course	3
Elective Course	3
FISH 473 OR FOR 473 OR NRS 473 OR REM 473 OR RMAT 473 OR WLF 473	1
BIOL 478 OR ENT 469 OR FISH 314 OR FISH 315 OR FISH 415 OR FISH 430 OR FOR 326 OR FOR 330 OR FOR 468 OR GEOG 410 OR PLSC 410 OR REM 440 OR REM 459 OR REM 460 OR WLF 314 OR WLF 315	3
COMM 410 OR ENVS 225 OR FOR 484 OR GEOG 420 OR HIST 424 OR NRS 311 OR NRS 386 OR NRS 387 OR NRS 462 OR POLS 364	3
<b>Hours</b>	<b>16</b>
<b>Total Hours</b>	<b>120</b>

The degree map is a guide for the timely completion of your curricular requirements. Your academic advisor or department may be contacted for assistance in interpreting this map. This map is not reflective of your academic history or transcript and it is not official notification of completion of degree or certificate requirements. Please contact the Registrar's Office regarding your official degree/certificate completion status.

## Conservation Biology

**1. Articulate disciplinary Identity:** Students will convey an accurate and nuanced understanding of the unique history and character of the discipline of Conservation Biology and its distinctiveness from related disciplines, as well as their own personal rationale for matriculating within the discipline.

### **2. Understand principles and theories:**

**a.** Students will accurately articulate key principles concerning the ecology of species, populations, communities, ecosystems, and landscapes.

**b.** Students will demonstrate an understanding of the interconnection between ecological systems and basic aspects of human ecology (as defined by economics, social sciences, and other related fields).

### **3. Locate, organize, analyze, and critically evaluate information.**

**a.** Students will demonstrate the ability to locate pertinent ecological, social, economic and political information.

**b.** Students will organize, analyze, and critically evaluate information using professional, discipline-appropriate standards

### **4. Effectively communicate ideas and technical knowledge:**

Students will effectively utilize diverse forms of communication (written oral, visual) to convey information to scientific and nonscientific audiences in formal and professional formats.

### **5. Work collaboratively**

Students will practice effective team management and participatory skills (in disciplinary and interdisciplinary team settings) to evaluate complex situations and formulate solutions to basic problems

### **6. Practice ethical behavior**

Students will adhere to professional standards of ethics when using or synthesizing knowledge, doing research, employing field practices, engaging in conservation management, and when working with stakeholders.