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 physical worlds. Graduates will be equipped to address the issues and problems of sustainable 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 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:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOL 114</td>
<td>Organisms and Environments</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 115</td>
<td>Cells and the Evolution of Life</td>
<td>3</td>
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<tr>
<td>BIOL 115L</td>
<td>Cells and the Evolution of Life Laboratory</td>
<td>1</td>
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<tr>
<td>BIOL 213</td>
<td>Structure and Function Across the Tree of Life</td>
<td>4</td>
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<tr>
<td>BIOL 310</td>
<td>Genetics</td>
<td>3</td>
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<tr>
<td>or GENE 314</td>
<td>General Genetics</td>
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<tr>
<td>BIOL 421</td>
<td>Advanced Evolution/Population Dynamics</td>
<td>3</td>
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<tr>
<td>COMM 101</td>
<td>Fundamentals of Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Principles of Microeconomics</td>
<td>3-4</td>
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<tr>
<td>or ECON 272</td>
<td>Foundations of Economic Analysis</td>
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<tr>
<td>ENGL 317</td>
<td>Technical Writing</td>
<td>3</td>
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<tr>
<td>or WLF 370</td>
<td>Management and Communication of Scientific Data</td>
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<tr>
<td>or JAMM 328</td>
<td>Science Writing</td>
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<tr>
<td>FOR 220</td>
<td>Forest Biology &amp; Dendrology</td>
<td>3</td>
</tr>
<tr>
<td>or REM 341</td>
<td>Systematic Botany</td>
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<tr>
<td>FOR 235</td>
<td>Society and Natural Resources</td>
<td>3</td>
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<tr>
<td>FOR 375</td>
<td>Fundamentals of Geomatics</td>
<td>3</td>
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<tr>
<td>MATH 160</td>
<td>Survey of Calculus</td>
<td>4</td>
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<tr>
<td>or MATH 170</td>
<td>Calculus I</td>
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<tr>
<td>NR 101</td>
<td>Exploring Natural Resources</td>
<td>2</td>
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<tr>
<td>NR 200</td>
<td>Seminar</td>
<td>1-16</td>
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<tr>
<td>NR 300</td>
<td>Ecology and Conservation Biology Thesis Seminar</td>
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<tr>
<td>NRS 383</td>
<td>Natural Resource and Ecosystem Service Economics</td>
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<td>PHIL 452</td>
<td>Environmental Philosophy</td>
<td>3</td>
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<td>REM 429</td>
<td>Landscape Ecology</td>
<td>3</td>
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<tr>
<td>STAT 251</td>
<td>Statistical Methods</td>
<td>3</td>
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<td>WLF 440</td>
<td>Conservation Biology</td>
<td>3</td>
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<td>WLF 448</td>
<td>Fish and Wildlife Population Ecology</td>
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<td>Select one of the following:</td>
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<td>BIOL 314</td>
<td>Ecology and Population Biology</td>
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<td>FOR 221/ WLF 220</td>
<td>Principles of Ecology</td>
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<td>NR 321</td>
<td>Ecology</td>
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<td>Select one of the following:</td>
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<tr>
<td>CHEM 101</td>
<td>Introduction to Chemistry and Introduction to Chemistry Laboratory</td>
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<tr>
<td>CHEM 111</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
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<td>Select one of the following:</td>
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<tr>
<td>FISH 473</td>
<td>ECB Senior Presentation</td>
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<tr>
<td>FOR 473</td>
<td>ECB Senior Presentation</td>
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<tr>
<td>FSP 473</td>
<td>Ecology and Conservation Biology Senior Thesis</td>
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<tr>
<td>NRS 473</td>
<td>ECB Senior Presentation</td>
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<td>REM 473</td>
<td>ECB Senior Presentation</td>
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<tr>
<td>WLF 473</td>
<td>ECB Senior Presentation</td>
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<td>Select one of the following:</td>
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<tr>
<td>FISH 497</td>
<td>Senior Thesis (Max 6 credits)</td>
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<tr>
<td>FOR 497</td>
<td>Senior Thesis (Max 6 credits)</td>
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<tr>
<td>NR 497</td>
<td>Senior Thesis (Max 3 credits)</td>
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<tr>
<td>REM 497</td>
<td>Senior Research and Thesis</td>
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<tr>
<td>WLF 497</td>
<td>Senior Thesis (Max 6 credits)</td>
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Select one Quantitative Resource Analysis Restricted elective from the following:

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<td>ANTH 417</td>
<td>Social Data Analysis</td>
<td>2</td>
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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:
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 1
REM 411 Wildland Habitat Ecology and Assessment 1
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: 2 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 450 Riparian and River Ecology
FISH 451 Ecology & Conservation of Freshwater Invertebrates
FISH 453 Freshwater Invertebrate Field Methods
FOR 330 Terrestrial Ecosystem Ecology
FOR 326 Fire Ecology
FOR 462 Watershed Science and Management

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 3
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 95-118

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

2 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
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 2

Hours 14

Spring Term 1
COMM 101 Fundamentals of Oral Communication 2
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

Hours 14

Fall Term 2
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
EDCN 202 OR ECON 272 3

Hours 16

Spring Term 2
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

Hours 14

Fall Term 3
PHIL 452 Environmental Philosophy 3
WLF 440 Conservation Biology 3
ENGL 317 OR WLF 370 3
FOR 220 OR REM 341 3

Hours 14
## Conservation Biology (B.S.)

### Fall Term 1
- **American Diversity Course**
- **International Course**
- **FISH 497 OR FOR 497 OR NR 497 OR REM 497 OR WLF 497**
- **FISH 418 OR FOR 424 OR FOR 462 OR NRS 386 OR NRS 490 OR NRS 496 OR REM 456 OR WLF 492**
- **BIOL 483 OR BIOL 489 OR FISH 481 OR WLF 482**

### Hours 15

### Spring Term 1
- **FOR 472 OR GEOG 385 OR NRS 310 OR REM 410 OR REM 411 OR STAT 422 OR STAT 431**

### Hours 3

### Fall Term 2
- **BIOL 421** - Advanced Evolution/Population Dynamics
- **NRS 383** - Natural Resource and Ecosystem Service Economics
- **WLF 448** - Fish and Wildlife Population Ecology
- **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**
- **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**

### Hours 2

### Spring Term 2
- **REM 429** - Landscape Ecology
- **Humanistic and Artistic Ways of Knowing Course**
- **Elective Course**
- **FISH 473 OR FOR 473 OR NRS 473 OR REM 473 OR RMAT 473 OR WLF 473**
- **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**
- **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**

### Hours 1

### Total Hours 120

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:**
   - Students will accurately articulate key principles concerning the ecology of species, populations, communities, ecosystems, and landscapes.
   - 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:**
   - Students will demonstrate the ability to locate pertinent ecological, social, economic and political information.

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.