ENVIRONMENTAL SCIENCE (B.S. ENV.S.)

Required course work includes the university requirements (see regulation J-3 [https://catalog.uidaho.edu/general-requirements-academic-procedures/j-general-requirements-baccalaureate-degrees]), the general requirements for the B.S. degree, and:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 114</td>
<td>Organisms and Environments</td>
<td>4</td>
</tr>
<tr>
<td>COMM 101 or COMM 233</td>
<td>Fundamentals of Oral Communication (OR one semester of a foreign language course)</td>
<td>2-4</td>
</tr>
<tr>
<td>ENVS 101</td>
<td>Introduction to Environmental Science</td>
<td>3</td>
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<tr>
<td>ENVS 102</td>
<td>Field Activities in Environmental Sciences</td>
<td>1</td>
</tr>
<tr>
<td>ENVS 225</td>
<td>International Environmental Issues Seminar</td>
<td>3</td>
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<tr>
<td>ENVS 400</td>
<td>Seminar</td>
<td>1-16</td>
</tr>
<tr>
<td>ENVS 497</td>
<td>Senior Research</td>
<td>2-4</td>
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<tr>
<td>ENGL 316 or ENGL 317 or ENGL 318</td>
<td>Environmental Writing</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 452</td>
<td>Environmental Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>STAT 251 or STAT 301</td>
<td>Statistical Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose one sequence from the following:

- **Ecology - one course from the following:**
  - BIOL 100 & 100L | Physical Geography and Physical Geography Lab | 3
  - GEOL 101 & 101L | Physical Geology and Physical Geology Lab | 3
  - GEOL 111 & 111L | Physical Geology for Science Majors and Physical Geology for Science Majors Lab | 3
  - SOIL 205 & SOIL 206 | The Soil Ecosystem and The Soil Ecosystem Lab | 3

- **Environmental Policy and Regulations - select one course from the following:**
  - AIST 314 | Tribal Sovereignty and Federal Policy | 3
  - AIST 421 | Native American Natural Resource Law | 3
  - ENVS 479 | Introduction to Environmental Regulations | 3
  - ENVS 577 | Law, Ethics and the Environment | 3
  - IS 322 | International Environmental Organizations | 3
  - NRS 311 | Public Involvement in Natural Resource Management | 3
  - NRS/POLS 364 | Politics of the Environment | 3
  - NRS/POLS 462 | Natural Resource Policy | 3

- **Human Dimensions - one course from the following:**
  - AGEC 451 | Applied Environmental and Natural Resource Economics | 3
  - ANTH 344 | Indigenous Ways of Knowing | 3
  - HIST/SOC 465 | Environment, Policy, and Justice | 3
  - ECON 424 | American Environmental History | 3
  - ECON 272 | Foundations of Economic Analysis | 3
  - GEOG 345 | Global Economic Geography | 3
  - NRS/FOR 235 | Society and Natural Resources | 3
  - NRS 383 | Natural Resource and Ecosystem Service Economics | 3
  - SOC 350 | Food, Culture, and Society | 3
  - Water - one course from the following: | 3-4
    - ASM 315 | Irrigation Systems and Water Management | 3
    - BE 453 | Northwest Climate and Water Resources Change | 3
    - ENVS/SOIL 450 | Environmental Hydrology | 3
    - ENVS 446 | Drinking Water and Human Health | 3
    - FISH 415 | Limnology | 3
    - FOR 462 | Watershed Science and Management | 3
    - GEOL 309 | Ground Water Hydrology | 3
  - Sustainability and Integration - one course from the following: | 3
    - ENVS 415 | Environmental Lifecycle Assessment | 3
    - ENVS 428 | Pollution Prevention | 3
    - ENVS 484 | History of Energy | 3
    - ENVS 485 | Energy Efficiency and Conservation | 3
    - FS 436 | Principles of Sustainability | 3
    - GEOG 435 | Climate Change Mitigation | 3
    - ENVS 386 | Social-Ecological Systems | 3
    - NRS/POLS 375 | Remote Sensing of the Environment | 3
    - NRS/POLS 472 | Remote Sensing/GIS Integration | 3
    - REM 456 | Integrated Rangeland Management | 3

- **Technical - three courses from the following:**
  - BIOL 115 & 115L | Cells & the Evolution of Life and Cells and the Evolution of Life Laboratory | 3
  - BIOL 250 | General Microbiology | 3
  - BIOL 483 | Mammalogy | 3
  - BIOL 489 | Herpetology | 3
  - CHEM 253 & 254 | Quantitative Analysis and Quantitative Analysis: Lab | 3
  - CHEM 275 | Carbon Compounds | 3
  - CHEM 277 | Organic Chemistry I | 3
  - ENVS 498 | Internship | 3
  - FOR/NRS 375 | Introduction to Spatial Analysis for Natural Resource Management | 3
  - FOR/NRS 472 | Remote Sensing of the Environment | 3
  - GEOG 301 | Meteorology | 3
  - GEOG 313 | Global Climate Change | 3
  - GEOG 401 | Climatology | 3
  - GEOG 483 | Remote Sensing/GIS Integration | 3
  - GEOG 465 | Geology and the Environment | 3
  - MATH 175 | Calculus II | 3
  - PHYS 111 & 111L | General Physics I and General Physics I Lab | 3

- **Technical - three courses from the following:**
  - AGEC 451 | Applied Environmental and Natural Resource Economics | 3
  - ANTH 344 | Indigenous Ways of Knowing | 3
  - HIST/SOC 465 | Environment, Policy, and Justice | 3
  - ECON 424 | American Environmental History | 3
  - ECON 272 | Foundations of Economic Analysis | 3
  - GEOG 345 | Global Economic Geography | 3
  - NRS/FOR 235 | Society and Natural Resources | 3
  - NRS 383 | Natural Resource and Ecosystem Service Economics | 3
  - SOC 350 | Food, Culture, and Society | 3
  - Water - one course from the following: | 3-4
    - ASM 315 | Irrigation Systems and Water Management | 3
    - BE 453 | Northwest Climate and Water Resources Change | 3
    - ENVS/SOIL 450 | Environmental Hydrology | 3
    - ENVS 446 | Drinking Water and Human Health | 3
    - FISH 415 | Limnology | 3
    - FOR 462 | Watershed Science and Management | 3
    - GEOL 309 | Ground Water Hydrology | 3
  - Sustainability and Integration - one course from the following: | 3
    - ENVS 415 | Environmental Lifecycle Assessment | 3
    - ENVS 428 | Pollution Prevention | 3
    - ENVS 484 | History of Energy | 3
    - ENVS 485 | Energy Efficiency and Conservation | 3
    - FS 436 | Principles of Sustainability | 3
    - GEOG 435 | Climate Change Mitigation | 3
    - ENVS 386 | Social-Ecological Systems | 3
    - NRS/POLS 375 | Remote Sensing of the Environment | 3
    - NRS/POLS 472 | Remote Sensing/GIS Integration | 3
    - REM 456 | Integrated Rangeland Management | 3

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  - BIOL 115 & 115L | Cells & the Evolution of Life and Cells and the Evolution of Life Laboratory | 3
  - BIOL 250 | General Microbiology | 3
  - BIOL 483 | Mammalogy | 3
  - BIOL 489 | Herpetology | 3
  - CHEM 253 & 254 | Quantitative Analysis and Quantitative Analysis: Lab | 3
  - CHEM 275 | Carbon Compounds | 3
  - CHEM 277 | Organic Chemistry I | 3
  - ENVS 498 | Internship | 3
  - FOR/NRS 375 | Introduction to Spatial Analysis for Natural Resource Management | 3
  - FOR/NRS 472 | Remote Sensing of the Environment | 3
  - GEOG 301 | Meteorology | 3
  - GEOG 313 | Global Climate Change | 3
  - GEOG 401 | Climatology | 3
  - GEOG 483 | Remote Sensing/GIS Integration | 3
  - GEOG 465 | Geology and the Environment | 3
  - MATH 175 | Calculus II | 3
  - PHYS 111 & 111L | General Physics I and General Physics I Lab | 3
PHYS 112 General Physics II
& 112L and General Physics II Lab
PHYS 211 Engineering Physics I
& 211L and Laboratory Physics I
PHYS 212 Engineering Physics II
& 212L and Laboratory Physics II
SOIL 205 The Soil Ecosystem
WLF 482 Ornithology
*for Phys. 2 Science Option only:
ENVS 428 Pollution Prevention
ENVS 429 Environmental Audit
GEOL 375 Geology of National Parks
REM 407 GIS Application in Fire Ecology and Management
REM 459 Rangeland Ecology

Options
Select one of the following options: 20-62
Biological Science (p. 2)
Physical Science (p. 2)
Physical Science 2 (p. 3)
Social Science (p. 3)
Biophysical Science (p. 4)

Total Hours 67-139

A. Biological Science Option
This option is suitable for students wishing to pursue technically oriented careers in environmental professions such as natural resource management, bioremediation, and environmental impact analysis.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 250</td>
<td>General Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 112L</td>
<td>General Chemistry II Laboratory</td>
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</tr>
<tr>
<td>MATH 160</td>
<td>Survey of Calculus</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 170</td>
<td>Calculus I</td>
<td></td>
</tr>
</tbody>
</table>

Select 4 electives from at least two of the following areas: 20

Plant Protection:
ENT 322 General and Applied Entomology
PLSC 338 Weed Control
PLSC 410 Invasive Plant Biology
PLP 415 Plant Pathology
SOIL 446 Soil Fertility

Animal Ecology:
WLF 314 Ecology of Terrestrial Vertebrates
WLF 315 Techniques Laboratory
WLF 440 Conservation Biology
WLF 448 Fish and Wildlife Population Ecology
Aquatic Ecology (Take all three courses):
FISH 314 Fish Ecology
FISH 415 Limnology
FISH 430 Riparian Ecology and Management

Forest and Range Systems:
FOR 330 Forest Soil and Canopy Processes
FOR 426 Global Fire Ecology and Management

REM 411 Wildland Habitat Ecology and Assessment
REM 429 Landscape Ecology
REM 440 Restoration Ecology
REM 459 Rangeland Ecology

Soils:
FS 409 Principles of Environmental Toxicology
SOIL 425 Microbial Ecology
SOIL 438 Pesticides in the Environment
SOIL 454 Pedology

Water:
ENVS 450 Environmental Hydrology
ENVS 446 Drinking Water and Human Health
FOR 462 Watershed Science and Management
GEOL 309 Ground Water Hydrology
GEOL 410 Techniques of Groundwater Study
HYDR 412 Environmental Hydrogeology

Geospatial Tools (take at least 3 of the 6 courses listed below):
FOR 472 Remote Sensing of the Environment
GEOG 385 GIS Primer
GEOG 424 Hydrologic Applications of GIS and Remote Sensing
GEOG 475 Intermediate GIS
GEOG 483 Remote Sensing/GIS Integration
LARC 495 GIS Applications in Land Planning 2

Climate Change and Ecosystems (Take all three courses):
NRS 383 Natural Resource and Ecosystem Service Economics
GEOG 313 Global Climate Change
GEOG 410 Biogeography

B. Physical Science Option
This option is suitable for students wishing to pursue technical careers in environmental professions such as air, soil, and water pollution abatement, hazardous waste management, waste minimization, and ecological restoration.

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
</table>

Select 4 electives from at least two of the following areas: 20

Water:
ENVS 446 Drinking Water and Human Health
ENVS 450 Environmental Hydrology
FOR 462 Watershed Science and Management
GEOL 309 Ground Water Hydrology
GEOL 410 Techniques of Groundwater Study
HYDR 412 Environmental Hydrogeology

Hazardous Waste:
BE 433 Bioremediation
BE 452 Environmental Water Quality
BIOL 380 Biochemistry I
Environmental Science (B.S.Env.S.)

CHEM 418  Environmental Chemistry
ENVS 479  Introduction to Environmental Regulations
FS 409  Principles of Environmental Toxicology

Geology:
GEOL 335  Geomorphology
GEOL 361  Geology and the Environment
GEOL 422  Principles of Geophysics
GEOL 423  Principles of Geochemistry

Mathematics and Statistics:
MATH 175  Calculus II
MATH 275  Calculus III
MATH 310  Ordinary Differential Equations
STAT 431  Statistical Analysis

Soils:
CHEM 418  Environmental Chemistry
SOIL 415  Soil and Environmental Physics
SOIL 422  Environmental Soil Chemistry
SOIL 454  Pedology

Economics and Management (take all three courses):
OM 378  Project Management
ECON 385  Environmental Economics
ENVS 428  Pollution Prevention

Geospatial Tools (take at least 3 of the 4 courses):
FOR 472  Remote Sensing of the Environment
GEOG 385  GIS Primer
GEOG 424  Hydrologic Applications of GIS and Remote Sensing
GEOG 475  Intermediate GIS

Climate Change and Emissions Reduction:
ENVS 485  Energy Efficiency and Conservation
GEOG 313  Global Climate Change
GEOG 401  Climatology
GEOG 435  Climate Change Mitigation

Total Hours 20

Courses to total 120 credits for this degree

C. Physical Science 2 Option
This option is only available to students in Coeur d’Alene and Idaho Falls.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS 415</td>
<td>Environmental Lifecycle Assessment</td>
<td></td>
</tr>
<tr>
<td>ENVS 428</td>
<td>Pollution Prevention</td>
<td></td>
</tr>
<tr>
<td>GEOG 385</td>
<td>GIS Primer</td>
<td></td>
</tr>
<tr>
<td>GEOG 475</td>
<td>Intermediate GIS</td>
<td></td>
</tr>
<tr>
<td>GEOG 424</td>
<td>Hydrologic Applications of GIS and Remote Sensing</td>
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<tr>
<td>INDT 364</td>
<td>Hazardous Materials</td>
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<tr>
<td>INDT 448</td>
<td>Project and Program Management</td>
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<tr>
<td>ENVS 415</td>
<td>Environmental Lifecycle Assessment</td>
<td></td>
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<tr>
<td>ENVS 428</td>
<td>Pollution Prevention</td>
<td></td>
</tr>
<tr>
<td>ENVS 436</td>
<td>Principles of Sustainability</td>
<td></td>
</tr>
<tr>
<td>ENVS 479</td>
<td>Introduction to Environmental Regulations</td>
<td></td>
</tr>
<tr>
<td>ENVS 482</td>
<td>Natural Resource Policy and Law</td>
<td></td>
</tr>
<tr>
<td>GEOG 453</td>
<td>Water and Energy Systems</td>
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</tr>
<tr>
<td>ENVS 484</td>
<td>History of Energy</td>
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<tr>
<td>ENVS 485</td>
<td>Energy Efficiency and Conservation</td>
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<tr>
<td>INDT 415</td>
<td>Impact of Technology on Society</td>
<td></td>
</tr>
<tr>
<td>INDT 434</td>
<td>Power Generation and Distribution</td>
<td></td>
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<tr>
<td>ENVS 415</td>
<td>Environmental Lifecycle Assessment</td>
<td></td>
</tr>
<tr>
<td>ENVS 428</td>
<td>Pollution Prevention</td>
<td></td>
</tr>
<tr>
<td>ENVS 436</td>
<td>Principles of Sustainability</td>
<td></td>
</tr>
<tr>
<td>FS 409</td>
<td>Principles of Environmental Toxicology</td>
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</tr>
<tr>
<td>INDT 457</td>
<td>Lean to Green Sustainable Technology</td>
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</tbody>
</table>

Total Hours 20

D. Social Science Option
This option is suitable for students wishing to pursue careers in environmental professions such as environmental regulation, land use planning, environmental administration, and as a pre-law program for environmental law.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 309</td>
<td>Rhetorical Style</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 202</td>
<td>Intro to Professional Writing</td>
<td></td>
</tr>
<tr>
<td>or PHIL 201</td>
<td>Critical Thinking</td>
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</tr>
<tr>
<td>SOC 309</td>
<td>Social Science Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>or NRS 310</td>
<td>Social Science Methods</td>
<td></td>
</tr>
<tr>
<td>MATH 143</td>
<td>College Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 5 depth electives from one of the following areas:

Policy and Law:
ENVS 479  Introduction to Environmental Regulations
PHIL 470  Philosophy of Law
POLS 364  Politics of the Environment
POLS 467  Constitutional Law
POLS 468  Civil Liberties

Administration and Planning:
ACCT 482  Enterprise Accounting
COMM 410  Conflict Management
NRS 386  Social-Ecological Systems

Total Hours 15
Courses to total 120 credits for this degree

E. Biophysical Science Option

This option is intended for students at a distance wishing to pursue technically oriented careers in environmental professions such as natural resource management, bioremediation, and environmental impact analysis. Students need to work closely with an academic advisor to plan the courses needed to fulfill degree requirements which are not available through distance delivery.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 250</td>
<td>General Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>or PHYS 111</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>ENGL 317</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>MATH 170</td>
<td>Calculus I</td>
<td>4</td>
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<tr>
<td>Select one of the following:</td>
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<td>4</td>
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<tr>
<td>GEOG 100</td>
<td>Physical Geography</td>
<td></td>
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<tr>
<td>&amp; 100L</td>
<td>Physical Geography Lab</td>
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</tr>
<tr>
<td>GEOL 101</td>
<td>Physical Geology</td>
<td></td>
</tr>
<tr>
<td>&amp; 101L</td>
<td>Physical Geology Lab</td>
<td></td>
</tr>
<tr>
<td>Select 48 credits of electives, including at least one course from each of the following areas (all are available online):</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Water and Soils:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE 452</td>
<td>Environmental Water Quality</td>
<td></td>
</tr>
<tr>
<td>ENVS 446</td>
<td>Drinking Water and Human Health</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours 62

Courses to total 120 credits for this degree.