NATURAL RESOURCES UNDERGRADUATE MAJOR (BS, HBS)

Also available at OSU-Cascades and via Ecampus.

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Terina McLachlain, Program Manager
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Oregon State University
Corvallis, OR 97331-5703
Phone: 541-207-3580
Email: naturalresources@oregonstate.edu
Website: http://nr.forestry.oregonstate.edu/

This program is an interdisciplinary offering of the colleges of Agricultural Sciences, Forestry, Liberal Arts, and Science but is administered within Forestry.

Students who graduate with a BS degree in Natural Resources from OSU should be able to integrate technical field or laboratory skills with analytical skills to solve critical natural resource problems. The curriculum is designed to help students acquire knowledge about a range of natural resource issues, work in interdisciplinary teams, and deal with social and political aspects of resource management.

Students acquire knowledge in biophysical and social sciences, math, and statistics. They will learn holistic resource management approaches that emphasize the interconnectedness of humans and the environment. In addition, students will develop a toolbox of resource management skills such as communication, collaboration, analysis, assessment, and planning. They explore conservation and management of key resources which include fish and wildlife, land and water resources, and a wide range of ecosystems from forests to rangelands. Students develop disciplinary depth in a focused area through a required specialty option, choosing from a number of pre-approved options, or creating an individualized (student designed) specialty option.

The Natural Resources major is also available at the OSU-Cascades campus in Bend and through the OSU Ecampus program. The Natural Resources major is an interdisciplinary program administered by the College of Forestry.

Major Code: 671

Only two courses used to complete the Natural Resources major requirements may be taken S/U.

The Natural Resources Specialty option requires a minimum GPA of 2.25.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>FES 485</td>
<td>*CONSENSUS AND NATURAL RESOURCES</td>
<td>3</td>
</tr>
<tr>
<td>NR 201</td>
<td>MANAGING NATURAL RESOURCES FOR THE FUTURE</td>
<td>3</td>
</tr>
<tr>
<td>NR 455</td>
<td>NATURAL RESOURCE DECISION MAKING</td>
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Advanced Communication (3-4 credits)

Select one course from the following: 3-4

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>COMM 321</td>
<td>INTRODUCTION TO COMMUNICATION THEORY</td>
</tr>
<tr>
<td>COMM 322</td>
<td>SMALL-GROUP PROBLEM SOLVING</td>
</tr>
<tr>
<td>COMM 324</td>
<td>COMMUNICATION IN ORGANIZATIONS</td>
</tr>
<tr>
<td>COMM 326</td>
<td>INTERCULTURAL COMMUNICATION</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>COMM 328</td>
<td>NONVERBAL COMMUNICATION</td>
<td></td>
</tr>
<tr>
<td>COMM 385</td>
<td>COMMUNICATION AND CULTURE IN CYBERSPACE</td>
<td></td>
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<tr>
<td>COMM 440</td>
<td>THEORIES OF CONFLICT AND CONFLICT MANAGEMENT</td>
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<tr>
<td>COMM 442</td>
<td>BARGAINING AND NEGOTIATION PROCESSES</td>
<td></td>
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<tr>
<td>FES 430</td>
<td>FOREST AS CLASSROOM</td>
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<tr>
<td>FW 489</td>
<td>EFFECTIVE COMMUNICATIONS IN FISHERIES AND WILDLIFE SCIENCE</td>
<td></td>
</tr>
<tr>
<td>NR 312</td>
<td>CRITICAL THINKING FOR NATURAL RESOURCE CHALLENGES</td>
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<tr>
<td>TRIAL 493</td>
<td>ENVIRONMENTAL INTERPRETATION</td>
<td></td>
</tr>
<tr>
<td>WR 327</td>
<td>*TECHNICAL WRITING</td>
<td></td>
</tr>
<tr>
<td>WR 362</td>
<td>*SCIENCE WRITING</td>
<td></td>
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<tr>
<td>WR 452</td>
<td>*ENVIRONMENTAL WRITING</td>
<td></td>
</tr>
<tr>
<td>WR 466</td>
<td>PROFESSIONAL WRITING</td>
<td></td>
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</tbody>
</table>

Biological Sciences (27-29 credits)

Biology (12 credits)

Select one group of courses from the following: 12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BI 101</td>
<td>*ENVIRONMENTAL BIOLOGY: ECOLOGY, CONSERVATION, &amp; GLOBAL CHANGE</td>
<td></td>
</tr>
<tr>
<td>&amp; BI 102</td>
<td>and *ANIMAL BIOLOGY: GENES, BEHAVIOR AND EVOLUTION OF LIFE</td>
<td></td>
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<tr>
<td>&amp; BI 103</td>
<td>and *HUMAN BIOLOGY: ANATOMY, PHYSIOLOGY AND DISEASE</td>
<td></td>
</tr>
<tr>
<td>BI 204</td>
<td>*INTRODUCTORY BIOLOGY I</td>
<td></td>
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<tr>
<td>&amp; BI 205</td>
<td>and *INTRODUCTORY BIOLOGY II</td>
<td></td>
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<tr>
<td>&amp; BI 206</td>
<td>and *INTRODUCTORY BIOLOGY III</td>
<td></td>
</tr>
<tr>
<td>BI 211</td>
<td>*PRINCIPLES OF BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>&amp; BI 212</td>
<td>and *PRINCIPLES OF BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>&amp; BI 213</td>
<td>and *PRINCIPLES OF BIOLOGY</td>
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Chemistry (5 credits)

Select one option from the following: 5

<table>
<thead>
<tr>
<th>Code</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>CH 121</td>
<td>GENERAL CHEMISTRY</td>
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<tr>
<td>CH 231</td>
<td>GENERAL CHEMISTRY</td>
<td></td>
</tr>
<tr>
<td>&amp; CH 251</td>
<td>and *LABORATORY FOR CHEMISTRY 231</td>
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</tr>
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Climate Science (3-4 credits)

Select one course from the following: 3-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ATS 201</td>
<td>*CLIMATE SCIENCE</td>
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</tr>
<tr>
<td>FW 345</td>
<td>*GLOBAL CHANGE BIOLOGY</td>
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</tr>
<tr>
<td>GEGO 323</td>
<td>*CLIMATOLOGY</td>
<td></td>
</tr>
<tr>
<td>SUS 103</td>
<td>*INTRODUCTION TO CLIMATE CHANGE</td>
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</table>

Earth or Soil Science (4 credits)

Select one course from the following: 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CSS 205</td>
<td>*SOIL SCIENCE</td>
<td></td>
</tr>
<tr>
<td>CSS 305</td>
<td>PRINCIPLES OF SOIL SCIENCE</td>
<td></td>
</tr>
<tr>
<td>GED 101</td>
<td>*THE SOLID EARTH</td>
<td></td>
</tr>
<tr>
<td>GED 201</td>
<td>*PHYSICAL GEOLOGY</td>
<td></td>
</tr>
<tr>
<td>GED 202</td>
<td>*EARTH SYSTEMS SCIENCE</td>
<td></td>
</tr>
<tr>
<td>GED 221</td>
<td>*ENVIRONMENTAL GEOLOGY</td>
<td></td>
</tr>
<tr>
<td>GED 102</td>
<td>*PHYSICAL GEOGRAPHY</td>
<td></td>
</tr>
<tr>
<td>SOIL 205</td>
<td>SOIL SCIENCE</td>
<td></td>
</tr>
<tr>
<td>&amp; FOR 206</td>
<td>and *FOREST SOILS LABORATORY FOR SOIL 205 (or SOIL 206)</td>
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Ecology (3-4 credits)

Select one course from the following: 3-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BI 351</td>
<td>MARINE ECOLOGY</td>
<td></td>
</tr>
<tr>
<td>BI 370</td>
<td>ECOLOGY</td>
<td></td>
</tr>
<tr>
<td>BOT 341</td>
<td>PLANT ECOLOGY</td>
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</tr>
<tr>
<td>FES 341</td>
<td>FOREST ECOLOGY</td>
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</table>

Mathematics and Statistics (8 credits)

Mathematics (4 credits)

Select one course from the following: 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MTH 112</td>
<td>*ELEMENTARY FUNCTIONS</td>
<td></td>
</tr>
<tr>
<td>MTH 241</td>
<td>*CALCULUS FOR MANAGEMENT AND SOCIAL SCIENCE</td>
<td></td>
</tr>
</tbody>
</table>
Select one course from the following:

Fisheries and Marine Sciences (3-4 credits)
- MTH 245 *MATHEMATICS FOR MANAGEMENT, LIFE, AND SOCIAL SCIENCES
- MTH 251 *DIFFERENTIAL CALCULUS

Statistics (4 credits)
- Select one course from the following:
  - ST 201 PRINCIPLES OF STATISTICS
  - ST 351 INTRODUCTION TO STATISTICAL METHODS

Resource Management (23–33 credits)
- Select one course from the following:
  - FOR 441
  - FOR 346
  - FES 477/NR 477
  - FES 350/HORT 350
  - FES 342
  - FES 341
  - FES 240
  - FE 456/FOR 456
  - OC 332
  - OC 201
  - FW 481
  - FW 473
  - FW 465
  - FW 323
  - FW 320
  - FW 321
  - FW 318
  - Z 365
  - Z 477

Environmental Assessment and Planning (3-4 credits)
- Select one course from the following:
  - FES 445/FW 445
  - FW 462
  - GEOG 250 *LAND USE PLANNING FOR SUSTAINABLE COMMUNITIES
  - GEOG 450 LAND USE IN THE AMERICAN WEST
  - GEOG 451 PLANNING PRINCIPLES AND PRACTICES FOR RESILIENT COMMUNITIES
  - GEOG 452 SUSTAINABLE SITE PLANNING
  - RNG 421 WILDLAND RESTORATION AND ECOLOGY
  - RNG 490 RANGELAND MANAGEMENT PLANNING
  - SUS 304 *SUSTAINABILITY ASSESSMENT
  - SUS 350 *SUSTAINABLE COMMUNITIES
  - TRAL 456 PLANNING FOR SUSTAINABLE RECREATION
  - TRAL 457 PLANNING FOR SUSTAINABLE TOURISM
  - NR 325 SCIENTIFIC METHODS FOR ANALYZING NATURAL RESOURCE PROBLEMS

Fisheries and Marine Sciences (3-4 credits)
- Select one course from the following:
  - BI 150 INTRODUCTION TO MARINE BIOLOGY
  - BI 347 *OCEANS IN PERIL
  - BI 351 MARINE BIOLOGY
  - FW 302 BIOLOGY AND CONSERVATION OF MARINE MAMMALS
  - FW 320 INTRODUCTORY POPULATION DYNAMICS
  - FW 323 MANAGEMENT PRINCIPLES OF PACIFIC SALMON IN THE NORTHWEST
  - FW 426 COASTAL ECOLOGY AND RESOURCE MANAGEMENT
  - FW 454 *FISHERY BIOLOGY
  - FW 465 MARINE FISHERIES
  - FW 473 FISH ECOLOGY
  - FW 481 WILDLIFE ECOLOGY
  - OC 201 *OCEANOGRAPHY
  - OC 332 COASTAL OCEANOGRAPHY

Forestry (3-4 credits)
- Select one course from the following:
  - FE 456/FOR 456 *INTERNATIONAL FORESTRY
  - FES 240 *FOREST BIOLOGY
  - FES 341 FOREST ECOLOGY
  - FES 342 FOREST TYPES OF THE NORTHWEST
  - FES 350/HORT 350 URBAN FORESTRY
  - FES 440 WILDLAND FIRE ECOLOGY
  - FES 445/FW 445 ECOLOGICAL RESTORATION
  - FES 452/FW 452 BIODIVERSITY CONSERVATION IN MANAGED FORESTS
  - FES 477/NR 477 *AGROFORESTRY
  - FOR 346 TOPICS IN WILDLAND FIRE
  - FOR 441 SILVICULTURE PRINCIPLES

Land and Water (3-5 credits)
- Select one course from the following:
  - FE 430 WATERSHED PROCESSES
  - FE 434 FOREST WATERSHED MANAGEMENT
  - FW 326 INTEGRATED WATERSHED MANAGEMENT
  - FW 456 FRESHWATER ECOLOGY AND CONSERVATION
  - FW 479 WETLANDS AND RIPARIAN ECOLOGY
  - GEO 306 *MINERALS, ENERGY, WATER, AND THE ENVIRONMENT
  - GEO 307 *NATIONAL PARK GEOLOGY AND PRESERVATION
  - GEO 308 *GLOBAL CHANGE AND EARTH SCIENCES
  - GEOG 340 *INTRODUCTION TO WATER SCIENCE AND POLICY
  - GEOG 440 WATER RESOURCES MANAGEMENT IN THE UNITED STATES
  - GEOG 441 INTERNATIONAL WATER RESOURCES MANAGEMENT
  - RNG 355 DESERT WATERSHED MANAGEMENT
  - RNG 455 RIPARIAN ECOCYHRODYNAMIC AND MANAGEMENT
  - SOIL 366 ECOYSTEMS OF WILDLAND SOILS
  - SOIL 388 SOIL SYSTEMS AND PLANT GROWTH
  - SOIL 395 *WORLD SOIL RESOURCES
  - SOIL 466 SOIL MORPHOLOGY AND CLASSIFICATION

Range (3-4 credits)
- Select one course from the following:
  - FES 440 WILDLAND FIRE ECOLOGY
  - FES 445/FW 445 ECOLOGICAL RESTORATION
  - FOR 346 TOPICS IN WILDLAND-FIRE
  - RNG 341 RANGELAND ECOLOGY AND MANAGEMENT
  - RNG 351 RANGE ECOLOGY I-GRASSLANDS
  - RNG 352 RANGE ECOLOGY II-SHRUBLANDS
  - RNG 421 WILDLAND RESTORATION AND ECOLOGY
  - RNG 441 RANGELAND ANALYSIS
  - RNG 442 RANGELAND-ANIMAL RELATIONS
  - RNG 490 RANGELAND MANAGEMENT PLANNING

Vegetation ID (3-4 credits)
- Select one course from the following:
  - BOT 321 PLANT SYSTEMATICS
  - BOT 414 AGROSTOLOGY
  - BOT 425 FLORA OF THE PACIFIC NORTHWEST
  - FES 241 DENDROLOGY
  - HORT 226 LANDSCAPE PLANT MATERIALS I: DECIDUOUS HARDWOODS AND CONIFERS
  - HORT 228 LANDSCAPE PLANT MATERIALS II: SPRINGFLOWERING TREES AND SHRUBS
  - RNG 353 WILDLAND PLANT IDENTIFICATION

Wildlife Management (3-4 credits)
- Select one course from the following:
  - FW 251 PRINCIPLES OF FISH AND WILDLIFE CONSERVATION
  - FW 320 INTRODUCTORY POPULATION DYNAMICS
  - FW 321 APPLIED COMMUNITY AND ECOSYSTEM ECOLOGY
  - FW 435 *WILDLIFE IN AGRICULTURAL ECOSYSTEMS
  - FW 451 AVIAN CONSERVATION AND MANAGEMENT
  - FW 452/FES 452 BIODIVERSITY CONSERVATION IN MANAGED FORESTS
  - FW 458 MAMMAL CONSERVATION AND MANAGEMENT
  - FW 481 WILDLIFE ECOLOGY
  - Z 350 ANIMAL BEHAVIOR

Social and Political Dimensions (15–20 credits)
- Select one course from the following:
  - ANTH 352 *ANTHROPOLOGY, HEALTH, AND ENVIRONMENT
  - ANTH 477 ECOCYHRODYNAMIC ANTHROPOLOGY
  - ANTH 481 *NATURAL RESOURCES AND COMMUNITY VALUES
  - ANTH 482 *ANTHROPOLOGY OF INTERNATIONAL DEVELOPMENT
  - ANTH 483 *ECOSYSTEM SCIENCE OF PACIFIC NW INDANS
  - BIOL 352 *WILDLIFE IN AGRICULTURAL ECOSYSTEMS
  - GEOG 340 *INTRODUCTION TO WATER SCIENCE AND POLICY
  - GEOG 440 WATER RESOURCES MANAGEMENT IN THE UNITED STATES
  - GEOG 441 INTERNATIONAL WATER RESOURCES MANAGEMENT
  - RNG 355 DESERT WATERSHED MANAGEMENT
  - RNG 455 RIPARIAN ECOCYHRODYNAMIC AND MANAGEMENT
  - SOIL 366 ECOYSTEMS OF WILDLAND SOILS
  - SOIL 388 SOIL SYSTEMS AND PLANT GROWTH
  - SOIL 395 *WORLD SOIL RESOURCES
  - SOIL 466 SOIL MORPHOLOGY AND CLASSIFICATION

Integrative Seminar (1 credits)
- Select one course from the following:
  - For a seminar in Natural Resources Undergraduate Major (BS, HBS)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>FW 340</td>
<td>*MULTICULTURAL PERSPECTIVES IN NATURAL RESOURCES</td>
</tr>
<tr>
<td>GEO 309</td>
<td>*ENVIRONMENTAL JUSTICE</td>
</tr>
<tr>
<td>HST 481</td>
<td>*ENVIRONMENTAL HISTORY OF THE UNITED STATES</td>
</tr>
<tr>
<td>NR 312</td>
<td>CRITICAL THINKING FOR NATURAL RESOURCE CHALLENGES</td>
</tr>
<tr>
<td>PHL 440</td>
<td>*ENVIRONMENTAL ETHICS</td>
</tr>
<tr>
<td>PHL 443/REL 443</td>
<td>*WORLD VIEWS AND ENVIRONMENTAL VALUES</td>
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</tbody>
</table>

**Natural Resource Policy (3-4 credits)**

Select one course from the following:

- 3-4
- AEC 432 ENVIRONMENTAL LAW
- AEC 454 RURAL DEVELOPMENT ECONOMICS AND POLICY
- FE 460 *FOREST OPERATIONS REGULATIONS AND POLICY I SSUES
- FES 486 *PUBLIC LANDS POLICY AND MANAGEMENT
- FOR 460 *FOREST POLICY
- FOR 462 NATURAL RESOURCE POLICY AND LAW
- FW 415 FISHERIES AND WILDLIFE LAW AND POLICY
- FW 422 INTRODUCTION TO OCEAN LAW
- PS 473 US ENERGY POLICY
- PS 475 ENVIRONMENTAL POLITICS AND POLICY
- PS 477 INTERNATIONAL ENVIRONMENTAL POLITICS AND POLICY

**Political Issues (3-4 credits)**

Select one course from the following:

- 3-4
- ENT 300/HORT 330 *PLAGUES, PESTS, AND POLITICS
- FOR 462 NATURAL RESOURCE POLICY AND LAW
- FW 350 *ENDANGERED SPECIES, SOCIETY AND SUSTAINABILITY
- NR 351 *WHEN SCIENCE ESCAPES THE LAB: SCIENCE AND RESOURCE MANAGEMENT
- PS 455 *THE POLITICS OF CLIMATE CHANGE
- PS 475 ENVIRONMENTAL POLITICS AND POLICY
- PS 476 *SCIENCE AND POLITICS
- PS 477 INTERNATIONAL ENVIRONMENTAL POLITICS AND POLICY
- TRAL 352 WILDERNESS MANAGEMENT

**Resource Economics (3-4 credits)**

Select one course from the following:

- 3-4
- AEC 351 *NATURAL RESOURCE ECONOMICS AND POLICY
- AEC 352/ECON 352 *ENVIRONMENTAL ECONOMICS AND POLICY
- AEC 454 RURAL DEVELOPMENT ECONOMICS AND POLICY
- FOR 330 FOREST RESOURCE ECONOMICS I

**Social Issues (3-4 credits)**

Select one course from the following:

- FES 355 MANAGEMENT FOR MULTIPLE RESOURCE VALUES
- FES 365 *ISSUES IN NATURAL RESOURCES CONSERVATION
- FW 325 *GLOBAL CRISIS IN RESOURCE ECOLOGY
- GEDG 240 *CLIMATE CHANGE, WATER AND SOCIETY
- GEDG 300 *SUSTAINABILITY FOR THE COMMON GOOD
- GEDG 430 RESILIENCE-BASED NATURAL RESOURCE MANAGEMENT
- GEDG 431 GLOBAL RESOURCES AND DEVELOPMENT
- NR 351 *WHEN SCIENCE ESCAPES THE LAB: SCIENCE AND RESOURCE MANAGEMENT
- SOC 381 SOCIAL DIMENSIONS OF SUSTAINABILITY
- SOC 475 RURAL SOCIOLOGY
- SOC 480 *ENVIRONMENTAL SOCIOLOGY
- SOC 481 *SOCIETY AND NATURAL RESOURCES
- SUS 420 SOCIAL DIMENSIONS OF SUSTAINABILITY
- TRAL 251 RECREATION RESOURCE MANAGEMENT
- TRAL 351 OUTDOOR RECREATION MANAGEMENT ON PUBLIC LANDS
- TRAL 352 WILDERNESS MANAGEMENT

**Spatial Analysis (3-4 credits)**

Select one course from the following:

- 3-4
- CROP 414/HORT 414 PRECISION AGRICULTURE
- FE 257 GIS AND FOREST ENGINEERING APPLICATIONS
- FW 303 SURVEY OF GEOGRAPHIC INFORMATION SYSTEMS IN NATURAL RESOURCE
- GEDG 201 *FOUNDATIONS OF GEOSPATIAL SCIENCE AND GIS
- GEDG 360 GISCIENCE I: GEOGRAPHIC INFORMATION SYSTEMS AND THEORY

**Total credits required for graduation is 180**

**Total Hours: 86-104**

* Baccalaureate Core Course (BCC)

^ Writing Intensive Course (WIC)

1 SOIL 205 is a Bacc Core course only when taken in conjunction with a laboratory course (FOR 206 or SOIL 206)

2 Completion of an option is required to earn a degree in Natural Resources

**Major Code: 671**