NATURAL RESOURCES
UNDERGRADUATE MAJOR
(BS, HBS)

Also available at OSU-Cascades and via Ecampus.

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

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 Ecampus program. The Natural Resources major is an interdisciplinary program administered by the College of Forestry.

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.

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interdisciplinary Foundations (10 credits)</strong></td>
<td></td>
<td></td>
</tr>
<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>
<td>4</td>
</tr>
<tr>
<td><strong>Advanced Communication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course from below (3–4 credits):</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>COMM 321</td>
<td>INTRODUCTION TO COMMUNICATION THEORY</td>
<td></td>
</tr>
<tr>
<td>COMM 322</td>
<td>SMALL-GROUP PROBLEM SOLVING</td>
<td></td>
</tr>
<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>
</tr>
<tr>
<td><strong>Biological Sciences (28 credits)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Biology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one of the following groups (12 credits):</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td><strong>Group A: General Biology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI 101</td>
<td>*ENVIRONMENTAL BIOLOGY, ECOLOGY, CONSERVATION, GLOBAL CHANGE</td>
<td></td>
</tr>
<tr>
<td>BI 102</td>
<td>*ANIMAL BIOLOGY: GENES, BEHAVIOR AND EVOLUTION OF LIFE</td>
<td></td>
</tr>
<tr>
<td>BI 103</td>
<td>*HUMAN BIOLOGY: ANATOMY, PHYSIOLOGY AND DISEASE</td>
<td></td>
</tr>
<tr>
<td><strong>Group B: Introductory Biology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI 204</td>
<td>*INTRODUCTORY BIOLOGY I</td>
<td></td>
</tr>
<tr>
<td>BI 205</td>
<td>*INTRODUCTORY BIOLOGY II</td>
<td></td>
</tr>
<tr>
<td>BI 206</td>
<td>*INTRODUCTORY BIOLOGY III</td>
<td></td>
</tr>
<tr>
<td><strong>Group C: Principles of Biology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI 211</td>
<td>*PRINCIPLES OF BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BI 212</td>
<td>*PRINCIPLES OF BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BI 213</td>
<td>*PRINCIPLES OF BIOLOGY</td>
<td></td>
</tr>
<tr>
<td><strong>Chemistry (5 credits)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 121</td>
<td>GENERAL CHEMISTRY (CH 231 and CH 261 must be taken together)</td>
<td>5</td>
</tr>
<tr>
<td>or CH 231</td>
<td>GENERAL CHEMISTRY</td>
<td></td>
</tr>
<tr>
<td><strong>Climate Science</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course from below (3–4 credits)</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>ATS 201</td>
<td>*CLIMATE SCIENCE</td>
<td></td>
</tr>
<tr>
<td>FW 345</td>
<td>*GLOBAL CHANGE BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>GEOG 323</td>
<td>*CLIMATOLOGY</td>
<td></td>
</tr>
<tr>
<td>SUS 103</td>
<td>*INTRODUCTION TO CLIMATE CHANGE</td>
<td></td>
</tr>
<tr>
<td><strong>Earth or Soil Science</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course from below (4 credits)</td>
<td>4</td>
<td></td>
</tr>
<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>GEO 101</td>
<td>*THE SOLID EARTH</td>
<td></td>
</tr>
<tr>
<td>GEO 201</td>
<td>*PHYSICAL GEOLOGY</td>
<td></td>
</tr>
<tr>
<td>GEO 202</td>
<td>*EARTH SYSTEMS SCIENCE</td>
<td></td>
</tr>
<tr>
<td>GEO 221</td>
<td>*ENVIRONMENTAL GEOLOGY</td>
<td></td>
</tr>
<tr>
<td>GEOG 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</td>
<td></td>
</tr>
<tr>
<td>or SOIL 205</td>
<td>SOIL SCIENCE</td>
<td></td>
</tr>
<tr>
<td><strong>Ecology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course from below (3–4 credits)</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<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>
<td></td>
</tr>
<tr>
<td>FES 341</td>
<td>FOREST ECOLOGY</td>
<td></td>
</tr>
</tbody>
</table>

**Mathematics and Statistics (8 credits)**

**Mathematics**

Select one course from below (4 credits)

- MTH 112 *ELEMENTARY FUNCTIONS*
- MTH 241 *CALCULUS FOR MANAGEMENT AND SOCIAL SCIENCE*
- MTH 245 *MATHEMATICS FOR MANAGEMENT, LIFE, AND SOCIAL SCIENCES*
- MTH 251 *DIFFERENTIAL CALCULUS*

**Statistics**

Select one course from below (4 credits)

- ST 201 PRINCIPLES OF STATISTICS
- ST 351 INTRODUCTION TO STATISTICAL METHODS

**Resource Management (23–31 credits)**

**Animal ID**

Select one course from below (2–4 credits)

- FES 412 FOREST ENTOMOLOGY
- FW 312 SYSTEMATICS OF BIRDS
- FW 316 SYSTEMATICS OF FISHES
- FW 318 SYSTEMATICS OF MAMMALS
- Z 365 BIOLOGY OF INSECTS
- Z 477 AQUATIC ENTOMOLOGY

**Environmental Assessment and Planning**

Select one course from below (3–4 credits):

- FES 445 ECOLOGICAL RESTORATION
  or FW 445 ECOLOGICAL RESTORATION
- FW 462 ECOSYSTEM SERVICES
- 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**

Select one course from below (3–4 credits)

- BI 150 INTRODUCTION TO MARINE BIOLOGY
- BI 302 BIOLOGY AND CONSERVATION OF MARINE MAMMALS
  or FW 302 BIOLOGY AND CONSERVATION OF MARINE MAMMALS
- BI 347 *OCEANS IN PERIL*
- 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**

Select one course from below (3–4 credits):

- FE 456 *INTERNATIONAL FORESTRY*
  or FOR 456 *INTERNATIONAL FORESTRY*
- FES 240 *FOREST BIOLOGY*
- FES 341 FOREST ECOLOGY
- FES 342 FOREST TYPES OF THE NORTHWEST
- FES 350 URBAN FORESTRY
  or HORT 350 URBAN FORESTRY
- FES 440 WILDLAND FIRE ECOLOGY
- FES 445 ECOLOGICAL RESTORATION
  or FW 445 ECOLOGICAL RESTORATION
- FES 452 BIODIVERSITY CONSERVATION IN MANAGED FORESTS
  or FW 452 BIODIVERSITY CONSERVATION IN MANAGED FORESTS
- FES 477 *AGROFORESTRY*
  or NR 477 *AGROFORESTRY*
- FOR 346 TOPICS IN WILDLAND FIRE
- FOR 441 SILVICULTURE PRINCIPLES

**Land and Water**

Select one course from below (3–5 credits):

- 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 430 RESILIENCE-BASED NATURAL RESOURCE MANAGEMENT
- GEOG 440 WATER RESOURCES MANAGEMENT IN THE UNITED STATES
- GEOG 441 INTERNATIONAL WATER RESOURCES MANAGEMENT
- RNG 355 DESERT WATERSHED MANAGEMENT
- RNG 455 RIPARIAN ECOHYDROLOGY AND MANAGEMENT
- SOIL 366 ECOSYSTEMS OF WILDLAND SOILS
- SOIL 388 SOIL SYSTEMS AND PLANT GROWTH
### Natural Resources Undergraduate Major (BS, HBS)

**SOIL 395**  
*WORLD SOIL RESOURCES

**SOIL 466**  
SOIL MORPHOLOGY AND CLASSIFICATION

**Range**

Select one course from below (3–4 credits):

- **FES 440**  
  WILDLAND FIRE ECOLOGY
- **FES 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**

Select one course from below (3–4 credits):

- **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: SPRING FLOWERING TREES AND SHRUBS
- **RNG 353**  
  WILDLAND PLANT IDENTIFICATION

**Wildlife Management**

Select one course from below (3–4 credits):

- **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**  
  BIODIVERSITY CONSERVATION IN MANAGED FORESTS
- **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)**

**Ethics and Philosophy**

Select one course from below (3–4 credits):

- **AG 301**  
  *ECOSYSTEM SCIENCE OF PACIFIC NW INDIANS
- **ANTH 477**  
  ECOLOGICAL ANTHROPOLOGY
- **ANTH 481**  
  *NATURAL RESOURCES AND COMMUNITY VALUES
- **ANTH 482**  
  *ANTHROPOLOGY OF INTERNATIONAL DEVELOPMENT
- **FW 340**  
  *MULTICULTURAL PERSPECTIVES IN NATURAL RESOURCES
- **GEO 309**  
  *ENVIRONMENTAL JUSTICE
- **HST 481**  
  *ENVIRONMENTAL HISTORY OF THE UNITED STATES
- **NR 312**  
  CRITICAL THINKING FOR NATURAL RESOURCE CHALLENGES
- **PHL 440**  
  *ENVIRONMENTAL ETHICS
- **PHL 443**  
  *WORLD VIEWS AND ENVIRONMENTAL VALUES
- **REL 443**  
  *WORLD VIEWS AND ENVIRONMENTAL VALUES

**Natural Resource Policy**

Select one course from below (3–4 credits):

- **AEC 432**  
  ENVIRONMENTAL LAW
- **AEC 454**  
  RURAL DEVELOPMENT ECONOMICS AND POLICY
- **FE 460**  
  *FOREST OPERATIONS REGULATIONS AND POLICY ISSUES
- **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**

Select one course from below (3–4 credits):

- **ENT 300**  
  *PLAGUES, PESTS, AND POLITICS
- **FES 454**  
  MANAGING AT THE WILDLAND-URBAN INTERFACE
- **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
- **TRL 352**  
  WILDERNESS MANAGEMENT

**Resource Economics**

Select one course from below (3–4 credits):

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

**Social Issues**

Select one course from below (3–4 credits):

- **FES 355**  
  MANAGEMENT FOR MULTIPLE RESOURCE VALUES
- **FES 365**  
  *ISSUES IN NATURAL RESOURCES CONSERVATION
- **FW 325**  
  *GLOBAL CRISSES IN RESOURCE ECOLOGY
- **GEOG 240**  
  CLIMATE CHANGE, WATER AND SOCIETY
- **GEOG 300**  
  *SUSTAINABILITY FOR THE COMMON GOOD
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 430</td>
<td>RESILIENCE-BASED NATURAL RESOURCE MANAGEMENT</td>
</tr>
<tr>
<td>NR 351</td>
<td>WHEN SCIENCE ESCAPES THE LAB: SCIENCE AND RESOURCE MANAGEMENT</td>
</tr>
<tr>
<td>SOC 381</td>
<td>SOCIAL DIMENSIONS OF SUSTAINABILITY</td>
</tr>
<tr>
<td>SOC 475</td>
<td>RURAL SOCIOLOGY</td>
</tr>
<tr>
<td>SOC 480</td>
<td>*ENVIRONMENTAL SOCIOLOGY</td>
</tr>
<tr>
<td>SOC 481</td>
<td>*SOCIETY AND NATURAL RESOURCES</td>
</tr>
<tr>
<td>SUS 420</td>
<td>SOCIAL DIMENSIONS OF SUSTAINABILITY</td>
</tr>
<tr>
<td>TRAL 251</td>
<td>RECREATION RESOURCE MANAGEMENT</td>
</tr>
<tr>
<td>TRAL 351</td>
<td>OUTDOOR RECREATION MANAGEMENT ON PUBLIC LANDS</td>
</tr>
<tr>
<td>TRAL 352</td>
<td>WILDERNESS MANAGEMENT</td>
</tr>
<tr>
<td>TRAL 353</td>
<td>NATURE, ECO, AND ADVENTURE TOURISM</td>
</tr>
<tr>
<td>TRAL 354</td>
<td>COMMUNITIES, NATURAL AREAS, AND SUSTAINABLE TOURISM</td>
</tr>
<tr>
<td>TRAL 355</td>
<td>COMMUNITIES, NATURAL AREAS, AND SUSTAINABLE TOURISM</td>
</tr>
<tr>
<td>WGSS 440</td>
<td>*WOMEN AND NATURAL RESOURCES</td>
</tr>
</tbody>
</table>

**Spatial Analysis**

Select one course from below (3–4 credits): 3-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CROP 414</td>
<td>PRECISION AGRICULTURE</td>
</tr>
<tr>
<td>or HORT 414</td>
<td>PRECISION AGRICULTURE</td>
</tr>
<tr>
<td>FE 257</td>
<td>GIS AND FOREST ENGINEERING APPLICATIONS</td>
</tr>
<tr>
<td>FW 303</td>
<td>SURVEY OF GEOGRAPHIC INFORMATION SYSTEMS IN NATURAL RESOURCE</td>
</tr>
<tr>
<td>GEOG 201</td>
<td>*FOUNDATIONS OF GEOSPATIAL SCIENCE AND GIS</td>
</tr>
<tr>
<td>GEOG 360</td>
<td>GISCIENCE I: GEOGRAPHIC INFORMATION SYSTEMS AND THEORY</td>
</tr>
</tbody>
</table>

**Total credits required for graduation** 180

* Baccalaureate Core Course (BCC)
* Writing Intensive Course (WIC)

**Note:** Particular option programs may specify additional core courses to assure that students meet prerequisites for option courses, or develop the background in fields important for the option. Students should not assume that the core courses listed above include all of the necessary background in science or math for every option.

**Major Code:** 671