NATURAL RESOURCES GRADUATE MAJOR (MNR)

Graduate Areas of Concentration

Fisheries management, forests and climate change, geographic information science (GIScience), sustainable natural resources, urban forestry, water conflict management, and wildlife management

The MNR is a 45-credit online degree program with curriculum organized into three sections: core (18 credits), area of emphasis (18 credits), and capstone project (9 credits). It is taught entirely online through OSU Ecampus, although some students work toward the MNR degree while in-residence at OSU.

The MNR degree is offered as a non-thesis program with a capstone project, rather than a thesis. The MNR's contemporary content is for natural resource professionals who work in settings that require cross-disciplinary competency to find solutions to natural resource problems. Integration of multiple disciplines occurs through the curriculum, assignments, and a capstone project. All MNR students integrate concepts and approaches developed throughout the entire program in a final capstone project.

18 credits are required from four thematic areas. These must be courses that are not already being used to satisfy units in the area of emphasis.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>Core Courses</strong></td>
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<tr>
<td><strong>Theme: Overview/Introduction</strong></td>
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<tr>
<td>MNR 511</td>
<td>INTRODUCTION TO SUSTAINABLE NATURAL RESOURCES</td>
<td>3</td>
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<tr>
<td><strong>Theme: Ecology/Production</strong></td>
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<tr>
<td>Select 6 credits of the following:</td>
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<tr>
<td>FES 535/TOX, 535/MCB 535</td>
<td>GENES AND CHEMICALS IN AGRICULTURE: VALUE AND RISK</td>
<td>6</td>
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<tr>
<td>FES 536</td>
<td>CARBON SEQUESTRATION IN FORESTS</td>
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<tr>
<td>FES 545/FW 545</td>
<td>ECOLOGICAL RESTORATION</td>
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<td>FES 547/HORT 547</td>
<td>ARBORICULTURE</td>
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<td>FES 548</td>
<td>INVASIVE PLANTS: BIOLOGY, ECOLOGY AND MANAGEMENT</td>
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<td>FES 552/FW 552</td>
<td>FOREST WILDLIFE HABITAT MANAGEMENT</td>
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<td>FES 560</td>
<td>GREEN INFRASTRUCTURE</td>
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<td>FW 519</td>
<td>THE NATURAL HISTORY OF WHALES AND WHALING</td>
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<td>FW 521</td>
<td>AQUATIC BIOLOGICAL INVASIONS</td>
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<td>FW 527</td>
<td>PRINCIPLES OF WILDLIFE DISEASES</td>
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<td>FW 535</td>
<td>WILDLIFE IN AGRICULTURAL ECOSYSTEMS</td>
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<td>FW 538</td>
<td>STRUCTURED DECISION MAKING IN NATURAL RESOURCE MANAGEMENT LAB</td>
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<td>FW 540</td>
<td>VERTEBRATE POPULATION DYNAMICS</td>
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<td>FW 551</td>
<td>AVIAN CONSERVATION AND MANAGEMENT</td>
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<td>FW 554</td>
<td>FISHERY BIOLOGY</td>
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<td>FW 556</td>
<td>FRESHWATER ECOLOGY AND CONSERVATION</td>
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FW 558 MAMMAL CONSERVATION AND MANAGEMENT
FW 562 ECOSYSTEM SERVICES
FW 563 CONSERVATION BIOLOGY OF WILDLIFE
FW 570 ECOLOGY AND HISTORY: LANDSCAPES OF THE COLUMBIA BASIN
FW 575 WILDLIFE BEHAVIOR
FW 576 FISH PHYSIOLOGY
FW 579 WETLANDS AND RIPARIAN ECOLOGY
FW 580 STREAM ECOLOGY
FW 581 WILDLIFE ECOLOGY
FW 583 SPECIES RECOVERY PLANNING AND RESTORATION
FW 597 AQUACULTURE
MNR 530 TROPICAL FOREST ECOLOGY AND MANAGEMENT: A GLOBAL PERSPECTIVE
MNR 538 ADAPTING FORESTS TO CLIMATE CHANGE
MNR 550 CLIMATE CHANGE IMPACTS ON FOREST ECOSYSTEMS
NSE 583 RADIATION BIOLOGY
NSE 588 RADIOECOLOGY
SNR 530 ECOLOGICAL PRINCIPLES OF SUSTAINABLE NATURAL RESOURCES
SNR 531 SUSTAINABLE SILVICULTURE AND FOREST CERTIFICATION
SNR 532 PLANNING AGROFORESTRY PROJECTS
SNR 533 ALTERNATIVE (NONTIMBER) FOREST PRODUCTS
SNR 534 REDUCED IMPACT TIMBER HARVEST
SNR 535 SUSTAINABLE MANAGEMENT OF AQUATIC AND RIPARIAN RESOURCES
SNR 540 GLOBAL ENVIRONMENTAL CHANGE

**Theme: Human Systems**

Select 6 credits from at least 2 of the 5 areas below:

Economics
AEC 534 ENVIRONMENTAL AND RESOURCE ECONOMICS
FES 500/MNR 500 MARKET TOOLS FOR MANAGING GREENHOUSE GAS EMISSIONS
FW 537 STRUCTURED DECISION MAKING IN NATURAL RESOURCE MANAGEMENT
SNR 521 ECONOMICS OF SUSTAINABLE NATURAL RESOURCE MANAGEMENT

Policy
AEC 532 ENVIRONMENTAL LAW
FES 555/HORT 555 URBAN FOREST PLANNING, POLICY AND MANAGEMENT
FES 565 URBAN FORESTRY LEADERSHIP
FW 515 FISHERIES AND WILDLIFE LAW AND POLICY
FW 522 INTRODUCTION TO OCEAN LAW
FW 620 ECOLOGICAL POLICY
GEOG 540 WATER RESOURCES MANAGEMENT IN THE UNITED STATES
GEOG 541 INTERNATIONAL WATER RESOURCES MANAGEMENT
GEOG 552 SUSTAINABLE SITE PLANNING
PPOL 546  THE POLICY AND LAW OF UNITED STATES COASTAL GOVERNANCE
PS 575  ENVIRONMENTAL POLITICS AND POLICY
PS 577  INTERNATIONAL ENVIRONMENTAL POLITICS AND POLICY
PS 578  RENEWABLE ENERGY POLICY
WRP 521  WATER CONFLICT MANAGEMENT AND TRANSFORMATION

Sociology
ANTH 581  NATURAL RESOURCES AND COMMUNITY VALUES
FES 554  MANAGING AT THE WILDLAND-URBAN INTERFACE
FES 585  CONSENSUS AND NATURAL RESOURCES
SOC 554  LEISURE AND CULTURE
SOC 580  ENVIRONMENTAL SOCIOLOGY
SOC 581  SOCIETY AND NATURAL RESOURCES
SNR 520  SOCIAL ASPECTS OF SUSTAINABLE NATURAL RESOURCES

Ethics
FW 549  HISTORY OF FISHERIES SCIENCE
GEOG 564  GEOSPATIAL PERSPECTIVES ON INTELLIGENCE, SECURITY, AND ETHICS
PHL 540  ENVIRONMENTAL ETHICS
PHL 543/REL 543  WORLD VIEWS AND ENVIRONMENTAL VALUES
SNR 522  BASIC BELIEFS AND ETHICS IN NATURAL RESOURCES

Communication
COMM 550  COMMUNICATION AND THE PRACTICE OF SCIENCE
FW 514  PROFESSIONAL DEVELOPMENT: MEETING COMMUNICATIONS
LEAD 542  LEADERSHIP SKILLS FOR CAREER SUCCESS
LEAD 543  LEADERSHIP THROUGH CONVERSATIONS
SED 535  COMMUNICATING OCEAN SCIENCES TO INFORMAL AUDIENCES
TRAL 593  ENVIRONMENTAL INTERPRETATION

Theme: Methodology
Select 3 credits from the following:  3
BOT 540  FIELD METHODS IN PLANT ECOLOGY
CH 590  COMPUTER PROGRAMMING FOR SCIENTISTS
FW 524  INTRODUCTION TO FISHERIES ASSESSMENT
GEOG 560  GISCIENCE I: INTRODUCTION TO GEOGRAPHIC INFORMATION SCIENCE
GEOG 561  GISCIENCE II: ANALYSIS AND APPLICATIONS
GEOG 580  REMOTE SENSING I: PRINCIPLES AND APPLICATIONS
MNR 522/FES 522  RESEARCH METHODS SOCIAL SCIENCE
PPOL 521  UNDERSTANDING SOCIAL RESEARCH
ST 516  FOUNDATIONS OF DATA ANALYTICS
ST 517  DATA ANALYTICS I
ST 539  SURVEY METHODS

Area of Emphasis

Students may select a certificate listed below or design their own option. A certificate may not be used to satisfy core requirements.

Capstone Project
Select one of the following options:  9
Option 1: For students who do not complete a capstone project as part of their Area of Emphasis.
Option 2: For students who do complete a capstone project as part of their Area of Emphasis. The student must complete 6–7 credits of MNR 560 plus 2–3 credits from an independent study project that was completed as part of the area of emphasis.

Area of Emphasis

Students may select a certificate listed below or design their own option. A certificate may not be used to satisfy core requirements.

- Geographic Information Science (GIScience)
  Contact: Kuupio Walsh
- Sustainable Natural Resources (SNR)
  Contact: Badege Bishaw
- Water Conflict Management and Transformation (WCMT)
  Contact: Lynette de Silva
- Fisheries Management
  Contact: fw.gradadvising@oregonstate.edu
- Urban Forestry
  Contact: Paul Ries
- Forests and Climate Change
  Contact: Badege Bishaw
- Wildlife Management
  Contact: fw.gradadvising@oregonstate.edu
- Design own option (no certificate)
  Contact: Janean Creighton

Major Code: 2430