NATIONAL 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>
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<tr>
<td><strong>Theme: Ecology/Production</strong></td>
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<tr>
<td>Select 6 credits from 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>
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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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<tr>
<td>FES 547/HORT 547</td>
<td>ARBORICULTURE</td>
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<tr>
<td>FES 548</td>
<td>INVASIVE PLANTS: BIOLOGY, ECOLOGY AND MANAGEMENT</td>
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<tr>
<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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<tr>
<td>FW 519</td>
<td>THE NATURAL HISTORY OF WHALES AND WHALING</td>
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<tr>
<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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<tr>
<td>FW 538</td>
<td>STRUCTURED DECISION MAKING IN NATURAL RESOURCE MANAGEMENT LAB</td>
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<tr>
<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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<td>FW 558</td>
<td>MAMMAL CONSERVATION AND MANAGEMENT</td>
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<td>FW 562</td>
<td>ECOSYSTEM SERVICES</td>
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<td>FW 563</td>
<td>CONSERVATION BIOLOGY OF WILDLIFE</td>
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<tr>
<td>FW 570</td>
<td>ECOLOGY AND HISTORY: LANDSCAPES OF THE COLUMBIA BASIN</td>
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<td>FW 575</td>
<td>WILDLIFE BEHAVIOR</td>
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<td>FW 576</td>
<td>FISH PHYSIOLOGY</td>
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<td>FW 579</td>
<td>WETLANDS AND RIPARIAN ECOLOGY</td>
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<td>FW 580</td>
<td>STREAM ECOLOGY</td>
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<td>FW 581</td>
<td>WILDLIFE ECOLOGY</td>
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<td>FW 583</td>
<td>SPECIES RECOVERY PLANNING AND RESTORATION</td>
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<td>FW 597</td>
<td>AQUACULTURE</td>
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<td>MNR 530</td>
<td>TROPICAL FOREST ECOLOGY AND MANAGEMENT: A GLOBAL PERSPECTIVE</td>
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<td>MNR 538</td>
<td>ADAPTING FORESTS TO CLIMATE CHANGE</td>
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<tr>
<td>MNR 550</td>
<td>CLIMATE CHANGE IMPACTS ON FOREST ECOSYSTEMS</td>
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<td>NSE 583</td>
<td>RADIATION BIOLOGY</td>
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<td>NSE 588</td>
<td>RADIOECOLOGY</td>
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<tr>
<td>SNR 530</td>
<td>ECOLOGICAL PRINCIPLES OF SUSTAINABLE NATURAL RESOURCES</td>
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<td>SNR 531</td>
<td>SUSTAINABLE SILVICULTURE AND FOREST CERTIFICATION</td>
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<td>SNR 532</td>
<td>PLANNING AGROFORESTRY PROJECTS</td>
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<td>SNR 533</td>
<td>ALTERNATIVE (NONTIMBER) FOREST PRODUCTS</td>
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<td>SNR 534</td>
<td>REDUCED IMPACT TIMBER HARVEST</td>
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<td>SNR 535</td>
<td>SUSTAINABLE MANAGEMENT OF AQUATIC AND RIPARIAN RESOURCES</td>
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<td>SNR 540</td>
<td>GLOBAL ENVIRONMENTAL CHANGE</td>
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<tr>
<td><strong>Theme: Human Systems</strong></td>
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<td>Select 6 credits from at least 2 of the 5 areas below:</td>
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<tr>
<td>Economics</td>
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<tr>
<td>AEC 534</td>
<td>ENVIRONMENTAL AND RESOURCE ECONOMICS</td>
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<td>FES 500/MNR 500</td>
<td>MARKET TOOLS FOR MANAGING GREENHOUSE GAS EMISSIONS</td>
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<td>FW 537</td>
<td>STRUCTURED DECISION MAKING IN NATURAL RESOURCE MANAGEMENT</td>
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<td>SNR 521</td>
<td>ECONOMICS OF SUSTAINABLE NATURAL RESOURCE MANAGEMENT</td>
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<tr>
<td>Policy</td>
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<td>AEC 532</td>
<td>ENVIRONMENTAL LAW</td>
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<tr>
<td>FES 555/HORT 555</td>
<td>URBAN FOREST PLANNING, POLICY AND MANAGEMENT</td>
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<td>FES 565</td>
<td>URBAN FORESTRY LEADERSHIP</td>
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<td>FW 515</td>
<td>FISHERIES AND WILDLIFE LAW AND POLICY</td>
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<tr>
<td>FW 522</td>
<td>INTRODUCTION TO OCEAN LAW</td>
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<td>FW 620</td>
<td>ECOLOGICAL POLICY</td>
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<tr>
<td>GEOG 540</td>
<td>WATER RESOURCES MANAGEMENT IN THE UNITED STATES</td>
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<td>GEOG 541</td>
<td>INTERNATIONAL WATER RESOURCES MANAGEMENT</td>
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<tr>
<td>GEOG 552</td>
<td>SUSTAINABLE SITE PLANNING</td>
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### Theme: Methodology

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>BOT 540</td>
<td>FIELD METHODS IN PLANT ECOLOGY</td>
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<tr>
<td>CH 590</td>
<td>COMPUTER PROGRAMMING FOR SCIENTISTS</td>
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<tr>
<td>FW 524</td>
<td>INTRODUCTION TO FISHERIES ASSESSMENT</td>
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<tr>
<td>GEOG 560</td>
<td>GISCIENCE I: INTRODUCTION TO GEOGRAPHIC INFORMATION SCIENCE</td>
</tr>
<tr>
<td>GEOG 561</td>
<td>GISCIENCE II: ANALYSIS AND APPLICATIONS</td>
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<tr>
<td>GEOG 580</td>
<td>REMOTE SENSING I: PRINCIPLES AND APPLICATIONS</td>
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<tr>
<td>MNR 522/FES 522</td>
<td>RESEARCH METHODS SOCIAL SCIENCE</td>
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<tr>
<td>PPOL 521</td>
<td>UNDERSTANDING SOCIAL RESEARCH</td>
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<tr>
<td>ST 516</td>
<td>FOUNDATIONS OF DATA ANALYTICS</td>
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<tr>
<td>ST 517</td>
<td>DATA ANALYTICS I</td>
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<tr>
<td>ST 539</td>
<td>SURVEY METHODS</td>
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</tbody>
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### 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**: Kuipo 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

OR

#### Design own option (no certificate)
- **Contact**: Badege Bishaw

### Capstone Project

Select one of the following options:

**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.