

## **Forestry & Natural Resources Major Snapshot**

### **Department of Environmental Science, Policy & Management**

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Conserving and restoring the earth's natural resources requires broad knowledge and experience. The Forestry and Natural Resources major offers concentrations in *Forestry & Natural Sciences* or *Human Dimensions of Natural Resources*. Students in the program, regardless of concentration, have ample opportunity to acquire interdisciplinary skills in the ecology, stewardship, and management of ecosystems such as forests, woodlands, and grasslands. Within the program, students can choose to emphasize such topics as wildlife biology, water policy, fire science, ecosystem restoration, environmental justice, remote sensing and GIS, and rural sociology.

A minor in Forestry is available for students who are interested in learning about forestry and renewable resource management as an adjunct to their chosen fields.

ESPM Student Affairs is located in 249 Mulford Hall. The academic advisor for ESPM is Marjorie Ensor. Marjorie is infinitely approachable and understands the importance of being accessible to students. She can help you through the paperwork or decisions associated with becoming an FNR major and help you plan your classes whether at UC Berkeley or at your local Community College. You can call Marjorie at 642-6730 or email her at [marensor@nature.berkeley.edu](mailto:marensor@nature.berkeley.edu). You can also ask general questions via telephone at 510-642-7381.

#### **Research Opportunities ♦ Honors Program ♦ Forestry, Wildlife Management, & Other Careers**

Students with a pre-determined GPA may enroll in the College of Natural Resources Honors Program (H196) once they have reached upper division standing. To fulfill the program requirements, students design, conduct, and report on an individual research project working with a faculty sponsor. For more information, visit [http://nature.berkeley.edu/site/honors\\_program.php](http://nature.berkeley.edu/site/honors_program.php).

In addition to the Berkeley campus Undergraduate Research Apprenticeship Program (URAP), CNR students can also apply for the CNR Sponsored Projects for Undergraduate Research (SPUR). Visit [http://nature.berkeley.edu/site/undergraduate\\_research.php](http://nature.berkeley.edu/site/undergraduate_research.php) for details.

FNR graduates are well-prepared for graduate school and careers in environmental consulting, public agencies, non-profit conservation organizations, and private companies. Students also have the option of preparing for professional careers in forestry, wildlife, and range management. The FNR career snapshot is located at [http://nature.berkeley.edu/site/planning\\_resources.php](http://nature.berkeley.edu/site/planning_resources.php).

#### **Getting a Degree**

To earn a Bachelor of Science from U.C. Berkeley in Forestry & Natural Resources, students must fulfill unit and GPA requirements, university and campus requirements, college requirements, and major requirements. Please see the major advisor for more details about the major requirements.

#### **Unit and GPA Requirements**

In order to graduate, students must complete a total of 120 units, 36 of which must be upper division units. Students must have at least a 2.0 cumulative GPA, and a 2.0 GPA in the courses required for the major.

#### **University and Campus Requirements**

- Subject A
- American History & Institutions
- American Cultures (if taken for a letter grade, this course may overlap with a Social & Behavioral Science course)

#### **College Requirements**

- Two courses in Reading & Composition (8 units): R1A and R1B
- 15 upper division units must be in the College of Natural Resources (EEP, ES, ESPM, NST, PMB)

# Forestry & Natural Resources Major Requirements

## 120 units

### Lower Division Requirements for all FNR majors

- ESPM Environmental Science Core: 1 course from ESPM 2, 6, or C10 (L&S C30V)
- ESPM Social Science Core: 1 course from ESPM C11 (L&S C30U), ESPM C12, ESPM 50AC or 60
- Two courses in Reading & Composition (8 units): R1A and R1B (College Requirement)
- One course (3-4 units) in Social & Behavioral Sciences or International Studies chosen from the "Seven Breadth" listing: <http://ls-advise.berkeley.edu/requirements/lsreq.html#7breadth>
- One course (3-4 units) in Arts & Literature, Historical Studies, or Philosophy & Values chosen from the "Seven Breadth" listing: <http://ls-advise.berkeley.edu/requirements/lsreq.html#7breadth>

Forestry & Natural Sciences (FNS) Concentration Lower Division Requirements	Human Dimensions of Natural Resources (HDNR) Concentration Lower Division Requirements
<ul style="list-style-type: none"> <li><input type="checkbox"/> <u>Chemistry (4 units)</u>: Chem 1A</li> <li><input type="checkbox"/> <u>Biology (4 units)</u>: Biology 1B</li> <li><input type="checkbox"/> <u>Mathematics (6-8 units)</u>: Math 16A-B and Math 1A- B</li> <li><input type="checkbox"/> <u>Statistics (4 units)</u>: Stat 2 or 20</li> <li><input type="checkbox"/> <u>Geographic Information Systems (3 units)</u>: ESPM 72</li> <li><input type="checkbox"/> <u>Economics (4 units)</u>: EEP 1 (recc'd); Econ 1 or 2</li> <li><input type="checkbox"/> <u>Physical Science (4 units)</u>: EPS 50, GEOG 1, or 40</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <u>Physical Science</u>: One course from Physical Sciences (see L&amp;S "Seven Breadth" List)</li> <li><input type="checkbox"/> <u>Biology (3-4 units)</u>: Biology 1B or 11</li> <li><input type="checkbox"/> <u>Mathematics (3-4 units)</u>: Math 16A, 1A, or 32</li> <li><input type="checkbox"/> <u>Statistics (4 units)</u>: Stat 2, 20, Poli Sci 3, or Soc 5</li> <li><input type="checkbox"/> <u>Geographic Information Systems (3 units)</u>: ESPM 72</li> <li><input type="checkbox"/> <u>Economics (3-4 units)</u>: EEP 1 (recommended), Econ 1 or 2, or UGBA 10</li> </ul>

### Upper Division Requirements for all FNR majors:

**8-week Forestry Field Program ("Summer Camp")** in the northern Sierra Nevada (10 units). Recommended before junior year. Go to <http://espm.berkeley.edu/summercamp/>

- ESPM 101A: Sierra Nevada Ecology (4)
- ESPM 101B: Silviculture (1)
- ESPM 101C: Forest Measurements, Aerial Photography, & Surveying (2)
- ESPM 101D: Timber Resource Utilization (1)
- ESPM 101E: Forest Resource Management (2)

**OR:** ESPM C107, Biology & Geomorphology of Tropical Islands, a 13-unit fall semester course on the Polynesian island of Moorea.

#### Core Courses:

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| <ul style="list-style-type: none"> <li><input type="checkbox"/> ESPM 102A: Terrestrial Resource Ecology (4) F</li> <li><input type="checkbox"/> ESPM 102B/L: Natural Resource Sampling (2/2) F</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> ESPM 102C: Resource Management (4) SP</li> <li><input type="checkbox"/> ESPM 102D: Resource &amp; Environmental Policy (4) SP</li> </ul> |
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### Restricted Electives by Concentration (18-21 units):

#### FNS Restricted Electives (6 courses):

The FNS Concentration has two specializations for the restricted elective requirement: Professional Forestry or Natural Sciences.

#### PROFESSIONAL FORESTRY SPECIALIZATION:

- ESPM 108A: Trees-Taxonomy, Growth & Structures (3) F
- ESPM 134: Fire, Insects, and Diseases in Forest Ecosystems (3) F
- ESPM 182: Forest Operations Management (4) F
- ESPM 183: Forest Planning and Management (4) SP
- ESPM 185: Multiple Resource Silviculture (4) SP
- Plus one additional course from one of the following subject categories: **PE** or **MM**.

#### NATURAL SCIENCES SPECIALIZATION:

Two courses each from both the **E** and the **PE** subject categories, plus one additional course from each of the following: **MM** and **MP**.

#### HDNR Restricted Electives (6 courses):

Select six courses from four subject categories, one from each category plus two from anywhere:

- (a) Ecology (**E**)
- (b) Physical Environment (**PE**)
- (c) Monitoring & Measurement (**MM**)
- (d) Management (**MP**)

# Forestry & Natural Resources Major Requirements

## 120 units

<b>Subject Categories</b>	
<b>A. Ecology (E)</b>	<b>B. Physical Environment (PE)</b>
<p>ESPM C103: Principles of Conservation Biology (4) F            ESPM 106: American Wildlife Identification and Conservation (3) F            ESPM 108A: Trees-Taxonomy, Growth, and Structures (3) F            ESPM 108B: Forest Genetics (3) F            ESPM 109: Range Plants (3) SP            ESPM 111: Ecosystem Ecology (3) SP            ESPM 112: Microbial Ecology (3) SP            ESPM 113: Insect Ecology (2) SP            ESPM 114: Wildlife Ecology (3) F            ESPM 115B: Biology of Aquatic Insects (3) F            ESPM 116A: Forest Ecology (4) F            ESPM 116B: Range Ecology, Improvements, &amp; Management (3) SP            ESPM 116C: Tropical Forest Ecology (3) SP            ESPM 134: Fire, Insects, and Diseases in Forest Ecosystems (3) F            ESPM 135: Biological Control of Pests (3) F            IB 102: California Plant Life (2)            IB 102L: Laboratory in California Plant Life (2)</p>	<p>ESPM 120: Soil Characteristics (3) F            ESPM 121: Development and Classification of Soils (3) SP            ESPM C129: Biometeorology (3) F            ESPM 181A: Wildland Fire Science (3) SP</p>
<b>C. Monitoring &amp; Measurement (MM)</b>	<b>D. Management &amp; Policy (MP)</b>
<p>ESPM 171: Forest and Wildland Resource Inventory (4) SP            ESPM 172: Forest Photogrammetry and Photo Interpretation (3) SP            ESPM 174: Design and Analysis of Ecological Research (4) SP            ANTHRO 169A: Data Analysis and Computational Methods (4)            ANTHRO 169B: Research Theory &amp; Methods in Socio-Cult Anthro (5)            ARCH 110: Social and Cultural Factors in Design (4)            EPS C120: Analysis of Environmental Data (4) F            LD ARCH C188: Geographic Information Systems (4) F</p>	<p>CYPLAN 112A: The Idea of Planning (3) F, SP            ESPM 153: American Land Interpretation, Use, and Control (4) SP            ESPM 155: Sociology of Natural Resources (4) F            ESPM 165: International Rural Development (4) SP            ESPM 166: Natural Resources Policy and Indigenous Peoples (4) SP            ESPM 167: Environmental Health and Development (3) F            ESPM 168: Political Ecology (3) SP            ESPM 169: International Environmental Politics (4) F            ESPM 182: Forest Operations Management (4) F            ESPM 183: Forest Planning and Management (4) SP            ESPM 184: Agroforestry Systems (3) SP            ESPM 185: Multiple Resource Silviculture (4) F            ESPM 186: Management of Grassland and Woodlands (4) F            ESPM 188: Case Histories in Wildlife Management (2) SP            ESPM 189: Senior Workshop in Professional Forestry (3) S,SP</p>