Ecosystem Management & Forestry, Lower Division B.S. (formerly, Forestry and Natural Resources, B.S)

The Ecosystem Management & Forestry (EMF) major at the University of California at Berkeley is designed to prepare students to manage forests and wildlands while sustaining ecological integrity and producing vital ecosystem services. Offered by the Department of Environmental Science, Policy and Management (ESPM), the program combines a foundation in the relevant natural and social sciences with explicit hands-on learning opportunities. Students completing this major will be prepared to engage in the challenge of managing forest and natural resources in a rapidly-changing world. The topics students can choose to concentrate on include wildlife and conservation biology, ecosystem restoration, rangeland management, water policy, fire science, and environmental justice.

Students in the EMF major select between two specializations:

The Forestry specialization is accredited by the Society of American Foresters and provides four years of qualifying education or professional experience for licensing as a professional forester in California. The goals of the Professional Forestry specialization are very closely associated with the educational requirements of the forestry profession and prepare our students for careers in forestry or closely related natural resource fields.

The Natural Resource Management specialization provides students with greater flexibility to explore subjects in ecology, physical environment, monitoring and measurement, and management and policy. When students graduate with a Forestry degree major from UC Berkeley, they will have the basic knowledge and skills to assess and manage forest resources.

Graduates with the Forestry specialization should have basic competencies as defined by the Society of American Foresters' requirements of accredited degree programs. Graduates with the Natural Resource Management specialization will have similar competencies focused in their chosen area of concentration.

PREPARATION FOR TRANSFER AT THE JUNIOR LEVEL

Transfer applicants must complete the minimum admissions requirements by the end of the spring term preceding fall enrollment at Berkeley, and are encouraged to complete as many additional lower division requirements as possible. Exceptions are highly unlikely. NOTE: The ESPM Environmental Science Core, ESPM Social Science Core, Geographic Information Systems and Statistics requirements may be taken at UC Berkeley if no course is articulated at the student's home institution.

Please pay particular attention to how courses from your community college articulate to UC Berkeley. If courses for a particular subject are articulated as a group (for example, a 3-course series at your college may articulate to a 2-course series at UC Berkeley), you will need to take all of the courses noted...
To: UC Berkeley, From: Santa Monica College, 18-19

Ecosystem Management & Forestry, Lower Division B.S. (continued)

in order for the articulation to work. If you have questions about articulation, please contact our Office of Instruction and Student Affairs, College of Natural Resources at cnrteaching@berkeley.edu or (510) 642-0542.

In general, students will be evaluated on:

- the strength of academic preparation and the completion of lower division requirements
- GPA in the required courses
- cumulative GPA
- the personal statement

MINIMUM ADMISSIONS REQUIREMENTS

In addition to the requirements below, students must also complete the Reading & Composition requirement. IGETC Certification will satisfy both halves of the Reading & Composition requirement, but IGETC is not required if students complete Reading and Composition through articulated coursework, and the two general breadth courses required for the major.

ECOSYSTEM MANAGEMENT AND FORESTRY

(For both the Forestry and Natural Resource Management & Specializations)

Chemistry 1A & 1AL
Biology 1B
Math 16A (or Math 1A)
Math 16B (or Math 1B)
Statistics 20 or 21
Economics 1 (Micro- and macro-economics)

Recommended:

Earth & Planetary Science 50, Geography 1 or 40

Note: We will accept AP credit for the following courses:

- AP Biology, with a score of 4 or 5 = Bio 1B
- AP Calculus AB, with a score of 3, 4, or 5 = Math 1A or Math 16A
- AP Calculus BC, with a score of 3 or 4 = Math 1A or 16A
- AP Calculus BC, with a score of 5 = Math 1A/16A and Math 1B/16B
- AP Chemistry, with a score of 4 or 5 = Chemistry 1A & 1AL
- AP Economics (Micro) with a score of 4 or 5 = Env Econ C1/Econ C3
- AP English Literature, with a score of 3 = Entry Level Writing requirement
- AP English Literature, with a score of 4 = First half of Reading & Composition (English R1A)
- AP English Literature, with a score of 5 = Both halves of Reading & Composition (English R1A and R1B)
- AP English Language, with a score of 3 = Entry Level Writing requirement
- AP English Language, with a score of 4 or 5 = First half of Reading & Composition (English R1A)
Ecosystem Management & Forestry, Lower Division B.S. (continued)
- AP Environmental Science, with a score of 4 or 5 = ESPM Environmental Science Core

Please note that substituting AP scores for science and math coursework is accepted, but not recommended. Students who use AP scores for these requirements may struggle in subsequent coursework.

Please refer to the College of Natural Resources website for more information about substitutions for the English R1A and R1B requirements: https://nature.berkeley.edu/handbook

For more information on this major:
Ecosystem Management & Forestry
Student Academic Advisor
Office of Instruction & Student Affairs
College of Natural Resources
260 Mulford Hall
cnrteaching@berkeley.edu
(510) 642-0542

For more information on this major:
Ecosystem Management & Forestry:
https://nature.berkeley.edu/advising/majors/forestry-and-natural-resources

For more information on the College of Natural Resources:
http://nature.berkeley.edu

For more information on admission to UC Berkeley:
http://admissions.berkeley.edu

For more information on majors at UC Berkeley:
Berkeley Academic Guide: http://guide.berkeley.edu

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READING & COMPOSITION
Must complete Reading and Composition prior to transfer.
Courses comparable to Berkeley's READING & COMPOSITION (R&C) 1A and 1B
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<table>
<thead>
<tr>
<th>ENGLISH R1A</th>
<th>Reading and Composition (4)</th>
<th>ENGL 1</th>
<th>Reading and Composition (3)</th>
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</thead>
<tbody>
<tr>
<td>ENGLISH R1B</td>
<td>Reading and Composition (4)</td>
<td>ENGL 2</td>
<td>Critical Analysis and Composition (3)</td>
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<tr>
<td></td>
<td>Intermediate</td>
<td></td>
<td>OR</td>
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<tr>
<td></td>
<td></td>
<td>ENGL 31</td>
<td>Advanced Composition (3)</td>
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MATHEMATICS
Ecosystem Management & Forestry requires MATH 16A & 16B or MATH 1A & 1B.
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MATH 16A Analytic Geometry and Calculus (3) | MATH 7 Calculus 1 (5)

MATH 16B Analytic Geometry and Calculus (3) | MATH 8 Calculus 2 (5)
OR
MATH 1A Calculus (4) | MATH 7 Calculus 1 (5)
OR
MATH 1B Calculus (4) | MATH 8 Calculus 2 (5)

STATISTICS

Ecosystem Management & Forestry requires STAT 20 or STAT 21 (STAT 20 or STAT 21 may be completed at UC Berkeley)

STAT 20 Introduction to Probability and Statistics (4) | NO COURSE ARTICULATED
NOTE: STAT 20 at Berkeley has a prerequisite of one semester of calculus.
OR
STAT 21 Introductory Probability and Statistics for Business (4) | NO COURSE ARTICULATED
NOTE: STAT 21 at Berkeley has a prerequisite of one semester of calculus.

CHEMISTRY

Ecosystem Management & Forestry requires CHEM 1A & AL or CHEM 3A & AL.

CHEM 1A General Chemistry (3) | CHEM 11 General Chemistry I (5)
CHEM 1AL General Chemistry Laboratory (1) | CHEM 12 General Chemistry II (5)
CHEM 1B General Chemistry (4)

CHEM 3A Chemical Structure and Reactivity (3) | CHEM 21 Organic Chemistry I (5)
CHEM 3AL Organic Chemistry Laboratory (2)

PHYSICAL SCIENCE

Ecosystem Management & Forestry requires EPS 50, GEOG 1, or GEOG 40.

EPS 50 The Planet Earth (includes lab) (4) | GEOL 4 Physical Geology with Laboratory (4)

GEOG 1 Global Environmental Change (4) | NO COURSE ARTICULATED
OR
GEOG 40 Introduction to Earth System Science (4) | GEOG 1 Introduction to the Natural Environment (3)
OR
GEOG 5 Physical Geography with Lab (4)
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BIOLOGY

Ecosystem Management & Forestry requires BIOLOGY 1B.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Units</th>
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<tbody>
<tr>
<td>BIOLOGY 1A</td>
<td>General Biology (Plant Form &amp; Function, Ecology, Evolution)</td>
<td>(4)</td>
</tr>
<tr>
<td>BIOL 21</td>
<td>Cell Biology and Evolution</td>
<td>(4)</td>
</tr>
<tr>
<td>BIOL 22</td>
<td>Genetics and Molecular Biology</td>
<td>(4)</td>
</tr>
<tr>
<td>BIOL 23</td>
<td>Organismal and Environmental Biology</td>
<td>(5)</td>
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</table>

ECONOMICS

Ecosystem Management & Forestry requires ENVECON C1 or ECON 1 or ECON 2.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ECON C3</td>
<td>Introduction to Environmental Economics and Policy</td>
<td>(4)</td>
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<tr>
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<tr>
<td>ECON 1</td>
<td>Introduction to Economics</td>
<td>(4)</td>
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<tr>
<td>ECON 2</td>
<td>Principles of Microeconomics</td>
<td>(3)</td>
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<tr>
<td></td>
<td>Principles of Macroeconomics</td>
<td></td>
</tr>
</tbody>
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NOTE: Berkeley's ECON 1 covers macro-economics and micro-economics.

ECON 2 Introduction to Economics, Lecture Format

NOTE: Berkeley's ECON 2 covers macro-economic and micro-economics.

ESPM ENVIRONMENTAL SCIENCE CORE COURSE

Select one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>ESPM 2</td>
<td>The Biosphere</td>
<td>(3)</td>
</tr>
<tr>
<td>ESPM 6</td>
<td>Environmental Biology</td>
<td>(3)</td>
</tr>
<tr>
<td>ESPM C10</td>
<td>Environmental Issues</td>
<td>(4)</td>
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<td></td>
<td>Same as: LNS C30V</td>
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<tr>
<td>ESPM 15</td>
<td>Introduction to Environmental Sciences</td>
<td>(3)</td>
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<tr>
<td>ESPM C46</td>
<td>Climate Change and the Future of California</td>
<td>(4)</td>
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</table>

ESPM SOCIAL SCIENCE CORE COURSE

Select one of the following:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Articulation</th>
</tr>
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<tbody>
<tr>
<td>ESPM C11</td>
<td>Americans and the Global Forest</td>
<td>4</td>
<td>NO COURSE ARTICULATED</td>
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<tr>
<td></td>
<td>Same as: LNS C30U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESPM C12</td>
<td>Introduction to Environmental Studies</td>
<td>4</td>
<td>NO COURSE ARTICULATED</td>
</tr>
<tr>
<td>ESPM C22AC</td>
<td>Fire: Past, Present and Future Interaction with the People and Ecosystems of California</td>
<td>4</td>
<td>NO COURSE ARTICULATED</td>
</tr>
<tr>
<td>ESPM 50AC</td>
<td>Introduction to Culture and Natural Resource Management</td>
<td>4</td>
<td>NO COURSE ARTICULATED</td>
</tr>
<tr>
<td>ESPM 60</td>
<td>Environmental Policy, Administration, and Law</td>
<td>4</td>
<td>NO COURSE ARTICULATED</td>
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</tbody>
</table>

**GEOGRAPHIC INFORMATION SYSTEMS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Articulation</th>
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</thead>
<tbody>
<tr>
<td>ESPM 72</td>
<td>Introduction to Geographic Information Systems</td>
<td>3</td>
<td>NO COURSE ARTICULATED</td>
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END OF MAJOR