Guidelines by Major Effective during the 18-19 Academic Year

To: UC Berkeley                                      From: Santa Rosa Junior College
18-19 General Catalog                                Semester|18-19 General Catalog Semester

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====Environmental Sciences, Lower Division B.S.====

College Admission Requirements for Transfer Students
This major is offered by the College of Natural Resources.

PROGRAM

The Environmental Sciences (ES) major is administered by the Department of Environmental Science, Policy, and Management (ESPM). The major prepares students to deal with issues arising from the impact of human activities on natural systems. To address these problems, all ES students acquire strong backgrounds in math, biological sciences, and physical sciences.

Because this is an interdisciplinary major, students may choose to take upper division electives (if they satisfy pre-requisite requirements) in fields such as ecology, conservation biology, energy and resources, environmental health, toxicology, geology, hydrology, meteorology, geography, and engineering, or a social science field such as city planning, policy analysis, environmental economics and policy, environmental justice, and education.

Each ES student completes a year-long senior research project with the support of a mentor in a biological, physical, or interdisciplinary research area.

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 and the ESPM Social Science Core requirements may be taken at UC Berkeley if no course is articulated at 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 in order for the articulation to work. If you have questions about articulation, please contact the Office of Instruction and Student Affairs, College of Natural Resources at cnrteaching@berkeley.edu or call (510) 642-0542.

In general, students will be evaluated on:

- the strength of academic preparation and the completion of lower division requirements in biology, chemistry, and math
- GPA in the required courses
- cumulative GPA
- the personal statement
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MINIMUM ADMISSIONS REQUIREMENTS

There are three areas of concentration within the Environmental Sciences major: Biological Sciences, Physical Sciences, or Social Sciences. Applicants should meet the requirements for one concentration.

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, the ESPM Social Science Core, and the Social & Behavioral Science and Humanities breadth courses required for the major.

BIOLOGICAL SCIENCES CONCENTRATION
Chemistry 1A & 1AL
Chemistry 3A & 3AL
Biology 1A & 1AL
Biology 1B
Math 16A (or Math 1A)
Math 16B (or Math 1B)
   Recommended:
      Physics 8A (or Physics 7A)
      Environmental Sciences, Policy, and Management 15
      Environmental Economics & Policy Cl (A course in micro-economics satisfies this requirement)

SOCIAL SCIENCE CONCENTRATION
Chemistry 1A & 1AL
Chemistry 1B (or Chemistry 3A & 3AL)
Biology 1A & 1AL and Biology 1B (or Biology 11 & 11L, with the upper division biology elective to be taken at Berkeley)
Math 16A (or Math 1A)
Math 16B (or Math 1B)
   Recommended:
      Physics 8A (or Physics 7A)
      Environmental Sciences, Policy, and Management 15
      Environmental Economics & Policy Cl (A course in micro-economics satisfies this requirement)

PHYSICAL SCIENCE CONCENTRATION
Chemistry 1A & 1AL
Chemistry 3A & 3AL
Biology 1A & 1AL and Biology 1B (or Biology 11 & 11L, with the upper division biology elective to be taken at Berkeley)
Math 1A
Math 1B
Physics 7A
Physics 7B
   Recommended:
Environmental Sciences, Lower Division B.S. (continued)

Environmental Sciences, Policy, and Management 15
Environmental Economics & Policy Cl (A course in micro-economics satisfies this requirement)

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

- AP Biology, with a score of 4 or 5 = Bio 1B, or Bio 11 & 11L
- AP Calculus AB, with a score of 3, 4, 5 = Math 1A or Math 16A
- AP Calculus BC, with a score of 3 or 4 = Math 1A or Math 16A
- AP Calculus BC, with a score of 5 = Math 1A/16A and Math 1B/16B
- AP Economics (Micro), with a score of 4 or 5 = Env Econ Cl/Econ C3
- AP Chemistry, with a score of 4 or 5 = Chemistry 1A & 1AL
- 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 RIA)
- AP English Literature, with a score of 5 = Both halves of Reading & Composition (ENGLISH RIA 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 RIA)
- AP Environmental Science, with a score of 4 or 5 = ESPM Environmental Science Core

Please note that substituting AP scores for chemistry and biology 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 RIA and R1B requirements:
http://nature.berkeley.edu/handbook

For more information on this major:
Environmental Sciences:
https://nature.berkeley.edu/advising/majors/environmental-sciences

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

Students must complete Reading and Composition prior to transfer.
Courses comparable to Berkeley’s READING & COMPOSITION (R&C) 1A & 1B

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<table>
<thead>
<tr>
<th>ENGLISH R1A</th>
<th>Reading and Composition</th>
<th>(4)</th>
<th>ENGL 1A</th>
<th>College Composition</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH R1B</td>
<td>Reading and Composition</td>
<td>(4)</td>
<td>ENGL 5</td>
<td>Advanced Composition and Critical Thinking</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**BIOLOGY**

Biology 1A/1AL and Biology 1B satisfies the Biology requirement for **all three** concentrations.

Biology 11 & 11L satisfies the Biology requirement for the Physical and Social Science concentrations only. The student will be required to take an upper division ecology elective at UC Berkeley for the second half of the requirement.

| BIOLOGY 1A & General Biology Lecture (Cells, Genetics, Animal Form & Function) | 3 | BIO 2.2 & Fundamentals of Biology (Evolution, Genetics, and Zoology) | 5 |
| BIOLOGY 11L | Laboratory | 2 |

| BIOLOGY 1B | General Biology (Plant Form & Function, Ecology, Evolution) | 4 | BIO 2.2 & Fundamentals of Biology (Evolution, Genetics, and Zoology) | 5 |
| BIO 2.3 & Fundamentals of Biology (Botany and Ecology) | 5 |

| BIOLOGY 11 & Introduction to the Science of Living Organisms | 3 | BIO 10 | Introduction to Principles of Biology | 4 |

| BIOLOGY 11L | Laboratory for Biology | 2 |

**CHEMISTRY**

Chem 1A & 1AL and Chem 3A & 3AL will satisfy the Chemistry requirement for **all three** concentrations.

Chem 1A & 1AL and Chem 1B will satisfy the Chemistry requirement for the Social Sciences concentration only.

| CHEM 1A & General Chemistry | 3 | CHEM 1A | General Chemistry | 5 |
| CHEM 1AL | General Chemistry Laboratory | 1 |
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1B</td>
<td>General Chemistry</td>
<td>(4)</td>
</tr>
<tr>
<td>CHEM 1B</td>
<td>General Chemistry</td>
<td>(5)</td>
</tr>
<tr>
<td>CHEM 3A</td>
<td>Chemical Structure and Reactivity</td>
<td>(3)</td>
</tr>
<tr>
<td>CHEM 3AL</td>
<td>Organic Chemistry Laboratory</td>
<td>(2)</td>
</tr>
<tr>
<td>CHEM 8</td>
<td>Introductory Organic Chemistry</td>
<td>(5)</td>
</tr>
<tr>
<td>CHEM 12A</td>
<td>Organic Chemistry</td>
<td>(5)</td>
</tr>
</tbody>
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MATHEMATICS

Math 1A and Math 1B will satisfy the math requirement for **all three** concentrations.

Math 16A and Math 16B will satisfy the math series for the Biological and Social Science concentrations **only**.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1A</td>
<td>Calculus</td>
<td>(4)</td>
</tr>
<tr>
<td>MATH 1A</td>
<td>Calculus, First Course</td>
<td>(5)</td>
</tr>
<tr>
<td>MATH 1B</td>
<td>Calculus</td>
<td>(4)</td>
</tr>
<tr>
<td>MATH 1B</td>
<td>Calculus, Second Course</td>
<td>(5)</td>
</tr>
<tr>
<td>MATH 16A</td>
<td>Analytic Geometry and Calculus</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>NO COURSE ARTICULATED</td>
<td></td>
</tr>
<tr>
<td>MATH 16B</td>
<td>Analytic Geometry and Calculus</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>NO COURSE ARTICULATED</td>
<td></td>
</tr>
</tbody>
</table>

PHYSICS

**NOTE:** It is highly recommended that you complete the Physics requirement prior to transfer. If an equivalent to the Physics 8 series is unavailable, students should complete the equivalent of the Physics 7 series.

Physics 7A and 7B satisfies the Physics requirement for the Physical Science concentration.

Physics 8A will satisfy the Physics requirement for the Biological and Social Science concentrations **only**. Physics 7A will also satisfy the Physics requirement for the Biological and Social Science concentrations.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 7A</td>
<td>Physics for Scientists and Engineers</td>
<td>(4)</td>
</tr>
<tr>
<td>PHYS 40</td>
<td>Classical Mechanics for Scientists and</td>
<td>(5)</td>
</tr>
<tr>
<td></td>
<td>Engineers</td>
<td></td>
</tr>
<tr>
<td>PHYS 41</td>
<td>Waves, Optics and Thermodynamics for</td>
<td>(4)</td>
</tr>
<tr>
<td></td>
<td>Scientists &amp; Engineers</td>
<td></td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICS 7B</td>
<td>Physics for Scientists and Engineers</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 41 &amp; 42</td>
<td>Waves, Optics and Thermodynamics</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>for Scientists &amp; Engineers</td>
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</tr>
<tr>
<td></td>
<td>Electricity and Magnetism</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>for Scientists and Engineers</td>
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</tr>
</tbody>
</table>

**NOTE:** This institution may cover the topics in Berkeley's PHYSICS 7ABC series in a different order. Students who transfer before completing courses equivalent to the entire 7ABC series may need to enroll in Berkeley's PHYSICS 49 to complete missing topics such as wave motion (7A) or heat (7B).

PHYSICS 8A Introductory Physics (4) NO COURSE ARTICULATED

**ECONOMICS**

**Required for all concentrations, if articulated course offered.**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON C3</td>
<td>Introduction to Environmental</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Economics and Policy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Same as: ENVECON C1</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>ECON 1 Introduction to Economics</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td>ECON 2 Principles of Microeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>

**NOTE:** Berkeley's ECON 1 covers macro-economics and micro-economics.

Environmental Sciences requires only one course in micro-economics; thus, a course in micro-economics will satisfy the requirement. Macro-economics is **OPTIONAL** for this major.

**ESPM ENVIRONMENTAL SCIENCE CORE COURSE**

Select **one** of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</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></td>
<td>BIO 12 Basic Concepts of Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>
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ESPM C10    Environmental Issues (4)  |  BIO 12  Basic Concepts of Ecology (3)
Same as: LNS C30V  |  OR  
  ENVS 12  Introduction to Environmental Science (3)
  OR  
  SOCS 12  Environmental Policies and Politics (3)

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ESPM 15    Introduction to Environmental Sciences (3)  |  ENVS 12  Introduction to Environmental Science (3)

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ESPM C46    Climate Change and the Future of California (4)  |  NO COURSE ARTICULATED

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ESP M SOCIAL SCIENCE CORE COURSE
Select one of the following:

ESPM C11    Americans and the Global Forest (4)  |  NO COURSE ARTICULATED
Same as: LNS C30U

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ESPM C12    Introduction to Environmental Studies (4)  |  NO COURSE ARTICULATED

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ESPM 50AC    Introduction to Culture and Natural Resource Management (4)  |  NO COURSE ARTICULATED

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ESPM 60    Environmental Policy, Administration, and Law (4)  |  NO COURSE ARTICULATED

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END OF MAJOR