The Bachelor of Arts in Geological and Environmental Sciences - Environmental Law Advantage program allows students interested in a career in law to complete both an undergraduate degree and a law degree in six years (rather than the typical seven years). Students will earn a Bachelor of Arts (BA) in Geological and Environmental Sciences and a Juris Doctor (JD) law degree in a total of 6 years. Although students will be well prepared for an environmental law career, the LAW program enables students to practice in any area of law.

Students must fulfill all the criteria for admissions into McGeorge including completion of the McGeorge JD admissions application submitted through the Law School Admissions Council in Spring semester of the junior year. Admission to McGeorge School of Law requires an LSAT score of 153 and a minimum University of the Pacific cumulative grade point average of 3.3 (as calculated by LSAC).

The Bachelor of Arts in Geological and Environmental Sciences is for liberal arts students with a strong interest in the earth and its environments, but who may not plan to pursue a career in the sciences. The breadth of a BA in Geological and Environmental Sciences is ideal for preparing students for professional degrees and successful careers in law, education, business, administration, or international relations.

The Department of Geological and Environmental Sciences

In the Department of Geological and Environmental Sciences we take a broad view of the Earth and offer courses that develop the practice of scientific inquiry and an understanding of our planet, its history, natural systems, resources and recent global change. Our students explore the origin of the Earth and solar system, the formation of continents and oceans, the evolution and extinction of life, the distribution and availability of water and natural resources, and the impact of humans on the environment. A truly distinctive and critical component of the student experience in our department is our experiential-based education that includes laboratory and field work and is designed to inspire in our students a lifelong passion for learning about the natural world. Many of our majors work closely with faculty on award-winning collaborative research projects that advance scientific knowledge of the Earth and its environments or participate in internship experiences throughout the United States.

Systems & Cycles
Understand fundamental environmental systems, cycles, processes, and interactions between and among them.

Materials
Identify common earth materials in the lab and the field and interpret their origin.

Problem Solving
Acquire and apply knowledge from the liberal arts to address problems.

Standardized Approach
Employ consistently the standardized approach ("scientific method") in research and problem solving.
Oral Communication
Communicate science effectively in oral form and with a style appropriate
to a range of audiences.

Written Communication
Communicate science effectively in written form and with a
style appropriate to a range of audiences.

Professionalism
Demonstrate professionalism in interactions, collaboration,
and approaches to ethical dilemmas in the discipline.

Bachelor of Arts Major in Geological and Environmental Sciences
Students must complete a minimum of 120 units with a cumulative and
major/program grade point average of 2.0 in order to earn the bachelor of
arts degree with a major in geological and environmental science.

I. General Education Requirements
Minimum 42 units and 12 courses that include:

PACS 001 What is a Good Society 4
PACS 002 Topical Seminar on a Good Society 4
PACS 003 What is an Ethical Life? 3

Note: 1) Pacific Seminars cannot be taken for Pass/No Credit. 2) Transfer students with 28 or more transfer units complete 2 additional General Education elective courses from below in place of taking PACS 001 and PACS 002.

One course from each subdivision below:

Social and Behavioral Sciences
IA. Individual and Interpersonal Behavior
IB. U.S. Studies
IC. Global Studies

Arts and Humanities
IIA. Language and Literature
IIB. Worldviews and Ethics
IIC. Visual and Performing Arts

Natural Sciences and Mathematics
IIIA. Natural Sciences
IIIB. Mathematics and Formal Logic
IIIC. Science, Technology and Society
or a second IIIA Natural Sciences course

Note: 1) No more than 2 courses from a single discipline may be applied to meet the requirements of the general education program.

II. Diversity Requirement
Students must complete one diversity course (3-4 units)

Note: 1) A complete list of the courses that satisfy the requirement above is found in the front Diversity Requirement section of this catalog and the online course search. 2) Transfer students with 28 units or more transfer units prior to fall 2011 are encouraged but not required to complete a designated course prior to graduation. 3) Courses may be used also to meet general education and/or major/minor requirements.

III. College of the Pacific BA Requirement
The student must complete one year of college instruction or equivalent training in a language other than English.

Note: 1) Transfer students with sophomore standing are exempt from this requirement.

IV. Fundamental Skills
The student must demonstrate competence in:

Writing
Quantitative analysis

V. Breadth Requirement
The student must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

VI. Major Requirements
GESC 102 Earth Surface Processes and GIS 4
GESC 103 Global Change 4
GESC 106 Earth Materials 5
GESC 148 Critical Zone Science 4
GESC 185 Capstone Seminar in Geological and Environmental Sciences 4
GESC 195 Professional Devlpmnt Seminar ** 0.5
Select one of the following:
GESC 051 Dynamic Planet
GESC 053 Earth and Life Through Time
GESC 061 Geology of California
GESC 065 Regional Geology
Select one of the following:
BIOL 035 Environment: Concepts and Issues
GESC 043 Environmental Science for Informed Citizens
GESC 045 Soil, Water, and War
Select two of the following GECS or BIOL electives: * 8-9
BIOL 072 Vertebrate Biology
BIOL 074 Biology of Insects
BIOL 076 Marine Biology
BIOL 077 Marine Birds and Mammals
BIOL 079 California Flora
BIOL 171 Methods in Field Biology
BIOL 175 Ecology
GESC 110 Igneous and Metamorphic Petrology
GESC 112 Sedimentology and Stratigraphy
GESC 114 Structural Geology
GESC 142 Geochemistry
GESC 149 Environmental Hydrology
GESC 161 Geologic Field Methods
Select one of the following:
MATH 035 Elementary Statistical Inference
MATH 037 Introduction to Statistics and Probability
Select one of the following:
CHEM 023 Elements of Chemistry
CHEM 024 Fundamentals of Chem

Note: 1) No more than 2 courses from a single discipline may be applied to meet the requirements of the general education program.
CHEM 025  General Chemistry
CHEM 027  General Chemistry

Select one of the following:  

CIVL 171  Water and Environmental Policy
ECON 157  Environmental and Natural Resource Economics
GESC 137  Environmental Law
INTL 174  Global Environmental Policy

* Electives should be selected in consultation with your advisor.
** Must be taken each semester of Junior and Senior year to a maximum of 4 times.

Bachelor of Arts Major in Geological and Environmental Sciences with Departmental Honors

Students must complete a minimum of 120 units with a cumulative grade point average of 3.5 and major/program grade point average of 3.3 in order to earn the bachelor of arts degree with a major in geological and environmental science with departmental honors.

I. General Education Requirements

Minimum 42 units and 12 courses that include:

PACS 001  What is a Good Society  
PACS 002  Topical Seminar on a Good Society  
PACS 003  What is an Ethical Life?

Note: 1) Pacific Seminars cannot be taken for Pass/No Credit. 2) Transfer students with 28 or more transfer units complete 2 additional General Education elective courses from below in place of taking PACS 001 and PACS 002.

One course from each subdivision below:

Social and Behavioral Sciences
IA. Individual and Interpersonal Behavior
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IC. Global Studies

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IIA. Language and Literature
IIB. Worldviews and Ethics
IIC. Visual and Performing Arts

Natural Sciences and Mathematics
IIIA. Natural Sciences
IIIB. Mathematics and Formal Logic
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or a second IIIA Natural Sciences course

Note: 1) No more than 2 courses from a single discipline may be applied to meet the requirements of the general education program.

II. Diversity Requirement

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Note: 1) A complete list of the courses that satisfy the requirement above is found in the front Diversity Requirement section of this catalog and the online course search. 2) Transfer students with 28 units or more transfer units prior to fall 2011 are encouraged but not required to complete a designated course prior to graduation. 3) Courses may be used also to meet general education and/or major/minor requirements.

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The student must complete one year of college instruction or equivalent training in a language other than English.

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IV. Fundamental Skills

The student must demonstrate competence in:

Writing
Quantitative analysis

V. Breadth Requirement

The student must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

VI. Major Requirements

GESC 102  Earth Surface Processes and GIS  
GESC 103  Global Change  
GESC 106  Earth Materials  
GESC 148  Critical Zone Science  
GESC 185  Capstone Seminar in Geological and Environmental Sciences

GESC 197  Undergraduate Research

Select one of the following:

GESC 051  Dynamic Planet
GESC 053  Earth and Life Through Time
GESC 061  Geology of California
GESC 065  Regional Geology

Select one of the following:

BIOL 035  Environment: Concepts and Issues
GESC 043  Environmental Science for Informed Citizens
GESC 045  Soil, Water, and War

Select two of the following GECS or BIOL electives: *  

BIOL 072  Vertebrate Biology
BIOL 074  Biology of Insects
BIOL 076  Marine Biology
BIOL 077  Marine Birds and Mammals
BIOL 079  California Flora
BIOL 171  Methods in Field Biology
BIOL 175  Ecology
GESC 110  Igneous and Metamorphic Petrology
GESC 112  Sedimentology and Stratigraphy
GESC 114  Structural Geology
GESC 142  Geochemistry
GESC 149  Environmental Hydrology
GESC 161  Geologic Field Methods

Select one of the following:

MATH 035  Elementary Statistical Inference
MATH 037  Introduction to Statistics and Probability

Select one of the following:

Geological and Environmental Sciences 3
Bachelor of Science Major in Geological and Environmental Sciences

Students must complete a minimum of 120 units with a cumulative and major/program grade point average of 2.0 in order to earn the bachelor of science degree with a major in geological and environmental science.

I. General Education Requirements

Minimum 42 units and 12 courses that include:

- PACS 001 What is a Good Society 4
- PACS 002 Topical Seminar on a Good Society 4
- PACS 003 What is an Ethical Life? 3

Note: 1) Pacific Seminars cannot be taken for Pass/No Credit. 2) Transfer students with 28 or more transfer units complete 2 additional General Education elective courses from below in place of taking PACS 001 and PACS 002.

One course from each subdivision below:

Social and Behavioral Sciences
- IA. Individual and Interpersonal Behavior
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- IC. Global Studies

Arts and Humanities
- IIA. Language and Literature
- IIB. Worldviews and Ethics
- IIC. Visual and Performing Arts

Natural Sciences and Mathematics
- IIIA. Natural Sciences
- IIIB. Mathematics and Formal Logic
- IIIC. Science, Technology and Society
  or a second IIIA Natural Sciences course

Note: 1) No more than 2 courses from a single discipline may be applied to meet the requirements of the general education program.

II. Diversity Requirement

Students must complete one diversity course (3-4 units)

Note: 1) Transfer students with 28 units or more transfer units prior to fall 2011 are encouraged but not required to complete a designated course prior to graduation. 2) Courses may be used also to meet general education and/or major/minor requirements.

III. Fundamental Skills

Students must demonstrate competence in:

- Writing
- Quantitative analysis

IV. Breadth Requirement

Students must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

V. Major Requirements

Students must complete the core courses and also select from one of the tracks below.

Core

<table>
<thead>
<tr>
<th>Course</th>
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<th>Units</th>
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<tbody>
<tr>
<td>GESC 102</td>
<td>Earth Surface Processes and GIS</td>
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<td>GESC 103</td>
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<td>Earth Materials</td>
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<td>GESC 148</td>
<td>Critical Zone Science</td>
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<td>MATH 037</td>
<td>Introduction to Statistics and Probability</td>
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<td>Calculus I</td>
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</tr>
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<td>GESC 185</td>
<td>Capstone Seminar in Geological and Environmental Sciences</td>
<td>4</td>
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<tr>
<td>GESC 195</td>
<td>Professional Devlpmnt Seminar**</td>
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Select one of the following:

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<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>CHEM 024</td>
<td>Fundamentals of Chem</td>
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<td>CHEM 025</td>
<td>General Chemistry</td>
<td>4</td>
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<td>CHEM 027</td>
<td>General Chemistry</td>
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Select one of the following:

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<tbody>
<tr>
<td>GESC 051</td>
<td>Dynamic Planet</td>
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<tr>
<td>GESC 053</td>
<td>Earth and Life Through Time</td>
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</tr>
<tr>
<td>GESC 061</td>
<td>Geology of California</td>
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<td>Regional Geology</td>
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<tbody>
<tr>
<td>BIOL 035</td>
<td>Environment: Concepts and Issues</td>
<td>4</td>
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<tr>
<td>GESC 043</td>
<td>Environmental Science for Informed Citizens</td>
<td>4</td>
</tr>
<tr>
<td>GESC 045</td>
<td>Soil, Water, and War</td>
<td>4</td>
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</table>

Select one of the following:

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<tr>
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<tbody>
<tr>
<td>CIVL 171</td>
<td>Water and Environmental Policy</td>
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<tr>
<td>ECON 157</td>
<td>Environmental and Natural Resource Economics</td>
<td>4</td>
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<td>GESC 137</td>
<td>Environmental Law</td>
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<td>INTL 174</td>
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Geology Concentration

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>GESC 110</td>
<td>Igneous and Metamorphic Petrology</td>
<td>4</td>
</tr>
<tr>
<td>GESC 112</td>
<td>Sedimentology and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td>GESC 114</td>
<td>Structural Geology</td>
<td>4</td>
</tr>
<tr>
<td>GESC 142</td>
<td>Geochemistry</td>
<td>4</td>
</tr>
<tr>
<td>GESC 161</td>
<td>Geologic Field Methods</td>
<td>4</td>
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Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>GESC 187</td>
<td>Internship in Geosciences</td>
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<td>GESC 197</td>
<td>Undergraduate Research</td>
<td>5</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Units</td>
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<tr>
<td>PHYS 023</td>
<td>General Physics I</td>
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<tr>
<td>PHYS 053</td>
<td>Principles of Physics I</td>
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<td>General Physics II</td>
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<tr>
<td>PHYS 055</td>
<td>Principles of Physics II</td>
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<tr>
<td><strong>Environmental Science Concentration</strong></td>
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</tr>
<tr>
<td>BIOL 051</td>
<td>Principles of Biology</td>
<td>5</td>
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<tr>
<td>BIOL 061</td>
<td>Principles of Biology</td>
<td>5</td>
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<td>BIOL 171</td>
<td>Methods in Field Biology</td>
<td>4</td>
</tr>
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<td>CIVL 060</td>
<td>Water Quality</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 175</td>
<td>Ecology</td>
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<td><strong>Select one of the following:</strong></td>
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<td>BIOL 072</td>
<td>Vertebrate Biology</td>
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</tr>
<tr>
<td>BIOL 079</td>
<td>California Flora</td>
<td></td>
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<td><strong>Select one of the following:</strong></td>
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<tr>
<td>ENGL 126</td>
<td>Environment and Literature</td>
<td>4</td>
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<tr>
<td>HIST 052</td>
<td>John Muir’s World: Origins of the Conservation Movement</td>
<td></td>
</tr>
<tr>
<td>HIST 136</td>
<td>American Environmental History</td>
<td></td>
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<tr>
<td>SOCI 111</td>
<td>Environment and Society</td>
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<tr>
<td>PHIL 035</td>
<td>Environmental Ethics</td>
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* Students can also complete a Geologic field camp.
** Must be taken each semester of Junior and Senior year to a maximum of 4 times.

**Bachelor of Science Major in Geological and Environmental Sciences with Departmental Honors**

Students must complete a minimum of 120 units with a cumulative grade point average of 3.5 and major/program grade point average of 3.3 in order to earn the bachelor of science degree with a major in geological and environmental science with departmental honors.

**I. General Education Requirements**

Minimum 42 units and 12 courses that include:

<table>
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<tr>
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<tbody>
<tr>
<td>PACS 001</td>
<td>What is a Good Society</td>
<td>4</td>
</tr>
<tr>
<td>PACS 002</td>
<td>Topical Seminar on a Good Society</td>
<td>4</td>
</tr>
<tr>
<td>PACS 003</td>
<td>What is an Ethical Life?</td>
<td>3</td>
</tr>
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</table>

*Note: 1) Pacific Seminars cannot be taken for Pass/No Credit. 2) Transfer students with 28 or more transfer units complete 2 additional General Education elective courses from below in place of taking PACS 001 and PACS 002.*

One course from each subdivision below:

**Social and Behavioral Sciences**

IA. Individual and Interpersonal Behavior

**IB. U.S. Studies**

**IC. Global Studies**

**Arts and Humanities**

IIA. Language and Literature

IIB. Worldviews and Ethics

IIC. Visual and Performing Arts

**Natural Sciences and Mathematics**

IIIA. Natural Sciences

IIIB. Mathematics and Formal Logic

IIIC. Science, Technology and Society or a second IIIA Natural Sciences course

*Note: 1) No more than 2 courses from a single discipline may be applied to meet the requirements of the general education program.*

**II. Diversity Requirement**

Students must complete one diversity course (3-4 units)

*Note: 1) Transfer students with 28 units or more transfer units prior to fall 2011 are encouraged but not required to complete a designated course prior to graduation. 2) Courses may be used also to meet general education and/or major/minor requirements.*

**III. Fundamental Skills**

Students must demonstrate competence in:

Writing

Quantitative analysis

**IV. Breadth Requirement**

Students must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

**V. Major Requirements**

Students must complete the core courses and also select from one of the tracks below.

**Core**

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<td>GESC 102</td>
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<td>Global Change</td>
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<td>Calculus I</td>
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<td>GESC 185</td>
<td>Capstone Seminar in Geological and Environmental Sciences</td>
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Select one of the following: 4-5

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Select one of the following: 4

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<tr>
<td>GESC 065</td>
<td>Regional Geology</td>
<td></td>
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</table>

Select one of the following: 4
Bachelor of Arts Major in Geological and Environmental Sciences and Law

Students must complete a minimum of 120 units with a cumulative and major/program grade point average of 2.0 in order to earn the bachelor of arts degree with a major in geological and environmental sciences and law.

I. General Education Requirements

Minimum 42 units and 12 courses that include:

- PACS 001 What is a Good Society 4
- PACS 002 Topical Seminar on a Good Society 4
- PACS 003 What is an Ethical Life? 3

**Note:** 1) Pacific Seminars cannot be taken for Pass/No Credit. 2) Transfer students with 28 or more transfer units complete 2 additional General Education elective courses from below in place of taking PACS 001 and PACS 002.

One course from each subdivision below:

1. Social and Behavioral Sciences
   - IA. Individual and Interpersonal Behavior
   - IB. U.S. Studies
   - IC. Global Studies

2. Arts and Humanities
   - IIA. Language and Literature
   - IIB. Worldviews and Ethics
   - IIC. Visual and Performing Arts

3. Natural Sciences and Mathematics
   - IIIA. Natural Sciences
   - IIIB. Mathematics and Formal Logic
   - IIIC. Science, Technology and Society
   or a second IIIA Natural Sciences course

**Note:** 1) No more than 2 courses from a single discipline may be applied to meet the requirements of the general education program.

II. Diversity Requirement

Students must complete one diversity course (3-4 units)

**Note:** 1) A complete list of the courses that satisfy the requirement above is found in the front Diversity Requirement section of this catalog and the online course search. 2) Transfer students with 28 units or more transfer units prior to fall 2011 are encouraged but not required to complete a designated course prior to graduation. 3) Courses may be used also to meet general education and/or major/minor requirements.

III. College of the Pacific BA Requirement

The student must complete one year of college instruction or equivalent training in a language other than English.

**Note:** 1) Transfer students with sophomore standing are exempt from this requirement.

IV. Fundamental Skills

The student must demonstrate competence in:

- Writing
- Quantitative analysis
V. Breadth Requirement
The student must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

VI. Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>GESC 102</td>
<td>Earth Surface Processes and GIS</td>
<td>4</td>
</tr>
<tr>
<td>GESC 103</td>
<td>Global Change</td>
<td>4</td>
</tr>
<tr>
<td>GESC 106</td>
<td>Earth Materials</td>
<td>5</td>
</tr>
<tr>
<td>GESC 148</td>
<td>Critical Zone Science</td>
<td>4</td>
</tr>
<tr>
<td>GESC 185</td>
<td>Capstone Seminar in Geological and Environmental Sciences</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following: 4

- GESC 051 Dynamic Planet
- GESC 053 Earth and Life Through Time
- GESC 061 Geology of California
- GESC 065 Regional Geology

Select one of the following: 4

- BIOL 035 Environment: Concepts and Issues
- GESC 043 Environmental Science for Informed Citizens
- GESC 045 Soil, Water, and War

Select two of the following GESC or BIOL electives: 8-9

- BIOL 072 Vertebrate Biology
- BIOL 074 Biology of Insects
- BIOL 076 Marine Biology
- BIOL 077 Marine Birds and Mammals
- BIOL 079 California Flora
- BIOL 171 Methods in Field Biology
- BIOL 175 Ecology
- GESC 110 Igneous and Metamorphic Petrology
- GESC 112 Sedimentology and Stratigraphy
- GESC 114 Structural Geology
- GESC 142 Geochemistry
- GESC 149 Environmental Hydrology
- GESC 161 Geologic Field Methods

Select one of the following: 4

- MATH 035 Elementary Statistical Inference
- MATH 037 Introduction to Statistics and Probability

Select one of the following: 4

- CHEM 023 Elements of Chemistry
- CHEM 024 Fundamentals of Chem
- CHEM 025 General Chemistry
- CHEM 027 General Chemistry

Select one of the following: 4

- CIVL 171 Water and Environmental Policy
- ECON 157 Environmental and Natural Resource Economics
- GESC 137 Environmental Law
- INTL 174 Global Environmental Policy

* Electives should be selected in consultation with your advisor.

VII. Awarding the Bachelor of Arts degree
After successful completion of all the requirements listed above and successful completion of 22 units in the McGeorge School of Law JD program, students will be awarded a Bachelor of Arts in Geological and Environmental Sciences and Law.

VII. JD Requirements
The full requirements for a McGeorge Juris Doctorate are listed in their catalog. Students should refer to the specific degree requirements for their graduating class to ensure they are on track.

Minor in Environmental Science
Students must complete a minimum of 20 units with a Pacific minor grade point average of 2.0 in order to earn a minor in environmental science.

Minor Requirements:

Select one of the following: 5-10

- BIOL 041 Introduction to Biology
- BIOL 051 Principles of Biology & BIOL 061 and Principles of Biology

Select one of the following: 5

- BIOL 175 Ecology
- BIOL 176 Ecology and Conservation Biology

Select one of the following: 4

- GESC 043 Environmental Science for Informed Citizens
- GESC 051 Dynamic Planet
- GESC 053 Earth and Life Through Time
- GESC 061 Geology of California
- GESC 065 Regional Geology

Select three courses in consultation with advisor 12-15

* At least two courses must be GESC 100 or above, excluding GESC 105.

Minor in Geology
Students must complete a minimum of 20 units with a Pacific minor grade point average of 2.0 in order to earn a minor in geology.

Minor Requirements:

Select one of the following: 4-5

- GESC 051 Dynamic Planet
- GESC 053 Earth and Life Through Time
- GESC 055 Physical Geography
- GESC 057 Earth Systems Science
- GESC 061 Geology of California
- GESC 065 Regional Geology

GESC Electives (4 additional courses GESC 100 and above excluding GESC 105) 16

Geo and Enviro Sciences Courses
GESC 020. Living on Planet Earth. 1 Unit.
This course is a concurrent seminar and field work course for participants in the Residence for Earth and Environmental Living and Learning Community (REELL). Students investigate their impact on Earth and the Environment within the context of guest lectures, discussions, and activities related to global environmental change, carbon footprints, management of natural resources, and sustainability. Prerequisite: Concurrent enrollment in the REELL community or permission of the instructor.
GESC 041. Environmental Geology. 4 Units.
This lecture and field work course studies the interaction between humans and the physical environment as well as analyzes the physical constraints placed on human activities by geological processes and the effects that human activities have on the environment. (ENST, GE3A)

GESC 043. Environmental Science for Informed Citizens. 4 Units.
This interdisciplinary course of lecture, laboratory, and field work focus on the analysis of policy-relevant environmental problems in four domains: water, energy, climate and land use - with an emphasis on human interactions. (ENST, GE3A)

GESC 045. Soil, Water, and War. 4 Units.
The link between limited natural resources and human conflict along with historical and current conflicts is the focus of discussion and field work. Analysis of these conflicts allows achievement of understanding of the following: 1) water resources; 2) soil formation; 3) links between the environment and natural resources. (ENST, GE3A)

GESC 051. Dynamic Planet. 4 Units.
This course is an introduction to the fundamental concepts of geology and geological reasoning. Concepts covered include: the nature and origin of earth materials, the processes and forces which create and shape the surface of the earth and affect its internal structure within the context of deep time, as well as a study of earth resources and human interactions with the environment. The course includes laboratory and field work. Credit for this course is not given if a student has credit for GEOS 061, GESC 061, GEOS 065 or GESC 065. (ENST, GE3A)

GESC 053. Earth and Life Through Time. 4 Units.
This lecture, laboratory, and field study class introduces students to the geologic history of the earth as interpreted through analysis of the stratigraphic and fossil record, structural relationships and isotopic dating techniques. Particular emphasis is placed on the geologic evolution of North America. (ENST, GE3A)

GESC 055. Physical Geography. 4 Units.
This lecture, laboratory, and field study class examines interactions of earth's atmosphere, organisms, rocks and soil with an emphasis placed on climate, energy and nutrient cycles, and landform evolution. (ENST)

GESC 057. Earth Systems Science. 4 Units.
This lecture, laboratory, and field study class introduces the study of the Earth using a systems approach. The focus is on the subsystems (geosphere, hydrosphere, atmosphere, biosphere) and the dynamic interactions between them. The approach develops an understanding of the balance that exists in the global environment as a result of the processes within and interactions between the systems. (GE3A)

GESC 061. Geology of California. 4 Units.
This course is a lecture, laboratory, and field-based introduction to the fundamental principles of geology and geological reasoning that are reinforced during a four-day camping trip. The course involves a scientific study of the planet Earth, including earth systems, earth materials, the physical processes shaping the earth, and the history of the earth and its life forms within the context of deep time. The geologic implications of human activities on the environment, earth resources and climate change are also studied. Credit for this course is not given if a student has credit for GEOS 051, GESC 051, GEOS 065 or GESC 065. (ENST, GE3A)

GESC 065. Regional Geology. 4 Units.
This is a field intensive study of a geologically relevant area including investigations of plate tectonics, a formation of rocks and minerals, the hydrologic cycle, formation of landforms, geologic time, and climate change. Possible study regions include Hawaii, the Colorado Plateau, Chile, Costa Rica, and Alaska. This course includes laboratory work and a multi-day field trip during spring break. Credit for this course is not given if a student has credit for GEOS 051, GESC 051, GEOS 061 or GESC 061. (ENST, GE3A)

GESC 093. Special Topics. 4 Units.
Special Topics.

GESC 100. Mineralogy. 5 Units.
Minerals are studied through crystallography, crystal chemistry and crystal structure. This course focuses on the major groups of rock-forming minerals, their associations and origin and on mineral identification by physical properties, optical techniques, and x-ray methods. Prerequisites: CHEM 023 or CHEM 024 or CHEM 025 or CHEM 027, GESC 051 or GESC 053 or GESC 061 or GESC 065.

GESC 102. Earth Surface Processes and GIS. 4 Units.
This course examines the physical processes that shape the Earth's surface, including the qualitative description of landforms and the analytical and quantitative understanding of processes. The course emphasizes techniques for characterizing landforms, soils, and the processes that shape them, including spatial analysis, Geographic Information Systems (GIS), air photo interpretation, experimental simulation, and field methods. (ENST)

GESC 103. Global Change. 4 Units.
This lecture and laboratory interdisciplinary study of the Earth's dramatic and abrupt changes in the past and their tremendous environmental repercussions has an emphasis on human interactions and future changes. Prerequisites: an introductory GESC course; CHEM 023 or CHEM 024 or CHEM 025 or CHEM 027. (ENST)

GESC 105. Field Studies. 1 or 2 Unit.
This field study of geological phenomena in western North America involves a minimum of three continuous days on a department-supervised field trip. Students can repeat this course for up to 4 units of credit. Prerequisite: an introductory GESC course and permission of instructor.

GESC 106. Earth Materials. 5 Units.
This lecture, laboratory, and field work course studies the origin occurrence, and identification of rock-forming minerals and the rocks they are found in. The focus is on crystallography and chemical and physical properties of rock-forming minerals and the major rock-forming processes. Prerequisites: an introductory GESC course (GESC 051 or GESC 053 or GESC 061) and a college level course in chemistry (CHEM 023 or CHEM 024 or CHEM 025 or CHEM 027) or instructor permission. (ENST)

GESC 110. Igneous and Metamorphic Petrology. 4 Units.
This lecture, laboratory, and field work course characteristics, occurrence, origin and classification of igneous and metamorphic rocks with an emphasis on plate tectonic setting and the physical and chemical processes of the earth's interior. Methods include field study, hand specimen and thin section analysis. Prerequisite: GESC 106 or permission of instructor.
GESC 112. Sedimentology and Stratigraphy. 4 Units.
This lecture, laboratory, and field work course studies characteristics, occurrence, origins and 3-D relationships of sedimentary rocks, and the mineral resources they contain. The course focuses on the materials and processes of sedimentation, depositional environments, and the principles of stratigraphical analysis. Prerequisite, may be taken concurrently: GESC 106.

GESC 114. Structural Geology. 4 Units.
This lecture, laboratory, and required multi-day field course examines the character and causes of the geologic structures that deform Earth's crust within the context of whole-Earth structure, geotectonic processes and environments, and rock mechanics. Prerequisite: GESC 051 or permission of instructor. (ENST)

GESC 120. Paleontology. 4 Units.
This lecture and laboratory course examines the study of the description, identification, uses, principles, interpretation and methods of study of major groups of fossils; invertebrate and vertebrate animals, plants and single-celled organisms. Prerequisite: GESC 053 or permission of instructor.

GESC 136. Petrography. 4 Units.
This lecture and laboratory course examines identification, classification, and interpretation of igneous, sedimentary, and metamorphic rocks using the petrographic microscope. Prerequisites: GESC 110 and GESC 112.

GESC 137. Environmental Law. 4 Units.
This course introduces students to the field of environmental law and provides a strong background on the American legal system, including the role of the courts, the federal and state governments, and nongovernmental organizations. Students will survey most of our major federal environmental laws, including the Endangered Species Act, the Clean Water Act, and the Clean Air Act. Coursework will include guided case readings and in-class discussion of major environmental law cases. Prerequisite: Sophomore standing. (ENST)

GESC 142. Geochemistry. 4 Units.
This lecture, laboratory, and field work course examines the application of chemical principles to the study of geological processes. Prerequisites: an introductory GESC course; CHEM 024 or CHEM 025 or CHEM 027; MATH 041. (ENST)

GESC 144. Geomorphology. 4 Units.
This lecture, laboratory, and field work course studies the comprehensive treatment of the principles of landscape development, analysis of topographic maps and interpretation of aerial photographs. Prerequisite: an introductory GESC course. (ENST)

GESC 145. Engineering Geology. 4 Units.
This lecture, laboratory, and field work course introduces the study of applied geology in which geologic principles, data and techniques are applied to civil engineering problems. Prerequisites: GEOS 051 or GEOS 061 or CIVL 140. (ENST)

GESC 148. Critical Zone Science. 4 Units.
The Critical Zone is the Earth's permeable near-surface layer...from the tops of the trees to the bottom of the groundwater. Despite the Critical Zone's importance to terrestrial life, it remains poorly understood. In this class, we will strive to understand the complex web of physical, chemical, and biological processes of the Critical Zone using a systems approach across a broad array of sciences: hydrology, geology, soil science, biology, ecology, geochemistry, geomorphology, and more. Course includes laboratory and field work. Prerequisite: GESC 043 or GESC 053; GESC 051 or GESC 061; CHEM 024 with a grade of "C" or better. (ENST)

GESC 149. Environmental Hydrology. 4 Units.
An examination of the processes that govern the earth's hydrologic cycle such as precipitation, evaporation and transpiration, runoff and streamflow processes, infiltration and groundwater processes, and an exploration of anthropogenic effects on the hydrologic cycle. Topics include land-atmosphere interactions, movement of water in subsurface environments, contaminant transport in groundwater systems, streamflow generation, surface water flow dynamics, sediment budgets, urban runoff and flood control. Course includes laboratory work. Prerequisites: GESC 043 or GESC 051 or GESC 053 or GESC 061 and MATH 051.

GESC 161. Geologic Field Methods. 4 Units.
This lecture and field study course introduces the basic methods and techniques of geologic field work, including measuring, describing, and interpreting stratigraphic sections and constructing geologic maps and cross sections. Particular emphasis is placed on the collection, analysis, and interpretation of geologic data; developing scientific writing and oral presentation skills; and the effective use of computer-generated graphics. The course involves one-day and multi-day field trips. Prerequisites: an introductory GESC course, GESC 110 and GESC 114 or permission of instructor.

GESC 163. Environmental Field Methods. 3 Units.
Field methods of environmental science are introduced to students. Senior standing in the Environmental Science major or permission of instructor. (ENST)

GESC 165. Capstone Seminar in Geological and Environmental Sciences. 4 Units.
This seminar focuses on local/regional geological and environmental issues. Students investigate the background of local/regional geological/environmental issues and informed members of the community/region present their perspective on the issues. Students then work in teams to address scientific aspects of selected geological/environmental problems. Prerequisite: Senior standing in the major.

GESC 178. Internship in Geosciences. 1-4 Units.

GESC 191. Independent Study. 2-4 Units.

GESC 195. Professional Development Seminar. 0.5 Units.
A weekly seminar encompassing special topical lectures, professional development, and department citizenship activities for students majoring in programs within the Geological and Environmental Sciences Department. Prerequisite: Junior or senior standing.

GESC 197. Undergraduate Research. 1-4 Units.

Environmental Studies Courses

BIOL 035. Environment: Concepts and Issues. 4 Units.
Principles of ecology as they bear on world environmental problems are introduced with an emphasis on biological aspects of world problems and on the interrelationships between culture and environment. Global dimension of population, resources, food, energy and environmental impact are considered. Course does not count toward a biology major. (ENST, GE3C)

BIOL 041. Introduction to Biology. 4 Units.
A lecture and laboratory introduce the concepts of biology. Physical structure, physiology, nutrition, reproduction, growth and behavior are examined from the perspective of adaptation and interaction with the environment. Human, animal and plant systems are covered. Recommended for non-majors. Course does not count toward a biology major. (ENST, GE3A)

BIOL 051. Principles of Biology. 5 Units.
A lecture and laboratory introduction to evolutionary biology and ecology. Preparation for continued studies in biological science. (ENST, GE3A)
BIOL 061. Principles of Biology. 5 Units.
This course is a lecture and laboratory introduction to cellular and molecular biology, cellular energetics, biochemistry, genetics and evolution. Preparation for continued studies in biological science. (ENST, GE3A)

BIOL 072. Vertebrate Biology. 4 Units.
Taxonomy, life history, ecology and evolutionary history of vertebrates are emphasized. Prerequisites: BIOL 051 and BIOL 061. (ENST)

BIOL 074. Biology of Insects. 4 Units.
A lecture and laboratory introduce a broad study of the structure and function of insects, the most diverse terrestrial organisms with over 1 million described species. The course includes a study of their anatomy, physiology, ecology, evolution, reproduction, behavior, and relation to humans. The laboratory work includes field trips in addition to the preparation of 50 classified insects. No prerequisites. Successful completion of this course will satisfy general education category 3A. (ENST, GE3A)

BIOL 076. Marine Biology. 4 Units.
General concepts of community ecology, taxonomy and phylogeny, anatomical and physiological adaptations of marine organisms, and their interaction with the physical environment are the main focus. The class emphasizes natural history and identification of marine organisms of the Central California intertidal and sub-tidal environment. Prerequisites: BIOL 051 and BIOL 061. (ENST, GE3A)

BIOL 077. Marine Birds and Mammals. 4 Units.
Ecology, behavior, economic importance and conservation of cetaceans, pinnipeds, otters, sirenians, seabirds and shorebirds are introduced. Physical and biological oceanography are considered as they relate to distribution and abundance of marine birds and mammals. This course is open to non-majors as well as majors. Junior standing. (ENST)

BIOL 079. California Flora. 4 Units.
Identification and classification of flowering plants, gymnosperms, ferns and fern allies as represented in Northern Calif. are studied. (ENST, GE3A)

BIOL 130. Plant Kingdom. 4 Units.
Through lectures, laboratories and field trips, students are introduced to the morphology, reproduction biology and environmental requirements of all major groups of plants. Included are material bearing on the evolutionary relationships within and between each major group. Individual projects are required. Prerequisites: BIOL 051 and BIOL 061. (ENST)

BIOL 151. Parasitology. 4 Units.
Principles of parasitism as well as biology of animal parasites with special emphasis on the protozoa, platyhelminths, nematodes, acanthocephala and arthropods are studied. Techniques of recovery of parasites from various vertebrate hosts are introduced including staining, mounting and identification. Prerequisites: BIOL 051, BIOL 061, BIOL 101. (ENST)

BIOL 171. Methods in Field Biology. 4 Units.
A course focused on methods of biological investigation with emphasis on modern field sampling techniques and instrumentation. Students are trained in experimental design and quantitative data analysis used to address a range of biological questions. Prerequisites: BIOL 051 and BIOL 061 with a "D" or better. (ENST)

BIOL 175. Ecology. 5 Units.
The structure and dynamics of populations, biotic communities and ecosystems, is emphasized with particular focus upon relationships of organisms to their environments. Prerequisites: BIOL 051 and BIOL 061. (ENST)

BIOL 176. Ecology and Conservation Biology. 4 Units.
The principles of ecology are introduced with attention to consider threats and disruptions to ecological systems from the level of local populations through ecosystems, landscapes, and global processes. Ecological principles are used to help understand these systems, to make predictions for the future or for other systems, and to evaluate possible solutions. The class considers the importance of economic and demographic forces in causing conservation problems and in shaping conservation strategies, and students practice planning conservation areas. Prerequisite: BIOL 051. (ENST)

BIOL 197. Undergraduate Research. 1-4 Units.
CHEM 023. Elements of Chemistry. 4 Units.
This course is designed for general interest in physical science and for preparation for further study in chemistry. Three class periods, one three-hour laboratory period a week, and enrollment in the Chemistry Workshop are required. (ENST, GE3A)

CHEM 024. Fundamentals of Chem. 4 Units.
This course covers general chemistry especially tailored for engineers and earth scientists. Important principles, theories and concepts include: stoichiometry, atomic and molecular structure, equilibrium, gases, thermodynamics, kinetic, electrochemistry and nuclear chemistry. Three lecture periods and one three-hour lab are required. Prerequisites: High school algebra or the equivalent, one year of high school chemistry with a "B" or better, or appropriate score on the Pacific Diagnostic Chemistry test or CHEM 023. (ENST, GE3A)

CHEM 025. General Chemistry. 5 Units.
The important general principles, theories and concepts of chemistry are studied, including fundamentals of chemistry and equilibrium. Three class periods, two three-hour laboratory periods a week, and enrollment in the Chemistry Workshop are required. Prerequisite: high school algebra or the equivalent. High school chemistry is highly recommended. CHEM 023 with a "C-" or better, Chemistry Subject Test, or appropriate score on Pacific Diagnostic Chemistry test. (ENST, GE3A)

CHEM 027. General Chemistry. 5 Units.
More important general principles, theories, and concepts of chemistry are studied including modern applications of quantum mechanics, bonding, chemical kinetics, liquids, solids, and properties of solutions. Additional special topics include coordination compounds, nuclear chemistry, organic chemistry and biochemistry. Three class periods, two three-hour laboratory periods a week, and enrollment in the Chemistry Workshop are required. Prerequisite: At least one year of high school chemistry is highly recommended. CHEM 025 with a "C-" or better, Chemistry Subject Test, or appropriate score on Pacific Diagnostic Chemistry test. (ENST, GE3A)

CHEM 141. Analytical Chemistry. 4 Units.
The roots of analytical chemistry and the principles used in modern instruments come from traditional techniques. These techniques include gravimetry, acid-base, complexometric, and redox titrations form the backbone of the course, which covers most major areas of modern quantitative analysis. The theory behind the techniques is covered through many numerical examples and their applications in environmental and biochemical analyses are emphasized. Standard procedures used in analytical laboratories are introduced, including error reporting, statistics, and quality assurance. Prerequisites: CHEM 025 and CHEM 027 or GEOS 142 with a "C-" or better. (ENST)

CHEM 197. Independent Research. 1-4 Units.
Prerequisite: CHEM 025 with a "C-" or better. (ENST)
CIVL 171. Water and Environmental Policy. 3 Units.
This course introduces students to Federal and State of California environmental regulations pertaining to air, water, hazardous wastes, and toxic substances. Topics include an overview of water rights and environmental impact assessment, relevant case studies, and examples of monitoring and enforcement issues. Prerequisite: Completion of all Fundamental Skills. Junior or Senior standing. (ENST)

COMM 117. Public Advocacy. 4 Units.
This course teaches the principles of persuasion in public contexts in the U.S. (types and characteristics of public audiences, official and unofficial advocacy campaigns, and media framing of public issues) from historical and theoretical perspectives. The focus is to make students aware of the constraints and opportunities in public advocacy arguments and their public dissemination. (ENST, GE1A)

ECON 071. Global Economic Issues. 4 Units.
This course is an introduction to international trade, international finance and economic development. Economic principles and tools are used to understand the interconnected global economy. Topics include trade theory and policy; regional and multilateral trading system; trade and climate change; balance of payments; foreign exchange markets and exchange rate determination; and the role of foreign aid private capital flows and trade policy in economic development. Prerequisites: ECON 053; ECON 051 or 055. ECON 071 cannot be taken for credit if the student has taken or is concurrently enrolled in ECON 121 or ECON 123. ECON 071 is also listed as an SIS course. (ENST)

ECON 125. Economic Development. 4 Units.
Examines the plight of the world's poor countries. Discussions of the extent of world poverty, and a review of the evolution of ideas on the topic of economic development over the past three decades are included. The course considers the following types of questions: What are the causes of development and/or underdevelopment? Are Third World countries merely at a primitive stage of development analogous to European countries prior to the Industrial Revolution? What are the roles of climate, the legal system, education, health and sanitation, natural resources, technology, multinational corporations, religious beliefs and so on? Are rich countries making a meaningful effort to aid poor countries? Can we, or even should we, help? Should emphasis be placed on the agricultural or industrial sector? This course is also listed as an SIS course. Prerequisites: ECON 053 and ECON 055 or permission of instructor. (ENST)

ECON 157. Environmental and Natural Resource Economics. 4 Units.
The application of economic theory to natural resource and environmental issues is examined. Microeconomic principles are used to suggest what a proper balance between human activity and environmental quality might be and to analyze current environmental policy. Topics include renewable and non-renewable resources, common pool resources, climate change, non-market valuation, cost-benefit analysis, role of government and the private sector in environmental preservation. Prerequisite: ECON 053. (ENST)

ENGL 126. Environment and Literature. 4 Units.
This course examines the intertwining of science, technology, nature, and culture as reflected in environmental literature. Its content and approach are interdisciplinary. The required reading include literary texts and writings from the natural and social sciences, which engage with the debates on the construction and destruction of "nature", sustainability, biodiversity, and bioengineering. The intersections of environmental imperialism, environmental justice, globalization and ecological crises are major components of the course inquiry. (DVSY, ENST, ETHC, GE3C, GEND)

ENST 099. Environmental Studies Professional Development Seminar. 1 Unit.
In this seminar, Environmental Studies majors develop and implement a plan for building out the tools, skills, and experience that will support them in successfully pursing their career goals. This seminar is required of all students enrolled as Environmental Studies majors in each fall when it is offered. (ENST)

ENST 120. Environmental Studies Issues and Solutions Seminar. 1 Unit.
This topical seminar is designed to give students exposure to important and emerging topics in Environmental Studies and the individuals and organizations that are working on them. In the course of the term, students will conduct background research on four topics and develop short, written reports analyzing the scientific, political, policy, and social dimensions of the issue. This course is required of all students enrolled as Environmental Studies majors in each Spring when it is offered and appropriate for students in Geological and Environmental Science, Biology, Chemistry, Communication, Economics, Business, Political Science, and International Studies. (ENST)

ENST 185. Capstone Seminar in Environmental Studies. 4 Units.
This seminar focuses on local/regional environmental issues. Students investigate the background of local/regional environmental issues and informed members of the community/region present their perspective on the issues. Students then work in teams to address scientific aspects of selected environmental problems. Prerequisite: Senior standing in Environmental Studies. (ENST)

ENST 187. Internship in Environmental Studies. 1-4 Units.

ENST 197. Undergraduate Research. 1-4 Units.

HIST 052. John Muir's World: Origins of the Conversation Movement. 4 Units.
John Muir (1838-1914) is considered by most the "father" of the modern Conversation Movement. This course traces his life, his conversation crusades, and his global legacy. Home of the John Muir Papers, University of the Pacific's Library is used by all students in the course for research on an aspect of John Muir's contributions to conservation. Field trips to the John Muir National Historic Site in Martinez and to Yosemite National Park are often a part of this course. (ENST, GE2B)

HIST 136. American Environmental History. 4 Units.
This course is a topical survey of historical roots of environmental crises in contemporary North America beginning with Western concepts of natural history. The course mainly focuses on three centuries of changing American attitudes and policies and activities that led to the rise of the Conservation Movement by the late nineteenth century. With includes tensions between users and preservers, and the development of an ecological school of environmentalism beginning in the 1940's. (ENST)
INTL 101. Social Science Research Methods. 4 Units.
Students are introduced to how research is conducted in the social sciences. The course shows how qualitative and quantitative research complements each other and it compares research methodologies in the different social science disciplines. The course also introduces basic statistical methods for analyzing social scientific data, and introduces the use of computers for quantitative analysis. Prerequisite: fundamental quantitative skills. (ENST, GE3B, PLAW)

INTL 107. Global Economic Issues. 4 Units.
This course is an introduction to international trade, international finance and economic development. Economic principles and tools are used to understand the interconnected global economy. Topics include trade theory and policy; regional and multilateral trading system; trade and climate change; balance of payments; foreign exchange markets and exchange rate determination; and the role of foreign aid private capital flows and trade policy in economic development. This course is cross-listed as ECON 071. Prerequisites: ECON 053; ECON 051 or ECON 055. INTL 107 cannot be taken for credit if the student has taken or is concurrently enrolled in ECON 121 or ECON 123. (ENST)

INTL 174. Global Environmental Policy. 4 Units.
Students examine the major environmental problems that confront the world today and an analysis of specific policies formulated to address those problems. Among the issues to be studied are deforestation, atmospheric and marine pollution, climate change, ozone depletion, and species loss. Prerequisite: POLS 051. (ENST)

MATH 035. Elementary Statistical Inference. 4 Units.
Emphasis is on the applications and limitations of statistical methods of inference, especially in the social and behavioral sciences. Topics include: estimation and test of hypothesis concerning a single group, One-way Analysis of Variance and analysis of categorical data. The use of statistical computer programs is addressed. Credit is not given for this course if a student has received credit for MATH 037 or has AP credit in Statistics. Prerequisite: MATH 003 or MATH 005 or MATH 041 with a "C-" or better, or an appropriate score on either the Elementary Algebra placement test, the Intermediate Algebra Placement test, or the Pre-calculus placement test or permission of instructor. (ENST, GE3B, MATH, PLAW)

MATH 037. Introduction to Statistics and Probability. 4 Units.
Students study elements of descriptive statistics: graphs, tables, measures of central tendency and dispersion. Probability models including binomial and normal are covered. The course introduces to estimation, hypothesis testing and analysis of variance in addition to linear and multiple regression and correlation. The use of statistical computer programs is addressed. The course is not recommended for first semester freshmen. Credit is not given for this course if a student has received credit for MATH 035 or has AP credit in Statistics. Prerequisites: MATH 033 or MATH 041 or MATH 045 or MATH 051 or MATH 053 with a "C-" or better or appropriate score on the calculus placement test. (ENST, GE3B, MATH, PLAW)

PHIL 035. Environmental Ethics. 4 Units.
Students investigate into various environmental problems and the ethical attitudes and principles required to address them. Questions might include: Do animals have rights? Do plants, or whole ecosystems, or future generations of people, have interests, and if so, are we obligated to respect these interests? Are humans part of nature, and is that which is natural always good? Are you required to perform environmentally-friendly acts even in cases where doing so involves some cost to you and you lack assurance that enough others will join you to make a collective difference? Can we put a "price" on environmental goods like clean water, a species' existence, a beautiful vista, and even a human life—as economists frequently try to do? (ENST, GE2B)

POLS 119. Government in Action: Public Policy Analysis. 4 Units.
This course is an analysis and evaluation of how government makes and implements policy at various levels, both state and local. This is a core major requirement that develops political science learning objectives that are the bases for advanced coursework in the major. Prerequisite: POLS 041. (ENST, PLAW)

POLS 133. Political Science Research. 4 Units.
This course develops skills needed for conducting and understanding research in political science and other social sciences. The course includes research design, critical statistical techniques and computer applications. Prerequisite: Fundamental Skills Math. (ENST, GE3B, PLAW)

SOCI 108. Food, Culture and Society. 4 Units.
Are you what you eat, or do you eat what you are? This course focuses on the role of food in society, with an emphasis on understanding food in its social and cultural contexts. Topics include food and nutrition; problems of over- and under-eating; food fads; food sacrifices and taboos; food and social and ethnic identity; and the global politics of food. Although beginning with a look at American food ways, the course is highly cross-cultural and comparative in nature. (DVSY, ENST, ETHC)

SOCI 111. Environment and Society. 4 Units.
Students examine the relationship between society and the natural world. It comparatively analyzes theories concerning how humans relate to the natural world as well as the causes of environmental degradation. It attends to the various roles of the biological and social sciences in understanding environmental issues, as well as the relationship between environment and inequality. The course analyzes how various social systems, institutions and behaviors contribute to environmental degradation, and highlights and compares political solutions. (DVSY, ENST, ETHC, GE3C)