EARTH SYSTEMS


Mission of the Undergraduate Program in Earth Systems

The Earth Systems Program is an interdisciplinary environmental science major. Students learn about and independently investigate complex environmental problems caused by human activities in conjunction with natural changes in the Earth system. Earth Systems majors become skilled in those areas of science, economics, and policy needed to tackle the world’s most pressing social-environmental problems, becoming part of a generation of scientists, professionals, and citizens who approach and solve problems in a systematic, interdisciplinary way.

For students to be effective contributors to solutions for such problems, their training and understanding must be both broad and deep. To this end, Earth Systems students take fundamental courses in ecology, calculus, chemistry, geology, and physics, as well as economics, policy, and statistics. After completing breadth training, they concentrate on advanced work in one of six focus areas: biology, energy, environmental economics and policy, land systems, sustainable food and agriculture, or oceanography and climate. Tracks are designed to support focus and rigor but include flexibility for specialization. Examples of specialized foci have included but are not limited to environment and human health, sustainable agriculture, energy economics, sustainable development, business and the environment, and marine policy. Along with formal course requirements, Earth Systems students complete a 1-unit (270-hour) internship. The internship provides a hands-on academic experience working on a supervised field, laboratory, government, or private sector project.

The Earth Systems Program provides an advising network that includes faculty, staff, and student peer advisers.

The following is an outline of the sequential topics covered and skills developed in this major.

1. **Fundamentals:** The Earth Systems Program includes courses that describe the natural functioning of the physical and biological components of the Earth and human activities that interact with these components. Training in fundamentals includes introductory course work in geology, biology, chemistry, physics, and economics. Additional training in course work in single and multivariable calculus, linear algebra, and statistics provides students with skills needed for quantifying environmental problems. Training in statistics is specific to the area of focus: geostatistics, biostatistics, econometrics.

2. **System Interactions:** Focus in these courses is on the fundamental interactions among the physical, biological, and human components of the Earth system. Understanding the dynamics between natural variation in and human-imposed influences on the Earth system informs the development of effective solutions to social-environmental challenges.
   a. Earth Systems courses that introduce students to the dynamic and multiple interactions that characterize social-environmental challenges include:

3. **Track-Specific Requirements:** After completing a core designed to introduce students to different functional components of the Earth system, undergraduate students focus their studies through one of six tracks: Human Environmental Systems (formerly Anthrosphere); Biosphere; Energy, Science and Technology; Oceans and Climate (formerly Oceans); Land Systems; or Sustainable Food and Agriculture.

4. **Skills Development:** Students take skills courses that help them to recognize, quantify, describe, communicate, and help solve complex problems that face society. For example, field and laboratory methods can help students to recognize the scope and nature of environmental change. Training in satellite remote sensing and geographic information systems allows students to monitor and analyze large-scale spatial patterns of change. This training is either required or recommended for all tracks.

5. **Communication:** Success in building workable solutions to environmental problems is linked to the ability to effectively communicate ideas, data, and results. Writing intensive courses (WIM) help students to communicate complex concepts to expert and non-expert audiences. Other Earth Systems courses also focus on effective written and oral communication and are recommended. All Stanford students must complete one WIM course in their major. Earth Systems students can fulfill the WIM requirement by successfully completing one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSYS 191</td>
<td>Concepts in Environmental Communication</td>
<td>3</td>
</tr>
<tr>
<td>EARTHSYS 177C</td>
<td>Specialized Writing and Reporting: Health and Science Journalism</td>
<td>4-5</td>
</tr>
<tr>
<td>EARTHSYS 149</td>
<td>Wild Writing</td>
<td>3</td>
</tr>
<tr>
<td>BIOHOPK 47</td>
<td>Introduction to Research in Ecology and Ecological Physiology</td>
<td>5</td>
</tr>
</tbody>
</table>

6. **Finding solutions:** Effective solutions to environmental problems take into consideration natural processes as well as human needs. Earth Systems emphasizes the importance of interdisciplinary analysis and implementation of workable solutions through:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSYS 210A</td>
<td>Senior Capstone and Reflection</td>
<td>3</td>
</tr>
<tr>
<td>or EARTHSYS 210B</td>
<td>Senior Capstone and Reflection</td>
<td></td>
</tr>
<tr>
<td>EARTHSYS 210P</td>
<td>Earth Systems Capstone Project (or Honors Thesis)</td>
<td>2</td>
</tr>
<tr>
<td>EARTHSYS 260</td>
<td>Internship</td>
<td>1</td>
</tr>
</tbody>
</table>

A comprehensive list of environmental courses (p. 12) is available on the "Related Courses" tab. This list as well as advice on courses that focus on problem solving are available in the program office.

Learning Outcomes (Undergraduate)

The program expects majors to be able to demonstrate the following learning outcomes. These learning outcomes serve as benchmarks for evaluating students and the program's undergraduate degree. Students are expected to:

---

Stanford Bulletin 2018-19
1. demonstrate knowledge of foundational skills and concepts in order to advance the interdisciplinary study of the environment.
2. demonstrate the ability to analyze, integrate and apply relevant science and policy perspectives to social-environmental problems.
3. demonstrate the ability to communicate complex concepts and data relevant to social-environmental problems and questions to expert and non-expert audiences.

**Learning Outcomes (Graduate)**

The coterminal master’s degree in Earth Systems provides the student with enhanced analytical tools to evaluate the disciplines most closely associated with the student's focus area. Specialization is gained through coursework and independent research work supervised by the master's faculty adviser.

**Bachelor of Science in Earth Systems**

The B.S. in Earth Systems (EARTHSYS) requires the completion of courses divided into three categories:

1. Core
2. Foundation and Breadth
3. Track-specific Requirements.

The student must fulfill the internship requirement, participate in the Senior Capstone and Reflection course (EARTHSYS 210A or EARTHSYS 210B), complete the Earth Systems Capstone Project (EARTHSYS 210P) (or Honors Thesis), and complete the Writing in the Major (WIM) requirement.

Core courses, track courses, and electives must be taken for a letter grade. The WIM course may not also count towards the track or electives, if counted as a WIM.

**Required Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSYS 10</td>
<td>Introduction to Earth Systems</td>
<td>4</td>
</tr>
<tr>
<td>EARTHSYS 111</td>
<td>Biology and Global Change</td>
<td>4</td>
</tr>
<tr>
<td>EARTHSYS 112</td>
<td>Human Society and Environmental Change</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EARTHSYS 210A</td>
<td>Senior Capstone and Reflection</td>
<td>3</td>
</tr>
<tr>
<td>or EARTHSYS 210B</td>
<td>Senior Capstone and Reflection</td>
<td></td>
</tr>
<tr>
<td>EARTHSYS 210P</td>
<td>Earth Systems Capstone Project (or HONORS THESIS)</td>
<td>2</td>
</tr>
<tr>
<td>EARTHSYS 260</td>
<td>Internship</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one of the following (WIM):

- EARTHSYS 191 Concepts in Environmental Communication 3
- EARTHSYS 177C Specialized Writing and Reporting: Health and Science Journalism 4-5
- EARTHSYS 149 Wild Writing 3
- BIOHOPK 47 Introduction to Research in Ecology and Ecological Physiology 5

**Tracks**

See each track's tab for the required Foundation and Breadth and Track-Specific Courses. All Earth Systems majors must select a track from one of the following:

**Biospheres Track (p. 3)**

Explores biological systems and how human activities affect biological, ecological, and biogeochemical cycles. Coursework investigates ecosystems and society, conservation biology, ecology, and biogeochemistry.

**Energy, Science and Technology (p. 4)**

Investigates renewable and depletable energy resources, technology options for improved efficiency, and policy solutions to energy challenges.

**Environmental Geoscience (p. 5)**

Understand and articulate the ways in which Earth's interior and surface operate, and how these systems are connected to one another and inextricably bound to the evolution of life and current human activities. Apply understanding of earth and human systems to develop workable, scientifically based, human-centered solutions to building resilience to natural hazards, and our planet's most pressing environmental challenges.

**Human Environmental Systems (p. 5)**

Focuses on human interaction with and impact on the environment. Coursework in environmental policy and economics, sustainable development, natural and human-driven change, and social entrepreneurship.

**Land Systems (p. 5)**

Examines terrestrial ecology, land use, and land change driven by human activities and addressed by governmental policy. Students develop expertise in a focus area of land, water, or urban planning.

**Oceans, Atmosphere, and Climate (p. 8)**

Builds understanding of ocean systems through a focus on ocean physics, marine biology and chemistry, and remote sensing. A required and seminal track experience is a quarter away at Hopkins Marine Station, Stanford in Australia, or Stanford@SEA.

**Sustainable Food and Agriculture Track (p. 8)**

Focuses on local and global food and agricultural systems. Students gain a breadth of knowledge on these issues through study in food and society, climate and agriculture, the science of soils, world food economy, and principles and practices of sustainable agriculture.

**Honors Program**

The Earth Systems honors program provides students with an opportunity to pursue interdisciplinary research. It consists of a year-long research project that is mentored by one or more Earth Systems-affiliated faculty members, and culminates in a written thesis.

To qualify for the honors program, students must have and maintain a minimum overall GPA of 3.4. Potential honors students should complete the EARTHSYS 111 Biology and Global Change and EARTHSYS 112 Human Society and Environmental Change sequence by the end of the junior year. Qualified students can apply in Spring Quarter of the junior year, or the fourth quarter before graduation (check with program for specific application deadlines) by submitting a detailed research proposal and a brief statement of support from a faculty research adviser. Students who elect to do an honors thesis should begin planning no later than Winter Quarter of the junior year.

A maximum of 9 units is awarded for thesis research through EARTHSYS 199 Honors Program in Earth Systems. Those 9 units may not substitute for any other required parts of the Earth Systems curriculum. All theses are evaluated for acceptance by the thesis faculty adviser, one additional faculty member (who is the second reader), and the Director of Earth Systems. Both the adviser and second reader must be members of the Academic Council. Acceptance into the Honors program is not a guarantee of graduating with the honors designation.

Honors students are required to present their research publicly, preferably through the School of Earth, Energy, and Environmental Sciences’ Annual Thesis Symposium which highlights undergraduate and graduate research in the school. Faculty advisers are encouraged to sponsor
presentation of student research results at professional society meetings.

More extensive work in mathematics and physics may be valuable for those planning graduate study. Graduate study in ecology and evolutionary biology and in economics requires familiarity with differential equations, linear algebra, and stochastic processes. Graduate study in geology, oceanography, and geophysics may require more physics and chemistry. Students should consult their adviser for recommendations beyond the requirements specified above.

1 The Geological Sciences requirement can be fulfilled by completing GEOLSCI 1, GEOLSCI 4, or EARTHSYS 117. GEOLSCI 1A, 1B, and 1C are no longer offered. If taken in previous years, these still fulfill the Earth Systems’ Geological Sciences requirement.

**Biosphere**

**Learning Objectives:**

1. Articulate the interplay of ecology, evolution, and biogeochemistry and understand their connections to the functioning of ecosystems on multiple spatial and temporal scales.
2. Recognize how human activity alters ecological processes, and how ecological changes can interact with human societies at multiple scales.
3. Apply knowledge of natural sciences and human-mediated environmental change to conservation challenges, while considering implications for environmental justice.

**Requirements**

All students must complete the Required Core Courses (p. 2) listed under the “Bachelor’s (p. 2)” tab in addition to the required courses listed below.

<table>
<thead>
<tr>
<th>Additional foundation and breadth courses</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 81 or BIOHOPK 81</td>
<td>Introduction to Ecology</td>
</tr>
<tr>
<td>BIO 82</td>
<td></td>
</tr>
<tr>
<td>Additional Chemistry requirement (in addition to 31A/B or X):</td>
<td>5</td>
</tr>
<tr>
<td>ECON 1</td>
<td>Principles of Economics</td>
</tr>
<tr>
<td>GEOLSCI 1 or GEOLSCI 4</td>
<td>Introduction to Geology</td>
</tr>
<tr>
<td>or EARTHSYS 117</td>
<td>Coevolution of Earth and Life</td>
</tr>
<tr>
<td>or EARTHSYS 128</td>
<td>Evolution of Terrestrial Ecosystems</td>
</tr>
<tr>
<td>MATH 19 or MATH 20 &amp; MATH 21</td>
<td>Calculus and Calculus</td>
</tr>
<tr>
<td>CHEM 33</td>
<td>Structure and Reactivity of Organic Molecules</td>
</tr>
<tr>
<td>Physics (select one of the following):</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS 41</td>
<td>Mechanics</td>
</tr>
<tr>
<td>or PHYSICS 45 &amp; GEOPHYS 110</td>
<td>Light and Heat</td>
</tr>
<tr>
<td>or BIOHOPK 174H or ECON 102A</td>
<td>Introduction to the foundations of contemporary geophysics</td>
</tr>
<tr>
<td>or STATS 101 or STATS 110</td>
<td>Data Science 101</td>
</tr>
<tr>
<td>or STATS 116 or STATS 141</td>
<td>Theory of Probability</td>
</tr>
</tbody>
</table>

Choose two courses from Ecology and Conservation Biology, and one course from each of the remaining sub-categories below, total six required:

<table>
<thead>
<tr>
<th>Biogeochemistry</th>
<th>3-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE 177</td>
<td>Aquatic Chemistry and Biology</td>
</tr>
<tr>
<td>CEE 274A</td>
<td>Environmental Microbiology I</td>
</tr>
<tr>
<td>EARTHSCI 132</td>
<td>Evolution of Earth Systems</td>
</tr>
<tr>
<td>EARTHSCI 143</td>
<td>Molecular Geomicrobiology Laboratory</td>
</tr>
<tr>
<td>EARTHSCI 151</td>
<td>Biological Oceanography</td>
</tr>
<tr>
<td>EARTHSCI 152</td>
<td>Marine Chemistry</td>
</tr>
<tr>
<td>EARTHSCI 155</td>
<td>Science of Soils</td>
</tr>
<tr>
<td>EARTHSCI 158</td>
<td>Geomicrobiology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecology and Conservation Biology</th>
<th>3-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOLSCI 130</td>
<td></td>
</tr>
<tr>
<td>BIO 115</td>
<td></td>
</tr>
<tr>
<td>BIO 130</td>
<td></td>
</tr>
<tr>
<td>BIO 144</td>
<td></td>
</tr>
<tr>
<td>BIOHOPK 172H</td>
<td>Marine Ecology: From Organisms to Ecosystems</td>
</tr>
<tr>
<td>BIOHOPK 173H</td>
<td>Marine Conservation Biology</td>
</tr>
<tr>
<td>BIOHOPK 177H</td>
<td>Dynamics and Management of Marine Populations</td>
</tr>
<tr>
<td>BIOHOPK 185H</td>
<td>Ecology and Conservation of Kelp Forest Communities</td>
</tr>
<tr>
<td>EARTHSCI 116</td>
<td>Ecology of the Hawaiian Islands</td>
</tr>
<tr>
<td>EARTHSCI 105A &amp; EARTHSCI 105B</td>
<td>Ecology and Natural History of Jasper Ridge Biological Preserve and Ecology and Natural History of Jasper Ridge Biological Preserve</td>
</tr>
<tr>
<td>EARTHSCI 128</td>
<td>Evolution of Terrestrial Ecosystems</td>
</tr>
<tr>
<td>EARTHSCI 123</td>
<td>Asian Americans and Environmental Justice</td>
</tr>
<tr>
<td>EARTHSCI 128</td>
<td>Evolution of Terrestrial Ecosystems</td>
</tr>
<tr>
<td>EARTHSCI 123</td>
<td>Ecophysiology and Land Surface Processes</td>
</tr>
<tr>
<td>EARTHSCI 125</td>
<td>Evolution of Marine Ecosystems</td>
</tr>
<tr>
<td>OSPAUSTL 10</td>
<td>Coral Reef Ecosystems</td>
</tr>
<tr>
<td>OSPAUSTL 30</td>
<td>Coastal Forest Ecosystems</td>
</tr>
<tr>
<td>OSPAUNIT 58</td>
<td>Living Chile: A Land of Extremes</td>
</tr>
<tr>
<td>OSPAUNIT 85</td>
<td>(OSPAUNIT 85)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecosystems and Society</th>
<th>3-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTHRO 118</td>
<td>Heritage, Environment, and Sovereignty in Hawaii</td>
</tr>
<tr>
<td>ANTHRO 166</td>
<td>Political Ecology of Tropical Land Use: Conservation, Natural Resource Extraction, and Agribusiness</td>
</tr>
<tr>
<td>ANTHRO 177</td>
<td>Disease Ecology: from parasites evolution to the socio-economic impacts of pathogens on nations</td>
</tr>
<tr>
<td>EARTHSCI 107</td>
<td>Control of Nature</td>
</tr>
<tr>
<td>EARTHSCI 136</td>
<td>The Ethics of Stewardship</td>
</tr>
<tr>
<td>EARTHSCI 139</td>
<td>Ecosystem Services: Frontiers in the Science of Valuing Nature</td>
</tr>
<tr>
<td>EARTHSCI 159</td>
<td>Economic, Legal, and Political Analysis of Climate-Change Policy</td>
</tr>
</tbody>
</table>
### Biogeochemistry

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE 177</td>
<td>Aquatic Chemistry and Biology</td>
<td>4</td>
</tr>
<tr>
<td>CEE 274A</td>
<td>Environmental Microbiology I</td>
<td>3</td>
</tr>
<tr>
<td>EARTHSYS 132</td>
<td>Evolution of Earth Systems</td>
<td>4</td>
</tr>
<tr>
<td>EARTHSYS 143</td>
<td>Molecular Geomicrobiology Laboratory</td>
<td>3-4</td>
</tr>
<tr>
<td>EARTHSYS 151</td>
<td>Biological Oceanography</td>
<td>3-4</td>
</tr>
<tr>
<td>EARTHSYS 152</td>
<td>Marine Chemistry</td>
<td>3-4</td>
</tr>
<tr>
<td>EARTHSYS 155</td>
<td>Science of Soils</td>
<td>3-4</td>
</tr>
<tr>
<td>EARTHSYS 158</td>
<td>Geomicrobiology</td>
<td>3</td>
</tr>
<tr>
<td>ESS 256</td>
<td>Soil and Water Chemistry</td>
<td>3</td>
</tr>
</tbody>
</table>

### Methods

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSYS 144</td>
<td>Fundamentals of Geographic Information Science (GIS) (REQUIRED)</td>
<td>3-4</td>
</tr>
<tr>
<td>EARTHSYS 124</td>
<td>Measurements in Earth Systems</td>
<td>3-4</td>
</tr>
<tr>
<td>EARTHSYS 142</td>
<td>Remote Sensing of Land</td>
<td>4</td>
</tr>
<tr>
<td>EARTHSYS 211</td>
<td>Fundamentals of Modeling</td>
<td>3-5</td>
</tr>
<tr>
<td>ESS 124</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESS 165</td>
<td>Advanced Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>ESS 220</td>
<td>Physical Hydrogeology</td>
<td>4</td>
</tr>
<tr>
<td>GEOLSCI 240</td>
<td>Data science for geoscience</td>
<td>3</td>
</tr>
</tbody>
</table>

### Elective Requirement

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Two additional courses at the 100-level or above are required. Each must be a minimum of 3 units.</td>
<td></td>
</tr>
</tbody>
</table>

### Energy, Science, and Technology

#### Learning Objectives:

1. **Apply fundamental engineering principles to assess how transformation of systems of energy production, distribution, and consumption can contribute to achieving greater energy sustainability.**

2. **Use fundamental engineering principles—together with knowledge of economics, human behavior, energy infrastructure, and earth systems science—to assess and critique policy- and market-based solutions proposed to achieve greater energy sustainability.**

3. **Apply written, visual, and oral presentation skills to communicate scientific, technological, and policy knowledge to expert and non-expert audiences.**

#### Requirements

All students must complete the Required Core Courses (p. 2) listed under the "Bachelor's (p. 2)" tab in addition to the required courses listed below.

#### Additional Foundation and Breadth Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 81</td>
<td>Introduction to Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOHOPK 81</td>
<td>Introduction to Ecology</td>
<td></td>
</tr>
<tr>
<td>or BIO 83</td>
<td>Biochemistry &amp; Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>or HUMBIO 2A</td>
<td>Genetics, Evolution, and Ecology</td>
<td></td>
</tr>
<tr>
<td>&amp; HUMBIO 2B</td>
<td>and Culture, Evolution, and Society</td>
<td></td>
</tr>
<tr>
<td>or EARTHSYS 116</td>
<td>Ecology of the Hawaiian Islands</td>
<td></td>
</tr>
<tr>
<td>or EARTHSYS 117</td>
<td>or EARTHYS 128</td>
<td></td>
</tr>
</tbody>
</table>

### Energy Resources & Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 1</td>
<td>Principles of Economics</td>
<td>5</td>
</tr>
<tr>
<td>GEOLSCI 1</td>
<td>Introduction to Geology</td>
<td>4-5</td>
</tr>
<tr>
<td>or GEOLSCI 4</td>
<td>Coevolution of Earth and Life</td>
<td>5</td>
</tr>
<tr>
<td>or EARTHYS 117</td>
<td>or EARTHYS 128</td>
<td></td>
</tr>
<tr>
<td>MATH 19 &amp; MATH 20</td>
<td>or MATH 21</td>
<td></td>
</tr>
<tr>
<td>or CON 102A</td>
<td>Vector Calculus for Engineers (preferred)</td>
<td>5</td>
</tr>
<tr>
<td>or STATS 101</td>
<td>Statistical Methods (Postcalculus) for Social Scientists</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 101</td>
<td>Data Science 101</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 110</td>
<td>Statistical Methods in Engineering and the Physical Sciences</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 116</td>
<td>Theory of Probability</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 141</td>
<td>Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>or CME 106</td>
<td>Introduction to Probability and Statistics for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

### Sustainable Energy & Development

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE 176B</td>
<td>100% Clean, Renewable Energy and Storage for Everything</td>
<td>3-4</td>
</tr>
<tr>
<td>CEE 221A</td>
<td>Planning Tools and Methods in the Power Sector</td>
<td>3-4</td>
</tr>
<tr>
<td>CEE 226</td>
<td>Life Cycle Assessment for Complex Systems</td>
<td>3-4</td>
</tr>
<tr>
<td>CEE 272S</td>
<td>(Not offered in 2018-19.)</td>
<td></td>
</tr>
</tbody>
</table>
**EARTHsys 102**  
**Fundamentals of Renewable Power**  
3
---
**EARTHsys 146A**  
**Atmosphere, Ocean, and Climate Dynamics: The Atmospheric Circulation**  
3
---
**Energy 153**  
**Carbon Capture and Sequestration**  
3-4
---
**MATSCI 156**  
**Solar Cells, Fuel Cells, and Batteries: Materials for the Energy Solution**  
3-4
---
**Urbanst 165**  
**Sustainable Urban and Regional Transportation Planning**  
4-5
---
**Energy Policy, Economics & Entrepreneurship**  
2-4
---
**Energy 104**  
**Sustainable Energy for 9 Billion**  
3
---
**Energy 110**  
**Engineering Economics**  
3
---
**Energy 171**  
**Energy Infrastructure, Technology and Economics**  
3
---
**Energy 191**  
**Optimization of Energy Systems**  
3-4
---
**GSBGen 243**  
**Energy Markets and Policy**  
3
---
**LAW 2503**  
**Energy Law**  
3
---
**MS&E 294**  
**Systems Modeling for Climate Policy Analysis**  
3
---
**MS&E 295**  
**Energy Policy Analysis**  
3
---
**Elective Requirement**  
3-5
---

One additional course at the 100-level or above is required. This course must be a minimum of 3 units. 3 units of approved energy seminars may count as one elective. See Earth Systems staff for the approved seminar list.

**Environmental Geoscience**

**Learning Objectives:**

1. Understand and articulate the ways in which Earth's interior and surface operate, and how these systems are connected to one another and inextricably bound to the evolution of life and current human activities.
2. Understand and view the current state of, and expected changes within, the earth system in the context of past changes experienced by our planet.
3. Apply understanding of earth and human systems to develop workable, scientifically based, human-centered solutions to building resilience to natural hazards, and our planet's most pressing environmental challenges.

**Requirements**

All students must complete the Required Core Courses (p. 2) listed under the "Bachelor's (p. 2)" tab in addition to the required courses listed below.

**Additional Foundation and Breadth Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 81</td>
<td>Introduction to Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOWLPK 81</td>
<td>Introduction to Ecology</td>
<td></td>
</tr>
<tr>
<td>or HUMBIO 2A &amp; HUMBIO 2B</td>
<td>Genetics, Evolution, and Ecology</td>
<td></td>
</tr>
<tr>
<td>or EARTHsys 116</td>
<td>Ecology of the Hawaiian Islands</td>
<td></td>
</tr>
<tr>
<td>CHEM 31A</td>
<td>Chemical Principles I</td>
<td>5-10</td>
</tr>
<tr>
<td>&amp; CHEM 31B</td>
<td>Chemical Principles II</td>
<td></td>
</tr>
<tr>
<td>or CHEM 31X</td>
<td>Chemical Principles Accelerated</td>
<td></td>
</tr>
<tr>
<td>ECON 1</td>
<td>Principles of Economics</td>
<td>5</td>
</tr>
<tr>
<td>GEOlsci 1</td>
<td>Introduction to Geology</td>
<td>4-5</td>
</tr>
<tr>
<td>or GEOlsci 4</td>
<td>Coevolution of Earth and Life</td>
<td></td>
</tr>
<tr>
<td>or EARTHsys 117</td>
<td>Earth Sciences of the Hawaiian Islands</td>
<td></td>
</tr>
<tr>
<td>or EARTHsys 128</td>
<td>Evolution of Terrestrial Ecosystems</td>
<td></td>
</tr>
</tbody>
</table>
---

**Units**

**Math 19**  
Calculus and Calculus and Calculus  
10
---
**Math 51**  
Linear Algebra, Multivariable Calculus, and Modern Applications or CME 100  
Vector Calculus for Engineers  
5
---
**Math 52**  
Integral Calculus of Several Variables  
5
---
**Physics 41**  
Mechanics and Light and Heat  
4
---
**or Physics 45**  
Introduction to the foundations of contemporary geophysics  
3
---
**BIOlHopk 174H**  
Experimental Design and Probability or ECON 102A  
Introduction to Statistical Methods (Postcalculus) for Social Scientists  
3-5
---
**or Stats 101**  
Data Science  
1
---
**or Stats 110**  
Statistical Methods in Engineering and the Physical Sciences  
3
---
**or Stats 116**  
Theory of Probability  
3
---
**or Stats 141**  
Biostatistics  
3
---
**or CME 106**  
Introduction to Probability and Statistics for Engineers  
3
---
**Ess 164**  
Fundamentals of Geographic Information Science (GIS)  
3-4
---

A total of 6 courses are required from the Environmental Geoscience Focus Areas below. In addition, two electives are required for this track. All track courses and electives must be taken for a letter grade (nine courses total).

The Solid Earth (must take 2):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geolsci 90</td>
<td>Introduction to Geochemistry</td>
<td>3-4</td>
</tr>
<tr>
<td>Geolsci 102</td>
<td>Earth Materials: Introduction to Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>Geolsci 180</td>
<td>Igneous Processes</td>
<td>3-4</td>
</tr>
<tr>
<td>Geolsci 90</td>
<td>Introduction to Geochemistry</td>
<td>3-4</td>
</tr>
<tr>
<td>Geophys 90</td>
<td>Earthquakes and Volcanoes</td>
<td>3</td>
</tr>
<tr>
<td>Geophys 150</td>
<td>Geodynamics: Our Dynamic Earth</td>
<td>3-5</td>
</tr>
</tbody>
</table>

Earth's Surface (must take 2):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geolsci 106</td>
<td>Sedimentary Geology and Depositional Systems</td>
<td>4</td>
</tr>
<tr>
<td>Geophys 70</td>
<td>The Water Course</td>
<td>3</td>
</tr>
<tr>
<td>Ess 148</td>
<td>Introduction to Physical Oceanography</td>
<td>4</td>
</tr>
<tr>
<td>Ess 224</td>
<td>Remote Sensing of Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>Ess 155</td>
<td>Science of Soils</td>
<td>3-4</td>
</tr>
<tr>
<td>Ess 220</td>
<td>Physical Hydrogeology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Evolution of Life on Earth (must take 1):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geolsci 123</td>
<td>Evolution of Marine Ecosystems</td>
<td>3-4</td>
</tr>
<tr>
<td>Geolsci 128</td>
<td>Evolution of Terrestrial Ecosystems</td>
<td>4</td>
</tr>
<tr>
<td>Geolsci 135</td>
<td>Sedimentary Geochemistry and Analysis</td>
<td>1-4</td>
</tr>
<tr>
<td>Ess 255</td>
<td>Microbial Physiology</td>
<td>3</td>
</tr>
</tbody>
</table>

Resilient Earth (must take 1):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geophys 80</td>
<td>The Energy-Water Nexus</td>
<td>3</td>
</tr>
<tr>
<td>Geolsci 118X</td>
<td>Sustainable Urban Systems Fundamentals</td>
<td>3-5</td>
</tr>
</tbody>
</table>

Two additional courses at the 100-level or above are required. Each must be a minimum of 3 units. See Earth Systems staff for a list of possible electives.

**Human Environmental Systems**

**Learning Objectives:**

1. Apply knowledge of fundamental physical and biological Earth system processes to analyze how human decisions shape environmental outcomes.
2. Apply fundamental principles and frameworks from the social sciences to analyze and understand (a) how humans make environmentally relevant decisions, and (b) how environmental changes shape human outcomes.

All students must complete the Required Core Courses (p. 2) listed under the "Bachelor's (p. 2)" tab in addition to the required courses listed below.

### Additional Foundation and Breadth Courses

#### Biology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 81</td>
<td>Introduction to Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOHOPK 81</td>
<td>Introduction to Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or HUMBIO 2A</td>
<td>Genetics, Evolution, and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; HUMBIO 2B</td>
<td>and Culture, Evolution, and Society</td>
<td>4</td>
</tr>
<tr>
<td>or EARTHSYS 116</td>
<td>Ecology of the Hawaiian Islands</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Economics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 1</td>
<td>Principles of Economics</td>
<td>5</td>
</tr>
<tr>
<td>ECON 50</td>
<td>Economic Analysis I</td>
<td>5</td>
</tr>
<tr>
<td>ECON 155</td>
<td>Environmental Economics and Policy</td>
<td>5</td>
</tr>
</tbody>
</table>

#### Geological Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSYS 117</td>
<td>Earth Sciences of the Hawaiian Islands</td>
<td>4</td>
</tr>
<tr>
<td>GEOLSCI 1</td>
<td>Introduction to Geology</td>
<td>5</td>
</tr>
<tr>
<td>GEOLSCI 4</td>
<td>Coevolution of Earth and Life</td>
<td>4</td>
</tr>
<tr>
<td>EARTHSYS 128</td>
<td>Evolution of Terrestrial Ecosystem</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Mathematics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 19</td>
<td>Calculus</td>
<td>10</td>
</tr>
<tr>
<td>&amp; MATH 20</td>
<td>and Calculus</td>
<td>3</td>
</tr>
<tr>
<td>&amp; MATH 21</td>
<td>and Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 20</td>
<td>Calculus</td>
<td>3</td>
</tr>
<tr>
<td>MATH 21</td>
<td>Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 51</td>
<td>Linear Algebra, Multivariable Calculus, and</td>
<td>5</td>
</tr>
<tr>
<td>Modern Applications</td>
<td>Vector Calculus for Engineers</td>
<td></td>
</tr>
<tr>
<td>or CME 100</td>
<td>Programming Methodology</td>
<td>3-5</td>
</tr>
</tbody>
</table>

#### Probability and Statistics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOHOPK 174H</td>
<td>Experimental Design and Probability</td>
<td>3</td>
</tr>
<tr>
<td>BIO 141</td>
<td>Biostatistics</td>
<td>3-5</td>
</tr>
<tr>
<td>ECON 102A</td>
<td>Introduction to Statistical Methods</td>
<td>5</td>
</tr>
<tr>
<td>(Postcalculus for Social Scientists)</td>
<td>Statistical Methods in Engineering and the Physical Sciences</td>
<td>4-5</td>
</tr>
<tr>
<td>STATS 101</td>
<td>Data Science</td>
<td>5</td>
</tr>
<tr>
<td>STATS 110</td>
<td>Statistical Methods in Engineering and the</td>
<td>4-5</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>Theory of Probability</td>
<td>3-5</td>
</tr>
<tr>
<td>STATS 116</td>
<td>Theory of Probability</td>
<td>3-5</td>
</tr>
<tr>
<td>CME 106</td>
<td>Introduction to Probability and Statistics</td>
<td>4</td>
</tr>
<tr>
<td>SELECT ONE OF THE FOLLOWING</td>
<td>Programming Abstractions</td>
<td>3-5</td>
</tr>
<tr>
<td>CS 106B</td>
<td>Programming Abstractions</td>
<td>3-5</td>
</tr>
<tr>
<td>ECON 102B</td>
<td>Applied Econometrics</td>
<td>5</td>
</tr>
</tbody>
</table>

### Units

- **Economics, Policy, and Sustainable Development**: 3-5
- **EARTHSYS 136**: The Ethics of Stewardship 2-3
- **CEE 175A**: California Coast: Science, Policy, and Law 3-4
- **ECON 51**: Economic Analysis II 5
- **ECON 102B**: Applied Econometrics (*) 5
- **ECON 106**: World Food Economy (*) 4
- **CEE 175A**: California Coast: Science, Policy, and Law 3-4
- **ECON 118**: Development Economics 5
- **ECON 121**: (Not offered 18-19) 5
- **ECON 150**: Economic Policy Analysis 4-5
- **ECON 159**: Economic, Legal, and Political Analysis of Climate-Change Policy 5
- **ESS 268**: Empirical Methods in Sustainable Development (*) 3-5
- **EARTHSYS 243**: Environmental Advocacy and Policy Communication 3
- **ECON 51**: Economic Analysis II 5
- **ECON 159**: Economic, Legal, and Political Analysis of Climate-Change Policy 5
- **INTNRLREL 135A**: International Environmental Law and Policy 3-5
- **IPS 270**: 3-5
- **LAW 2504**: Environmental Law and Policy 4
- **MS&E 243**: Energy and Environmental Policy Analysis 3
- **GSBGEN 336**: Energy Markets and Policy 3
- **MS&E 294**: Systems Modeling for Climate Policy Analysis 3
- **MS&E 295**: Energy Policy Analysis 3
- **Human Behavior and Adaption**: 2-5
- **CEE 151**: Negotiation 2-5
- **ANTHRO 116B**: Anthropology of the Environment 5
- **ANTHRO 166**: Political Ecology of Tropical Land Use: Conservation, Natural Resource Extraction, and Agribusiness 3-5
- **CCE 124**: Sustainable Development Studio 1-5
- **CCE 126A**: (Not offered 18-19) 5
- **CCE 126B**: (Not offered 18-19) 5
- **CCE 226**: Life Cycle Assessment for Complex Systems 3-4
- **EARTHSYS 114/214**: Environmental Change and Emerging Infectious Diseases 4-5
- **EARTHSYS 138**: International Urbanization Seminar: Cross-Cultural Collaboration for Sustainable Urban Development 4-5
- **EARTHSYS 185**: Feeding Nine Billion 4-5
- **ESS 360**: Social Structure and Social Networks 5
- **ECON 106**: World Food Economy (*) 4
- **ECON 118**: Development Economics (*) 5
- **ESS 224**: Remote Sensing of Hydrology 3
- **ESS 185**: Adaptation 3
- **HUMBIO 118**: Theory of Ecological and Environmental Anthropology 5
- **OSPSANTG 29**: Sustainable Cities: Comparative Transportation Systems in Latin America 5
- **POLISCI 124A**: The American West 5
- **URBANST 107**: Introduction to Urban and Regional Planning 3
- **URBANST 163**: Land Use Control 4
- **URBANST 164**: Sustainable Cities 4-5

---

Stanford Bulletin 2018-19
All students must complete the Required Core Courses (p. 2) listed under the "Bachelor's (p. 2)" tab in addition to the required courses listed below.

### Additional Foundation and Breadth Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 81</td>
<td>Introduction to Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOHOPK 81</td>
<td>Introduction to Ecology</td>
<td></td>
</tr>
<tr>
<td>or HUMBIO 2A</td>
<td>Genetics, Evolution, and Ecology</td>
<td></td>
</tr>
<tr>
<td>&amp; HUMBIO 2B</td>
<td>and Culture, Evolution, and Society</td>
<td></td>
</tr>
<tr>
<td>or EARTHSYS 116</td>
<td>Ecology of the Hawaiian Islands</td>
<td></td>
</tr>
<tr>
<td>CHEM 31A</td>
<td>Chemical Principles I</td>
<td>5-10</td>
</tr>
<tr>
<td>&amp; CHEM 31B</td>
<td>and Chemical Principles II</td>
<td></td>
</tr>
<tr>
<td>or CHEM 31X</td>
<td>Chemical Principles Accelerated</td>
<td></td>
</tr>
<tr>
<td>ECON 1</td>
<td>Principles of Economics</td>
<td>5</td>
</tr>
<tr>
<td>or GEOLSCI 4</td>
<td>Coevolution of Earth and Life</td>
<td></td>
</tr>
<tr>
<td>or EARTHSYS 117</td>
<td>Earth Sciences of the Hawaiian Islands</td>
<td></td>
</tr>
<tr>
<td>or EARTHSYS 128</td>
<td>Evolution of Terrestrial Ecosystems</td>
<td></td>
</tr>
</tbody>
</table>

### Elective Requirement

Units

3

Two additional courses at the 100-level or above are required. Each must be a minimum of 3 units.

### Land Systems

#### Learning Objectives:

1. Design strategies for using multi-source and multi-scale observations of land surface processes that integrate field, geospatial, and human survey data to describe biophysical and socio-economic impacts of land systems changes.

2. Integrate biophysical and socioeconomic data related to land use and land cover change using geospatial tools to analyze and model complex, multi-scalar human-environmental interactions that determine land use dynamics.

3. Determine remedies to address negative impacts of land changes on human-environmental systems using land-use management tools and interventions.

#### Requirements

All students must complete the Required Core Courses (p. 2) listed under the "Bachelor's (p. 2)" tab in addition to the required courses listed below.
Oceans, Atmosphere, and Climate

Learning Objectives:
1. Apply fundamental physical, chemical, and biological principles toward understanding the behavior of the oceans, atmosphere, and climate and the interrelationships of these systems with human society.
2. Apply fundamental principles of ocean, atmospheric, and climate science through field, laboratory, and computer-based research experiences.

Requirements
All students must complete the Required Core Courses (p. 2) listed under the "Bachelor's (p. 2)" tab in addition to the required courses listed below.

Additional Foundation and Breadth Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 81</td>
<td>Introduction to Ecology</td>
<td>4-10</td>
</tr>
<tr>
<td>or BIOHOPK 81</td>
<td>Introduction to Ecology</td>
<td></td>
</tr>
</tbody>
</table>

or HUMBIO 2A & HUMBIO 2B or EARTHSYS 116
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 31A &amp; CHEM 31B or CHEM 31X</td>
<td>Chemical Principles I and Chemical Principles II</td>
<td>5</td>
</tr>
<tr>
<td>MATH 19 &amp; MATH 20 &amp; MATH 21</td>
<td>Calculus and Calculus</td>
<td>10</td>
</tr>
<tr>
<td>MATH 51 &amp; MATH 52</td>
<td>Linear Algebra, Multivariable Calculus, and Modern Applications</td>
<td>10</td>
</tr>
<tr>
<td>or CME 100</td>
<td>Vector Calculus for Engineers</td>
<td></td>
</tr>
<tr>
<td>PHYSICS 41 &amp; PHYSICS 45 or GEOPHYS 110</td>
<td>Mechanics and Light and Heat</td>
<td>3-8</td>
</tr>
<tr>
<td>or ECON 102A</td>
<td>Introduction to Statistical Methods (Postcalculus) for Social Scientists</td>
<td>3</td>
</tr>
<tr>
<td>or STATS 101</td>
<td>Data Science 101</td>
<td>3</td>
</tr>
<tr>
<td>or STATS 110</td>
<td>Statistical Methods in Engineering and the Physical Sciences</td>
<td>3</td>
</tr>
<tr>
<td>or STATS 116</td>
<td>Theory of Probability</td>
<td>3</td>
</tr>
<tr>
<td>or STATS 141</td>
<td>Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>or CME 106</td>
<td>Introduction to Probability and Statistics for Engineers</td>
<td></td>
</tr>
</tbody>
</table>

The Fundamentals (all courses required):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSYS 146A</td>
<td>Atmosphere, Ocean, and Climate Dynamics: The Atmospheric Circulation</td>
<td>3</td>
</tr>
<tr>
<td>EARTHSYS 146B</td>
<td>Atmosphere, Ocean, and Climate Dynamics: the Ocean Circulation</td>
<td>3</td>
</tr>
<tr>
<td>EARTHSYS 141</td>
<td>Remote Sensing of the Oceans</td>
<td>3-4</td>
</tr>
<tr>
<td>EARTHSYS 151</td>
<td>Biological Oceanography</td>
<td>3-4</td>
</tr>
<tr>
<td>EARTHSYS 152</td>
<td>Marine Chemistry</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Human Dimensions

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOHOPK 173H</td>
<td>Marine Conservation Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOHOPK 280</td>
<td>Short Course on Ocean Policy</td>
<td>3</td>
</tr>
<tr>
<td>CEE 175A</td>
<td>California Coast: Science, Policy, and Law</td>
<td>3-4</td>
</tr>
<tr>
<td>EARTHSYS 243</td>
<td>Environmental Advocacy and Policy Communication</td>
<td>3</td>
</tr>
<tr>
<td>LAW 2506</td>
<td>Natural Resources Law and Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Field Experience

Select at least one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>or EARTHSYS 243</td>
<td>Environmental Advocacy and Policy Communication</td>
<td>3</td>
</tr>
<tr>
<td>or EARTHSYS 249</td>
<td>Policy Communication</td>
<td></td>
</tr>
<tr>
<td>or EARTHSYS 309</td>
<td>Field Research: Marine Natural History</td>
<td>3</td>
</tr>
<tr>
<td>or EARTHSYS 310</td>
<td>Field Research: Freshwater Natural History</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirement

Two additional courses at the 100-level or above are required. Each must be a minimum of 3 units. See Earth Systems staff for a list of possible electives.

Units
Sustainable Food and Agriculture
Learning Objectives:
1. Describe the main biophysical and socioeconomic constraints in food systems at global and local scales.
2. Apply knowledge of agricultural soils and plant growth to solve problems related to crop production, soil conservation, and natural resource management.
3. Identify the links between food systems and other aspects of the Earth system, including water, energy, and climate systems.
4. Assess and critique policy or technological solutions that claim to make food systems more sustainable.

Requirements
All students must complete the Required Core Courses (p. 2) listed under the "Bachelor’s (p. 2)” tab in addition to the required courses listed below.

Additional Foundation and Breadth Courses

<table>
<thead>
<tr>
<th>Course/Section</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 81 or BIOHOPK 81 or HUMBIO 2A &amp; HUMBIO 2B or EARTHSYS 116</td>
<td>Introduction to Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 31A &amp; CHEM 31B or CHEM 31X</td>
<td>Chemical Principles I and Chemical Principles II or Chemical Principles Accelerated</td>
<td>5-10</td>
</tr>
<tr>
<td>ECON 1 or ECON 155</td>
<td>Principles of Economics</td>
<td>5</td>
</tr>
<tr>
<td>GEO 114 or GEO 117 or EARTHSYS 128</td>
<td>Introduction to Geology or Earth Sciences of the Hawaiian Islands or Evolution of Terrestrial Ecosystems</td>
<td>4-5</td>
</tr>
<tr>
<td>MATH 19 &amp; MATH 20 &amp; MATH 21</td>
<td>Calculus and Calculus and Calculus</td>
<td>10</td>
</tr>
<tr>
<td>MATH 51 or CME 100</td>
<td>Linear Algebra, Multivariable Calculus, and Modern Applications or Vector Calculus for Engineers</td>
<td>5</td>
</tr>
<tr>
<td>BIOHOPK 174H</td>
<td>Experimental Design and Probability</td>
<td>3</td>
</tr>
<tr>
<td>PHYSICS 41 or PHYSICS 45 or GEOPHYSICS 110</td>
<td>Mechanics or Light and Heat or Introduction to the foundations of contemporary geophysics</td>
<td>4</td>
</tr>
<tr>
<td>BIOHOPK 174H or BIO 202 or ECON 102A or STATS 101 or STATS 110 or STATS 116 or STATS 141 or CME 106</td>
<td>Experimental Design and Probability or Introduction to Statistical Methods (Postcalculus) or Data Science 101 or Statistical Methods in Engineering and the Physical Sciences or Theory of Probability or Biostatistics or Introduction to Probability and Statistics for Engineers</td>
<td>3-5</td>
</tr>
</tbody>
</table>

A total of 7 courses are required from the Food and Agriculture Focus Areas. In addition, two electives are required for this track. All track courses and electives must be taken for a letter grade (nine courses total).

Fundamentals of Agriculture Production and Economics (both required):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 106</td>
<td>World Food Economy</td>
<td>4</td>
</tr>
<tr>
<td>EARTH SYS 185</td>
<td>Feeding Nine Billion</td>
<td>4-5</td>
</tr>
</tbody>
</table>

Biogeophysical Dimensions (3 required):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTH SYS 185</td>
<td>Science of Soils</td>
<td>3-4</td>
</tr>
<tr>
<td>BIO 115</td>
<td>The Hidden Kingdom - Evolution, Ecology and Diversity of Fungi</td>
<td>4</td>
</tr>
<tr>
<td>EARTH SYS 142</td>
<td>Remote Sensing of Land</td>
<td>4</td>
</tr>
<tr>
<td>EARTH SYS 256</td>
<td>Soil and Water Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BIO 137</td>
<td>(Not given this year)</td>
<td></td>
</tr>
<tr>
<td>HUMBIO 113</td>
<td>The Human-Plant Connection</td>
<td>3</td>
</tr>
<tr>
<td>HUMBIO 130</td>
<td>Human Nutrition</td>
<td>4</td>
</tr>
</tbody>
</table>

Social Dimensions (choose 1):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCHLGY 124</td>
<td>Archaeology of Food: production, consumption and ritual</td>
<td>3-5</td>
</tr>
<tr>
<td>BIO 144</td>
<td>Conservation Biology: A Latin American Perspective</td>
<td>3</td>
</tr>
<tr>
<td>EARTH SYS 136</td>
<td>The Ethics of Stewardship</td>
<td>2-3</td>
</tr>
<tr>
<td>EARTH SYS 187</td>
<td>FEED the Change: Redesigning Food Systems</td>
<td>2-3</td>
</tr>
<tr>
<td>ECON 118</td>
<td>Development Economics</td>
<td></td>
</tr>
<tr>
<td>HUMBIO 113S</td>
<td>Healthy/Sustainable Food Systems: Maximum Sustainability across Health, Economics, and Environment</td>
<td>4</td>
</tr>
<tr>
<td>HUMBIO 166</td>
<td>Food and Society. Exploring Eating Behaviors in Social, Environmental, and Policy Context</td>
<td>4</td>
</tr>
<tr>
<td>OSPMADR D 79</td>
<td>Earth and Water Resources’ Sustainability in Spain</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Applied Study in the Field

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTH SYS 180</td>
<td>Principles and Practices of Sustainable Agriculture</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Two additional courses at the 100-level or above are required. Each must be a minimum of 3 units. See Earth Systems staff for a list of possible electives.

Minor in Earth Systems, Sustainability Subplan

The minor in Earth Systems, Sustainability subplan, provides students with foundational knowledge, skills, and frameworks needed to understand social-environmental systems and address intergenerational sustainability challenges. Students declaring the minor in Earth Systems must also declare the Sustainability subplan.

To minor in Earth Systems, students must take the core courses listed below and approved electives for a minimum of 35 units. Courses that count toward the fulfillment of major requirements may not be counted toward the minor, and all courses must be taken for a letter grade.

Students declaring a minor in Earth Systems must do so no later than two quarters prior to their intended quarter of degree conferral; for example, a student must declare a minor before the end of Autumn Quarter to graduate the following Spring Quarter. The Sustainability subplan must also be declared in Axess when declaring the minor.

In addition, students pursuing the minor must complete the Multiple Major/Minor Form (https://stanford.box.com/v/change-UG-program) and have it reviewed by all applicable departments/programs. This form must be submitted to the Student Services Center (https://studentservicescenter.stanford.edu/22%20%5Ct%20%22_blank) by the
application to graduate deadline for the term in which the student intends to graduate.

**Required Course Work**

**Core**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSYS 10</td>
<td>Introduction to Earth Systems</td>
<td>4</td>
</tr>
<tr>
<td>EARTHSYS 111</td>
<td>Biology and Global Change</td>
<td>4</td>
</tr>
<tr>
<td>EARTHSYS 112</td>
<td>Human Society and Environmental Change</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(ECON 1 recommended as a pre- or corequisite to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EARTHSYS 112)</td>
<td></td>
</tr>
<tr>
<td>EARTHSYS 131</td>
<td>Pathways in Sustainability Careers</td>
<td>1</td>
</tr>
<tr>
<td>SUST 210</td>
<td>Pursuing Sustainability: Managing Complex Social</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Environmental Systems (prerequisites: EARTHSYS 111,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EARTHSYS 112)</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

Students must take a minimum of 19 units of electives at the 100-level or above that address dimensions of environmental systems and social-environmental systems in theory or practice, with at least one course taken in each of the following four categories: Earth Systems Science/Engineering; Environmental Justice; Applied Problem Solving; and Skills. Students may double-count courses in these categories (i.e., if a course fulfills both the Environmental Justice and Applied Problem Solving requirements, it can be applied to both categories).

A list of approved electives is available on the Earth Systems website and in the Earth Systems Program office (Y2E2 131). Students may petition to count one relevant freshman or sophomore seminar toward the minor.

**Coterminal Master's Degrees in Earth Systems**

The Earth Systems Program offers current Stanford University undergraduates the opportunity to apply to a one-year coterminal master's program. Earth Systems offers a coterminal Master of Science (M.S.) degree in Earth Systems and a coterminal Master of Arts (M.A.) degree in Earth Systems, Environmental Communication. The Environmental Communication subplan prints on both the transcript and the diploma.

**Application and Admission**

The Earth Systems Program has quarterly coterminal degree application deadlines: November 6, 2018; February 19, 2019; and May 14, 2019. Seniors must apply by Winter Quarter deadline. To apply, students should submit an online application. The application includes the following:

- The Stanford coterminal application (https://www.applyweb.com/stanterm)
- A statement of purpose
- A resume
- A current Stanford unofficial transcript
- Two letters of recommendation, one of which must be from the master's adviser (who must be an Academic Council member; each coterminal M.A. student has two advisers: Thomas Hayden and Kevin Arrigo, or another approved faculty adviser who is an Academic Council member)
- Master's Program Proposal (https://earth.stanford.edu/eyesys/program-forms): A list of courses that fulfill degree requirements signed by the master's adviser

1. Applications must be submitted no later than the quarter prior to the expected completion of the B.S. degree (and within quarterly application deadlines). An application fee is assessed by the Registrar's Office for coterminal applications, once students are matriculated into the program.

2. Students applying to the coterminal master's program must have completed a minimum of 120 units toward graduation with a minimum overall Stanford GPA of 3.4.

3. All applicants must devise a program of study that shows a level of specialization appropriate to the master's level, as determined in consultation with the master's adviser and the Director of Earth Systems. (See also following sections, Master of Science and Master of Arts in Earth Systems Degree Requirements).

4. Students applying from an undergraduate major other than Earth Systems should review their undergraduate course list with Deana Fabbro-Johnston, Richard Nevele, or Thomas Hayden (M.A. only).

5. The student has the option of receiving the B.S. degree after completing that degree's requirements or receiving the B.S. and M.A./M.S. degrees concurrently at the completion of the master's program.

6. Students must submit a new application to change from the M.S. to the M.A. in Earth Systems, or from the M.A. to the M.S. in Earth Systems. If accepted, the student must submit a Graduate Authorization Petition through Axess; a $125 fee applies to a successful Graduate Authorization Petition.

**University Coterminal Requirements**

Coterminal master's degree candidates are expected to complete all master's degree requirements as described in this bulletin. University requirements for the coterminal master's degree are described in the "Coterminal Master's Program (http://exploredegrees.stanford.edu/cotermdegrees)" section. University requirements for the master's degree are described in the "Graduate Degrees (http://exploredegrees.stanford.edu/graduatedegrees/#masterstext)" section of this bulletin.

After accepting admission to this coterminal master's degree program, students may request transfer of courses from the undergraduate to the graduate career to satisfy requirements for the master's degree. Transfer of courses to the graduate career requires review and approval of both the undergraduate and graduate programs on a case by case basis.

In this master's program, courses taken during or after the first quarter of the sophomore year are eligible for consideration for transfer to the graduate career; the timing of the first quarter graduate is not a factor. No courses taken prior to the first quarter of the sophomore year may be used to meet master's degree requirements.

Course transfers are not possible after the bachelor's degree has been conferred.

The University requires that the graduate adviser be assigned in the student's first graduate quarter even though the undergraduate career may still be open. The University also requires that the Master's Degree Program Proposal be completed by the student and approved by the department by the end of the student's first graduate quarter.

**Coterminal Master of Science in Earth Systems**

**Degree Requirements**

The master of science degree in Earth Systems allows specialization through graduate-level course work that may include up to 9 units of research with the master's adviser. This may culminate in the preparation of a M.S. thesis; however, a thesis is not required for the degree. The process of building mastery in the field is enriched through steady communication with a faculty adviser.

The following are required of all M.S. students:
• A minimum of 45 units of course work and/or research credit (upon approval).
• At least 34 units of the student’s course work for the master’s program must be at the 200-level or above.
• All remaining course work must be at the 100-level or above.
• All courses for the master’s program must be taken for a letter grade; courses not taken for a letter grade must be approved by the master’s adviser and Director of Earth Systems.
• A minimum overall GPA of 3.4 must be maintained.
• All coterminal master’s students are required to take the capstone course, EARTHSYS 290 Master’s Seminar.

For the Master of Science degree in Earth Systems, the following courses must be taken if not completed in the undergraduate degree program. These courses do not have to be completed before applying to the coterm program. These may not be counted as part of the 45-unit master’s degree:

<table>
<thead>
<tr>
<th>Core (both required):</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSYS 111 Biology and Global Change</td>
</tr>
<tr>
<td>EARTHSYS 112 Human Society and Environmental Change</td>
</tr>
</tbody>
</table>

**Chemistry (select one of the following):**

- CHEM 31X Chemical Principles Accelerated
- CHEM 31A & CHEM 31B Chemical Principles I and Chemical Principles II

**Mathematics (select one of the following):**

- MATH 51 Linear Algebra, Multivariable Calculus, and Modern Applications
- CME 100 Vector Calculus for Engineers

**Statistics (select one of the following):**

- BIOHOPK 174H Experimental Design and Probability
- BIO 141 Biostatistics
- ECON 102A Introduction to Statistical Methods (Postcalculus) for Social Scientists
- STATS 110 Statistical Methods in Engineering and the Physical Sciences
- STATS 116 Theory of Probability
- CME 106 Introduction to Probability and Statistics for Engineers

**Physics (select one of the following):**

- One physics class from the PHYSICS 20 or 40 series or GEOPHYS 110

**Biology: One Biology Foundations/Core course pre-approved by Master’s adviser, OR select from the following:**

- HUMBIO 2A & HUMBIO 2B Genetics, Evolution, and Ecology and Culture, Evolution, and Society
- BIOHOPK 47 Introduction to Research in Ecology and Ecological Physiology
- EARTHSYS 116 Ecology of the Hawaiian Islands

**Units**

- 8
- 5-10
- 3-4
- 5
- 3-5

The following are required of all M.A. students:

• All M.A. students must declare the Environmental Communication subplan in Axess.
• A minimum of 45 units of course work and/or research credit (upon approval).
• At least 34 units of the student’s course work for the master’s program must be at the 200-level or above.
• All remaining course work must be at the 100-level or above.
• All courses for the master’s program must be taken for a letter grade; courses not taken for a letter grade must be approved by the master’s adviser and Director of Earth Systems.
• A minimum overall GPA of 3.4 must be maintained.
• All coterminal master’s students are required to take the capstone course, EARTHSYS 290 Master’s Seminar.

**Graduate Advising Expectations**

The Earth Systems Program is committed to providing academic advising in support of graduate student scholarly and professional development. When most effective, this advising relationship entails collaborative and sustained engagement by both the adviser and the advisee. As a best practice, advising expectations should be periodically discussed and reviewed to ensure mutual understanding. Both the adviser and the advisee are expected to maintain professionalism and integrity.

Faculty advisers guide students in key areas such as selecting courses, designing and conducting research, developing of teaching pedagogy, navigating policies and degree requirements, and exploring academic opportunities and professional pathways.

Graduate students are active contributors to the advising relationship, proactively seeking academic and professional guidance and taking responsibility for informing themselves of policies and degree requirements for their graduate program.

For a statement of University policy on graduate advising, see the "Graduate Advising (http://exploredegrees.stanford.edu/graduatedegrees/#advisingandcredentialtext)" section of this bulletin.

**Director:** Kevin Arrigo

**Deputy Director:** Richard Nevle

**Associate Director:** Deana Fabbro-Johnston

**Affiliated Faculty and Lecturers:** Michelle Anderson (Law), Patrick Archie (Earth Systems, Earth System Science), Nicole Ardoin (School of Education, Woods Institute for the Environment), Kevin Arrigo
Environmental Courses List

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA 115N</td>
<td>The Global Positioning System: Where on Earth are We, and What Time is It?</td>
<td>3</td>
</tr>
<tr>
<td>AA 116Q</td>
<td>Electric Automobiles and Aircraft</td>
<td>3</td>
</tr>
<tr>
<td>AA 251</td>
<td>Introduction to the Space Environment</td>
<td>3</td>
</tr>
<tr>
<td>AA 260</td>
<td>Sustainable Aviation</td>
<td>3</td>
</tr>
<tr>
<td>AA 272C</td>
<td>Global Positioning Systems</td>
<td>3-4</td>
</tr>
<tr>
<td>AA 280</td>
<td>Smart Structures</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 47</td>
<td>History of South Africa</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 50B</td>
<td>Nineteenth Century America</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 58Q</td>
<td>American Landscapes of Segregation</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 95</td>
<td>Liberation Through Land: Organic Gardening and Racial Justice</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 100</td>
<td>Grassroots Community Organizing: Building Power for Collective Liberation</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 111</td>
<td>AIDS, Literacy, and Land: Foreign Aid and Development in Africa</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 144</td>
<td>Living Free: Embodying Healing and Creativity in The Era of Racial Justice Movements</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 147</td>
<td>History of South Africa</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 150B</td>
<td>Nineteenth Century America</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAAM 189</td>
<td>Black Life and Death in the Neoliberal Era</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAST 109</td>
<td>Running While Others Walk: African Perspectives on Development</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAST 112</td>
<td>AIDS, Literacy, and Land: Foreign Aid and Development in Africa</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAST 114N</td>
<td>Desert Biogeography of Namibia Prefield Seminar</td>
<td>3</td>
</tr>
<tr>
<td>AFRICAST 209</td>
<td>Running While Others Walk: African Perspectives on Development</td>
<td>3</td>
</tr>
</tbody>
</table>

For course descriptions and additional offerings, see the listings in the Stanford Bulletin’s ExploreCourses (http://explorecourses.stanford.edu) or Bing Overseas Studies (http://bosp.stanford.edu).
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMSTUD 1B</td>
<td>Media, Culture, and Society</td>
</tr>
<tr>
<td>AMSTUD 10Q</td>
<td>Dystopian California: Imagining the Golden State in Disaster and Science Fiction Film</td>
</tr>
<tr>
<td>AMSTUD 94</td>
<td>Topics in Food Studies</td>
</tr>
<tr>
<td>AMSTUD 124A</td>
<td>The American West</td>
</tr>
<tr>
<td>AMSTUD 136X</td>
<td>Indigenous Peoples and Environmental Change in the North American West</td>
</tr>
<tr>
<td>AMSTUD 150X</td>
<td>From Gold Rush to Google Bus: History of San Francisco</td>
</tr>
<tr>
<td>AMSTUD 276</td>
<td>Water Resources: Culture and Context</td>
</tr>
<tr>
<td>ANTHRO 11SC</td>
<td>Conservation and Development Dilemmas in the Amazon</td>
</tr>
<tr>
<td>ANTHRO 15</td>
<td>Sex and Gender</td>
</tr>
<tr>
<td>ANTHRO 18</td>
<td>Peopling of the Globe: Changing Patterns of Land Use and Consumption Over the Last 50,000 Years</td>
</tr>
<tr>
<td>ANTHRO 22</td>
<td>Archaeology of North America</td>
</tr>
<tr>
<td>ANTHRO 31</td>
<td>Ecology, Evolution, and Human Health</td>
</tr>
<tr>
<td>ANTHRO 34</td>
<td>Animals and Us</td>
</tr>
<tr>
<td>ANTHRO 39</td>
<td>Sense of Place</td>
</tr>
<tr>
<td>ANTHRO 42</td>
<td>Megacities</td>
</tr>
<tr>
<td>ANTHRO 78A</td>
<td>Disruption and Diffusion: The Archaeology of Innovation</td>
</tr>
<tr>
<td>ANTHRO 90C</td>
<td>Theory of Ecological and Environmental Anthropology</td>
</tr>
<tr>
<td>ANTHRO 106</td>
<td>Incas and their Ancestors: Peruvian Archaeology</td>
</tr>
<tr>
<td>ANTHRO 109</td>
<td>Archaeology, World Cultural Heritage</td>
</tr>
<tr>
<td>ANTHRO 110</td>
<td>Environmental Archaeology</td>
</tr>
<tr>
<td>ANTHRO 111A</td>
<td>Archaeology of the Andes of Argentina</td>
</tr>
<tr>
<td>ANTHRO 111B</td>
<td>Muwekma: Landscape Archaeology and the Narratives of California Natives</td>
</tr>
<tr>
<td>ANTHRO 112A</td>
<td>Archaeology of Human Rights</td>
</tr>
<tr>
<td>ANTHRO 114B</td>
<td>Landscape Archaeology and Global Information Systematics</td>
</tr>
<tr>
<td>ANTHRO 116B</td>
<td>Anthropology of the Environment</td>
</tr>
<tr>
<td>ANTHRO 117</td>
<td>Thinking Through Animals</td>
</tr>
<tr>
<td>ANTHRO 117B</td>
<td>Monuments and Landscapes: An Archaeological Perspective</td>
</tr>
<tr>
<td>ANTHRO 118</td>
<td>Heritage, Environment, and Sovereignty in Hawaii</td>
</tr>
<tr>
<td>ANTHRO 119</td>
<td>Zooarchaeology: An Introduction to Faunal Remains</td>
</tr>
<tr>
<td>ANTHRO 120</td>
<td>The Maya</td>
</tr>
<tr>
<td>ANTHRO 123B</td>
<td>Government of Water and Crisis: Corporations, States and the Environment</td>
</tr>
<tr>
<td>ANTHRO 125</td>
<td>Language and the Environment</td>
</tr>
<tr>
<td>ANTHRO 136</td>
<td>The Anthropology of Global Supply Chains</td>
</tr>
<tr>
<td>ANTHRO 137</td>
<td>The Politics of Humanitarianism</td>
</tr>
<tr>
<td>ANTHRO 140C</td>
<td>Mobilizing Nature</td>
</tr>
<tr>
<td>ANTHRO 141A</td>
<td>Science, Technology, and Medicine in Africa</td>
</tr>
<tr>
<td>ANTHRO 147</td>
<td>Nature, Culture, Heritage</td>
</tr>
<tr>
<td>ANTHRO 151A</td>
<td>Contemporary Chinese Society Through Independent Documentary Film</td>
</tr>
<tr>
<td>ANTHRO 154C</td>
<td>Anism, Gaia, and Alternative Approaches to the Environment</td>
</tr>
<tr>
<td>ANTHRO 155</td>
<td>Research Methods in Ecological Anthropology</td>
</tr>
<tr>
<td>ANTHRO 156B</td>
<td>Environment, Nature and Race</td>
</tr>
<tr>
<td>ANTHRO 159C</td>
<td>Ecological Humanities</td>
</tr>
<tr>
<td>ANTHRO 160</td>
<td>Social and Environmental Sustainability: The Costa Rican Case</td>
</tr>
<tr>
<td>ANTHRO 160A</td>
<td>Tragedy of the Commons: Human Ecology of Communal Resources</td>
</tr>
<tr>
<td>ANTHRO 161A</td>
<td>Human Ecology: Adaptations to Climate and Climate Change</td>
</tr>
<tr>
<td>ANTHRO 162</td>
<td>Indigenous Peoples and Environmental Problems</td>
</tr>
<tr>
<td>ANTHRO 163</td>
<td>Conservation and Evolutionary Problems</td>
</tr>
<tr>
<td>ANTHRO 164A</td>
<td>Anthropology of Ecotourism</td>
</tr>
<tr>
<td>ANTHRO 164B</td>
<td>Anthropology of Tourism</td>
</tr>
<tr>
<td>ANTHRO 165</td>
<td>Parks and Peoples: The Benefits and Costs of Protected Area Conservation</td>
</tr>
<tr>
<td>ANTHRO 166</td>
<td>Political Ecology of Tropical Land Use: Conservation, Natural Resource Extraction, and Agribusiness</td>
</tr>
<tr>
<td>ANTHRO 167A</td>
<td>A Wilderness Empire: The Political Ecology of California</td>
</tr>
<tr>
<td>ANTHRO 168</td>
<td>Everest: Extreme Anthropology</td>
</tr>
<tr>
<td>ANTHRO 168A</td>
<td>Risky Environments: The Nature of Disaster</td>
</tr>
<tr>
<td>ANTHRO 170</td>
<td>Australian Ecosystems: Human Dimensions and Environmental Dynamics</td>
</tr>
<tr>
<td>ANTHRO 172</td>
<td>Seminar on Cultural Evolution and Coevolution</td>
</tr>
<tr>
<td>ANTHRO 178</td>
<td>Evolution and Conservation in Galapagos</td>
</tr>
<tr>
<td>ANTHRO 183B</td>
<td>Human Mobility and Adaptability</td>
</tr>
<tr>
<td>ANTHRO 187</td>
<td>Nuclear Cultures</td>
</tr>
<tr>
<td>ANTHRO 187A</td>
<td>The Anthropology of Race, Nature, and Animality</td>
</tr>
<tr>
<td>ANTHRO 219</td>
<td>Zooarchaeology: An Introduction to Faunal Remains</td>
</tr>
<tr>
<td>ANTHRO 225</td>
<td>Language and the Environment</td>
</tr>
<tr>
<td>ANTHRO 237</td>
<td>The Politics of Humanitarianism</td>
</tr>
<tr>
<td>ANTHRO 247</td>
<td>Nature, Culture, Heritage</td>
</tr>
<tr>
<td>ANTHRO 255</td>
<td>Research Methods in Ecological Anthropology</td>
</tr>
<tr>
<td>ANTHRO 260</td>
<td>Social and Environmental Sustainability: The Costa Rican Case</td>
</tr>
<tr>
<td>ANTHRO 262</td>
<td>Indigenous Peoples and Environmental Problems</td>
</tr>
<tr>
<td>ANTHRO 266</td>
<td>Political Ecology of Tropical Land Use: Conservation, Natural Resource Extraction, and Agribusiness</td>
</tr>
<tr>
<td>ANTHRO 270</td>
<td>Australian Ecosystems: Human Dimensions and Environmental Dynamics</td>
</tr>
<tr>
<td>ANTHRO 278</td>
<td>Evolution and Conservation in Galapagos</td>
</tr>
<tr>
<td>ANTHRO 302</td>
<td>History of Anthropological Theory, Ecology and Environment</td>
</tr>
<tr>
<td>ANTHRO 305</td>
<td>Research Methods in Ecological Anthropology</td>
</tr>
<tr>
<td>ANTHRO 322A</td>
<td>The Anthropology of Heritage: Concepts, Contexts and Critique</td>
</tr>
<tr>
<td>ANTHRO 335A</td>
<td>Animism and Alter-Native Modernities</td>
</tr>
</tbody>
</table>
ANTHRO 337B  Anthropological Approaches to Health Issues in Contemporary Latin America
ANTHRO 339A  Technologies of Extinctions: Ecocides and Genocides
ANTHRO 362  Human Spatial Dynamics: Seminar in Communicating Contemporary Science
ANTHRO 362A  Introduction to Human Evolution, Ecology, Genetics, and Culture
ANTHRO 363A  Anthropology of Environmental Conservation
ANTHRO 364  EcoGroup: Current Topics in Ecological, Evolutionary, and Environmental Anthropology
ANTHRO 364A  EcoGroup: Problems in Ecological and Evolutionary Anthropology
ANTHRO 368  Dynamics of Coupled Human-Natural Systems
ANTHRO 369  Advanced Topics in Human Behavioral
ANTHRO 372  Urban Ecologies
ANTHRO 378  Dynamics of Coupled Human-Natural Systems
ANTHRO 445  Anthropology Brown Bag Series
APPHYS 79Q  Energy Options for the 21st Century
APPPHYS 205  Introduction to Biophysics
APPPHYS 219  Solid State Physics Problems in Energy Technology
APPCH 294  Cellular Biophysics
ARCLGY 64  Cultural Heritage and Human Rights
ARCLGY 102B  Inca and their Ancestors: Peruvian Archaeology
ARCLGY 111  Emergence of Chinese Civilization from Caves to Palaces
ARCLGY 119  Zoology: An Introduction to Faunal Remains
ARCLGY 124  Archaeology of Food: production, consumption and ritual
ARCLGY 126  Archaeobotany
ARCLGY 156  Design of Cities
ARCLGY 224  Archaeology of Food: production, consumption and ritual
ARCLGY 226  Archaeobotany
ARTHIST 114B  Modern Design from the Eiffel Tower to Yves Saint Laurent
ARTHIST 152  The American West
ARTHIST 156N  Art and the Power of Place: Site, Location, Environment
ARTHIST 188A  The History of Modern and Contemporary Japanese and Chinese Architecture and Urbanism
ARTHIST 190A  Indigenous Cultural Heritage: Protection, Practice, Repatriation
ARTHIST 273  Visual Culture of the Arctic
ARTHIST 450  Art in the Age of Precarity
ARTSINST 182  Activating Urban Spaces: Materializing Hidden Narratives in the Urban Environment
ARTSTUDI 12AX  Drawing Intensive: Revisiting Nature
ARTSTUDI 141S  Drawing Outdoors
ARTSTUDI 153  Ecology of Materials
ARTSTUDI 153N  Ecology of Materials
ARTSTUDI 157  Art, Invention, Activism in the Public Sphere
ARTSTUDI 184  Art and Environmental Engagement
ARTSTUDI 253  ECOLOGY OF MATERIALS
ASNMST 123  Asian Americans and Environmental Justice
BIO 2N  Ecology and Evolution of Infectious Disease in a Changing World
BIO 3  Frontiers in Marine Biology
BIO 3N  Views of a Changing Sea: Literature & Science
BIO 7N  Introduction to Conservation Photography
BIO 8N  Human Origins
BIO 10AX  Conservation Photography
BIO 10SC  Natural History, Marine Biology, and Research
BIO 12N  Sensory Ecology of Marine Animals
BIO 13Q  Hacking the Genome
BIO 30  Ecology for Everyone
BIO 33N  Conservation Science and Practice
BIO 34N  Hunger
BIO 35N  Climate change ecology. Is it too late?
BIO 46  Introduction to Research in Ecology and Evolutionary Biology
BIO 47  Introduction to Research in Ecology and Evolutionary Biology
BIO 81  Introduction to Ecology
BIO 105A  Ecology and Natural History of Jasper Ridge Biological Preserve
BIO 105B  Ecology and Natural History of Jasper Ridge Biological Preserve
BIO 108  Essential Statistics for Human Biology
BIO 115  The Hidden Kingdom - Evolution, Ecology and Diversity of Fungi
BIO 116  Ecology of the Hawaiian Islands
BIO 117  Biology and Global Change
BIO 130  Ecosystems of California
BIO 133  Network analysis for community ecology and conservation research
BIO 138  Ecosystem Services: Frontiers in the Science of Valuing Nature
BIO 140  The Science of Extreme Life of the Sea
BIO 141  Biostatistics
BIO 142  Molecular Geomicrobiology Laboratory
BIO 144  Conservation Biology: A Latin American Perspective
BIO 145  Ecology and Evolution of Animal Behavior
BIO 146  Population Studies
BIO 172  Ecological Dynamics: Theory and Applications
BIO 182  Modeling Cultural Evolution
BIO 196A  Biology Senior Reflection
BIO 196B  Biology Senior Reflection
BIO 196C  Biology Senior Reflection
BIO 202  Ecological Statistics
BIO 208  Spanish in Science/Science in Spanish
BIO 227  Foundations of Community Ecology
BIO 234  Conservation Biology: A Latin American Perspective
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 238</td>
<td>Ecosystem Services: Frontiers in the Science of Valuing Nature</td>
</tr>
<tr>
<td>BIO 245</td>
<td>Ecology and Evolution of Animal Behavior</td>
</tr>
<tr>
<td>BIO 274S</td>
<td>Hopkins Microbiology Course</td>
</tr>
<tr>
<td>BIO 302</td>
<td>Current Topics and Concepts in Population Biology, Ecology, and Evolution</td>
</tr>
<tr>
<td>BIO 303</td>
<td>Current Topics and Concepts in Population Biology, Ecology, and Evolution</td>
</tr>
<tr>
<td>BIO 304</td>
<td>Current Topics and Concepts in Population Biology, Ecology, and Evolution</td>
</tr>
<tr>
<td>BIO 313</td>
<td>Ethics in the Anthropocene</td>
</tr>
<tr>
<td>BIO 327</td>
<td>Research Frontiers in Biodiversity and Ecosystem Services</td>
</tr>
<tr>
<td>BIO 375</td>
<td>Field Ecology &amp; Conservation</td>
</tr>
<tr>
<td>BIO 384</td>
<td>Theoretical Ecology</td>
</tr>
<tr>
<td>BIO 459</td>
<td>Frontiers in Interdisciplinary Biosciences</td>
</tr>
<tr>
<td>BIOC 459</td>
<td>Frontiers in Interdisciplinary Biosciences</td>
</tr>
<tr>
<td>BIOE 44</td>
<td>Fundamentals for Engineering Biology Lab</td>
</tr>
<tr>
<td>BIOE 80</td>
<td>Introduction to Bioengineering (Engineering Living Matter)</td>
</tr>
<tr>
<td>BIOE 191</td>
<td>Bioengineering Problems and Experimental Investigation</td>
</tr>
<tr>
<td>BIOE 242</td>
<td>LAW, TECHNOLOGY, AND LIBERTY</td>
</tr>
<tr>
<td>BIOE 390</td>
<td>Introduction to Bioengineering Research</td>
</tr>
<tr>
<td>BIOE 459</td>
<td>Frontiers in Interdisciplinary Biosciences</td>
</tr>
<tr>
<td>BIOHOPK 14</td>
<td>Bio-logging and Bio-telemetry</td>
</tr>
<tr>
<td>BIOHOPK 43</td>
<td>Plant Biology, Evolution, and Ecology</td>
</tr>
<tr>
<td>BIOHOPK 47</td>
<td>Introduction to Research in Ecology and Ecological Physiology</td>
</tr>
<tr>
<td>BIOHOPK 81</td>
<td>Introduction to Ecology</td>
</tr>
<tr>
<td>BIOHOPK 85</td>
<td>Evolution</td>
</tr>
<tr>
<td>BIOHOPK 150H</td>
<td>Ecological Mechanics</td>
</tr>
<tr>
<td>BIOHOPK 152H</td>
<td>Physiology of Global Change</td>
</tr>
<tr>
<td>BIOHOPK 153H</td>
<td>Current Topics and Concepts in Quantitative Fish Dynamics and Fisheries Management</td>
</tr>
<tr>
<td>BIOHOPK 155H</td>
<td>Developmental Biology and Evolution</td>
</tr>
<tr>
<td>BIOHOPK 159H</td>
<td>Molecular Ecology Lab</td>
</tr>
<tr>
<td>BIOHOPK 160H</td>
<td>Developmental Biology in the Ocean: Diverse Embryonic &amp; Larval Strategies of marine invertebrates</td>
</tr>
<tr>
<td>BIOHOPK 161H</td>
<td>Invertebrate Zoology</td>
</tr>
<tr>
<td>BIOHOPK 162H</td>
<td>Comparative Animal Physiology</td>
</tr>
<tr>
<td>BIOHOPK 163H</td>
<td>Oceanic Biology</td>
</tr>
<tr>
<td>BIOHOPK 165H</td>
<td>The Extreme Life of the Sea</td>
</tr>
<tr>
<td>BIOHOPK 166H</td>
<td>Molecular Ecology</td>
</tr>
<tr>
<td>BIOHOPK 167H</td>
<td>Nerve, Muscle, and Synapse</td>
</tr>
<tr>
<td>BIOHOPK 168H</td>
<td>Disease Ecology: from parasites evolution to the socio-economic impacts of pathogens on nations</td>
</tr>
<tr>
<td>BIOHOPK 172H</td>
<td>Marine Ecology: From Organisms to Ecosystems</td>
</tr>
<tr>
<td>BIOHOPK 173H</td>
<td>Marine Conservation Biology</td>
</tr>
<tr>
<td>BIOHOPK 173HA</td>
<td>Marine Conservation Biology - Seminar and Discussion Only</td>
</tr>
<tr>
<td>BIOHOPK 174H</td>
<td>Experimental Design and Probability</td>
</tr>
<tr>
<td>BIOHOPK 177H</td>
<td>Dynamics and Management of Marine Populations</td>
</tr>
<tr>
<td>BIOHOPK 179H</td>
<td>Physiological Ecology of Marine Megafauna</td>
</tr>
<tr>
<td>BIOHOPK 180H</td>
<td>Air and Water</td>
</tr>
<tr>
<td>BIOHOPK 181H</td>
<td>Physiology of Global Change</td>
</tr>
<tr>
<td>BIOHOPK 182H</td>
<td>Stanford at Sea</td>
</tr>
<tr>
<td>BIOHOPK 185H</td>
<td>Ecology and Conservation of Kelp Forest Communities</td>
</tr>
<tr>
<td>BIOHOPK 187H</td>
<td>Sensory Ecology</td>
</tr>
<tr>
<td>BIOHOPK 189H</td>
<td>Sustainability and Marine Ecosystems</td>
</tr>
<tr>
<td>BIOHOPK 198H</td>
<td>Directed Instruction or Reading</td>
</tr>
<tr>
<td>BIOHOPK 199H</td>
<td>Undergraduate Research</td>
</tr>
<tr>
<td>BIOHOPK 205H</td>
<td>Ecological Mechanics</td>
</tr>
<tr>
<td>BIOHOPK 252H</td>
<td>Physiology of Global Change</td>
</tr>
<tr>
<td>BIOHOPK 253H</td>
<td>Current Topics and Concepts in Quantitative Fish Dynamics and Fisheries Management</td>
</tr>
<tr>
<td>BIOHOPK 255H</td>
<td>Developmental Biology and Evolution</td>
</tr>
<tr>
<td>BIOHOPK 260H</td>
<td>Developmental Biology in the Ocean: Diverse Embryonic &amp; Larval Strategies of marine invertebrates</td>
</tr>
<tr>
<td>BIOHOPK 261H</td>
<td>Invertebrate Zoology</td>
</tr>
<tr>
<td>BIOHOPK 262H</td>
<td>Comparative Animal Physiology</td>
</tr>
<tr>
<td>BIOHOPK 263H</td>
<td>Oceanic Biology</td>
</tr>
<tr>
<td>BIOHOPK 266H</td>
<td>Molecular Ecology</td>
</tr>
<tr>
<td>BIOHOPK 267H</td>
<td>Nerve, Muscle, and Synapse</td>
</tr>
<tr>
<td>BIOHOPK 268H</td>
<td>Disease Ecology: from parasites evolution to the socio-economic impacts of pathogens on nations</td>
</tr>
<tr>
<td>BIOHOPK 272H</td>
<td>Marine Ecology: From Organisms to Ecosystems</td>
</tr>
<tr>
<td>BIOHOPK 273H</td>
<td>Marine Conservation Biology</td>
</tr>
<tr>
<td>BIOHOPK 274H</td>
<td>Hopkins Microbiology Course</td>
</tr>
<tr>
<td>BIOHOPK 274H</td>
<td>Experimental Design and Probability</td>
</tr>
<tr>
<td>BIOHOPK 275H</td>
<td>Synthesis in Ecology</td>
</tr>
<tr>
<td>BIOHOPK 276H</td>
<td>Estimates and Errors: The Theory of Scientific Measurement</td>
</tr>
<tr>
<td>BIOHOPK 277H</td>
<td>Dynamics and Management of Marine Populations</td>
</tr>
<tr>
<td>BIOHOPK 279H</td>
<td>Physiological Ecology of Marine Megafauna</td>
</tr>
<tr>
<td>BIOHOPK 280H</td>
<td>Short Course on Ocean Policy</td>
</tr>
<tr>
<td>BIOHOPK 285H</td>
<td>Ecology and Conservation of Kelp Forest Communities</td>
</tr>
<tr>
<td>BIOHOPK 287H</td>
<td>Sensory Ecology</td>
</tr>
<tr>
<td>BIOHOPK 289H</td>
<td>Sustainability and Marine Ecosystems</td>
</tr>
<tr>
<td>BIOHOPK 299H</td>
<td>Advanced Topics in Marine Conservation</td>
</tr>
<tr>
<td>BIOHOPK 300H</td>
<td>Research</td>
</tr>
<tr>
<td>BIOHOPK 302H</td>
<td>Physical Biology</td>
</tr>
<tr>
<td>BIOHOPK 323H</td>
<td>Stanford at Sea</td>
</tr>
<tr>
<td>BIOMEDIN 155</td>
<td>Economics of Health and Medical Care</td>
</tr>
<tr>
<td>BIOMEDIN 256</td>
<td>Economics of Health and Medical Care</td>
</tr>
<tr>
<td>BIOS 205</td>
<td>Introduction to R for Data Analysis</td>
</tr>
<tr>
<td>BIOS 211</td>
<td>Modern Statistics for Modern Biology</td>
</tr>
<tr>
<td>BIOS 233</td>
<td>Experimental Metagenomics: Nectar Microbes as a Model System</td>
</tr>
<tr>
<td>BIOS 235</td>
<td>Metabolism and Metabolic Ecology: Microbes, Gut and Cancer</td>
</tr>
<tr>
<td>BIOS 248</td>
<td>Scientific Computing for Ecologists, Biologists and Environmental Scientists</td>
</tr>
<tr>
<td>BIOS 252</td>
<td>Experimental strategies for understanding plant-environmental responses</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>BIOS 253</td>
<td>Discovery and Innovation in Emerging Viral Infections</td>
</tr>
<tr>
<td>BIOS 265</td>
<td>Introduction to Quantitative Reasoning in Biology</td>
</tr>
<tr>
<td>BIOS 270</td>
<td>Planetary Health: Socioeconomic &amp; Ecological Links Between Human Health &amp; Earth's Natural Ecosystems</td>
</tr>
<tr>
<td>BIOS 276</td>
<td>Measuring and Predicting Spatial Patterns</td>
</tr>
<tr>
<td>CBIO 243</td>
<td>Principles of Cancer Systems Biology</td>
</tr>
<tr>
<td>CEE 1</td>
<td>Introduction to Environmental Systems Engineering</td>
</tr>
<tr>
<td>CEE 29N</td>
<td>Managing Natural Disaster Risk</td>
</tr>
<tr>
<td>CEE 32A</td>
<td>Psychology of Architecture</td>
</tr>
<tr>
<td>CEE 33C</td>
<td>Housing Visions</td>
</tr>
<tr>
<td>CEE 50N</td>
<td>Multi-Disciplinary Perspectives on a Large Urban Estuary: San Francisco Bay</td>
</tr>
<tr>
<td>CEE 63</td>
<td>Weather and Storms</td>
</tr>
<tr>
<td>CEE 64</td>
<td>Air Pollution and Global Warming: History, Science, and Solutions</td>
</tr>
<tr>
<td>CEE 70</td>
<td>Environmental Science and Technology</td>
</tr>
<tr>
<td>CEE 70N</td>
<td>Water, Public Health, and Engineering</td>
</tr>
<tr>
<td>CEE 73</td>
<td>Water: An Introduction</td>
</tr>
<tr>
<td>CEE 80N</td>
<td>Engineering the Built Environment: An Introduction to Structural Engineering</td>
</tr>
<tr>
<td>CEE 100</td>
<td>Managing Sustainable Building Projects</td>
</tr>
<tr>
<td>CEE 101B</td>
<td>Mechanics of Fluids</td>
</tr>
<tr>
<td>CEE 101D</td>
<td>Computations in Civil and Environmental Engineering</td>
</tr>
<tr>
<td>CEE 102</td>
<td>Legal and Ethical Principles in Design, Construction, and Project Delivery</td>
</tr>
<tr>
<td>CEE 107A</td>
<td>Understanding Energy</td>
</tr>
<tr>
<td>CEE 107R</td>
<td>E3: Extreme Energy Efficiency</td>
</tr>
<tr>
<td>CEE 107S</td>
<td>Understanding Energy - Essentials</td>
</tr>
<tr>
<td>CEE 112A</td>
<td>Industry Applications of Virtual Design &amp; Construction</td>
</tr>
<tr>
<td>CEE 112B</td>
<td>Industry Applications of Virtual Design &amp; Construction</td>
</tr>
<tr>
<td>CEE 112C</td>
<td>Industry Applications of Virtual Design &amp; Construction</td>
</tr>
<tr>
<td>CEE 113</td>
<td>Patterns of Sustainability</td>
</tr>
<tr>
<td>CEE 124</td>
<td>Sustainable Development Studio</td>
</tr>
<tr>
<td>CEE 124E</td>
<td>Ethics in Urban Systems</td>
</tr>
<tr>
<td>CEE 124S</td>
<td>Sustainable Urban Systems Seminar</td>
</tr>
<tr>
<td>CEE 125</td>
<td>Defining Smart Cities: Visions of Urbanism for the 21st Century</td>
</tr>
<tr>
<td>CEE 126</td>
<td>International Urbanization Seminar: Cross-Cultural Collaboration for Sustainable Urban Development</td>
</tr>
<tr>
<td>CEE 126X</td>
<td>Hard Earth: Stanford Graduate-Student Talks Exploring Tough Environmental Dilemmas</td>
</tr>
<tr>
<td>CEE 131B</td>
<td>Financial Management of Sustainable Urban Systems</td>
</tr>
<tr>
<td>CEE 141A</td>
<td>Infrastructure Project Development</td>
</tr>
<tr>
<td>CEE 141B</td>
<td>Infrastructure Project Delivery</td>
</tr>
<tr>
<td>CEE 141C</td>
<td>Global Infrastructure Projects Seminar</td>
</tr>
<tr>
<td>CEE 144</td>
<td>Design and Innovation for the Circular Economy</td>
</tr>
<tr>
<td>CEE 146S</td>
<td>Engineering Economics and Sustainability</td>
</tr>
<tr>
<td>CEE 151</td>
<td>Negotiation</td>
</tr>
<tr>
<td>CEE 155</td>
<td>Introduction to Sensing Networks for CEE</td>
</tr>
<tr>
<td>CEE 156</td>
<td>Building Systems</td>
</tr>
<tr>
<td>CEE 161I</td>
<td>Atmosphere, Ocean, and Climate Dynamics: The Atmospheric Circulation</td>
</tr>
<tr>
<td>CEE 162D</td>
<td>Introduction to Physical Oceanography</td>
</tr>
<tr>
<td>CEE 162E</td>
<td>Rivers, Streams, and Canals</td>
</tr>
<tr>
<td>CEE 165C</td>
<td>Water Resources Management</td>
</tr>
<tr>
<td>CEE 166A</td>
<td>Watersheds and Wetlands</td>
</tr>
<tr>
<td>CEE 166B</td>
<td>Floods and Droughts, Dams and Aqueducts</td>
</tr>
<tr>
<td>CEE 170S</td>
<td>Environmental Disasters</td>
</tr>
<tr>
<td>CEE 171</td>
<td>Environmental Planning Methods</td>
</tr>
<tr>
<td>CEE 171F</td>
<td>New Indicators of Well-Being and Sustainability</td>
</tr>
<tr>
<td>CEE 172</td>
<td>Air Quality Management</td>
</tr>
<tr>
<td>CEE 172A</td>
<td>Indoor Air Quality</td>
</tr>
<tr>
<td>CEE 173S</td>
<td>Electricity Economics</td>
</tr>
<tr>
<td>CEE 174A</td>
<td>Providing Safe Water for the Developing and Developed World</td>
</tr>
<tr>
<td>CEE 174B</td>
<td>Wastewater Treatment: From Disposal to Resource Recovery</td>
</tr>
<tr>
<td>CEE 175A</td>
<td>California Coast: Science, Policy, and Law</td>
</tr>
<tr>
<td>CEE 175P</td>
<td>Persuasive Communication for Environmental Scientists, Practitioners, and Entrepreneurs</td>
</tr>
<tr>
<td>CEE 175Q</td>
<td>Changing Human Behavior: Drivers and Barriers in Environmental Action</td>
</tr>
<tr>
<td>CEE 175S</td>
<td>Environmental Entrepreneurship and Innovation</td>
</tr>
<tr>
<td>CEE 176A</td>
<td>Energy Efficient Buildings</td>
</tr>
<tr>
<td>CEE 176B</td>
<td>100% Clean, Renewable Energy and Storage for Everything</td>
</tr>
<tr>
<td>CEE 176C</td>
<td>Energy Storage Integration - Vehicles, Renewables, and the Grid</td>
</tr>
<tr>
<td>CEE 176G</td>
<td>Sustainability Design Thinking</td>
</tr>
<tr>
<td>CEE 177</td>
<td>Aquatic Chemistry and Biology</td>
</tr>
<tr>
<td>CEE 177L</td>
<td>Smart Cities &amp; Communities</td>
</tr>
<tr>
<td>CEE 177S</td>
<td>Engineering and Sustainable Development</td>
</tr>
<tr>
<td>CEE 177X</td>
<td>Engineering and Sustainable Development: Toolkit</td>
</tr>
<tr>
<td>CEE 178</td>
<td>Introduction to Human Exposure Analysis</td>
</tr>
<tr>
<td>CEE 179A</td>
<td>Water Chemistry Laboratory</td>
</tr>
<tr>
<td>CEE 179C</td>
<td>Environmental Engineering Design</td>
</tr>
<tr>
<td>CEE 179S</td>
<td>Seminar: Issues in Environmental Science, Technology and Sustainability</td>
</tr>
<tr>
<td>CEE 183</td>
<td>Integrated Civil Engineering Design Project</td>
</tr>
<tr>
<td>CEE 199</td>
<td>Undergraduate Research in Civil and Environmental Engineering</td>
</tr>
<tr>
<td>CEE 199D</td>
<td>Urban Water Supply and Management</td>
</tr>
<tr>
<td>CEE 199L</td>
<td>Independent Project in Civil and Environmental Engineering</td>
</tr>
<tr>
<td>CEE 199S</td>
<td>Undergraduate Summer Research in Civil and Environmental Engineering</td>
</tr>
<tr>
<td>CEE 200A</td>
<td>Teaching of Civil and Environmental Engineering</td>
</tr>
<tr>
<td>CEE 200B</td>
<td>Teaching of Civil and Environmental Engineering</td>
</tr>
<tr>
<td>CEE 200C</td>
<td>Teaching of Civil and Environmental Engineering</td>
</tr>
<tr>
<td>CEE 201D</td>
<td>Computations in Civil and Environmental Engineering</td>
</tr>
</tbody>
</table>
CEE 206 Decision Analysis for Civil and Environmental Engineers
CEE 207A Understanding Energy
CEE 207S Understanding Energy - Essentials
CEE 212A Industry Applications of Virtual Design & Construction
CEE 213 Patterns of Sustainability
CEE 217 Renewable Energy Infrastructure
CEE 221A Planning Tools and Methods in the Power Sector
CEE 223 Materials for Sustainable Built Environments
CEE 224A Sustainable Development Studio
CEE 224X Sustainable Urban Systems Fundamentals
CEE 224Y Sustainable Urban Systems Project
CEE 224Z Sustainable Urban Systems Project
CEE 225 Defining Smart Cities: Visions of Urbanism for the 21st Century
CEE 226 Life Cycle Assessment for Complex Systems
CEE 226E Advanced Topics in Integrated, Energy-Efficient Building Design
CEE 227 Global Project Finance
CEE 235 CapaCity Design Studio
CEE 242P Designing Project Organizations
CEE 243 Intro to Urban Sys Engrg
CEE 246 Venture Creation for the Real Economy
CEE 251 Negotiation
CEE 252Q Construction Engineering Fundamentals
CEE 255 Introduction to Sensing Networks for CEE
CEE 256 Building Systems
CEE 260A Physical Hydrogeology
CEE 260C Contaminant Hydrogeology and Reactive Transport
CEE 261B Physics of Wind Energy
CEE 262A Hydrodynamics
CEE 262B Transport and Mixing in Surface Water Flows
CEE 262C Modeling Environmental Flows
CEE 262D Introduction to Physical Oceanography
CEE 262F Ocean Waves
CEE 263A Air Pollution Modeling
CEE 263B Numerical Weather Prediction
CEE 263C Weather and Storms
CEE 263D Air Pollution and Global Warming: History, Science, and Solutions
CEE 263G Energy Policy in California and the West
CEE 263S Atmosphere/Energy Seminar
CEE 265A Sustainable Water Resources Development
CEE 265C Water Resources Management
CEE 265D Water and Sanitation in Developing Countries
CEE 265E Adaptation to Sea Level Rise and Extreme Weather Events
CEE 265F Environmental Governance and Climate Resilience
CEE 266A Watersheds and Wetlands
CEE 266B Floods and Droughts, Dams and Aqueducts
CEE 266C Dams, Reservoirs, and their Sustainability
CEE 267 Applied Data Analysis and Uncertainty Quantification
CEE 269A Environmental Engineering Seminar
CEE 269B Environmental Engineering Seminar
CEE 269C Environmental Engineering Seminar
CEE 270 Movement and Fate of Organic Contaminants in Waters
CEE 270B Environmental Organic Reaction Chemistry
CEE 271A Physical and Chemical Treatment Processes
CEE 271B Environmental Biotechnology
CEE 271D Introduction to Wastewater Treatment Process Modeling
CEE 271F New Indicators of Well-Being and Sustainability
CEE 272 Coastal Contaminants
CEE 272R Modern Power Systems Engineering
CEE 272T SmartGrids and Advanced Power Systems Seminar
CEE 273 Aquatic Chemistry
CEE 273A Water Chemistry Laboratory
CEE 273B The Business of Water
CEE 274A Environmental Microbiology I
CEE 274B Microbial Bioenergy Systems
CEE 274D Pathogens and Disinfection
CEE 274P Environmental Health Microbiology Lab
CEE 274S Hopkins Microbiology Course
CEE 275A California Coast: Science, Policy, and Law
CEE 275B Process Design for Environmental Biotechnology
CEE 275C Water, Sanitation and Health
CEE 275K The Practice of Environmental Consulting
CEE 275S Environmental Entrepreneurship and Innovation
CEE 276 Introduction to Human Exposure Analysis
CEE 276C Energy Storage Integration - Vehicles, Renewables, and the Grid
CEE 277F Advanced Field Methods in Water, Health and Development
CEE 277L Smart Cities & Communities
CEE 277S Engineering and Sustainable Development
CEE 277X Engineering and Sustainable Development: Toolkit
CEE 278A Air Pollution Fundamentals
CEE 278C Indoor Air Quality
CEE 279S Seminar: Issues in Environmental Science, Technology and Sustainability
CEE 287 Earthquake Resistant Design and Construction
CEE 288 Introduction to Performance Based Earthquake Engineering
CEE 293 Foundations and Earth Structures
CEE 299E Graduate Summer Research in CEE
CEE 299L Independent Project in Civil and Environmental Engineering
CEE 301 The Energy Seminar
CEE 316 Sustainable Built Environment Research
CEE 322 Data Analytics for Urban Systems
CEE 323A Infrastructure Finance and Governance
Earth Systems

CE 32B Infrastructure Finance and Governance
CE 32C Infrastructure Finance and Governance
CE 324 Industrialized Construction
CE 325 CapaCity Design Studio
CE 341 Virtual Design and Construction
CE 350 Engineering Writing, Reviewing and Presentations
CE 361 Turbulence Modeling for Environmental Fluid Mechanics
CE 363A Mechanics of Stratified Flows
CE 363F Oceanic Fluid Dynamics
CE 363G Field Techniques in Coastal Oceanography
CE 365A Advanced Topics in Environmental Fluid Mechanics and Hydrology
CE 365B Advanced Topics in Environmental Fluid Mechanics and Hydrology
CE 365C Advanced Topics in Environmental Fluid Mechanics and Hydrology
CE 365D Advanced Topics in Environmental Fluid Mechanics and Hydrology
CE 370A Environmental Research
CE 370B Environmental Research
CE 370C Environmental Research
CE 370D Environmental Research
CE 374A Introduction to Physiology of Microbes in Biofilms
CE 374B Introduction to Physiology of Microbes in Biofilms
CE 374C Introduction to Physiology of Microbes in Biofilms
CE 374D Introduction to Physiology of Microbes in Biofilms
CE 374S Advanced Topics in Microbial Pollution
CE 374W Advanced Topics in Water, Health and Development
CE 377 Research Proposal Writing in Environmental Engineering and Science
CE 379 Introduction to PHD Studies in Civil and Environmental Engineering
CE 385 Performance-Based Earthquake Engineering
CHEM 10 Exploring Research and Problem Solving Across the Sciences
CHEM 25N Science in the News
CHEM 28N Science Innovation and Communication
CHEM 459 Frontiers in Interdisciplinary Biosciences
CHEMENG 25E Energy: Chemical Transformations for Production, Storage, and Use
CHEMENG 35N Renewable Energy for a Sustainable World
CHEMENG 60Q Environmental Regulation and Policy
CHEMENG 70Q Masters of Disaster
CHEMENG 120B Energy and Mass Transport
CHEMENG 162 Polymers for Clean Energy and Water
CHEMENG 174 Environmental Microbiology I
CHEMENG 262 Polymers for Clean Energy and Water
CHEMENG 274 Environmental Microbiology I
CHEMENG 432 Electrochemical Energy Conversion
CHEMENG 456 Microbial Bioenergy Systems
CHEMENG 459 Frontiers in Interdisciplinary Biosciences
CHEMENG 501 Special Topics in Semiconductor Processing
CHEMENG 516 Special Topics in Energy and Catalysis
CHEMENG 521 Special Topics in Nanostructured Materials for Energy and the Environment
CHILATST 125S Chicano/Latino Politics
CHINA 118A Food Culture in China: Past and Present
CHINA 154Q Utopia/Dystopia in Chinese Literature and Culture
CHINA 371 Aesthetics, Politics, and Modernity: Critical Theory and China
CHPR 113 Healthy/Sustainable Food Systems: Maximum Sustainability across Health, Economics, and Environment
CHPR 166 Food and Society: Exploring Eating Behaviors in Social, Environmental, and Policy Context
CHPR 223 Obesity in America: Clinical and Public Health Implications
CHPR 227 The Science of Community Engagement in Health Research
CHPR 231 Diet and Gene Expression
CHPR 232 Social Determinants of Health
CLASSICS 14N Ecology in Philosophy and Literature
CLASSICS 358 The Archaeology of Ancient Mediterranean Environments
CME 211 Software Development for Scientists and Engineers
COMM 1B Media, Culture, and Society
COMM 104W Reporting, Writing, and Understanding the News
COMM 108 Media Processes and Effects
COMM 172 Media Psychology
COMM 177C Specialized Writing and Reporting: Health and Science Journalism
COMM 272 Media Psychology
COMM 277C Specialized Writing and Reporting: Health and Science Journalism
COMPLIT 172 Visions of a Golden Age: Nature and Pastoral in Literary History
COMPLIT 348 US-Mexico Border Fictions: Writing La Frontera, Tearing Down the Wall
COMPMED 11SC Life in the Zoo: Behavior, Welfare and Enrichment
COMPMED 180N Animal behavior: sex, death, and sometimes food!
COMPMED 84Q Globally Emerging Zoonotic Diseases
CS 22A The Social & Economic Impact of Artificial Intelligence
CS 325B Data for Sustainable Development
CS 377E Designing Solutions to Global Grand Challenges
CSP 80
CSRE 10SC Inequality and Poverty in the United States
CSRE 30SI Housing Justice and Stratification in the Bay Area
CSRE 31SI Food + Race
CSRE 109A Federal Indian Law
CSRE 109B Native Nation Building
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSRE 125E</td>
<td>Shades of Green: Redesigning and Rethinking the Environmental Justice Movements</td>
</tr>
<tr>
<td>CSRE 132E</td>
<td>Topics in Writing &amp; Rhetoric: Introduction to Environmental Justice: Race, Class, Gender and Place</td>
</tr>
<tr>
<td>CSRE 156J</td>
<td>Environment, Nature and Race</td>
</tr>
<tr>
<td>CSRE 178</td>
<td>Ethics and Politics of Public Service</td>
</tr>
<tr>
<td>CSRE 187A</td>
<td>The Anthropology of Race, Nature, and Animality</td>
</tr>
<tr>
<td>EARTH 1A</td>
<td>Know Your Planet: Research Frontiers</td>
</tr>
<tr>
<td>EARTH 1B</td>
<td>Know Your Planet: Big Earth</td>
</tr>
<tr>
<td>EARTH 1C</td>
<td>Know Your Planet: Science Outside</td>
</tr>
<tr>
<td>EARTH 2</td>
<td>Climate and Society</td>
</tr>
<tr>
<td>EARTH 5</td>
<td>Geokids: Earth Sciences Education</td>
</tr>
<tr>
<td>EARTH 10</td>
<td>Design for a Habitable Planet</td>
</tr>
<tr>
<td>EARTH 14</td>
<td>Our National Parks</td>
</tr>
<tr>
<td>EARTH 15</td>
<td>Living on the Edge</td>
</tr>
<tr>
<td>EARTH 42</td>
<td>Landscapes and Tectonics of the San Francisco Bay Area</td>
</tr>
<tr>
<td>EARTH 100</td>
<td>Research Preparation for Undergraduates</td>
</tr>
<tr>
<td>EARTH 114A</td>
<td>Our National Parks</td>
</tr>
<tr>
<td>EARTH 117</td>
<td>Earth Sciences of the Hawaiian Islands</td>
</tr>
<tr>
<td>EARTH 126X</td>
<td>Hard Earth: Stanford Graduate-Student Talks Exploring Tough Environmental Dilemmas</td>
</tr>
<tr>
<td>EARTH 126Y</td>
<td>Hard Earth: Stanford Graduate-Student Talks Exploring Tough Environmental Dilemmas</td>
</tr>
<tr>
<td>EARTH 126Z</td>
<td>Hard Earth: Stanford Graduate-Student Talks Exploring Tough Environmental Dilemmas</td>
</tr>
<tr>
<td>EARTH 131</td>
<td>Pathways in Sustainability Careers</td>
</tr>
<tr>
<td>EARTH 163H</td>
<td>Big Earth Hackathon Water Challenge</td>
</tr>
<tr>
<td>EARTH 183</td>
<td>California Desert Geologic Field Trip</td>
</tr>
<tr>
<td>EARTH 191</td>
<td>Stanford EARTH Field Courses</td>
</tr>
<tr>
<td>EARTH 193</td>
<td>Natural Perspectives: Geology, Environment, and Art</td>
</tr>
<tr>
<td>EARTH 202</td>
<td>PhD Students on the PhD</td>
</tr>
<tr>
<td>EARTH 203</td>
<td>Diversity and Inclusion in the Geosciences</td>
</tr>
<tr>
<td>EARTH 214</td>
<td>Software Design in Modern Fortran for Scientists and Engineers</td>
</tr>
<tr>
<td>EARTH 218</td>
<td>Communicating Science</td>
</tr>
<tr>
<td>EARTH 219</td>
<td>OPINION WRITING IN THE SCIENCES</td>
</tr>
<tr>
<td>EARTH 251</td>
<td>Negotiation</td>
</tr>
<tr>
<td>EARTH 305A</td>
<td>Teaching in the field: Basic skills for working with students in the field</td>
</tr>
<tr>
<td>EARTH 310</td>
<td>Computational Geosciences Seminar</td>
</tr>
<tr>
<td>EARTH 400</td>
<td>Directed Research</td>
</tr>
<tr>
<td>EARTH 401</td>
<td>Curricular Practical Training</td>
</tr>
<tr>
<td>EARTH 414</td>
<td>Coevolution of Earth and Life</td>
</tr>
<tr>
<td>EARTH 42</td>
<td>The Oceans: An Introduction to the Marine Environment</td>
</tr>
<tr>
<td>EARTH 49</td>
<td>Public Service Internship Preparation</td>
</tr>
<tr>
<td>EARTH 50</td>
<td>Introduction to Earth Systems</td>
</tr>
<tr>
<td>EARTH 51</td>
<td>Introduction to Geology</td>
</tr>
<tr>
<td>EARTH 52</td>
<td>People, Land, and Water in the Heart of the West</td>
</tr>
<tr>
<td>EARTH 53</td>
<td>Environmental Justice in the Bay Area</td>
</tr>
<tr>
<td>EARTH 54</td>
<td>EARTHSY 18 Promoting Sustainability Behavior Change at Stanford</td>
</tr>
<tr>
<td>EARTH 55</td>
<td>EARTHSY 20 The Cuisine of Change: Promoting Child Health and Combating Food Insecurity</td>
</tr>
<tr>
<td>EARTH 56</td>
<td>EARTHSY 24 Quick Capture and Questions: Practicing Natural History Through Watercolor</td>
</tr>
<tr>
<td>EARTH 57</td>
<td>EARTHSY 36N Life at the Extremes: From the Deep Sea to Deep Space</td>
</tr>
<tr>
<td>EARTH 58</td>
<td>EARTHSY 37N Climate Change: Science &amp; Society</td>
</tr>
<tr>
<td>EARTH 59</td>
<td>EARTHSY 39N The Carbon Cycle: Reducing Your Impact</td>
</tr>
<tr>
<td>EARTH 60</td>
<td>EARTHSY 41N The Global Warming Paradox</td>
</tr>
<tr>
<td>EARTH 61</td>
<td>EARTHSY 42 The Global Warming Paradox II</td>
</tr>
<tr>
<td>EARTH 62</td>
<td>EARTHSY 44N The Invisible Majority: The Microbial World That Sustains Our Planet</td>
</tr>
<tr>
<td>EARTH 63</td>
<td>EARTHSY 46N Exploring the Critical Interface between the Land and Monterey Bay: Elkhorn Slough</td>
</tr>
<tr>
<td>EARTH 64</td>
<td>EARTHSY 46Q Environmental Impact of Energy Systems: What are the Risks?</td>
</tr>
<tr>
<td>EARTH 65</td>
<td>EARTHSY 49N Multi-Disciplinary Perspectives on a Large Urban Estuary: San Francisco Bay</td>
</tr>
<tr>
<td>EARTH 66</td>
<td>EARTHSY 56Q Changes in the Coastal Ocean: The View From Monterey and San Francisco Bays</td>
</tr>
<tr>
<td>EARTH 67</td>
<td>EARTHSY 57Q Climate Change from the Past to the Future</td>
</tr>
<tr>
<td>EARTH 68</td>
<td>EARTHSY 58Q Understanding Our Oceans: Scientific Toys, Tools, &amp; Trips</td>
</tr>
<tr>
<td>EARTH 69</td>
<td>EARTHSY 61Q Food and security</td>
</tr>
<tr>
<td>EARTH 70</td>
<td>EARTHSY 90 Introduction to Geochemistry</td>
</tr>
<tr>
<td>EARTH 71</td>
<td>EARTHSY 91 Earth Systems Writers Collective</td>
</tr>
<tr>
<td>EARTH 72</td>
<td>EARTHSY 100 Environmental and Geological Field Studies in the Rocky Mountains</td>
</tr>
<tr>
<td>EARTH 73</td>
<td>EARTHSY 101 Energy and the Environment</td>
</tr>
<tr>
<td>EARTH 74</td>
<td>EARTHSY 102 Fundamentals of Renewable Power</td>
</tr>
<tr>
<td>EARTH 75</td>
<td>EARTHSY 103 Understanding Energy</td>
</tr>
<tr>
<td>EARTH 76</td>
<td>EARTHSY 104 The Water Course</td>
</tr>
<tr>
<td>EARTH 77</td>
<td>EARTHSY 105 Food and Community: Food Security, Resilience and Equity</td>
</tr>
<tr>
<td>EARTH 78</td>
<td>EARTHSY 105A Ecology and Natural History of Jasper Ridge Biological Preserve</td>
</tr>
<tr>
<td>EARTH 79</td>
<td>EARTHSY 105B Ecology and Natural History of Jasper Ridge Biological Preserve</td>
</tr>
<tr>
<td>EARTH 80</td>
<td>EARTHSY 106 World Food Economy</td>
</tr>
<tr>
<td>EARTH 81</td>
<td>EARTHSY 106C Why are Scientists Engineering Our Food?</td>
</tr>
<tr>
<td>EARTH 82</td>
<td>EARTHSY 106D New meat: The Science Behind Scalable Alternatives to Animal Products</td>
</tr>
<tr>
<td>EARTH 83</td>
<td>EARTHSY 107 Control of Nature</td>
</tr>
<tr>
<td>EARTH 84</td>
<td>EARTHSY 110 Introduction to the foundations of contemporary geophysics</td>
</tr>
<tr>
<td>EARTH 85</td>
<td>EARTHSY 111 Biology and Global Change</td>
</tr>
<tr>
<td>EARTH 86</td>
<td>EARTHSY 112 Human Society and Environmental Change</td>
</tr>
<tr>
<td>EARTH 87</td>
<td>EARTHSY 113 Earthquakes and Volcanoes</td>
</tr>
<tr>
<td>EARTH 88</td>
<td>EARTHSY 115 Wetlands Ecology of the Pantanal Prefield Seminar</td>
</tr>
<tr>
<td>EARTH 89</td>
<td>EARTHSY 115T Island Biogeography of Tasmania Prefield Seminar</td>
</tr>
<tr>
<td>EARTH 90</td>
<td>EARTHSY 116 Ecology of the Hawaiian Islands</td>
</tr>
<tr>
<td>EARTH 91</td>
<td>EARTHSY 117 Earth Sciences of the Hawaiian Islands</td>
</tr>
<tr>
<td>EARTH 92</td>
<td>EARTHSY 118 Heritage, Environment, and Sovereignty in Hawaii</td>
</tr>
<tr>
<td>EARTH 93</td>
<td>EARTHSY 119 Will Work for Food</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>EARTHSYS 121</td>
<td>Building a Sustainable Society: New Approaches for Integrating Human and Environmental Priorities</td>
</tr>
<tr>
<td>EARTHSYS 122</td>
<td>Evolution of Marine Ecosystems</td>
</tr>
<tr>
<td>EARTHSYS 124</td>
<td>Measurements in Earth Systems</td>
</tr>
<tr>
<td>EARTHSYS 125</td>
<td>Shades of Green: Redesigning and Rethinking the Environmental Justice Movements</td>
</tr>
<tr>
<td>EARTHSYS 126</td>
<td>Perspectives in International Development</td>
</tr>
<tr>
<td>EARTHSYS 128</td>
<td>Evolution of Terrestrial Ecosystems</td>
</tr>
<tr>
<td>EARTHSYS 129</td>
<td>Geographic Impacts of Global Change: Mapping the Stories</td>
</tr>
<tr>
<td>EARTHSYS 131</td>
<td>Pathways in Sustainability Careers</td>
</tr>
<tr>
<td>EARTHSYS 132</td>
<td>Evolution of Earth Systems</td>
</tr>
<tr>
<td>EARTHSYS 133</td>
<td>Social Enterprise Workshop</td>
</tr>
<tr>
<td>EARTHSYS 136</td>
<td>The Ethics of Stewardship</td>
</tr>
<tr>
<td>EARTHSYS 138</td>
<td>International Urbanization Seminar: Cross-Cultural Collaboration for Sustainable Urban Development</td>
</tr>
<tr>
<td>EARTHSYS 140</td>
<td>The Energy-Water Nexus</td>
</tr>
<tr>
<td>EARTHSYS 141</td>
<td>Remote Sensing of the Oceans</td>
</tr>
<tr>
<td>EARTHSYS 142</td>
<td>Remote Sensing of Land</td>
</tr>
<tr>
<td>EARTHSYS 144</td>
<td>Fundamentals of Geographic Information Science (GIS)</td>
</tr>
<tr>
<td>EARTHSYS 146A</td>
<td>Atmosphere, Ocean, and Climate Dynamics: The Atmospheric Circulation</td>
</tr>
<tr>
<td>EARTHSYS 146B</td>
<td>Atmosphere, Ocean, and Climate Dynamics: the Ocean Circulation</td>
</tr>
<tr>
<td>EARTHSYS 148</td>
<td>Grow it, Cook it, Eat it. An Experiential Exploration of How and Why We Eat What We Eat</td>
</tr>
<tr>
<td>EARTHSYS 149</td>
<td>Wild Writing</td>
</tr>
<tr>
<td>EARTHSYS 151</td>
<td>Biological Oceanography</td>
</tr>
<tr>
<td>EARTHSYS 152</td>
<td>Marine Chemistry</td>
</tr>
<tr>
<td>EARTHSYS 154</td>
<td>Intermediate Writing: Communicating Climate Change: Navigating the Stories from the Frontlines</td>
</tr>
<tr>
<td>EARTHSYS 155</td>
<td>Science of Soils</td>
</tr>
<tr>
<td>EARTHSYS 158</td>
<td>Geomicrobiology</td>
</tr>
<tr>
<td>EARTHSYS 160</td>
<td>Sustainable Cities</td>
</tr>
<tr>
<td>EARTHSYS 164</td>
<td>Introduction to Physical Oceanography</td>
</tr>
<tr>
<td>EARTHSYS 170</td>
<td>Environmental Geochemistry</td>
</tr>
<tr>
<td>EARTHSYS 172</td>
<td>Australian Ecosystems: Human Dimensions and Environmental Dynamics</td>
</tr>
<tr>
<td>EARTHSYS 176</td>
<td>Open Space Management Practicum</td>
</tr>
<tr>
<td>EARTHSYS 176A</td>
<td>Open Space Practicum Independent Study</td>
</tr>
<tr>
<td>EARTHSYS 177C</td>
<td>Specialized Writing and Reporting: Health and Science Journalism</td>
</tr>
<tr>
<td>EARTHSYS 179S</td>
<td>Seminar: Issues in Environmental Science, Technology and Sustainability</td>
</tr>
<tr>
<td>EARTHSYS 180</td>
<td>Principles and Practices of Sustainable Agriculture</td>
</tr>
<tr>
<td>EARTHSYS 181</td>
<td>Urban Agriculture in the Developing World</td>
</tr>
<tr>
<td>EARTHSYS 182A</td>
<td>Ecological Farm Systems</td>
</tr>
<tr>
<td>EARTHSYS 185</td>
<td>Feeding Nine Billion</td>
</tr>
<tr>
<td>EARTHSYS 186</td>
<td>Farm and Garden Environmental Education Practicum</td>
</tr>
<tr>
<td>EARTHSYS 187</td>
<td>FEED the Change: Redesigning Food Systems</td>
</tr>
<tr>
<td>EARTHSYS 188</td>
<td>Social and Environmental Tradeoffs in Climate Decision-Making</td>
</tr>
<tr>
<td>EARTHSYS 190</td>
<td>The Multimedia Story</td>
</tr>
<tr>
<td>EARTHSYS 191</td>
<td>Concepts in Environmental Communication</td>
</tr>
<tr>
<td>EARTHSYS 196</td>
<td>Implementing Climate Solutions at Scale</td>
</tr>
<tr>
<td>EARTHSYS 197</td>
<td>Directed Individual Study in Earth Systems</td>
</tr>
<tr>
<td>EARTHSYS 199</td>
<td>Honors Program in Earth Systems</td>
</tr>
<tr>
<td>EARTHSYS 200</td>
<td>Environmental Communication in Action: The SAGE Project</td>
</tr>
<tr>
<td>EARTHSYS 201</td>
<td>Editing for Publication</td>
</tr>
<tr>
<td>EARTHSYS 205VP</td>
<td>Contested markets in the Brazilian Amazon Rainforest</td>
</tr>
<tr>
<td>EARTHSYS 206</td>
<td>World Food Economy</td>
</tr>
<tr>
<td>EARTHSYS 207</td>
<td>Spanish in Science/Science in Spanish</td>
</tr>
<tr>
<td>EARTHSYS 210A</td>
<td>Senior Capstone and Reflection</td>
</tr>
<tr>
<td>EARTHSYS 210B</td>
<td>Senior Capstone and Reflection</td>
</tr>
<tr>
<td>EARTHSYS 210P</td>
<td>Earth Systems Capstone Project</td>
</tr>
<tr>
<td>EARTHSYS 211</td>
<td>Fundamentals of Modeling</td>
</tr>
<tr>
<td>EARTHSYS 219</td>
<td>Will Work for Food</td>
</tr>
<tr>
<td>EARTHSYS 225</td>
<td>Shades of Green: Redesigning and Rethinking the Environmental Justice Movements</td>
</tr>
<tr>
<td>EARTHSYS 232</td>
<td>Evolution of Earth Systems</td>
</tr>
<tr>
<td>EARTHSYS 235</td>
<td>Podcasting the Anthropocene</td>
</tr>
<tr>
<td>EARTHSYS 236</td>
<td>The Ethics of Stewardship</td>
</tr>
<tr>
<td>EARTHSYS 238</td>
<td>Land Use Law</td>
</tr>
<tr>
<td>EARTHSYS 241</td>
<td>Remote Sensing of the Oceans</td>
</tr>
<tr>
<td>EARTHSYS 242</td>
<td>Remote Sensing of Land</td>
</tr>
<tr>
<td>EARTHSYS 243</td>
<td>Environmental Advocacy and Policy Communication</td>
</tr>
<tr>
<td>EARTHSYS 249</td>
<td>Wild Writing</td>
</tr>
<tr>
<td>EARTHSYS 250</td>
<td>Directed Research</td>
</tr>
<tr>
<td>EARTHSYS 251</td>
<td>Biological Oceanography</td>
</tr>
<tr>
<td>EARTHSYS 252</td>
<td>Marine Chemistry</td>
</tr>
<tr>
<td>EARTHSYS 255</td>
<td>Microbial Physiology</td>
</tr>
<tr>
<td>EARTHSYS 256</td>
<td>Soil and Water Chemistry</td>
</tr>
<tr>
<td>EARTHSYS 258</td>
<td>Geomicrobiology</td>
</tr>
<tr>
<td>EARTHSYS 260</td>
<td>Internship</td>
</tr>
<tr>
<td>EARTHSYS 263F</td>
<td>Groundwork for COP21</td>
</tr>
<tr>
<td>EARTHSYS 272</td>
<td>Antarctic Marine Geology and Geophysics</td>
</tr>
<tr>
<td>EARTHSYS 276</td>
<td>Open Space Management Practicum</td>
</tr>
<tr>
<td>EARTHSYS 276A</td>
<td>Open Space Practicum Independent Study</td>
</tr>
<tr>
<td>EARTHSYS 277C</td>
<td>Specialized Writing and Reporting: Health and Science Journalism</td>
</tr>
<tr>
<td>EARTHSYS 281</td>
<td>Urban Agriculture in the Developing World</td>
</tr>
<tr>
<td>EARTHSYS 286</td>
<td>Farm and Garden Environmental Education Practicum</td>
</tr>
<tr>
<td>EARTHSYS 288</td>
<td>Social and Environmental Tradeoffs in Climate Decision-Making</td>
</tr>
<tr>
<td>EARTHSYS 289</td>
<td>FEED Lab: Food System Design &amp; Innovation</td>
</tr>
<tr>
<td>EARTHSYS 289A</td>
<td>FEED Lab: Food System Design &amp; Innovation</td>
</tr>
<tr>
<td>EARTHSYS 289B</td>
<td>FEED Lab: Food System Design &amp; Innovation</td>
</tr>
<tr>
<td>EARTHSYS 290</td>
<td>Master’s Seminar</td>
</tr>
<tr>
<td>EARTHSYS 291</td>
<td>Concepts in Environmental Communication</td>
</tr>
<tr>
<td>EARTHSYS 292</td>
<td>Multimedia Environmental Communication</td>
</tr>
<tr>
<td>EARTHSYS 293</td>
<td>Environmental Communication Practicum</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>EARTHSYS 294</td>
<td>Environmental Communication Capstone</td>
</tr>
<tr>
<td>EARTHSYS 295</td>
<td>Environmental Communication Seminar</td>
</tr>
<tr>
<td>EARTHSYS 297</td>
<td>Directed Individual Study in Earth Systems</td>
</tr>
<tr>
<td>EARTHSYS 299</td>
<td>M.S. Thesis</td>
</tr>
<tr>
<td>EARTHSYS 323</td>
<td>Stanford at Sea</td>
</tr>
<tr>
<td>EARTHSYS 332</td>
<td>Theory and Practice of Environmental Education</td>
</tr>
<tr>
<td>EARTHSYS 801</td>
<td>TGR Project</td>
</tr>
<tr>
<td>EASTASN 94</td>
<td>The Rise of China in World Affairs</td>
</tr>
<tr>
<td>EASTASN 117</td>
<td>Health and Healthcare Systems in East Asia</td>
</tr>
<tr>
<td>EASTASN 217</td>
<td>Health and Healthcare Systems in East Asia</td>
</tr>
<tr>
<td>EASTASN 294</td>
<td>The Rise of China in World Affairs</td>
</tr>
<tr>
<td>ECON 15N</td>
<td>The Economics of Immigration in the US: Past and Present</td>
</tr>
<tr>
<td>ECON 17N</td>
<td>Energy, the Environment, and the Economy</td>
</tr>
<tr>
<td>ECON 106</td>
<td>World Food Economy</td>
</tr>
<tr>
<td>ECON 118</td>
<td>Development Economics</td>
</tr>
<tr>
<td>ECON 126</td>
<td>Economics of Health and Medical Care</td>
</tr>
<tr>
<td>ECON 127</td>
<td>Economics of Health Improvement in Developing Countries</td>
</tr>
<tr>
<td>ECON 155</td>
<td>Environmental Economics and Policy</td>
</tr>
<tr>
<td>ECON 159</td>
<td>Economic, Legal, and Political Analysis of Climate-Change Policy</td>
</tr>
<tr>
<td>ECON 206</td>
<td>World Food Economy</td>
</tr>
<tr>
<td>ECON 214</td>
<td>Development Economics I</td>
</tr>
<tr>
<td>ECON 216</td>
<td>Development Economics III</td>
</tr>
<tr>
<td>ECON 231</td>
<td>Analytics of Global Economic Externalities under Uncertainty</td>
</tr>
<tr>
<td>ECON 250</td>
<td>Environmental Economics</td>
</tr>
<tr>
<td>ECON 251</td>
<td>Natural Resource and Energy Economics</td>
</tr>
<tr>
<td>ECON 253</td>
<td>Energy Markets: Theory and Evidence from Latin America</td>
</tr>
<tr>
<td>ECON 341</td>
<td>Public Economics and Environmental Economics Seminar</td>
</tr>
<tr>
<td>EDUC 100A</td>
<td>EAST House Seminar: Current Issues and Debates in Education</td>
</tr>
<tr>
<td>EDUC 126A</td>
<td>Introduction to Public Service Leadership</td>
</tr>
<tr>
<td>EDUC 126B</td>
<td>Public Service Leadership Practicum</td>
</tr>
<tr>
<td>EDUC 139</td>
<td>Educating Young STEM Thinkers</td>
</tr>
<tr>
<td>EDUC 170</td>
<td>Preparation for Independent Public Service Projects</td>
</tr>
<tr>
<td>EDUC 239</td>
<td>Educating Young STEM Thinkers</td>
</tr>
<tr>
<td>EDUC 267A</td>
<td>Curriculum and Instruction in Science</td>
</tr>
<tr>
<td>EDUC 267B</td>
<td>Curriculum and Instruction in Science</td>
</tr>
<tr>
<td>EDUC 267C</td>
<td>Curriculum and Instruction in Science</td>
</tr>
<tr>
<td>EDUC 267E</td>
<td>Development of Scientific Reasoning and Knowledge</td>
</tr>
<tr>
<td>EDUC 267F</td>
<td>Development of Scientific Reasoning and Knowledge II</td>
</tr>
<tr>
<td>EDUC 267G</td>
<td>Integrating the Garden into the Elementary Curriculum</td>
</tr>
<tr>
<td>EDUC 280</td>
<td>Learning &amp; Teaching of Science</td>
</tr>
<tr>
<td>EDUC 302</td>
<td>Behavior Design</td>
</tr>
<tr>
<td>EDUC 320</td>
<td>Sociology of Science</td>
</tr>
<tr>
<td>EDUC 332</td>
<td>Theory and Practice of Environmental Education</td>
</tr>
<tr>
<td>EDUC 357</td>
<td>Science and Environmental Education in Informal Contexts</td>
</tr>
<tr>
<td>EDUC 359C</td>
<td>Science Literacy</td>
</tr>
<tr>
<td>EDUC 362</td>
<td>The Science Curriculum: Values and Ideology in a Contested Terrain</td>
</tr>
<tr>
<td>EE 60N</td>
<td>Man versus Nature: Coping with Disasters Using Space Technology</td>
</tr>
<tr>
<td>EE 116</td>
<td>Semiconductor Devices for Energy and Electronics</td>
</tr>
<tr>
<td>EE 142</td>
<td>Engineering Electromagnetics</td>
</tr>
<tr>
<td>EE 151</td>
<td>Sustainable Energy Systems</td>
</tr>
<tr>
<td>EE 155</td>
<td>Green Electronics</td>
</tr>
<tr>
<td>EE 255</td>
<td>Green Electronics</td>
</tr>
<tr>
<td>EE 292H</td>
<td>Engineering, Entrepreneurship &amp; Climate Change</td>
</tr>
<tr>
<td>EE 293</td>
<td>Energy storage and conversion: Solar Cells, Fuel Cells, Batteries and Supercapacitors</td>
</tr>
<tr>
<td>EE 293B</td>
<td>Fundamentals of Energy Processes</td>
</tr>
<tr>
<td>EEES 302</td>
<td>Challenges and Practices in Crossdisciplinary Research and Teaching</td>
</tr>
<tr>
<td>EMED 124</td>
<td>Wilderness First Aid</td>
</tr>
<tr>
<td>EMED 126</td>
<td>Wilderness First Responder</td>
</tr>
<tr>
<td>EMED 128</td>
<td>Wilderness Medicine: Continued practical experience for high-quality care</td>
</tr>
<tr>
<td>EMED 218</td>
<td>Humanitarian Crises: Cities, Refugees and Resilience</td>
</tr>
<tr>
<td>ENERGY 20N</td>
<td>Technology in the Greenhouse</td>
</tr>
<tr>
<td>ENERGY 101</td>
<td>Energy and the Environment</td>
</tr>
<tr>
<td>ENERGY 101A</td>
<td>Energizing California</td>
</tr>
<tr>
<td>ENERGY 102</td>
<td>Fundamentals of Renewable Power</td>
</tr>
<tr>
<td>ENERGY 104</td>
<td>Sustainable Energy for 9 Billion</td>
</tr>
<tr>
<td>ENERGY 110</td>
<td>Engineering Economics</td>
</tr>
<tr>
<td>ENERGY 112</td>
<td>Exploring Geosciences with MATLAB</td>
</tr>
<tr>
<td>ENERGY 120</td>
<td>Fundamentals of Petroleum Engineering</td>
</tr>
<tr>
<td>ENERGY 120A</td>
<td>Flow Through Porous Media Laboratory</td>
</tr>
<tr>
<td>ENERGY 121</td>
<td>Fundamentals of Multiphase Flow</td>
</tr>
<tr>
<td>ENERGY 122</td>
<td>Lunch with Numerics</td>
</tr>
<tr>
<td>ENERGY 123</td>
<td>When Technology Meets Reality; An In-depth Look at the Deepwater Horizon Blowout and Oil Spill</td>
</tr>
<tr>
<td>ENERGY 130</td>
<td>Well Log Analysis I</td>
</tr>
<tr>
<td>ENERGY 141</td>
<td>Seismic Reservoir Characterization</td>
</tr>
<tr>
<td>ENERGY 146</td>
<td>Reservoir Characterization and Flow Modeling with Outcrop Data</td>
</tr>
<tr>
<td>ENERGY 153</td>
<td>Carbon Capture and Sequestration</td>
</tr>
<tr>
<td>ENERGY 155</td>
<td>Undergraduate Report on Energy Industry Training</td>
</tr>
<tr>
<td>ENERGY 158</td>
<td>Bringing New Energy Technologies to Market: Optimizing Technology Push and Market Pull</td>
</tr>
<tr>
<td>ENERGY 160</td>
<td>Uncertainty Quantification in Data-Centric Simulations</td>
</tr>
<tr>
<td>ENERGY 167</td>
<td>Engineering Valuation and Appraisal of Oil and Gas Wells, Facilities, and Properties</td>
</tr>
<tr>
<td>ENERGY 171</td>
<td>Energy Infrastructure, Technology and Economics</td>
</tr>
<tr>
<td>ENERGY 175</td>
<td>Well Test Analysis</td>
</tr>
<tr>
<td>ENERGY 180</td>
<td>Oil and Gas Production Engineering</td>
</tr>
<tr>
<td>ENERGY 191</td>
<td>Optimization of Energy Systems</td>
</tr>
<tr>
<td>ENERGY 192</td>
<td>Undergraduate Teaching Experience</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>ENERGY 193</td>
<td>Undergraduate Research Problems</td>
</tr>
<tr>
<td>ENERGY 194</td>
<td>Special Topics in Energy and Mineral Fluids</td>
</tr>
<tr>
<td>ENERGY 199</td>
<td>Senior Project and Seminar in Energy Resources</td>
</tr>
<tr>
<td>ENERGY 201</td>
<td>Laboratory Measurement of Reservoir Rock Properties</td>
</tr>
<tr>
<td>ENERGY 203</td>
<td>Stanford Energy Ventures</td>
</tr>
<tr>
<td>ENERGY 204</td>
<td>Achieving Universal Energy Access by 2030: Can it be done?</td>
</tr>
<tr>
<td>ENERGY 212</td>
<td>Environmental Aspects of Oil and Gas Production</td>
</tr>
<tr>
<td>ENERGY 214</td>
<td>The Global Price of Oil</td>
</tr>
<tr>
<td>ENERGY 216</td>
<td>Research Seminar: Energy Development in the Emerging Economy</td>
</tr>
<tr>
<td>ENERGY 221</td>
<td>Fundamentals of Multiphase Flow</td>
</tr>
<tr>
<td>ENERGY 222</td>
<td>Advanced Reservoir Engineering</td>
</tr>
<tr>
<td>ENERGY 223</td>
<td>Reservoir Simulation</td>
</tr>
<tr>
<td>ENERGY 224</td>
<td>Advanced Reservoir Simulation</td>
</tr>
<tr>
<td>ENERGY 225</td>
<td>Theory of Gas Injection Processes</td>
</tr>
<tr>
<td>ENERGY 226</td>
<td>Thermal Recovery Methods</td>
</tr>
<tr>
<td>ENERGY 227</td>
<td>Enhanced Oil Recovery</td>
</tr>
<tr>
<td>ENERGY 230</td>
<td>Advanced Topics in Well Logging</td>
</tr>
<tr>
<td>ENERGY 240</td>
<td>Data science for geoscience</td>
</tr>
<tr>
<td>ENERGY 241</td>
<td>Seismic Reservoir Characterization</td>
</tr>
<tr>
<td>ENERGY 242</td>
<td>Topics in Advanced Geostatistics</td>
</tr>
<tr>
<td>ENERGY 246</td>
<td>Reservoir Characterization and Flow Modeling with Outcrop Data</td>
</tr>
<tr>
<td>ENERGY 251</td>
<td>Thermodynamics of Equilibria</td>
</tr>
<tr>
<td>ENERGY 253</td>
<td>Carbon Capture and Sequestration</td>
</tr>
<tr>
<td>ENERGY 255</td>
<td>Master's Report on Energy Industry Training</td>
</tr>
<tr>
<td>ENERGY 260</td>
<td>Uncertainty Quantification in Data-Centric Simulations</td>
</tr>
<tr>
<td>ENERGY 267</td>
<td>Engineering Valuation and Appraisal of Oil and Gas Wells, Facilities, and Properties</td>
</tr>
<tr>
<td>ENERGY 269</td>
<td>Geothermal Reservoir Engineering</td>
</tr>
<tr>
<td>ENERGY 271</td>
<td>Energy Infrastructure, Technology and Economics</td>
</tr>
<tr>
<td>ENERGY 273</td>
<td>Special Topics in Energy Resources Engineering</td>
</tr>
<tr>
<td>ENERGY 274</td>
<td>Complex Analysis for Practical Engineering</td>
</tr>
<tr>
<td>ENERGY 275</td>
<td>Quantitative Methods in Basin and Petroleum System Modeling</td>
</tr>
<tr>
<td>ENERGY 281</td>
<td>Applied Mathematics in Reservoir Engineering</td>
</tr>
<tr>
<td>ENERGY 282</td>
<td>Chemical Kinetics and Basin Modeling</td>
</tr>
<tr>
<td>ENERGY 285A</td>
<td>SUPRI-A Research Seminar: Enhanced Oil Recovery</td>
</tr>
<tr>
<td>ENERGY 285B</td>
<td>SUPRI-B Research Seminar: Reservoir Simulation</td>
</tr>
<tr>
<td>ENERGY 285C</td>
<td>SUPRI-C Research Seminar: Gas Injection Processes</td>
</tr>
<tr>
<td>ENERGY 285D</td>
<td>SUPRI-D Research Seminar: Well Test Analysis</td>
</tr>
<tr>
<td>ENERGY 285F</td>
<td>SCR Research Seminar: Geostatistics and Reservoir Forecasting</td>
</tr>
<tr>
<td>ENERGY 285G</td>
<td>Geothermal Reservoir Engineering Research Seminar</td>
</tr>
<tr>
<td>ENERGY 285S</td>
<td>Smart Fields Research Seminar: Horizontal Well Technology</td>
</tr>
<tr>
<td>ENERGY 289</td>
<td>Multiscale Methods for Transport in Porous Media</td>
</tr>
<tr>
<td>ENERGY 291</td>
<td>Optimization of Energy Systems</td>
</tr>
<tr>
<td>ENERGY 293B</td>
<td>Fundamentals of Energy Processes</td>
</tr>
<tr>
<td>ENERGY 293C</td>
<td>Energy from Wind and Water Currents</td>
</tr>
<tr>
<td>ENERGY 300</td>
<td>Graduate Directed Reading</td>
</tr>
<tr>
<td>ENERGY 301</td>
<td>The Energy Seminar</td>
</tr>
<tr>
<td>ENERGY 351</td>
<td>ERE Master's Graduate Seminar</td>
</tr>
<tr>
<td>ENERGY 352</td>
<td>ERE PhD Graduate Seminar</td>
</tr>
<tr>
<td>ENERGY 355</td>
<td>Doctoral Report on Energy Industry Training</td>
</tr>
<tr>
<td>ENERGY 359</td>
<td>Teaching Experience in Energy Resources Engineering</td>
</tr>
<tr>
<td>ENERGY 360</td>
<td>Advanced Research Work in Energy Resources Engineering</td>
</tr>
<tr>
<td>ENERGY 361</td>
<td>Master's Degree Research in Energy Resources Engineering</td>
</tr>
<tr>
<td>ENERGY 362</td>
<td>Engineer's Degree Research in Energy Resources Engineering</td>
</tr>
<tr>
<td>ENERGY 363</td>
<td>Doctoral Degree Research in Energy Resources Engineering</td>
</tr>
<tr>
<td>ENERGY 365</td>
<td>Special Research Topics in Energy Resources Engineering</td>
</tr>
<tr>
<td>ENERGY 369</td>
<td>Practical Energy Studies</td>
</tr>
<tr>
<td>ENERGY 801</td>
<td>TGR Project</td>
</tr>
<tr>
<td>ENERGY 802</td>
<td>TGR Dissertation</td>
</tr>
<tr>
<td>ENGLISH 60N</td>
<td>Living on the Edge: Language and Landscape of the Western Fringes</td>
</tr>
<tr>
<td>ENGLISH 91V0</td>
<td>Voices of the Land</td>
</tr>
<tr>
<td>ENGLISH 124</td>
<td>The American West</td>
</tr>
<tr>
<td>ENGR 25E</td>
<td>Energy: Chemical Transformations for Production, Storage, and Use</td>
</tr>
<tr>
<td>ENGR 50E</td>
<td>Introduction to Materials Science, Energy Emphasis</td>
</tr>
<tr>
<td>ENGR 90</td>
<td>Environmental Science and Technology</td>
</tr>
<tr>
<td>ENGR 113A</td>
<td>Solar Decathlon 2015</td>
</tr>
<tr>
<td>ENGR 113B</td>
<td>Solar Decathlon 2015</td>
</tr>
<tr>
<td>ENGR 113C</td>
<td>Solar Decathlon 2015</td>
</tr>
<tr>
<td>ENGR 113D</td>
<td>SOLAR DECATHLON 2015</td>
</tr>
<tr>
<td>ENGR 120</td>
<td>Fundamentals of Petroleum Engineering</td>
</tr>
<tr>
<td>ENGR 145</td>
<td>Technology Entrepreneurship</td>
</tr>
<tr>
<td>ENGR 213</td>
<td>Solar Decathlon</td>
</tr>
<tr>
<td>ENVRES 199</td>
<td>Independent study</td>
</tr>
<tr>
<td>ENVRES 201</td>
<td>Designing and Evaluating Community Engagement Programs for Social and Environmental Change</td>
</tr>
<tr>
<td>ENVRES 212</td>
<td>Cities and Sustainability: Current Issues, Policy, and Law</td>
</tr>
<tr>
<td>ENVRES 220</td>
<td>The Social Ocean: Ocean Conservation, Management, and Law</td>
</tr>
<tr>
<td>ENVRES 221</td>
<td>New Frontiers and Opportunities in Sustainability</td>
</tr>
<tr>
<td>ENVRES 222</td>
<td>Climate Law and Policy</td>
</tr>
<tr>
<td>ENVRES 225</td>
<td>E-IPER Current Topics Seminar</td>
</tr>
<tr>
<td>ENVRES 226</td>
<td>Energy Law</td>
</tr>
<tr>
<td>ENVRES 230</td>
<td>Field Survey Data Collection &amp; Analysis</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>ENVRES 240</td>
<td>Environmental Decision-Making and Risk Perception</td>
</tr>
<tr>
<td>ENVRES 245</td>
<td>Psychological Insights for Science Communication</td>
</tr>
<tr>
<td>ENVRES 246</td>
<td>Measuring Success in Environmental Messaging</td>
</tr>
<tr>
<td>ENVRES 250</td>
<td>Environmental Governance</td>
</tr>
<tr>
<td>ENVRES 270</td>
<td>Graduate Practicum in Environment and Resources</td>
</tr>
<tr>
<td>ENVRES 276</td>
<td>Water Resources: Culture and Context</td>
</tr>
<tr>
<td>ENVRES 280</td>
<td>Topics in Environment and Resources</td>
</tr>
<tr>
<td>ENVRES 290</td>
<td>Capstone Project Seminar in Environment and Resources</td>
</tr>
<tr>
<td>ENVRES 300</td>
<td>Introduction to Resource, Energy and Environmental Economics</td>
</tr>
<tr>
<td>ENVRES 315</td>
<td>Environmental Research Design Seminar</td>
</tr>
<tr>
<td>ENVRES 320</td>
<td>Designing Environmental Research</td>
</tr>
<tr>
<td>ENVRES 330</td>
<td>Research Approaches for Environmental Problem Solving</td>
</tr>
<tr>
<td>ENVRES 340</td>
<td>E-IPER PhD Writing Seminar</td>
</tr>
<tr>
<td>ENVRES 380</td>
<td>Innovating Large Scale Sustainable Transformations</td>
</tr>
<tr>
<td>ENVRES 391</td>
<td>Curricular Practical Training</td>
</tr>
<tr>
<td>ENVRES 398</td>
<td>Directed Reading in Environment and Resources</td>
</tr>
<tr>
<td>ENVRES 399</td>
<td>Directed Research in Environment and Resources</td>
</tr>
<tr>
<td>ENVRES 801</td>
<td>TGR Project</td>
</tr>
<tr>
<td>ENVRES 802</td>
<td>TGR Dissertation</td>
</tr>
<tr>
<td>ENVRINST 198</td>
<td>Prehonors Seminar</td>
</tr>
<tr>
<td>ENVRINST 199</td>
<td>Interschool Honors Program in Environmental Science, Technology, and Policy</td>
</tr>
<tr>
<td>ENVRINST 260</td>
<td>Water in the West: Challenges and Opportunities</td>
</tr>
<tr>
<td>ESS 8</td>
<td>The Oceans: An Introduction to the Marine Environment</td>
</tr>
<tr>
<td>ESS 10SC</td>
<td>In the Age of the Anthropocene: Coupled-Human Natural Systems of Southeast Alaska</td>
</tr>
<tr>
<td>ESS 43</td>
<td>The Global Warming Paradox III</td>
</tr>
<tr>
<td>ESS 46N</td>
<td>Exploring the Critical Interface between the Land and Monterey Bay: Elkhorn Slough</td>
</tr>
<tr>
<td>ESS 49N</td>
<td>Multi-Disciplinary Perspectives on a Large Urban Estuary: San Francisco Bay</td>
</tr>
<tr>
<td>ESS 56Q</td>
<td>Changes in the Coastal Ocean: The View From Monterey and San Francisco Bays</td>
</tr>
<tr>
<td>ESS 57Q</td>
<td>Climate Change from the Past to the Future</td>
</tr>
<tr>
<td>ESS 60</td>
<td>Food, Water and War: Life on the Mekong</td>
</tr>
<tr>
<td>ESS 61Q</td>
<td>Food and security</td>
</tr>
<tr>
<td>ESS 86N</td>
<td>The Most Rational People in the World</td>
</tr>
<tr>
<td>ESS 101</td>
<td>Environmental and Geological Field Studies in the Rocky Mountains</td>
</tr>
<tr>
<td>ESS 106</td>
<td>World Food Economy</td>
</tr>
<tr>
<td>ESS 107</td>
<td>Control of Nature</td>
</tr>
<tr>
<td>ESS 108</td>
<td>Research Preparation for Undergraduates</td>
</tr>
<tr>
<td>ESS 111</td>
<td>Biology and Global Change</td>
</tr>
<tr>
<td>ESS 112</td>
<td>Human Society and Environmental Change</td>
</tr>
<tr>
<td>ESS 117</td>
<td>Earth Sciences of the Hawaiian Islands</td>
</tr>
<tr>
<td>ESS 118X</td>
<td>Sustainable Urban Systems Fundamentals</td>
</tr>
<tr>
<td>ESS 132</td>
<td>Evolution of Earth Systems</td>
</tr>
<tr>
<td>ESS 135</td>
<td>Community Leadership</td>
</tr>
<tr>
<td>ESS 141</td>
<td>Remote Sensing of the Oceans</td>
</tr>
<tr>
<td>ESS 148</td>
<td>Introduction to Physical Oceanography</td>
</tr>
<tr>
<td>ESS 151</td>
<td>Biological Oceanography</td>
</tr>
<tr>
<td>ESS 152</td>
<td>Marine Chemistry</td>
</tr>
<tr>
<td>ESS 155</td>
<td>Science of Soils</td>
</tr>
<tr>
<td>ESS 158</td>
<td>Geomicrobiology</td>
</tr>
<tr>
<td>ESS 162</td>
<td>Remote Sensing of Land</td>
</tr>
<tr>
<td>ESS 163</td>
<td>Demography and Life History Theory</td>
</tr>
<tr>
<td>ESS 164</td>
<td>Fundamentals of Geographic Information Science (GIS)</td>
</tr>
<tr>
<td>ESS 165</td>
<td>Advanced Geographic Information Systems</td>
</tr>
<tr>
<td>ESS 170</td>
<td>Analyzing land use in a globalized world</td>
</tr>
<tr>
<td>ESS 179S</td>
<td>Seminar: Issues in Environmental Science, Technology and Sustainability</td>
</tr>
<tr>
<td>ESS 185</td>
<td>Adaptation</td>
</tr>
<tr>
<td>ESS 205</td>
<td>Fundamentals of Geobiology</td>
</tr>
<tr>
<td>ESS 206</td>
<td>World Food Economy</td>
</tr>
<tr>
<td>ESS 208</td>
<td>Topics in Geobiology</td>
</tr>
<tr>
<td>ESS 210</td>
<td>Techniques in Environmental Microbiology</td>
</tr>
<tr>
<td>ESS 211</td>
<td>Fundamentals of Modeling</td>
</tr>
<tr>
<td>ESS 212</td>
<td>Measurements in Earth Systems</td>
</tr>
<tr>
<td>ESS 214</td>
<td>Introduction to geostatistics and modeling of spatial uncertainty</td>
</tr>
<tr>
<td>ESS 215</td>
<td>Earth System Dynamics</td>
</tr>
<tr>
<td>ESS 217</td>
<td>Climate of the Cenozoic</td>
</tr>
<tr>
<td>ESS 219</td>
<td>Climate Variability during the Holocene: Understanding what is Natural Climate Change</td>
</tr>
<tr>
<td>ESS 220</td>
<td>Physical Hydrogeology</td>
</tr>
<tr>
<td>ESS 221</td>
<td>Contaminant Hydrogeology and Reactive Transport</td>
</tr>
<tr>
<td>ESS 223</td>
<td>Ecophysiology and Land Surface Processes</td>
</tr>
<tr>
<td>ESS 224</td>
<td>Remote Sensing of Hydrology</td>
</tr>
<tr>
<td>ESS 232</td>
<td>Evolution of Earth Systems</td>
</tr>
<tr>
<td>ESS 240</td>
<td>Advanced Oceanography</td>
</tr>
<tr>
<td>ESS 241</td>
<td>Remote Sensing of the Oceans</td>
</tr>
<tr>
<td>ESS 242</td>
<td>Antarctic Marine Geology and Geophysics</td>
</tr>
<tr>
<td>ESS 244</td>
<td>Marine Ecosystem Modeling</td>
</tr>
<tr>
<td>ESS 245</td>
<td>Advanced Biological Oceanography</td>
</tr>
<tr>
<td>ESS 246A</td>
<td>Atmosphere, Ocean, and Climate Dynamics: The Atmospheric Circulation</td>
</tr>
<tr>
<td>ESS 246B</td>
<td>Atmosphere, Ocean, and Climate Dynamics: the Ocean Circulation</td>
</tr>
<tr>
<td>ESS 247</td>
<td>Tropical Meteorology</td>
</tr>
<tr>
<td>ESS 249</td>
<td>Marine Stable Isotopes</td>
</tr>
<tr>
<td>ESS 250</td>
<td>Elkhorn Slough Microbiology</td>
</tr>
<tr>
<td>ESS 251</td>
<td>Biological Oceanography</td>
</tr>
<tr>
<td>ESS 252</td>
<td>Marine Chemistry</td>
</tr>
<tr>
<td>ESS 253S</td>
<td>Hopkins Microbiology Course</td>
</tr>
<tr>
<td>ESS 255</td>
<td>Microbial Physiology</td>
</tr>
<tr>
<td>ESS 256</td>
<td>Soil and Water Chemistry</td>
</tr>
<tr>
<td>ESS 258</td>
<td>Geomicrobiology</td>
</tr>
<tr>
<td>ESS 259</td>
<td>Environmental Microbial Genomics</td>
</tr>
<tr>
<td>ESS 260</td>
<td>Advanced Statistical Methods for Earth System Analysis</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>ESS 261</td>
<td>Molecular Microbial Biosignatures</td>
</tr>
<tr>
<td>ESS 262</td>
<td>Remote Sensing of Land</td>
</tr>
<tr>
<td>ESS 265</td>
<td>Advanced Geographic Information Systems</td>
</tr>
<tr>
<td>ESS 268</td>
<td>Empirical Methods in Sustainable Development</td>
</tr>
<tr>
<td>ESS 270</td>
<td>Analyzing land use in a globalized world</td>
</tr>
<tr>
<td>ESS 275</td>
<td>Nitrogen in the Marine Environment</td>
</tr>
<tr>
<td>ESS 280</td>
<td>Principles and Practices of Sustainable Agriculture</td>
</tr>
<tr>
<td>ESS 282</td>
<td>Designing Educational Gardens</td>
</tr>
<tr>
<td>ESS 292</td>
<td>Directed Individual Study in Earth System Science</td>
</tr>
<tr>
<td>ESS 300</td>
<td>Climate studies of terrestrial environments</td>
</tr>
<tr>
<td>ESS 301</td>
<td>Topics in Earth System Science</td>
</tr>
<tr>
<td>ESS 305</td>
<td>Climate Change: An Earth Systems Perspective</td>
</tr>
<tr>
<td>ESS 306</td>
<td>From Freshwater to Oceans to Land Systems: An Earth System Perspective to Global Challenges</td>
</tr>
<tr>
<td>ESS 307</td>
<td>Research Proposal Development and Delivery</td>
</tr>
<tr>
<td>ESS 310</td>
<td>Climate and Energy Seminar</td>
</tr>
<tr>
<td>ESS 311</td>
<td>Seminar in Advanced Applications of Remote Sensing</td>
</tr>
<tr>
<td>ESS 318</td>
<td>Global Land Use Change to 2050</td>
</tr>
<tr>
<td>ESS 322A</td>
<td>Seminar in Hydrogeology</td>
</tr>
<tr>
<td>ESS 322B</td>
<td>Seminar in Hydrology</td>
</tr>
<tr>
<td>ESS 323</td>
<td>Stanford at Sea</td>
</tr>
<tr>
<td>ESS 330</td>
<td>Advanced Topics in Hydrogeology</td>
</tr>
<tr>
<td>ESS 342B</td>
<td>Geostatistics</td>
</tr>
<tr>
<td>ESS 342C</td>
<td>Geostatistics</td>
</tr>
<tr>
<td>ESS 360</td>
<td>Social Structure and Social Networks</td>
</tr>
<tr>
<td>ESS 363</td>
<td>Demography and Life History Theory</td>
</tr>
<tr>
<td>ESS 363F</td>
<td>Oceanic Fluid Dynamics</td>
</tr>
<tr>
<td>ESS 364F</td>
<td>Advanced Topics in Geophysical Fluid Dynamics</td>
</tr>
<tr>
<td>ESS 385</td>
<td>Practical Experience in the Geosciences</td>
</tr>
<tr>
<td>ESS 398</td>
<td>Current Topics in Ecosystem Modeling</td>
</tr>
<tr>
<td>ESS 400</td>
<td>Graduate Research</td>
</tr>
<tr>
<td>ESS 401</td>
<td>Curricular Practical Training</td>
</tr>
<tr>
<td>ESS 801</td>
<td>TGR Project</td>
</tr>
<tr>
<td>ESS 802</td>
<td>TGR Dissertation</td>
</tr>
<tr>
<td>ETHICSOC 133</td>
<td>Ethics and Politics of Public Service</td>
</tr>
<tr>
<td>ETHICSOC 136R</td>
<td>Introduction to Global Justice</td>
</tr>
<tr>
<td>ETHICSOC 180M</td>
<td>The Ethics and Politics of Collective Action</td>
</tr>
<tr>
<td>ETHICSOC 185M</td>
<td>Contemporary Moral Problems</td>
</tr>
<tr>
<td>FEMGEN 44Q</td>
<td>Gendered Innovations in Science, Medicine, Engineering, and Environment</td>
</tr>
<tr>
<td>FEMGEN 129</td>
<td>Critical Issues in International Women’s Health</td>
</tr>
<tr>
<td>FEMGEN 241</td>
<td>Sex and Gender in Human Physiology and Disease</td>
</tr>
<tr>
<td>FOODRES 103</td>
<td></td>
</tr>
<tr>
<td>FOODRES 119</td>
<td></td>
</tr>
<tr>
<td>FOODRES 125</td>
<td></td>
</tr>
<tr>
<td>FOODRES 202</td>
<td></td>
</tr>
<tr>
<td>FOODRES 203</td>
<td></td>
</tr>
<tr>
<td>FOODRES 219</td>
<td></td>
</tr>
<tr>
<td>GEOLSCI 8</td>
<td>Oceanography: An Introduction to the Marine Environment</td>
</tr>
<tr>
<td>GEOLSCI 59N</td>
<td>Earthquake 9.0: The Heritage of Fukushima Daichi 6 Years Later</td>
</tr>
<tr>
<td>GEOLSCI 122</td>
<td>Planetary Systems: Dynamics and Origins</td>
</tr>
<tr>
<td>GEOLSCI 135</td>
<td>Sedimentary Geochemistry and Analysis</td>
</tr>
<tr>
<td>GEOLSCI 135A</td>
<td>Sedimentary Geochemistry Field Trip</td>
</tr>
<tr>
<td>GEOLSCI 251</td>
<td>Sedimentary Basins</td>
</tr>
<tr>
<td>GEOLSCI 254</td>
<td>Carbonate Sedimentology</td>
</tr>
<tr>
<td>GEOLSCI 260</td>
<td>Quantifying Uncertainty in Subsurface Systems</td>
</tr>
<tr>
<td>GEOLSCI 266</td>
<td>Managing Nuclear Waste: Technical, Political and Organizational Challenges</td>
</tr>
<tr>
<td>GEOLSCI 293A</td>
<td>Geology of Oman Field Trip</td>
</tr>
<tr>
<td>GEOLSCI 313</td>
<td>Modeling of Landforms</td>
</tr>
<tr>
<td>GEOPHYS 20N</td>
<td>Predicting Volcanic Eruptions</td>
</tr>
<tr>
<td>GEOPHYS 50N</td>
<td>Planetary Habitability, World View, and Sustainability</td>
</tr>
<tr>
<td>GEOPHYS 60N</td>
<td>Man versus Nature: Coping with Disasters Using Space Technology</td>
</tr>
<tr>
<td>GEOPHYS 70</td>
<td>The Water Course</td>
</tr>
<tr>
<td>GEOPHYS 80</td>
<td>The Energy-Water Nexus</td>
</tr>
<tr>
<td>GEOPHYS 90</td>
<td>Earthquakes and Volcanoes</td>
</tr>
<tr>
<td>GEOPHYS 110</td>
<td>Introduction to the foundations of contemporary geophysics</td>
</tr>
<tr>
<td>GEOPHYS 112</td>
<td>Exploring Geosciences with MATLAB</td>
</tr>
<tr>
<td>GEOPHYS 120</td>
<td>Ice, Water, Fire</td>
</tr>
<tr>
<td>GEOPHYS 130</td>
<td>Introductory Seismology</td>
</tr>
<tr>
<td>GEOPHYS 141</td>
<td>Remote Sensing of the Oceans</td>
</tr>
<tr>
<td>GEOPHYS 150</td>
<td>Geodynamics: Our Dynamic Earth</td>
</tr>
<tr>
<td>GEOPHYS 160</td>
<td>D^3: Disasters, Decisions, Development</td>
</tr>
<tr>
<td>GEOPHYS 162</td>
<td>Laboratory Characterization of Properties of Rocks and Geomaterials</td>
</tr>
<tr>
<td>GEOPHYS 181</td>
<td>Fluids and Flow in the Earth: Computational Methods</td>
</tr>
<tr>
<td>GEOPHYS 182</td>
<td>Reflection Seismology</td>
</tr>
<tr>
<td>GEOPHYS 183</td>
<td>Reflection Seismology Interpretation</td>
</tr>
<tr>
<td>GEOPHYS 184</td>
<td>Journey to the Center of the Earth</td>
</tr>
<tr>
<td>GEOPHYS 185</td>
<td>Rock Physics for Reservoir Characterization</td>
</tr>
<tr>
<td>GEOPHYS 186</td>
<td>Tectonophysics</td>
</tr>
<tr>
<td>GEOPHYS 190</td>
<td>Near-Surface Geophysics</td>
</tr>
<tr>
<td>GEOPHYS 191</td>
<td>Observing Freshwater</td>
</tr>
<tr>
<td>GEOPHYS 196</td>
<td>Undergraduate Research in Geophysics</td>
</tr>
<tr>
<td>GEOPHYS 201</td>
<td>Frontiers of Geophysical Research at Stanford</td>
</tr>
<tr>
<td>GEOPHYS 202</td>
<td>Reservoir Geomechanics</td>
</tr>
<tr>
<td>GEOPHYS 203</td>
<td>Fluids and Flow in the Earth: Computational Methods</td>
</tr>
<tr>
<td>GEOPHYS 205</td>
<td>Effective Scientific Presentation and Public Speaking</td>
</tr>
<tr>
<td>GEOPHYS 208</td>
<td>Unconventional Reservoir Geomechanics</td>
</tr>
<tr>
<td>GEOPHYS 210</td>
<td>Basic Earth Imaging</td>
</tr>
<tr>
<td>GEOPHYS 211</td>
<td>Environmental Soundings Image Estimation</td>
</tr>
<tr>
<td>GEOPHYS 212</td>
<td>Topics in Climate Change</td>
</tr>
<tr>
<td>GEOPHYS 214</td>
<td>Water Management in Agricultural Areas</td>
</tr>
<tr>
<td>GEOPHYS 217</td>
<td>Numerical Methods in Engineering and Applied Sciences</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>GEOPHYS 220</td>
<td>Ice, Water, Fire</td>
</tr>
<tr>
<td>GEOPHYS 222</td>
<td>Reflection Seismology</td>
</tr>
<tr>
<td>GEOPHYS 223</td>
<td>Reflection Seismology Interpretation</td>
</tr>
<tr>
<td>GEOPHYS 224</td>
<td>Seismic Reflection Processing</td>
</tr>
<tr>
<td>GEOPHYS 229</td>
<td>Earthquake Rupture Dynamics</td>
</tr>
<tr>
<td>GEOPHYS 235</td>
<td>Waves and Fields in Geophysics</td>
</tr>
<tr>
<td>GEOPHYS 240</td>
<td>Borehole Seismic Modeling and Imaging</td>
</tr>
<tr>
<td>GEOPHYS 241A</td>
<td>Seismic Reservoir Characterization</td>
</tr>
<tr>
<td>GEOPHYS 255</td>
<td>Report on Energy Industry Training</td>
</tr>
<tr>
<td>GEOPHYS 257</td>
<td>Introduction to Computational Earth Sciences</td>
</tr>
<tr>
<td>GEOPHYS 259</td>
<td>Laboratory Characterization of Properties of Rocks and Geomaterials</td>
</tr>
<tr>
<td>GEOPHYS 260</td>
<td>Rock Physics for Reservoir Characterization</td>
</tr>
<tr>
<td>GEOPHYS 262</td>
<td>Rock Physics</td>
</tr>
<tr>
<td>GEOPHYS 265</td>
<td>Imaging Radar and Applications</td>
</tr>
<tr>
<td>GEOPHYS 270</td>
<td>Electromagnetic Radar and Applications</td>
</tr>
<tr>
<td>GEOPHYS 280</td>
<td>3-D Seismic Imaging</td>
</tr>
<tr>
<td>GEOPHYS 281</td>
<td>Geophysical Inverse Problems</td>
</tr>
<tr>
<td>GEOPHYS 284</td>
<td>Hydrogeophysics</td>
</tr>
<tr>
<td>GEOPHYS 287</td>
<td>Earthquake Seismology</td>
</tr>
<tr>
<td>GEOPHYS 288A</td>
<td>Crustal Deformation</td>
</tr>
<tr>
<td>GEOPHYS 288B</td>
<td>Crustal Deformation</td>
</tr>
<tr>
<td>GEOPHYS 289</td>
<td>Global Positioning System in Earth Sciences</td>
</tr>
<tr>
<td>GEOPHYS 290</td>
<td>Tectonophysics</td>
</tr>
<tr>
<td>GEOPHYS 385A</td>
<td>Reflection Seismology</td>
</tr>
<tr>
<td>GEOPHYS 385B</td>
<td>Environmental Geophysics</td>
</tr>
<tr>
<td>GEOPHYS 385D</td>
<td>Theoretical Geophysics</td>
</tr>
<tr>
<td>GEOPHYS 385E</td>
<td>Tectonics</td>
</tr>
<tr>
<td>GEOPHYS 385K</td>
<td>Crustal Mechanics</td>
</tr>
<tr>
<td>GEOPHYS 385L</td>
<td>Earthquake Seismology, Deformation, and Stress</td>
</tr>
<tr>
<td>GEOPHYS 385N</td>
<td>Experimental Rock Physics</td>
</tr>
<tr>
<td>GEOPHYS 385S</td>
<td>Wave Physics</td>
</tr>
<tr>
<td>GEOPHYS 385V</td>
<td>Poroelasticity</td>
</tr>
<tr>
<td>GEOPHYS 385W</td>
<td>GEOPHYSICAL MULTI-PHASE FLOWS</td>
</tr>
<tr>
<td>GEOPHYS 385Z</td>
<td>Radio Remote Sensing</td>
</tr>
<tr>
<td>GES 50Q</td>
<td></td>
</tr>
<tr>
<td>GES 260</td>
<td></td>
</tr>
<tr>
<td>GES 267</td>
<td></td>
</tr>
<tr>
<td>GES 277</td>
<td></td>
</tr>
<tr>
<td>GES 340</td>
<td></td>
</tr>
<tr>
<td>GS 55Q</td>
<td></td>
</tr>
<tr>
<td>GS 182</td>
<td></td>
</tr>
<tr>
<td>GS 214</td>
<td></td>
</tr>
<tr>
<td>GS 226</td>
<td></td>
</tr>
<tr>
<td>GS 241</td>
<td></td>
</tr>
<tr>
<td>GS 249</td>
<td></td>
</tr>
<tr>
<td>GS 381</td>
<td></td>
</tr>
<tr>
<td>GSBGEN 332</td>
<td>Sustainable Energy: Business Opportunities and Public Policy</td>
</tr>
<tr>
<td>GSBGEN 335</td>
<td>Clean Energy Project Development and Finance</td>
</tr>
<tr>
<td>GSBGEN 336</td>
<td>Energy Markets and Policy</td>
</tr>
<tr>
<td>GSBGEN 532</td>
<td>Clean Energy Opportunities</td>
</tr>
<tr>
<td>GSBGEN 533</td>
<td>Technology Licensing</td>
</tr>
<tr>
<td>GSBGEN 569</td>
<td>The Open Road: Innovation in Cars, Driving, and Mobility</td>
</tr>
<tr>
<td>HISTORY 1B</td>
<td>Global History: The Early Modern World, 1300 to 1800</td>
</tr>
<tr>
<td>HISTORY 40</td>
<td>World History of Science</td>
</tr>
<tr>
<td>HISTORY 40A</td>
<td>The Scientific Revolution</td>
</tr>
<tr>
<td>HISTORY 42S</td>
<td>The Circle of Life: Visions of Nature in Modern Science, Religion, Politics and Culture</td>
</tr>
<tr>
<td>HISTORY 44</td>
<td>Women and Gender in Science, Medicine and Engineering</td>
</tr>
<tr>
<td>HISTORY 44Q</td>
<td>Gendered Innovations in Science, Medicine, Engineering, and Environment</td>
</tr>
<tr>
<td>HISTORY 47</td>
<td>History of South Africa</td>
</tr>
<tr>
<td>HISTORY 74</td>
<td>Mexico Since 1876: History of a &quot;Failed State&quot;?</td>
</tr>
<tr>
<td>HISTORY 79C</td>
<td>The Ethical Challenges of Climate Change</td>
</tr>
<tr>
<td>HISTORY 102</td>
<td>History of the International System</td>
</tr>
<tr>
<td>HISTORY 103D</td>
<td>Human Society and Environmental Change</td>
</tr>
<tr>
<td>HISTORY 106A</td>
<td>Global Human Geography: Asia and Africa</td>
</tr>
<tr>
<td>HISTORY 106B</td>
<td>Global Human Geography: Europe and Americas</td>
</tr>
<tr>
<td>HISTORY 107</td>
<td>Introduction to Urban Studies</td>
</tr>
<tr>
<td>HISTORY 140</td>
<td>World History of Science</td>
</tr>
<tr>
<td>HISTORY 144</td>
<td>Women and Gender in Science, Medicine and Engineering</td>
</tr>
<tr>
<td>HISTORY 147</td>
<td>History of South Africa</td>
</tr>
<tr>
<td>HISTORY 151</td>
<td>The American West</td>
</tr>
<tr>
<td>HISTORY 174</td>
<td>Mexico Since 1876: History of a &quot;Failed State&quot;?</td>
</tr>
<tr>
<td>HISTORY 200B</td>
<td>Doing Environmental History</td>
</tr>
<tr>
<td>HISTORY 207B</td>
<td>Environment, Technology and Revolution in World History</td>
</tr>
<tr>
<td>HISTORY 223E</td>
<td>Cities of Empire: An Urban Journey through Eastern Europe and the Mediterranean</td>
</tr>
<tr>
<td>HISTORY 226E</td>
<td>Famine in the Modern World</td>
</tr>
<tr>
<td>HISTORY 243C</td>
<td>People, Plants, and Medicine: Colonial Science and Medicine</td>
</tr>
<tr>
<td>HISTORY 254</td>
<td>Popular Culture and American Nature</td>
</tr>
<tr>
<td>HISTORY 326E</td>
<td>Famine in the Modern World</td>
</tr>
<tr>
<td>HISTORY 343C</td>
<td>People, Plants, and Medicine: Colonial Science and Medicine</td>
</tr>
<tr>
<td>HISTORY 374</td>
<td>Mexico Since 1876: History of a &quot;Failed State&quot;?</td>
</tr>
<tr>
<td>HISTORY 378</td>
<td>The Historical Ecology of Mexico and Latin America</td>
</tr>
<tr>
<td>HISTORY 391C</td>
<td>Early Imperial China</td>
</tr>
<tr>
<td>HISTORY 471A</td>
<td>Environmental History of Latin America</td>
</tr>
<tr>
<td>HISTORY 471B</td>
<td>Environmental History of Latin America</td>
</tr>
<tr>
<td>HRP 206</td>
<td>Meta-research: Appraising Research Findings, Bias, and Meta-analysis</td>
</tr>
<tr>
<td>HRP 214</td>
<td>Scientific Writing</td>
</tr>
<tr>
<td>HRP 216</td>
<td>Analytical and Practical Issues in the Conduct of Clinical and Epidemiologic Research</td>
</tr>
<tr>
<td>HRP 223</td>
<td>Introduction to Data Management and Analysis in SAS</td>
</tr>
<tr>
<td>HRP 224</td>
<td>Social Entrepreneurship and Innovation Lab (SE Lab) - Global &amp; Planetary Health</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>HRP 225</td>
<td>Design and Conduct of Clinical and Epidemiologic Studies</td>
</tr>
<tr>
<td>HRP 226</td>
<td>Intermediate Epidemiologic and Clinical Research Methods</td>
</tr>
<tr>
<td>HRP 231</td>
<td>Epidemiology of Infectious Diseases</td>
</tr>
<tr>
<td>HRP 236</td>
<td>Epidemiology Research Seminar</td>
</tr>
<tr>
<td>HRP 238</td>
<td>Genes and Environment in Disease Causation: Implications for Medicine and Public Health</td>
</tr>
<tr>
<td>HRP 256</td>
<td>Economics of Health and Medical Care</td>
</tr>
<tr>
<td>HRP 259</td>
<td>Introduction to Probability and Statistics for Epidemiology</td>
</tr>
<tr>
<td>HRP 299</td>
<td>Directed Reading in Health Research and Policy</td>
</tr>
<tr>
<td>HUMBIO 2A</td>
<td>Genetics, Evolution, and Ecology</td>
</tr>
<tr>
<td>HUMBIO 2B</td>
<td>Culture, Evolution, and Society</td>
</tr>
<tr>
<td>HUMBIO 3B</td>
<td>Behavior, Health, and Development</td>
</tr>
<tr>
<td>HUMBIO 4B</td>
<td>Environmental and Health Policy Analysis</td>
</tr>
<tr>
<td>HUMBIO 5E</td>
<td>Science Education in Human Biology</td>
</tr>
<tr>
<td>HUMBIO 19SC</td>
<td>Parks and Peoples: Dilemmas of Protected Area Conservation in East Africa</td>
</tr>
<tr>
<td>HUMBIO 112</td>
<td>Conservation Biology: A Latin American Perspective</td>
</tr>
<tr>
<td>HUMBIO 113</td>
<td>The Human-Plant Connection</td>
</tr>
<tr>
<td>HUMBIO 113S</td>
<td>Healthy/Sustainable Food Systems: Maximum Sustainability across Health, Economics, and Environment</td>
</tr>
<tr>
<td>HUMBIO 114</td>
<td>Environmental Change and Emerging Infectious Diseases</td>
</tr>
<tr>
<td>HUMBIO 118</td>
<td>Theory of Ecological and Environmental Anthropology</td>
</tr>
<tr>
<td>HUMBIO 121E</td>
<td>Ethnicity and Medicine</td>
</tr>
<tr>
<td>HUMBIO 122M</td>
<td>Challenges of Human Migration: Health and Health Care of Migrants and Autochthonous Populations</td>
</tr>
<tr>
<td>HUMBIO 125</td>
<td>Current Topics and Controversies in Women's Health</td>
</tr>
<tr>
<td>HUMBIO 126</td>
<td>Promoting Health Over the Life Course: the Science of Healthy Living</td>
</tr>
<tr>
<td>HUMBIO 130</td>
<td>Human Nutrition</td>
</tr>
<tr>
<td>HUMBIO 135</td>
<td>Exercise Physiology</td>
</tr>
<tr>
<td>HUMBIO 151R</td>
<td>Biology, Health and Big Data</td>
</tr>
<tr>
<td>HUMBIO 153</td>
<td>Parasites and Pestilence: Infectious Public Health Challenges</td>
</tr>
<tr>
<td>HUMBIO 154A</td>
<td>Engineering Better Health Systems: modeling for public health</td>
</tr>
<tr>
<td>HUMBIO 154B</td>
<td>Principles of Epidemiology</td>
</tr>
<tr>
<td>HUMBIO 155H</td>
<td>Humans and Viruses I</td>
</tr>
<tr>
<td>HUMBIO 159</td>
<td>Genes and Environment in Disease Causation: Implications for Medicine and Public Health</td>
</tr>
<tr>
<td>HUMBIO 166</td>
<td>Food and Society: Exploring Eating Behaviors in Social, Environmental, and Policy Context</td>
</tr>
<tr>
<td>HUMBIO 173</td>
<td>Science, Innovation and the Law</td>
</tr>
<tr>
<td>HUMBIO 182</td>
<td>Peopling of the Globe: Changing Patterns of Land Use and Consumption Over the Last 50,000 Years</td>
</tr>
<tr>
<td>ILAC 256A</td>
<td>Landscapes in Latin American Cinema</td>
</tr>
<tr>
<td>ILAC 263</td>
<td>Visions of the Andes</td>
</tr>
<tr>
<td>INTLREL 61Q</td>
<td>Food and security</td>
</tr>
<tr>
<td>INTLREL 102</td>
<td>History of the International System</td>
</tr>
<tr>
<td>INTLREL 135A</td>
<td>International Environmental Law and Policy</td>
</tr>
<tr>
<td>INTLREL 136R</td>
<td>Introduction to Global Justice</td>
</tr>
<tr>
<td>IPS 275</td>
<td></td>
</tr>
<tr>
<td>JEWISHST 160</td>
<td>The Other Side: Ethnography and Travel Writing through Jewish, Christian and Muslim Eyes</td>
</tr>
<tr>
<td>JEWISHST 129A</td>
<td>Milk and Honey, Wine and Blood: Food, Justice, and Ethnic Identity in Jewish Culture</td>
</tr>
<tr>
<td>LATINAM 207</td>
<td>Spanish in Science/Science in Spanish</td>
</tr>
<tr>
<td>LATINAM 248</td>
<td>Racial and Gender Inequalities in Latin America</td>
</tr>
<tr>
<td>LATINAM 337A</td>
<td>Indigenous Peoples, Environment and Sustainability</td>
</tr>
<tr>
<td>LATINAM 337B</td>
<td>Indigenous Peoples, Environment and Sustainability</td>
</tr>
<tr>
<td>LAW 908</td>
<td>Advanced Environmental Law Clinic</td>
</tr>
<tr>
<td>LAW 908A</td>
<td>Environmental Law Clinic: Clinical Practice</td>
</tr>
<tr>
<td>LAW 908B</td>
<td>Environmental Law Clinic: Clinical Methods</td>
</tr>
<tr>
<td>LAW 908C</td>
<td>Environmental Law Clinic: Clinical Coursework</td>
</tr>
<tr>
<td>LAW 1047</td>
<td>Business, Social Responsibility, and Human Rights</td>
</tr>
<tr>
<td>LAW 2503</td>
<td>Energy Law</td>
</tr>
<tr>
<td>LAW 2504</td>
<td>Environmental Law and Policy</td>
</tr>
<tr>
<td>LAW 2505</td>
<td>Land Use Law</td>
</tr>
<tr>
<td>LAW 2506</td>
<td>Natural Resources Law and Policy</td>
</tr>
<tr>
<td>LAW 2508</td>
<td>The Business of Water</td>
</tr>
<tr>
<td>LAW 2509</td>
<td>Clean Energy Project Development and Finance</td>
</tr>
<tr>
<td>LAW 2510</td>
<td>California Coast: Science, Policy and Law</td>
</tr>
<tr>
<td>LAW 2512</td>
<td>Cities and Sustainability: Current Issues, Policy, and Law</td>
</tr>
<tr>
<td>LAW 2513</td>
<td>Climate: Politics, Finance, and Infrastructure</td>
</tr>
<tr>
<td>LAW 2515</td>
<td>Environmental Justice</td>
</tr>
<tr>
<td>LAW 2516</td>
<td>Natural Resources Law and Policy - South Africa: Field Study</td>
</tr>
<tr>
<td>LAW 2517</td>
<td>Modern Crosscurrents in Energy and Environmental Law</td>
</tr>
<tr>
<td>LAW 2518</td>
<td>U.S. Environmental Law in Transition</td>
</tr>
<tr>
<td>LAW 2519</td>
<td>Water Law</td>
</tr>
<tr>
<td>LAW 4014</td>
<td>Law, Technology, and Liberty</td>
</tr>
<tr>
<td>LAW 4043</td>
<td>The Social &amp; Economic Impact of Artificial Intelligence</td>
</tr>
<tr>
<td>LAW 5015</td>
<td>International Dealmaking: Vienna Field Negotiation</td>
</tr>
<tr>
<td>LAW 7024</td>
<td>Food Law and Policy</td>
</tr>
<tr>
<td>LAW 7030</td>
<td>Federal Indian Law</td>
</tr>
<tr>
<td>LAW 7051</td>
<td>Local Government Law</td>
</tr>
<tr>
<td>LAW 7824</td>
<td>Advanced Negotiation: Public Policy</td>
</tr>
<tr>
<td>LAW 8002</td>
<td>Environmental Law and Policy Colloquium</td>
</tr>
<tr>
<td>LAWGEN 20SC</td>
<td>Fighting over Our Common Heritage: Public Lands in the West</td>
</tr>
<tr>
<td>MATSCI 144</td>
<td>Thermodynamic Evaluation of Green Energy Technologies</td>
</tr>
</tbody>
</table>
MATSCI 156  Solar Cells, Fuel Cells, and Batteries: Materials for the Energy Solution
MATSCI 161  Energy Materials Laboratory
MATSCI 256  Solar Cells, Fuel Cells, and Batteries: Materials for the Energy Solution
MATSCI 301  Engineering Energy Policy Change
MATSCI 302  Solar Cells
MATSCI 303  Principles, Materials and Devices of Batteries
ME 24N  Designing the Car of the Future
ME 30  Engineering Thermodynamics
ME 70  Introductory Fluids Engineering
ME 112  Mechanical Systems Design
ME 141  Alternative Energy Systems
ME 170A  Mechanical Engineering Design: Integrating Context with Engineering
ME 170B  Mechanical Engineering Design: Integrating Context with Engineering
ME 182  Electric Transportation
ME 185  Electric Vehicle Design
ME 206A  Design for Extreme Affordability
ME 206B  Design for Extreme Affordability
ME 226  Designing Sustainable Behavior
ME 250  Internal Combustion Engines
ME 257  Gas-Turbine Design Analysis
ME 260  Fuel Cell Science and Technology
ME 262  Physics of Wind Energy
ME 267  Ethics and Equity in Transportation Systems
ME 352B  Fundamentals of Heat Conduction
ME 357  Gas-Turbine Design Analysis
ME 370A  Energy Systems I: Thermodynamics
ME 370B  Energy Systems II: Modeling and Advanced Concepts
ME 370C  Energy Systems III: Projects
ME 371  Combustion Fundamentals
ME 450  Advances in Biotechnology
MED 23  ASB The Cuisine of Change: Promoting Child Health and Combating Food Insecurity
MED 108Q  Human Rights and Health
MED 158A  From Foodies to Freogans: Food Popular Topics in the Silicon Valley
MED 158B  From Foodies to Freogans Pacticum
MED 214  PHS/Public Health Seminar Series
MED 228  Physicians and Social Responsibility
MED 237  Health Law: Improving Public Health
MED 285  Global Leaders and Innovators in Human and Planetary Health
MI 70Q  Photographing Nature
MLA 282  Indigenous Peoples and Environmental Problems
MLA 297  Islands as Model Systems: Geology, Evolution, Ecology, and Human Societies
MLA 314  Social and Environmental Sustainability: The Costa Rican Case
MLA 322  Coffee, Sugar, and Chocolate: Commodities and Consumption in World History, 120–1800

MS&E 52  Introduction to Decision Making
MS&E 92Q  International Environmental Policy
MS&E 93Q  Nuclear Weapons, Energy, Proliferation, and Terrorism
MS&E 152  Introduction to Decision Analysis
MS&E 185  Global Work
MS&E 190  Methods and Models for Policy and Strategy Analysis
MS&E 201  Dynamic Systems
MS&E 243  Energy and Environmental Policy Analysis
MS&E 250A  Engineering Risk Analysis
MS&E 250B  Project Course in Engineering Risk Analysis
MS&E 252  Decision Analysis I: Foundations of Decision Analysis
MS&E 292  Health Policy Modeling
MS&E 294  Systems Modeling for Climate Policy Analysis
MS&E 295  Energy Policy Analysis
MS&E 299  Voluntary Social Systems
MS&E 352  Decision Analysis II: Professional Decision Analysis
MS&E 391  Doctoral Research Seminar in Energy-Environmental Systems Modeling and Analysis
MS&E 494  The Energy Seminar
NATIVEAM 109A  Federal Indian Law
NATIVEAM 109B  Native Nation Building
NENS 230  Analysis Techniques for the Biosciences Using MATLAB
OB 601  Organizational Ecology
OB 672  Organization and Environment
OBGYN 256  Current Topics and Controversies in Women's Health
OIT 333  Design for Extreme Affordability
OIT 334  Design for Extreme Affordability
OSPAUSTL 10  Coral Reef Ecosystems
OSPAUSTL 25  Freshwater Systems
OSPAUSTL 30  Coastal Forest Ecosystems
OSPAUSTL 40  Australian Studies: History, Society and Culture Down Under
OSPCPTWN 50  [Independent Study] Conservation & Resources in Sub-Saharan Africa
OSPCPTWN 63  Socio-Ecological Systems
OSPGEN 53  Corals of Palau: Ecology, the Physical Environment, and Reefs at Risk
OSPGEN 63  Bio-Cultural Diversity and Community-Based Conservation in Oaxaca
OSPMADR 8A  Cities and Creativity: Cultural and Architectural Interpretations of Madrid
OSPMADR 79  Earth and Water Resources’ Sustainability in Spain
OSPOXFRD 23  Topics in Climate Economics and Policy
OSPOXFRD 49  Environmental Economics and Policy
OSPPARIS 91  The Future of Globalization: Economics, Politics and the Environment
OSPSANTG 29  Sustainable Cities: Comparative Transportation Systems in Latin America
OSPSANTG 58  Living Chile: A Land of Extremes
OSPSANTG 63  Entrepreneurship and Innovation in Latin America
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLPOL 174</td>
<td>What is Public about Public Lands - Who and How to Manage.</td>
</tr>
<tr>
<td>PUBLPOL 104</td>
<td>Writing &amp; Rhetoric 1: Debating the Environment</td>
</tr>
<tr>
<td>PUBLPOL 103D</td>
<td>Writing &amp; Rhetoric 1: Cradle to Cradle: the Rhetoric of Sustainability</td>
</tr>
<tr>
<td>PUBLPOL 101</td>
<td>Writing &amp; Rhetoric 1: Staying Cool on a Hot Planet: Environmental Rhetoric for a Changing World</td>
</tr>
<tr>
<td>PUBLPOL 105</td>
<td>Writing &amp; Rhetoric 1: What Are We Trying to Sustain? Rhetoric of Nature's Values and Services</td>
</tr>
<tr>
<td>PUBLPOL 209</td>
<td>Writing &amp; Rhetoric 1: Shades of Green: The Rhetoric of Contemporary Environmentalism</td>
</tr>
<tr>
<td>PUBLPOL 103</td>
<td>Writing &amp; Rhetoric 1: Who speaks for nature? Rhetorics of environmentalism and justice</td>
</tr>
<tr>
<td>SIS 125Q</td>
<td>Writing &amp; Rhetoric 1: Seeing Seeing: The Power of Environmental Visual Rhetoric</td>
</tr>
<tr>
<td>SIS 103Q</td>
<td>Writing &amp; Rhetoric 1: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: In Science We Trust</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: A Planet on the Edge: The Rhetoric of Sustainable Energy</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Sustainability: Making an Impact with Research and Rhetoric</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: The Rhetoric of the Natural and Beyond</td>
</tr>
<tr>
<td>SIS 101Q</td>
<td>Writing &amp; Rhetoric 2: Communicating Science to the Public</td>
</tr>
<tr>
<td>Code</td>
<td>Course Name</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SIS 137Q</td>
<td>Health and Environmental Regulatory Policy</td>
</tr>
<tr>
<td>SIS 149Q</td>
<td>Energy, Environment and Security in South Asia</td>
</tr>
<tr>
<td>SIS 204N</td>
<td>Transitions in Energy Policy Speakers Series</td>
</tr>
<tr>
<td>SIS 235N</td>
<td>Bridging the gap between environmental science and policy</td>
</tr>
<tr>
<td>SIS 236N</td>
<td>Energy and Environment: Technology, Economics and Policy</td>
</tr>
<tr>
<td>SIS 327Q</td>
<td>Health and Environmental Policy Speaker Series</td>
</tr>
<tr>
<td>SIS 342Q</td>
<td>Energy, Environment, Climate and Conservation Policy: A Washington, D.C. Perspective</td>
</tr>
<tr>
<td>SIS 377Q</td>
<td>Energy and Climate Cooperation in the Western Hemisphere</td>
</tr>
<tr>
<td>SIW 115</td>
<td>The Roots of Social Protest</td>
</tr>
<tr>
<td>SIW 122</td>
<td>Social Movements and Collective Action</td>
</tr>
<tr>
<td>SIW 128</td>
<td>Social Determinants of Health</td>
</tr>
<tr>
<td>SIW 132</td>
<td>Social and Cultural Dimensions of Global Indigeneity</td>
</tr>
<tr>
<td>SIW 137</td>
<td>Formal Organizations</td>
</tr>
<tr>
<td>SIW 140</td>
<td>Social Movements and Collective Action</td>
</tr>
<tr>
<td>SIW 144</td>
<td>Formal Organizations</td>
</tr>
<tr>
<td>SIW 153</td>
<td>Social Movements and Collective Action</td>
</tr>
<tr>
<td>SOC 22N</td>
<td>Preparing for Community, Health and Learning through Service in Sri Lanka</td>
</tr>
<tr>
<td>SOC 118</td>
<td>Introduction to Statistical Methods: Precalculus</td>
</tr>
<tr>
<td>SOC 152</td>
<td>Statistical Methods in Engineering and the Physical Sciences</td>
</tr>
<tr>
<td>SOC 159</td>
<td>Biostatistics</td>
</tr>
<tr>
<td>SOC 160</td>
<td>Data, Models and Applications to Healthcare Analytics</td>
</tr>
<tr>
<td>SOC 174</td>
<td>Strategic Thinking in Action - In Business and Beyond</td>
</tr>
<tr>
<td>SOC 180</td>
<td>Making of a Nuclear World: History, Politics, and Culture</td>
</tr>
<tr>
<td>SOC 181</td>
<td>Science, Technology, and Environmental Justice</td>
</tr>
<tr>
<td>SOC 186</td>
<td>Anthropological Inquiries: Cold War, Nuclear Testing, Energy, and Human Rights</td>
</tr>
<tr>
<td>SOC 190</td>
<td>Techno-metabolism: Technology, Society, and the Anthropocene</td>
</tr>
<tr>
<td>SOC 199</td>
<td>Issues in Technology and the Environment</td>
</tr>
<tr>
<td>SOC 200A</td>
<td>Food and Society, Politics, Culture and Technology</td>
</tr>
<tr>
<td>SURG 231</td>
<td>Healthcare in Haiti and other Resource Poor Countries</td>
</tr>
<tr>
<td>SUST 210</td>
<td>Pursuing Sustainability: Managing Complex Social Environmental Systems</td>
</tr>
<tr>
<td>SUST 220</td>
<td>Case Studies in Leading Change for Sustainability</td>
</tr>
<tr>
<td>SUST 240</td>
<td>Sustainability Science and Practice Practicum</td>
</tr>
<tr>
<td>SUST 261</td>
<td>Art and Science of Decision Making</td>
</tr>
<tr>
<td>THINK 8</td>
<td>Sustainability and Collapse</td>
</tr>
<tr>
<td>THINK 40</td>
<td>Sustainability Challenges and Transitions</td>
</tr>
<tr>
<td>UAR 43</td>
<td>LSP: Exploring Research, Writing, and Problem Solving at Stanford</td>
</tr>
<tr>
<td>URBANST 20</td>
<td>Exploring Urbanism in San Francisco: Three Urban Adventures to Better Understand Cities</td>
</tr>
<tr>
<td>URBANST 102</td>
<td>Social and Urban Development in Beijing: Field Observation &amp; Service Learning</td>
</tr>
<tr>
<td>URBANST 104</td>
<td>Civic Dreams, Human Spaces: Designing Cities for People</td>
</tr>
<tr>
<td>URBANST 107</td>
<td>Introduction to Urban and Regional Planning</td>
</tr>
<tr>
<td>URBANST 110</td>
<td>Introduction to Urban Studies</td>
</tr>
<tr>
<td>URBANST 113</td>
<td>Introduction to Urban Design: Contemporary Urban Design in Theory and Practice</td>
</tr>
<tr>
<td>URBANST 114</td>
<td>Urban Culture in Global Perspective</td>
</tr>
<tr>
<td>URBANST 122</td>
<td>Ethics and Politics of Public Service</td>
</tr>
<tr>
<td>URBANST 124</td>
<td>Spatial Approaches to Social Science</td>
</tr>
<tr>
<td>URBANST 132</td>
<td>Concepts and Analytic Skills for the Social Sector</td>
</tr>
<tr>
<td>URBANST 138</td>
<td>Smart Cities &amp; Communities</td>
</tr>
<tr>
<td>URBANST 146</td>
<td>Retaking the Commons: Public Space and Heritage for Sustainable Cities</td>
</tr>
<tr>
<td>URBANST 160</td>
<td>Environmental Policy and the City in U.S. History</td>
</tr>
<tr>
<td>URBANST 163</td>
<td>Land Use Control</td>
</tr>
<tr>
<td>URBANST 164</td>
<td>Sustainable Cities</td>
</tr>
<tr>
<td>URBANST 165</td>
<td>Sustainable Urban and Regional Transportation Planning</td>
</tr>
<tr>
<td>URBANST 166</td>
<td>East Palo Alto: Reading Urban Change</td>
</tr>
<tr>
<td>URBANST 167</td>
<td>Green Mobilities for the Suburbs of the Future</td>
</tr>
<tr>
<td>URBANST 174</td>
<td>Defining Smart Cities: Visions of Urbanism for the 21st Century</td>
</tr>
<tr>
<td>URBANST 183</td>
<td>Team Urban Design Studio</td>
</tr>
<tr>
<td>URBANST 188</td>
<td>Exploring Urbanism in San Francisco: Three Urban Adventures to Better Understand Cities</td>
</tr>
<tr>
<td>URBANST 189</td>
<td>Urban Sustainability Collaborative</td>
</tr>
<tr>
<td>Total Units</td>
<td>0</td>
</tr>
</tbody>
</table>

Stanford Bulletin 2018-19