# Earth Systems Option

This option is offered within the following major(s):

- Environmental Sciences - College of Earth, Ocean, and Atmospheric Sciences (http://catalog.oregonstate.edu/college-departments/earth-ocean-atmospheric-sciences/environmental-sciences-bs-hbs)

Also available via Ecampus (http://ecampus.oregonstate.edu).

With the Earth Systems option, students will obtain a solid base in the sciences and they would be able to apply that base in an integrative way in order to build a strong knowledge traditionally referred to as natural history.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 202</td>
<td>*EARTH SYSTEMS SCIENCE</td>
<td>4</td>
</tr>
<tr>
<td>or GEO 221</td>
<td>*ENVIRONMENTAL GEOLOGY</td>
<td></td>
</tr>
</tbody>
</table>

## Earth Systems Core

Select a minimum of 11 credits of the following:  

- GEO 201 *PHYSICAL GEOLOGY  
- or SOIL 205 *SOIL SCIENCE  
- GEO 203 *EVOLUTION OF PLANET EARTH  
- OC 201 *OCEANOGRAPHY  

Select one of the following:  

- GEOG 323 *CLIMATOLOGY  
- ATS 310 *METEOROLOGY  

## Electives

Select credits to total greater than or = 27 from at least two categories of the following:  

### Atmosphere

- ATS 411  THERMODYNAMICS AND CLOUD MICROPHYSICS  
- ATS 412  ATMOSPHERIC RADIATION  
- ATS 413  ATMOSPHERIC CHEMISTRY  
- ATS 420  PRINCIPLES OF CLIMATE: PHYSICS OF CLIMATE AND CLIMATE CHANGE  
- ATS 421  CLIMATE MODELING  
- GEO 484  INTRODUCTION TO BIOGEOCHEMISTRY  

### Earth History

- GEO 308  *GLOBAL CHANGE AND EARTH SCIENCES  
- GEO 370  STRATIGRAPHY AND SEDIMENTOLOGY  
- GEO 481  GLACIAL GEOLOGY  
- GEO 486  QUATERNARY PALEOClimatology  
- GEO 488  QUATERNARY STRATIGRAPHY OF NORTH AMERICA  

### Earth’s Surface

- FE 430  WATERSHED PROCESSES  
- GEO 322  SURFACE PROCESSES  
- GEO 340  STRUCTURAL GEOLOGY  
- GEO 432  APPLIED GEOMORPHOLOGY  
- GEO 433  COASTAL GEOMORPHOLOGY  
- GEO 487  HYDROGEOLOGY  
- GEOG 423  SNOW HYDROLOGY  

### Oceans

- FW 434  ESTUARINE ECOLOGY  
- or OC 434  ESTUARINE ECOLOGY  
- OC 332  COASTAL OCEANOGRAPHY  
- OC 333  OCEANS, COASTS, AND PEOPLE  
- OC 334  *POLAR OCEANOGRAPHY  
- OC 430  PRINCIPLES OF PHYSICAL OCEANOGRAPHY  
- OC 433  COASTAL AND ESTUARINE OCEANOGRAPHY  
- OC 440  BIOLOGICAL OCEANOGRAPHY  
- OC 450  CHEMICAL OCEANOGRAPHY  
- OC 460  GEOLOGICAL OCEANOGRAPHY  

### Soils

- SOIL 366  Ecosystems of Wildland Soils  
- SOIL 435  ENVIRONMENTAL SOIL PHYSICS  
- SOIL 445  ENVIRONMENTAL SOIL CHEMISTRY  
- SOIL 455  BIOLOGY OF SOIL ECOSYSTEMS  
- SOIL 466  SOIL MORPHOLOGY AND CLASSIFICATION  
- SOIL 468  SOIL LANDSCAPE ANALYSIS  

### Human-Environment Interaction

- GEO 306  *MINERALS, ENERGY, WATER, AND THE ENVIRONMENT  
- GEO 307  *NATIONAL PARK GEOLOGY AND PRESERVATION  
- GEOG 324  GEOGRAPHY OF LIFE: SPECIES DISTRIBUTIONS AND CONSERVATION  
- GEOG 430  RESILIENCE-BASED NATURAL RESOURCE MANAGEMENT  
- GEOG 450  LAND USE IN THE AMERICAN WEST  
- GEOG 441  INTERNATIONAL WATER RESOURCES MANAGEMENT  
- GEOG 440  WATER RESOURCES MANAGEMENT IN THE UNITED STATES  
- GEOG 431  GLOBAL RESOURCES AND DEVELOPMENT  

### Methods

- GEOG 201  *FOUNDATIONS OF GEOSPATIAL SCIENCE AND GIS  
- GEOG 360  GISCIENCE I: GEOGRAPHIC INFORMATION SYSTEMS AND THEORY  
- GEOG 370  GEOVISUALIZATION: CARTOGRAPHY  
- GEOG 480  REMOTE SENSING I: PRINCIPLES AND APPLICATIONS  

### Total Hours

27

---

1 * Students should select an additional course in atmosphere, hydrosphere, and geosphere from the approved list in the Environmental Sciences and Humanities core (minimum of 11 credits).

* Baccalaureate Core Course (BCC)

^ Writing Intensive Course (WIC)

---

**Option Code:** 848