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>
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</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>
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</table>

**Earth Systems Core**

Select a minimum of 11 credits of the following:¹

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<thead>
<tr>
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<tbody>
<tr>
<td>GEO 201</td>
<td>*PHYSICAL GEOLOGY</td>
</tr>
<tr>
<td>or SOIL 205</td>
<td>SOIL SCIENCE</td>
</tr>
<tr>
<td>GEO 203</td>
<td>*EVOLUTION OF PLANET EARTH</td>
</tr>
<tr>
<td>OC 201</td>
<td>*OCEANOGRAPHY</td>
</tr>
</tbody>
</table>

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 | ECO SYSTEMS OF WILDLAND SOILS  |
- SOIL 435 | ENVIRONMENTAL SOIL PHYSICS     |
- SOIL 445 | ENVIRONMENTAL SOIL CHEMISTRY   |
- SOIL 455 | BIOLOGY OF SOIL ECO SYSTEMS    |
- 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 | GEO VISUALIZATION: 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