CLIMATE SCIENCE OPTION

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

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

Students completing the Climate Science option will be prepared for a variety of careers in different areas related to climate, including:

1. research and technical fields,
2. outreach, education, and communication, and
3. policy and economics.

All students will gain skills in the areas of basic science, data collection and analysis, in addition to a rigorous curriculum in climate science. A broad set of electives will allow students to pursue additional course work to prepare them in their specific areas of interest. Some students may choose to pursue advanced degrees in related disciplines, whereas others will enter the job market directly.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tr>
<td>PH 221</td>
<td>RECITATION FOR PHYSICS 211 *</td>
<td>1</td>
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**Chemistry**

Select one of the following:

- CH 122 *GENERAL CHEMISTRY
- CH 232 GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 232

**Physics**

Select one of the following options:

- **Option A**
  - PH 202 *GENERAL PHYSICS
  - PH 203 *GENERAL PHYSICS

- **Option B**
  - PH 212 *GENERAL PHYSICS WITH CALCULUS and RECITATION FOR PHYSICS 212
  - PH 213 *GENERAL PHYSICS WITH CALCULUS and RECITATION FOR PHYSICS 213

**Calculus**

- MTH 252 INTEGRAL CALCULUS
- MTH 254 VECTOR CALCULUS I

**Core Requirements**

- ATS 295 OBSERVING CLIMATE
- ATS 301 CLIMATE DATA ANALYSIS
- ATS 310 METEOROLOGY
- ATS 420 PRINCIPLES OF CLIMATE: PHYSICS OF CLIMATE AND CLIMATE CHANGE
- ATS 421 CLIMATE MODELING
- GEO 484 INTRODUCTION TO BIOGEOCHEMISTRY
- GEO 486 QUATERNARY PALEOClimatology
- GEOG 323 *CLIMATOLOGY

**Experiential Learning**

Select 6 credits of the following:

- ATS 401 RESEARCH

**Electives**

Select at least one course in Climate Impacts, Adaptation, or Mitigation:

- CH 374 *TECHNOLOGY, ENERGY, AND RISK
- ENGR 363 *ENERGY MATTERS
- FW 325 *GLOBAL CRISIS IN RESOURCE ECOLOGY
- GEOG 240 *CLIMATE CHANGE, WATER AND SOCIETY
- GEOG 441 INTERNATIONAL WATER RESOURCES MANAGEMENT
- GEOG 440 WATER RESOURCES MANAGEMENT IN THE UNITED STATES
- OC 333 OCEANS, COASTS, AND PEOPLE
- PH 313 *ENERGY ALTERNATIVES
- WSE 473 BIOENERGY AND ENVIRONMENTAL IMPACT

Select at least one course in Policy or Economics:

- AEC 352 *ENVIRONMENTAL ECONOMICS AND POLICY or ECON 352*ENVIRONMENTAL ECONOMICS AND POLICY
- PS 455 *THE POLITICS OF CLIMATE CHANGE
- PS 473 US ENERGY POLICY
- PS 478 RENEWABLE ENERGY POLICY

Select an additional 15 credits of electives listed above or below:

- ATS 411 THERMODYNAMICS AND CLOUD MICROPHYSICS
- ATS 412 ATMOSPHERIC RADIATION
- ATS 413 ATMOSPHERIC CHEMISTRY
- ATS 475 PLANETARY ATMOSPHERES
- GEO 433 COASTAL GEOMORPHOLOGY
- GEO 481 GLACIAL GEOLOGY
- GEO 488 QUATERNARY STRATIGRAPHY OF NORTH AMERICA
- GEOG 423 SNOW HYDROLOGY
- OC 334 *POLAR OCEANOGRAPHY
- OC 430 PRINCIPLES OF PHYSICAL OCEANOGRAPHY
- OC 440 BIOLOGICAL OCEANOGRAPHY
- OC 450 CHEMICAL OCEANOGRAPHY
- OC 460 GEOLOGICAL OCEANOGRAPHY

No more than two of the following may be used toward the 15 additional elective credits:

- GEOG 480 REMOTE SENSING I: PRINCIPLES AND APPLICATIONS
- GEOG 481 REMOTE SENSING II: DIGITAL IMAGE PROCESSING
- MTH 256 APPLIED DIFFERENTIAL EQUATIONS
- MTH 341 LINEAR ALGEBRA I
- ST 352 INTRODUCTION TO STATISTICAL METHODS
- WR 362 *SCIENCE WRITING

**Total Hours**

80-81

*Students taking PH 211 *GENERAL PHYSICS WITH CALCULUS in this option are required to take PH 221 RECITATION FOR PHYSICS 211 concurrently.*
Climate Science Option

* Baccalaureate Core Course
^ Writing Intensive Course (WIC)

Option Code: 836