EARTH SCIENCES MAJOR
(B.S.)

http://ceps.unh.edu/earth-sciences/earth-sciences-bs

Description
The bachelor of science in Earth sciences is offered through the Department of Earth Sciences. The program represents a strong concentration in the Earth sciences and is especially well-suited for students who plan to continue their studies in graduate school. Beyond a central core of courses, there are several possible specializations (geology, geophysics, oceanography, climate, petroleum geology) from which students must choose in order to develop depth in a particular area of Earth sciences. Students are encouraged to attend a summer off-campus field experience, for which scholarship funds may be available.

Requirements
Satisfy the Discovery Program requirements and the bachelor of science degree requirements

MATH 425  Calculus I  4
MATH 426  Calculus II  4
CHEM 403  General Chemistry I  1,2  4
CHEM 404  General Chemistry II  1,2  4
PHYS 407  General Physics I  1  4
PHYS 408  General Physics II  1  4

Core Curriculum
ESCI 401  Dynamic Earth  4
or ESCI 409  Geology and the Environment  4
ESCI 402  Earth History  4
ESCI 501  Introduction to Oceanography  4
ESCI 512  Principles of Mineralogy  4
ESCI 530  Geological Field Methods  3  4
or ESCI 534  Techniques in Environmental Sciences  4
Select one of the following:
ESCI 654  Fate and Transport in the Environment  4
ESCI 701  Quantitative Methods in Earth Sciences  4
ESCI #731  Geodynamics  4

Specializations
Select one of the following approved specializations:

Climate
ESCI 514  Introduction to Climate  3
ESCI 561  Landscape Evolution  4
Select at least two of the following:
ESCI 758  Introductory Physical Oceanography  6-7
ESCI 762  Glacial Geology  4
ESCI 765  Paleoclimatology  4
ESCI 795  Topics (Paleoceanography)  4
Select three advanced-level approved electives  9-12
Total Credits  22-26

Geology
ESCI 561  Landscape Evolution  4
ESCI 614  Introduction to Petrology  4
ESCI 631  Structural Geology  4
ESCI 652  Paleontology  4
Two approved 700-level electives  6-8
Total Credits  22-24

Geophysics
MATH 527  Differential Equations with Linear Algebra  4
MATH 528  Multidimensional Calculus  4
ESCI 561  Landscape Evolution  4
or ESCI 614  Introduction to Petrology  4
ESCI 631  Structural Geology  4
Select at least two of the following:  8
ESCI #731  Geodynamics  3-4
ESCI 734  Geophysics  4
ESCI 735  Earthquakes and Faulting  4
ESCI 756  Geotectonics  4
ESCI 759  Geological Oceanography  4
One approved 700-level elective  3-4
Total Credits  27-28

Oceanography
BIOL 411  Introductory Biology: Molecular and Cellular  4
ESCI 514  Introduction to Climate  3
Select at least three of the following:  10-11
ESCI 750  Biological Oceanography  4
ESCI 752  Chemical Oceanography  4

1 Some of these courses may also satisfy Discovery Program requirements.
2 Or CHEM 405 Chemical Principles for Engineers if applicable
3 ESCI 409 is required for the petroleum geology specialization
4 The following should be considered: additional 700-level Earth sciences courses; additional chemistry, mathematics, and physics courses; courses in computer science, engineering, and the biological sciences; and an off-campus field camp.
Earth Sciences Major (B.S.)

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<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ESCI 758</td>
<td>Introductory Physical Oceanography</td>
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Complete three advanced-level approved electives 9-12

Total Credits 26-30

Petroleum Geology

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<td>ESCI 741</td>
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<tr>
<td>ESCI 796</td>
<td>Topics (Petroleum Geology)</td>
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<tr>
<td>CHE 705</td>
<td>Fossil Fuels and Renewable Energy Sources</td>
<td>4</td>
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Total Credits 39

Capstone Experience

A capstone experience is required of all undergraduate Earth sciences majors during their senior year. All capstone experiences at UNH must meet one or more of the following criteria:

1. The capstone synthesizes and applies disciplinary knowledge and skills.
2. The capstone fosters reflection on undergraduate learning and experience.
3. The capstone demonstrates emerging professional competencies.
4. The capstone applies, analyzes, and/or interprets research or data or artistic expression.
5. The capstone explores areas of interest based on the integration of prior learning.

Examples of Department of Earth Sciences capstone experiences include Senior Thesis (ESCI 799 Senior Thesis), UROP/SURF projects, environmental or geologic field camps, or Earth sciences education and outreach activities. Additional experiences may qualify (e.g., ESCI 795 Topics/ESCI 796 Topics field courses, INCO 590 Student Research Experience, INCO 790 Advanced Research Experience, internships) if they are designed according to the above criteria. Students should work closely with their advisers to define the most appropriate capstone experience for the Earth sciences degree option and all capstone experiences must be approved by the Department of Earth Sciences undergraduate coordinator. Presentation of projects or experiences developed for the capstone is encouraged at the annual UNH Undergraduate Research Conference or other appropriate venue.