GEOLOGICAL SCIENCES
MAJOR, B.S.–EARTH SCIENCE CONCENTRATION

Contact Information
Department of Earth, Marine, and Environmental Sciences
Visit Program Website (https://emes.unc.edu/)
Murray and Mitchell Halls

Eric Kirby, Chair
Brent McKee, Associate Chair
Kevin Stewart, Director of Undergraduate Studies (GEOL)
KGSTEWAR@email.unc.edu
Marc Alperin, Director of Undergraduate Studies (MASC)
alperin@email.unc.edu
Violet Anderson, Student Services Manager
vmanders@email.unc.edu

The study of earth's dynamic systems is a field that has seen major advances over the last few decades. Geologists investigate diverse systems that play a large role in controlling the environment at the earth's surface.

Department Programs

Majors

• Geological Sciences Major, B.S.–Earth Science (p. 1)

Minors

• Geological Sciences Minor (http://catalog.unc.edu/undergraduate/programs-study/geological-sciences-minor/)
• Marine Sciences Minor (http://catalog.unc.edu/undergraduate/programs-study/marine-sciences-minor/)

Graduate Programs

• M.S. in Geological Sciences (http://catalog.unc.edu/graduate/schools-departments/geological-sciences/)
• M.S. in Marine Sciences (http://catalog.unc.edu/graduate/schools-departments/marine-sciences/)
• Ph.D. in Geological Sciences (http://catalog.unc.edu/graduate/schools-departments/geological-sciences/)
• Ph.D. in Marine Sciences (http://catalog.unc.edu/graduate/schools-departments/marine-sciences/) (http://catalog.unc.edu/graduate/schools-departments/geological-sciences/)

Student Learning Outcomes
Upon completion of the geological sciences program (B.S.), students should be able to:

• Demonstrate broad knowledge of core geological concepts
• Produce written synthesis of professional journal articles dealing with topics covered in advanced courses
• Make a clear and effective oral presentation
• Apply knowledge and skills from coursework in a significant field experience in an area of geological sciences
• Gain admission to graduate study or obtain employment in a field that uses geological training

Requirements
In addition to the program requirements, students must

• earn a minimum final cumulative GPA of 2.000
• complete a minimum of 45 academic credit hours earned from UNC–Chapel Hill courses
• take at least half of their major core requirements (courses and credit hours) at UNC–Chapel Hill
• earn a minimum cumulative GPA of 2.000 in the major core requirements. Some programs may require higher standards for major or specific courses.

For more information, please consult the degree requirements section of the catalog (http://catalog.unc.edu/undergraduate/general-education-curriculum-degree-requirements/#degreerequirements).
At least five science electives not otherwise required for the major (see chart below)

Remaining General Education (http://catalog.unc.edu/undergraduate/general-education-curriculum-degree-requirements/) requirements and enough free electives to accumulate 122 academic hours

Total Hours 122

H Honors version available. An honors course fulfills the same requirements as the nonhonors version of that course. Enrollment and GPA restrictions may apply.

1 Must be pre-approved by the Director of Undergraduate Studies.

2 This course may also be used to satisfy one of the required GEOL courses numbered above 300

Course descriptions for:

- Astronomy (ASTR) and Physics (PHYS) (http://catalog.unc.edu/undergraduate/departments/physics-astronomy/#coursestext)
- Biochemistry (BIOC) (http://catalog.unc.edu/undergraduate/departments/biochemistry-biophysics/#coursestext)
- Biology (BIOL) (http://catalog.unc.edu/undergraduate/departments/biology/#coursestext)
- Chemistry (CHEM) (http://catalog.unc.edu/undergraduate/departments/chemistry/#coursestext)
- Computer Science (COMP) (http://catalog.unc.edu/undergraduate/departments/computer-science/#coursestext)
- Geography (GEOG) (http://catalog.unc.edu/undergraduate/departments/geography/#coursestext)
- Geological Sciences (GEOL) (http://catalog.unc.edu/undergraduate/departments/earth-marine-environment/#coursestext)
- Marine Sciences (MASC) (http://catalog.unc.edu/undergraduate/departments/earth-marine-environment/#coursestext)
- Mathematics (MATH) (http://catalog.unc.edu/undergraduate/departments/mathematics/#coursestext)
- Statistics and Operations Research (STOR) (http://catalog.unc.edu/undergraduate/departments/statistics-operations-research/#coursestext)
**Special Opportunities in Geological Sciences**

**Honors in Geological Sciences**

The honors program is open to undergraduates with an overall grade point average of 3.3 or better as of the beginning of the fall semester of the senior year. To participate in this program, the student chooses a research topic in consultation with his or her chosen faculty sponsor and conducts the research during the last two semesters in residence. The research project should represent the equivalent time expenditure of six hours of course credit and is taken as GEOL 691H (fall semester) and GEOL 692H (spring semester).

Upon recommendation of the faculty, students may be awarded the degree with honors or highest honors. Highest honors is reserved for students who have distinguished themselves in both coursework and independent research. In order to obtain this distinction the student must maintain a grade point average of 3.60 or higher and complete a research project that is worthy of peer-reviewed publication.

**Departmental Involvement**

The department encourages the active participation of undergraduates in department research, teaching, and social life. In addition to opportunities for experiential education and teaching internships described below, the department has an active Geology Honor Fraternity and Geology Club and regularly sponsors field excursions, career information sessions, and social events. Dates, times, and locations for all events are posted on the website and in the main lobby on the first floor of Mitchell Hall.

**Experiential Education**

Many geology courses emphasize experiential learning through field and laboratory work. Most degree tracks include a field geology course (GEOL 485 and GEOL 486 or a similar course in another department) that fulfills the experiential education General Education requirement. Additionally, all students are encouraged to contact faculty members about conducting independent research, either as an honors thesis or a senior thesis project.

**UNC–BEST**

The UNC Baccalaureate Education in Science and Teaching (UNC–BEST) Program is a collaboration between the School of Education and the College of Arts and Sciences and is designed to allow undergraduate science majors interested in teaching high school science the opportunity to earn their science degree and obtain licensure as a North Carolina high school science teacher in four years.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core Education courses</td>
<td></td>
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<tr>
<td>EDUC 516</td>
<td>Introduction to the Education of Exceptional Learners</td>
<td>3</td>
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<tr>
<td>or EDUC 689</td>
<td>Foundations of Special Education</td>
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<tr>
<td>EDUC 532</td>
<td>Human Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 615</td>
<td>Schools and Community Collaboration</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 593</td>
<td>Internship/Student Teaching</td>
<td>1-12</td>
</tr>
<tr>
<td>EDUC 601</td>
<td>Education Workshops</td>
<td>1-3</td>
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<tr>
<td>Teaching methods course</td>
<td></td>
<td></td>
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<tr>
<td>GEOL 412</td>
<td>Principles and Methods of Teaching Earth Science</td>
<td>4</td>
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For more details on admission requirements, application deadlines, and submitting an online application, visit the School of Education Web site (http://soe.unc.edu/academics/uncbest/).

**Study Abroad**

Although the department has no formalized study abroad program, many students participate in a study abroad program, and some receive credit for geology coursework completed abroad. Students interested in a study abroad program should contact the director of undergraduate studies. Students must receive approval from the director of undergraduate studies prior to taking courses abroad for geology credit.

**Undergraduate Awards**

The Op White Prize in Geology, established in 1966, consists of a cash prize and an engraved bronze plaque displayed in the geology office. The award is given annually to the outstanding senior in geology.

**Field Camp Scholarships**

Several scholarships for geology field camp are awarded each year from the Grover Murray and Anadarko funds.

**Undergraduate Research**

The department encourages qualified undergraduate students to conduct independent research on an interesting geologic topic under the direction of a geological sciences faculty member. This research can be conducted as a one- to four-credit hour project (GEOL 395) or in conjunction with the geology honors program.