

Earth Sciences

Major Requirements

Geology Major

All courses in Geosciences that are prerequisites for other courses in the major must be passed with a grade of "C-" or better before proceeding in the sequence. For example, GEO 001 is a prerequisite for GEO 122.

The department offers four options to majors in Geology: General Geology, Geobiology, Geophysics, and Global Climate Change. All students majoring in Geology are normally required to take the core curriculum.

General Geology, Geobiology, Geophysics, and Global Climate Change Options Core Requirements (77-79 units)

1. Lower-division requirements (58-59 units)
 - a) GEO 001, GEO 002, GEO 003/BIOL 010
 - b) BIOL 002 or both BIOL 005A and BIOL 05LA
 - c) Either CHEM 001A and CHEM 01LA or CHEM 01HA and CHEM 1HLA, either CHEM 001B and CHEM 01LB or CHEM 01HB and CHEM 01HLB, either CHEM 001C and CHEM 01LC or CHEM 01HC and CHEM 1HLC
 - d) MATH 008B or MATH 009A, MATH 009B, MATH 009C
 - e) PHYS 040A, PHYS 040B, PHYS 040C
2. Upper-division requirements (19-20 units)
 - a) GEO 101, GEO 115, GEO 122
 - b) STAT 100A or STAT 155

Global Climate Change Option (59 units)

1. Lower-division requirements (20 units)
 - a) BIOL 005B, BIOL 005C
 - b) GEO 009, GEO 010 and GEO 011
2. Upper-division requirements (39 units)
 - a) GEO 118, GEO 136 or GEO 137, GEO 152 or GEO 153, GEO 157, GEO 160, GEO 169
 - b) Fourteen (14) units of related upper-division courses approved by the undergraduate advisor.

General Geology Option (58 units)

1. GEO 100, GEO 116, GEO 118, GEO 123
2. GEO 102A (14 units in one quarter), or GEO 102A and GEO 102B (14 units in two quarters), or GEO 102A, GEO 102B, and GEO 102C (14 units in three quarters).
3. One course from GEO 157, GEO 160, GEO 161, GEO 162, GEO 169
4. One course from GEO 124, GEO 132, GEO 136, GEO 137
5. One course from GEO 140, GEO 144, GEO 145, GEO 147.
6. GEO 151 or GEO 152/BIOL 152
7. Eight (8) additional units of related upper-division courses approved by the undergraduate advisor.

Geobiology Option (58 units)

1. BIOL 005B, BIOL 005C
2. GEO 100, GEO 116, GEO 118, GEO 123
3. GEO 102A (14 units in one quarter), or GEO 102A and GEO 102B (14 units in two quarters), or GEO 102A, GEO 102B, and GEO 102C (14 units in three quarters).
4. Three courses from GEO 151, GEO 152/BIOL 152, GEO 160, GEO 169
5. Four (4) additional units of related upper-division courses approved by the undergraduate advisor.

Geophysics Option (55 units)

1. MATH 046
2. PHYS 040D, PHYS 040E
3. GEO 116, GEO 118, GEO 132, GEO 140, GEO 144, and GEO 145 or GEO 147
4. Two additional 4-unit upper-division courses in Geosciences
5. Two upper-division physical science courses approved by the undergraduate advisor.

Geophysics Major

The following are major requirements for the B.S. in Geophysics. All students majoring in Geophysics are normally required to take this core curriculum.

1. Lower-division requirements (71-72 units)
 - a) Either CHEM 001A and CHEM 01LA or CHEM 01HA and CHEM 1HLA, either CHEM 001B and CHEM 01LB or CHEM 01HB and CHEM 01HLB, either CHEM 001C and CHEM 01LC or CHEM 01HC and CHEM 1HLC
 - b) GEO 001

- c) MATH 008B or MATH 009A, MATH 009B, MATH 009C, MATH 010A, MATH 010B, MATH 046
- d) PHYS 040A, PHYS 040B, PHYS 040C, PHYS 040D, PHYS 040E

e) CS 010

2. Upper-division requirements (67-71)
 - a) GEO 115, GEO 116, GEO 140, GEO 145, GEO 122
 - b) Three of GEO 144, GEO 147, GEO 157, PHYS 177
 - c) PHYS 130A, PHYS 130B, PHYS 135A, PHYS 135B, PHYS 136
 - d) Twelve (12) units of upper-division physical science courses, which may include up to 4 units of Senior Thesis (GEO 195A, GEO 195B, GEO 195C) or up to 4 units of independent internship (GEO 198-I).

Geoscience Education Major

The following are major requirements for the B.A. in Geoscience Education. All students majoring in Geoscience Education are normally required to take this core curriculum.

1. Lower-division Geoscience requirements (20 units)
 - a. GEO 001, GEO 002, GEO 003/BIOL 010, GEO 004, GEO 010
2. Upper-division Geoscience requirements (26-30 units)
 - a. GEO 115, GEO 122
 - b. Four courses from: GEO 100, GEO 101, GEO 116, GEO 118, GEO 123, GEO 124, GEO 132, GEO 136, GEO 137, GEO 140, GEO 147, GEO 151, GEO 152/BIOL 152, GEO 157, GEO 160, GEO 168, GEO 169.
3. Mathematics requirements (12 units)
 - a. MATH 009A, MATH 009B, MATH 009C
4. Natural Sciences requirements (28-31 units)
 - a. BIOL 002, or BIOL 005A and BIOL 005LA
 - b. CHEM 001A and CHEM 001LA, CHEM 001B and CHEM 001LB, CHEM 001C and CHEM 001LC
 - c. PHYS 002A and PHYS 002B and PHYS 002C, or PHYS 040A and PHYS 040B and PHYS 040C
5. Humanities requirements (to count towards College requirement of 20 units for the B.A.)
 - a. LING 020 or LING 021

6. Education requirements (41 units):

a. EDUC 003, EDUC 004, EDUC 100B or equivalent, EDUC 104/MATH 104, EDUC 109, EDUC 110, EDUC 116, EDUC 139, EDUC 174, EDUC 177A

Minor

Students who wish to Minor in Geology, Geophysics or Global Climate Change must complete 20-28 units of organized upper-division courses in Geosciences. A minimum of 16 of these units must be unique to the minor and cannot be used to satisfy major requirements.

To satisfy prerequisites, additional preparatory coursework in Earth Sciences and other sciences (Biology, Chemistry, Mathematics, Physics) may be required.

Minor in Geology: GEO 001, GEO 115; plus 15-23 additional upper division Geosciences units.

Minor in Geophysics: GEO 001; GEO 140; plus 16-24 additional units taken from GEO 115, GEO 116, GEO 132, GEO 144, GEO 145, GEO 190, and GEO 199.

Minor in Global Climate

Change: GEO 001 or GEO 002; GEO 011; GEO 160; plus 16-24 additional upper division Geoscience units.

Before submitting a petition for a Minor to the college, students interested in pursuing a Minor in Geology or Geophysics or Global Climate Change must consult with the undergraduate faculty advisor in Earth Sciences.