Geology Major Requirements
Catalog Year: 2013-14
Degree: Bachelor of Science
Credit Hours: 65+

“PR” indicates a pre-requisite. “CO” indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Required Courses:

- **GEOL 101** Dynamic Earth (3) PR: None; CO: GEOL 101L
- **GEOL 101L** Dynamic Earth Lab (1) CO: GEOL 101
- OR
- **GEOL 103** Environmental Geology (3) PR: None; CO: GEOL 103L
- **GEOL 103L** Environmental Geology Lab (1) CO: GEOL 103
- **GEOL 105** Earth History (3) PR: GEOL 101 and 101L or GEOL 103 and 103L or HONS 155 and 155L; CO: GEOL 105L
- **GEOL 105L** Earth History Lab (1) PR: GEOL 101L or GEOL 103L or HONS 155L; CO: GEOL 105
- **GEOL 252** Mineralogy (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L; CHEM 101 and 101L or CHEM 111 and 111L or instructor permission
- **GEOL 269** Introduction to Petrology (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L; CHEM 101 and 101L or CHEM 111 and 111L; GEOL 252 or instructor permission
- **GEOL 272** Stratigraphy and Sedimentation (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission
- **GEOL 333** Paleobiology (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission
- **GEOL 352** Structural Geology (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and instructor permission
- **GEOL 360** Field Studies (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 252, 269, 272, and 352 or instructor permission. Under special circumstances, a student may petition the department to substitute an equivalent field experience.
- **GEOL 492** Senior Seminar (1) PR: Senior standing as a GEOL major

Select 3 credit hours from the following:

- **GEOL 206** Planetary Geology (3) PR: GEOL 101 and 101L or GEOL 103 and 103L or HONS 155 and 155L
- **GEOL 213** Natural Hazards (3) PR: GEOL 101 and 101L or GEOL 103 and 103L or HONS 155 and 155L
- **GEOL 235** Geology and Civilization (3) PR: GEOL 101 and 101L or HONS 155 and 155L
- **GEOL 238** Water Resources (3) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L
- **GEOL 240** Special Topics in Geology (1-4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission

Select 6 credit hours from the following with a maximum of 3 credit hours from GEOL 260 and 260L or 460L:

- **GEOL 206** Planetary Geology (3) PR: GEOL 101 and 101L or GEOL 103 and 103L or HONS 155 and 155L
- **GEOL 213** Natural Hazards (3) PR: GEOL 101 and 101L or GEOL 103 and 103L or HONS 155 and 155L
- **GEOL 235** Geology and Civilization (3) PR: GEOL 101 and 101L or HONS 155 and 155L
- **GEOL 238** Water Resources (3) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L
- **GEOL 240** Special Topics in Geology (1-4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission
GEOL 257  Marine Geology (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission. Students may not receive credit for both GEOL 107 and 257.

GEOL 260  NASA Space Mission Design (2)  PR: GEOL 101 and 101L or GEOL 103 and 103L or HONS 155 and 155L and GEOL 206 or instructor permission; CO: GEOL 260L or GEOL 460L

GEOL 260L  NASA Space Mission Design Lab (1)  PR: GEOL 206 or instructor permission; CO: GEOL 260

OR

GEOL 460L  NASA Space Mission Design Leadership Lab (1)  PR: Instructor permission; CO: GEOL 260

GEOL 275  Geomorphology (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission

GEOL 303  Independent Study in Geology (1-3)  PR: Junior standing or departmental approval

GEOL 312  Environmental Field Methods (3)  PR: GEOL 101 and 101L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 272 or instructor permission

GEOL 314  Introduction to Remote Sensing (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and HONS 157 and 157L and HONS 158 and 158L or instructor permission

GEOL 320  Earth Resources (3)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 252 or instructor permission

GEOL 357  Oceanographic Research—The Transect Program (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 257 or instructor permission

GEOL 360  Field Studies (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 252, 269, 272, and 352 or instructor permission. Under special circumstances, a student may petition the department to substitute an equivalent field experience.

GEOL 411  Tectonics (3)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 272 and 352 or instructor permission

GEOL 412  Crustal Geophysics (3)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and MATH 120 and GEOL 352 or instructor permission

GEOL 416  Paleoecology (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 272, 333, and 430 or instructor permission

GEOL 430  Sedimentary Petrology (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 252 and 269 or instructor permission

GEOL 434  Geology of the Carolinas (3)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 272 and 352 or instructor permission

GEOL 438  Hydrogeology (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and MATH 111 or 120 or instructor permission

GEOL 440  Igneous & Metamorphic Petrology (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 252 or instructor permission

GEOL 444  Quantitative Hydrogeology (3)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and Math 220 and GEOL 438 or instructor permission

GEOL 449  Geographical Information Systems (4)  PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission. Some computer experience is helpful.

Chemistry Requirement

☐ CHEM 111  Principles of Chemistry (3)  PR or CO: unless students exempt MATH 111 (via diagnostic testing) or have completed this course as a prerequisite, they are required to take MATH 111 as a co-requisite; CO: CHEM 111L

☐ CHEM 111L  Principles of Chemistry Lab (1)  CO: CHEM 111

☐ CHEM 112L  Principles of Chemistry Lab (1)  CO: CHEM 112

☐ CHEM 112L  Principles of Chemistry Lab (1)  CO: CHEM 112
AND

- CHEM 112 Principles of Chemistry (3) PR: CHEM 111 and 111L; CO: CHEM 112L
- CHEM 112L Principles of Chemistry Lab (1) CO: CHEM 112L

OR

- GEOL 250 Introduction to Geochemistry (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and CHEM 101 and 101L or CHEM 111 and 111L; CO: GEOL 250L
- GEOL 250L Introduction to Geochemistry Lab (0) CO: GEOL 250

Complete a sequence of 8 credit hours in either Physics or Biology:

- PHYS 101 Introductory Physics (3) PR: None; CO or PR: PHYS 101L
- PHYS 101L Introductory Physics Lab (1) CO: PHYS 101L
- PHYS 102 Introductory Physics II (3) PR: PHYS 101 or PHYS 111 or HONS 157; CO: PHYS 102L
- PHYS 102L Introductory Physics Lab (1) CO: PHYS 102L

OR

- PHYS 111 General Physics I (3) PR or CO: MATH 120 or equivalent or instructor permission; CO: PHYS 111L
- PHYS 111L General Physics I Lab (1) CO: PHYS 111
- PHYS 112 General Physics II (3) PR: PHYS 111 or HONS 157; CO or PR: MATH 220 or equivalent or instructor permission; CO: PHYS 112L
- PHYS 112L General Physics II Lab (1) CO: PHYS 112

OR

- BIOL 101 Concepts and Applications in Biology I (4) PR: None; CO: BIOL 101L
- BIOL 101L Concepts and Applications in Biology I Lab (0) CO: BIOL 101
- BIOL 102 Concepts and Applications in Biology II (4) PR: BIOL 101 and 101 lab; CO: BIOL 102L
- BIOL 102L Concepts and Applications in Biology II Lab (0) CO: BIOL 102

OR

- BIOL 111 Introduction to Cell and Molecular Biology (3) PR: None; CO: BIOL 111L
- BIOL 111L Introduction to Cell and Molecular Biology Lab (1) CO: BIOL 111
- BIOL 112 Evolution, Form, and Function of Organisms (3) PR: BIOL 111 and 111L; CO: BIOL 112L
- BIOL 112L Evolution, Form, and Function of Organisms Lab (1) CO: BIOL 112

Math Requirement

- MATH 120 Introductory Calculus (4) PR: Placement or C or better in MATH 111
- MATH 220 Calculus II (4) PR: MATH 120 or HONS 115
- MATH 250 Statistical Methods (3) PR: Either MATH 111, 120 or instructor permission

Optional: Students may also select an emphasis in Environmental Geosciences.

Environmental Geosciences Emphasis (12 credit hours)

Required Courses

- GEOL 438 Hydrogeology (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and MATH 111 or 120 or instructor permission
GEOL 441  Pollution in the Environment (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and CHEM 111 and 111L and CHEM 112 and 112L or GEOL 250 or CHEM 101 and 101L and GEOL 250 or instructor permission

Select 4 credit hours from the following:

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GEOL 257  Marine Geology (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission. Students may not receive credit for both GEOL 107 and 257.

GEOL 275  Geomorphology (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission

GEOL 303  Independent Study in Geology (1-3) PR: Junior standing or departmental approval

GEOL 312  Environmental Field Methods (3) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 272 or instructor permission

GEOL 314  Introduction to Remote Sensing (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L or instructor permission

GEOL 320  Earth Resources (3) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 252 or instructor permission

GEOL 360  Field Studies (4) PR: GEOL 101 and 101L or GEOL 103 and 103L and GEOL 105 and 105L or HONS 155 and 155L and HONS 156 and 156L and GEOL 252, 269, 272, and 352 or instructor permission. Under special circumstances, a student may petition the department to substitute an equivalent field experience.

GEOL XXX  Other suitable electives as approved by the department. Consult with your faculty advisor.

Notes:

- Computer science courses and Geology 360 Field Studies are recommended.