**Geology (GEOL)**

**GEOL 1410. Physical Geology.**
The study of materials making up the Earth, the processes that act upon them, and the results of these processes; the development of tools for the interpretation of earth's history and structure, and the major geologic concepts.

*Course Attribute(s):* Life & Physical Sciences Core|Lab Required

*Grade Mode:* Standard Letter

*TCCN: GEOL 1403*

*about Physical Geology*

**GEOL 1420. Historical Geology.**
A continuation of physical geology leading to consideration of the geologic history of the Earth (with special emphasis on North America), the evolution of life, the continents through geologic time and the principles and procedures used in the interpretation of earth history.

*Prerequisite: GEOL 1410.*

*Course Attribute(s):* Life & Physical Sciences Core|Lab Required

*Grade Mode:* Standard Letter

*TCCN: GEOL 1404*

*about Historical Geology*

**GEOL 2410. Mineralogy.**
Study of the crystal systems, physical properties, classification, and hand specimen identification of common rock-forming and ore minerals. One semester of Chemistry recommended. Prerequisites: CHEM 1141 and CHEM 1341, and "C" or better in GEOL 1410 and GEOL 1420.

*Course Attribute(s):* Life & Physical Sciences Core|Lab Required

*Grade Mode:* Standard Letter

*TCCN: GEOL 1403*

*about Mineralogy*

**GEOL 2410. Petrology.**
An introduction to the hand specimen and microscopic study of igneous, sedimentary, and metamorphic rocks. This course includes the origin of mineral assemblages that make up rocks and the environments of formation. Prerequisite: GEOL 2410 with a grade of "C" or better.

*Course Attribute(s):* Lab Required

*Grade Mode:* Standard Letter

*about Petrology*

**GEOL 3400. Sedimentation and Stratigraphy.**
Principles of the weathering, transportation, deposition, and lithification of sediments. Primary structures and textures of sediments are used to determine environments of deposition. The recognition and classification of strata into stratigraphic units. Prerequisite: GEOL 2410 completed with a grade of "C" or higher.

*Course Attribute(s):* Lab Required

*Grade Mode:* Standard Letter

*about Sedimentation and Stratigraphy*

**GEOL 3430. Structural Geology.**
Description, classification, and origin of Earth structures and the stresses involved in their formation. Solution of structural geology problems using analytical geometry, geologic maps, contouring of data, and preparation of cross sections. Prerequisites: GEOL 1410 and GEOL 1420 (or equivalents).

*Course Attribute(s):* Lab Required

*Grade Mode:* Standard Letter

*about Structural Geology*

**GEOL 3440. Paleontology and Biostratigraphy.**
Identification of ancient invertebrate faunas and their applications in reconstruction of paleoenvironments, paleogeography, and the means by which "time" correlations can be effected in sedimentary strata. Field intensive course, 1 full day in the field per week. Course will be offered alternating summers. Prerequisites: GEOL 1410 and GEOL 1420 (or equivalents).

*Course Attribute(s):* Lab Required

*Grade Mode:* Standard Letter

*about Paleontology and Biostratigraphy*

**GEOL 4121. Directed Study.**
Independent study of a particular subject area in geology. Specific topic to be discussed and agreed upon prior to registration. May be repeated once with different emphasis and professor for additional credit. Prerequisite: GEOL 1410 and GEOL 1420 with grades of "C" or higher and approval of the instructor.

*Course Attribute(s):* Exclude from 3-peat Processing

*Grade Mode:* Standard Letter

*about Directed Study*

**GEOL 4320. Topics in Field Geology.**
This course provides on-site directed investigations of geology in locations remote from campus. Prerequisite: GEOL 1410 and GEOL 1420 with grades of "C" or higher.

*Course Attribute(s):* Exclude from 3-peat Processing

*Grade Mode:* Standard Letter

*about Topics in Field Geology*

**GEOL 4321. Directed Study.**
This course is designed to provide a student with an opportunity to conduct independent research for credit in consultation with his or her Geology instructors. The course may be repeated once with a different content or instructor. Prerequisite: GEOL 1410 and GEOL 1420 with grade of "C" or higher.

*Course Attribute(s):* Exclude from 3-peat Processing

*Grade Mode:* Standard Letter

*about Directed Study*
GEOL 4330A. Introduction to Petroleum Geology.
This course discusses the origin and distribution of conventional and unconventional petroleum resources, source rocks, types of traps and seals, reservoir rock properties, exploration methods (seismic data analysis and interpretation, formation evaluation, subsurface mapping), reservoir characterization and modeling, reserves calculations.
Prerequisites: GEOL 1410, GEOL 1420, and CHEM 1141/CHEM 1341 with grades of "C" or higher. Co-requisite: GEOL 4121.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Topics
Grade Mode: Standard Letter

GEOL 4330B. Planetary Geology.
This course is a survey of the application of geologic principles to the rocky planets and satellites in the solar system. Prerequisites: GEOL 1410 and GEOL 1420 with grades of "C" or higher.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Topics
Grade Mode: Standard Letter

GEOL 4421. Hydrogeology.
This course will provide the student with an introduction to the science of hydrogeology, a conceptual and quantitative understanding of groundwater from a geological/mathematical/geochemical perspective, and experience with hydrogeology applications. Prerequisites: GEOL 1420 with a grade of "C" or higher, and CHEM 1141 and CHEM 1341.

4 Credit Hours. 3 Lecture Contact Hours. 3 Lab Contact Hours.
Course Attribute(s): Lab Required|Writing Intensive
Grade Mode: Standard Letter

GEOL 5421. Hydrogeology.
This course will provide the student with an introduction to the science of hydrogeology, a basic conceptual understanding of groundwater from a geological/mathematical/geochemical perspective, and experience with hydrogeology applications. Prerequisites: graduate standing or permission of instructor.

4 Credit Hours. 3 Lecture Contact Hours. 3 Lab Contact Hours.
Course Attribute(s): Lab Required
Grade Mode: Standard Letter