

# GEOLOGY

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Contact: (845) 257-3760

In conjunction with the [Teaching & Learning department](#), the Geology department contributes graduate courses that support the following degree programs:

- [Master's of Science in Education \(MSEd\) degree in Adolescence Education: Earth Science](#). This degree is designed for adolescence education teachers who need a Master's degree for permanent certification.
- [Master's of Arts in Teaching \(MAT\) degree in Adolescence Education: Earth Science](#). This degree is designed for those with a bachelor's degree in Geology who would like a rapid route to certification as secondary education teachers.
- [Bachelor's of Arts in Geology + Master's of Arts in Teaching in Adolescence Education: Earth Science](#). This program allows Geology majors to ability to earn two degrees and a NYS teaching credential within five years.

## GLG501. Economic Geology. 4 Credits.

Practical applications of geology. Origin and occurrence of metallic and non-metallic mineral resources such as oil, coal, and uranium and their importance in the world's economy as "one-crop" deposits. Conservation of such valuable natural resources as oil and water. Field trips.

### Attributes:

- Field Study
- Entrepreneurship
- Practicum - Non-Clinical
- Liberal Arts

### Restrictions:

- Must have the following level: Graduate

### Prerequisites:

- GLG311 Minimum Grade of D-

May not be repeated for credit

## GLG502. Advanced Geomorphology. 4 Credits.

Fluvial, glacial, volcanic, eolian, and solutional land forms and their interpretation. Relationships of climate, weathering, mass wasting, soil development, rock types, and ground water to landscape. Geologic and geomorphic interpretation of topographic maps.

### Attributes:

- Liberal Arts

### Restrictions:

- Must have the following level: Graduate

### Prerequisites:

- GLG405 Minimum Grade of C-

May not be repeated for credit

## GLG504. Geochemistry. 4 Credits.

Geochemical knowledge and methods of geochemical research. Geochemistry of the lithosphere. Distribution and mobility of the elements in the earth, their relative abundance, migration, and mode of occurrence, and the geochemical structure of the earth. Detailed study of the applications of the principles of physical chemistry to selected geochemical problems.

### Attributes:

- Liberal Arts

### Restrictions:

- Must have the following level: Graduate

### Prerequisites:

- GLG314 Minimum Grade of D-

May not be repeated for credit

## GLG505. Tectonics. 3 Credits.

Origin and characteristics of the major structures of the earth's crust. Emphasis on plate tectonic theory, including the geometry and kinematics of plate motions, and the structural evolution of mountain belts, rifts, transcurrent fault zones and other regions of crustal deformation.

### Attributes:

- Liberal Arts

### Restrictions:

- Must have the following level: Graduate

### Prerequisites:

- GLG405 Minimum Grade of D-

May not be repeated for credit

## GLG507. Introduction to Hydrogeology. 4 Credits.

Hydrologic cycle, occurrence and movement of ground water, aquifer analysis and ground water hydrology. Water quality and pollution measurement and abatement. Nature of water supplies, ground water exploration, and conservation of ground water.

### Attributes:

- Liberal Arts

### Restrictions:

- Must have the following level: Graduate

### Prerequisites:

- GLG201 Minimum Grade of D-
- PHY201 Minimum Grade of D-

May not be repeated for credit

## GLG509. Water Resources Management. 3 Credits.

Water use, problems of water supply, water resource management, water quality (present and potential pollution problems and solutions), and water conflicts around the world.

### Attributes:

- Field Study
- Civic Engagement

### Restrictions:

- Must have the following level: Graduate

May not be repeated for credit

**GLG519. Geophysics. 3 Credits.**

Introduction to concepts of geophysics and methods used to study earth; its internal structure. Earth temperatures, seismic waves, gravity, isostasy, and magnetism. Phenomena such as earthquakes, continental drift, sea floor spreading, and mountain building considered.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

**Prerequisites:**

- GLG405 Minimum Grade of D-
- MAT252 Minimum Grade of D-

May not be repeated for credit

**GLG533. Analysis of Soils and Sediments. 3 Credits.**

Studies of soils, unconsolidated and consolidated sediments. Investigations: soil pH, bulk density, porosity, soil moisture, beneficiation of acid soils by limestone treatment, particle size distribution. Mineral analyses by chemical stains, microscopy, and X-ray powder diffraction.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

**Prerequisites:**

- GLG311 Minimum Grade of D-
- GLG331 Minimum Grade of D-

May not be repeated for credit

**GLG535. Sedimentation. 4 Credits.**

Analysis of the mode of origin of the sedimentary rocks. Principles of sedimentary processes. Relation between sedimentary processes and the sediments found in the continental, eolian, marginal marine, shallow marine, and deep marine environments. Pertinent papers in the literature discussed.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

**Prerequisites:**

- GLG311 Minimum Grade of D- or GLG331 Minimum Grade of D-

May not be repeated for credit

**GLG541. Geology and Geophysics of Petroleum. 4 Credits.**

Origin of petroleum and its mode of occurrence in Earth and the stratigraphic and structural problems involved in the accumulation of petroleum. Principles used in geophysical exploration by the gravitational, magnetic, electric, seismic and radioactive methods.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

**Prerequisites:**

- GLG405 Minimum Grade of D-
- PHY202 Minimum Grade of D-

May not be repeated for credit

**GLG543. Principles of Sedimentary Petrology. 3 Credits.**

Petrology and classification of sedimentary rocks. Factors governing sediment dispersal, lithification and diagenesis. Mineralogy and texture of terrigenous clastic sediments as a reflection of possible source terrains. Carbonate petrology and petrography; consideration of limestone and dolostone textures as environmental indicators.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

**Prerequisites:**

- GLG331 Minimum Grade of D-

May not be repeated for credit

**GLG545. Advanced Igneous and Metamorphic Petrology. 4 Credits.**

Origin, classification, distribution and association of igneous and metamorphic rocks. Introduction to the use of microcomputers in petrology. Individual projects emphasizing advanced studies of rocks in thin section and/or computer analysis of petrogenesis.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

**Prerequisites:**

- GLG314 Minimum Grade of D-
- CHE202 Minimum Grade of D-
- PHY201 Minimum Grade of D-

May not be repeated for credit

**GLG575. Geology for Teachers. 3 Credits.**

Development of life on earth and geological processes that have shaped its surface: glaciation, erosion, mountain building; earth movements and volcanism. Study of minerals, rocks and a few common fossils. One or two field trips to inspect local geological features. Not open to students seeking a graduate degree in geology or earth science, or those who have taken GLG220 or equivalent.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

May not be repeated for credit

**GLG578. Geology of New York State. 3 Credits.**

Principles, methods and knowledge from the science of geology pertinent to a study of the geologic history of the eastern United States. Emphasis on the development of New York State geology. Evolution of life as shown by the fossil record. Field trips. Not open to students seeking a graduate degree in geology or earth science.

**Attributes:**

- Field Study
- Practicum - Non-Clinical
- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

**Prerequisites:**

- GLG201 Minimum Grade of D-
- GLG575 Minimum Grade of D-

May not be repeated for credit

**GLG581. Regional Geology (1-3). 1-12 Credits.**

Geology of selected areas of North America. Readings and discussions of the detailed tectonic and petrological evolution of selected classical geological areas. Field excursions to type areas. May be repeated for credit provided listed topic changes.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

May be repeated for credit

**GLG583. Computer Applications in Geology. 3 Credits.**

Use of computers in the geological sciences. Use of drafting, graphing, contouring, and other software. Basic theory of contouring, curve and surface fitting, least squares methods, data analysis, matrix manipulation, and equation solving.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

**Prerequisites:**

- Math Placement Level Minimum Score of 5 or MAT181 Minimum Grade of D-

May not be repeated for credit

**GLG585. Geology Seminar. 3 Credits.**

An integrated consideration of some current problems selected from the various branches of geology. Critical reading and evaluation of primary source materials.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

May not be repeated for credit

**GLG590. Thesis in Geology (1-3). 0 Credits.**

Research, writing and defense of a thesis under the guidance of the major professor. Required form available in the Records and Registration Office. Required each semester after thesis research project is begun.

**Attributes:**

- Liberal Arts

**Restrictions:**

- Must have the following level: Graduate

May not be repeated for credit

**GLG593. Geological Selected Topics. 3-12 Credits.**

Selected topics courses are regularly scheduled courses that focus on a particular topic of interest. Descriptions are printed in the Schedule of Classes each semester. Selected topics courses may be used as elective credit and may be repeated for credit, provided that the topic of the course changes.

**Restrictions:**

- Must have the following level: Graduate

May be repeated for credit

**GLG594. Fieldwork In Geology. 0 Credits.****Restrictions:**

- Must have the following level: Graduate

May not be repeated for credit

**GLG595. Indep Study Geology. 1-12 Credits.****Restrictions:**

- Must have the following level: Graduate

May be repeated for credit

**GLG599. Comprehensive Exam Workshop. 0 Credits.**

Non-credit workshop for students who wish to devote the semester immediately following the completion of their coursework to prepare for the comprehensive exam.

**Restrictions:**

- Must have the following level: Graduate
- Must be enrolled in the following field(s) of study (major, minor or concentration): Geology (205)

May not be repeated for credit

**GLG693. Geological Selected Topic. 3-12 Credits.****Restrictions:**

- Must have the following level: Graduate

May be repeated for credit

**GLG795. Indep Study Geology. 0 Credits.**

**Restrictions:**

- Must have the following level: Graduate

May be repeated for credit

**GLG799. Continued Registration. 1 Credit.**

**Restrictions:**

- Must have the following level: Graduate

May be repeated for credit