

# GEOLOGY

(845) 257-3760

## Master of Arts in Geology (205)

The Geology Department is not accepting applications to the MA program at this time.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

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

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### GLG594. Fieldwork In Geology. 0 Credits.

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### GLG595. Indep Study Geology. 1-12 Credits.

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### 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.

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

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

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

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