

GEOSCIENCES (GES)

GES 502 THE RESTLESS EARTH

3, 3/0

Prerequisite: GES 101 or GES 201 or equivalent. Dynamic history of the Earth, movement of the continents, opening and closing of oceans, and the effect of such events on ancient climates; the evolution of life and the inter-relatedness of earth and life processes.

GES 503 MINERALOGY AND PETROLOGY FOR EARTH SCIENCE TEACHERS

3, 3/0

Origin and identification of crystals, minerals, and rocks.

GES 504 FIELD INVESTIGATIONS FOR EARTH SCIENCE TEACHERS

3, 2/2

Measuring surface changes: techniques necessary to construct base maps and topographic maps, collect stream gauging data, and measure slopes; applications to secondary earth science classrooms. Field trips.

GES 506 GEOLOGY OF NEW YORK STATE

3, 3/0

Prerequisites: GES 101 and GES 102 or GES 502 or equivalent. Physiography, stratigraphy, paleontology, glacial and economic geology of New York State; geological history of New York region; geology of selected recreational sites. Field trips.

GES 508 FIELD GEOLOGY OF WESTERN NEW YORK

3, 2/2

Prerequisites: GES 101 and GES 102 or GES 502 or equivalent. A study of the evolution, stratigraphy, and surficial geology of Western New York through observation of selected field sites.

GES 513 APPLIED FORENSIC GEOSCIENCE

3, 2/2

Prerequisites: GES 101 and; GES 103 or GES 201 or equivalents. Application of the principles of earth science to the law. Hands-on approach includes details from actual criminal cases. Forensic application of a variety of geological subjects, such as rock and mineral types, geological and topographical maps, fossils, sand, and soil.

GES 521 LOW TEMPERATURE GEOCHEMISTRY

3, 3/0

Prerequisites: GES 101, GES 103, CHE 112, or equivalents. The chemical nature of the earth. Emphasis on how natural systems work and the fundamental geochemical processes that affect the fate and transport of inorganic and organic pollutants in the environment.

GES 525 GROUNDWATER SCIENCE

3, 2/2

Prerequisites: GES 101 or GEG 101, at least one 300-level GES course, and college algebra. The interaction of groundwater and geologic material. Occurrence and movement of groundwater, assessment of aquifer properties, and chemical interactions between groundwater and rock. Includes groundwater protection and remediation strategies, as well as mathematical principles of groundwater flow.

GES 529 FIELD METHODS IN ENVIRONMENTAL SCIENCE

3, 2/2

Prerequisites: GES 101 or GEG 101, at least one 300-level GES course, and college algebra. Environmental detection of contaminants. Applied study of contaminant distribution and movement. Emphasis on environmental law and regulations, hazardous chemicals, and remediation approaches used by environmental professionals.

GES 535 ASTRONOMY FOR EARTH SCIENCE TEACHERS

3, 3/0

Prerequisite: Prior experience or assignment to teach secondary science. The dynamic universe: solar system, stars, galaxies, and quasars. Night sky and planetarium observation.

GES 541 METEOROLOGY FOR EARTH SCIENCE TEACHERS

3, 3/0

Prerequisite: Prior experience or assignment to teach secondary science. Weather as a response to the unequal distribution of energy from the sun; data-collecting techniques; interpretation and predictions appropriate for secondary science education classes.

GES 588 TOPICS COURSE

3, 3/0

GES 590 INDEPENDENT STUDY

1-6, 0/0

GES 594 GRADUATE WORKSHOP

1-3, 0/0

Workshop on topics in teaching Earth Sciences. Offered occasionally.

GES 598 MICRO COURSE

1-3, 1/0

Micro course on topics in teaching Earth Sciences. Offered occasionally.

GES 605 PALEONTOLOGY

3, 3/0

Prerequisite: GES 101 or equivalent; prerequisite or corequisite: GES 102 or GES 502. Basic principles of the nature and interpretation of the fossil record, with an overview of the types of organisms commonly preserved as fossils. Emphasizes practical applications of paleontology and the dynamic nature of science.

GES 606 ADVANCED INVERTEBRATE
PALEONTOLOGY

3, 3/0

Prerequisite: GES 302 or GES 605 or equivalent. Methods and techniques used in the identification and classification of selected fossil invertebrate groups.

GES 607 REGIONAL GEOMORPHOLOGY OF THE
UNITED STATES

3, 3/0

Prerequisite: GES 307 or equivalent. Factors and forces that led to the development of the surface features of selected areas of the United States.

GES 639 TOPICS IN MODERN ASTRONOMY

3, 3/0

Prerequisite: GES 131, GES 535, or equivalent. The expanding universe, primeval fireball, quasars, missing mass in the universe, black holes, pulsars, neutron stars, origin of the elements, current research.

GES 690 MASTER'S PROJECT

3, 0/0

Research or investigation of a particular problem, planned and carried out by the student with consultation and guidance from the instructor, submitted in acceptable form according to directions given by the Earth Sciences and Science Education Department.

GES 695 MASTER'S THESIS

3, 0/0

GES 721 THESIS/PROJECT CONTINUATION

0, 0/0

GES 722 THESIS/PROJECT EXTENDED

0, 0/0

GES 795 RESEARCH THESIS IN GEOSCIENCES

1-3, 0/0

Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School.