

# GEOLGY (GEOLGY)

## Courses

### GEOLGY 100 PRINCIPLES OF GEOLOGY 5 Units

This course provides an introduction to the concepts which describe the origin and evolution of the earth. Special emphasis will be placed on understanding 1) the internal and external earth processes, 2) material composition of the earth, 3) the scientific method as applied to the study of the earth, and 4) the evolution of earth through time.

COREQ: MATH 139 OR MATH 140 OR MATH 141 OR MATH 142 UNREQ: A STUDENT MAY EARN CREDIT FOR ONLY ONE OF GEOLGY 100 OR GEOLGY 101.

### GEOLGY 101 ELEMENTS OF GEOLOGY 4 Units

An introduction to the study of the earth. Emphasis is place on: (1) the materials which make up the earth, (2) the internal and external processes which affect the earth, (3) the length of geologic time, and (4) the methods of science, especially as they apply to the study of the Earth. One field trip is required.

COREQ: MATH 139 OR MATH 140 OR MATH 141 OR MATH 142 UNREQ: A STUDENT MAY EARN CREDIT FOR ONLY ONE OF GEOLGY 100 OR GEOLGY 101.

### GEOLGY 203 VOLCANOES 3 Units

The course examines the processes that lead to different types of volcanic activities, role of volcanism on development of continents, oceans, and atmosphere, and its various impacts on the biosphere on planet earth. Volcanism on other planets and satellites within the solar system will also be explored. Special emphasis will be placed on volcanoes as major economic resources.

### GEOLGY 204 EARTH AND LIFE HISTORY 3 Units

A study of the changes in the Earth's crust and life through geologic time and the methodology used in reconstructing Earth history, including plate tectonics, organic evolution and stratigraphy. A special fee will be assessed to cover transportation costs for those students selecting to participate on an optional field trip.

COREQ: MATH 41 WITH A C OR BETTER OR PLACEMENT INTO MATH 139 OR HIGHER UNREQ: A STUDENT MAY EARN CREDIT FOR ONLY ONE OF GEOLGY 204 OR GEOLGY 214

### GEOLGY 214 EARTH'S ENVIRONMENTAL HISTORY 4 Units

A study of the 4.9 Billion year history of the unique environment that is the Earth's crust and the life that has evolved within it. The course covers the diverse methodologies used in reconstructing Earth history, including plate tectonics, organic evolution and stratigraphy.

PREREQ: MATH 41 WITH A C OR BETTER OR PLACEMENT INTO MATH 139 OR HIGHER UNREQ: A STUDENT MAY EARN CREDIT FOR ONLY ONE OF GEOLGY 214 OR GEOLGY 204.

### GEOLGY 296 SPECIAL STUDIES *Repeatable* 1 Units

Variable topics. Group activity. Not offered regularly in the curriculum but offered on topics selected on the basis of timeliness, need, and interest, and generally in the format of regularly scheduled Catalog offerings.

### GEOLGY 300 PRINCIPLES OF OCEANOGRAPHY 3 Units

A study of the physical, chemical, geological and biological aspects of the major water masses of the world and human dependency on these water masses. One field trip to observe shoreline processes is required.

A special fee will be assessed to students electing to participate in an optional field trip to cover the transportation costs.

COREQ: MATH 139 OR MATH 140 OR MATH 141 OR MATH 142

### GEOLGY 301 ENVIRONMENTAL GEOLOGY 3 Units

A study of geological phenomena such as earthquakes, volcanism, mass movements, river processes, coastal processes etc. and their impacts on society and environment. Special emphasis will be placed on examining remedial measures against geological hazards and how human actions influence natural geological processes. Three lecture hours per week.

### GEOLGY 307 DINOSAURS 3 Units

The course will examine all aspects of Dinosaurs from Earth System Science perspective. Who were the Dinosaurs? When, how and where did they live on earth? What is their relationship to birds? What were the circumstances of their extinction?

COREQ: MATH 139 OR MATH 140 OR MATH 141 OR MATH 142

### GEOLGY 310 ROCKS AND MINERALS 4 Units

This course will study the formation processes of common rocks and minerals, their physical properties and their various uses will be covered in detail. Rock and mineral identification techniques will be especially emphasized during the laboratory sessions. Students will be expected to devote significant amounts of time towards the lab assignments.

PREREQ: GEOLGY 100 OR GEOLGY 101 OR GEOGRPY 210

### GEOLGY 317 PALEONTOLOGY 4 Units

A detailed study of the history of life on Earth. Lectures focus on concepts in paleontology including paleoecology; evolution; paleobiogeography; and use of fossils in the solution of geologic and biologic problems. Characteristics of common fossils will be the focus of the exercises. One field trip is required; up to two optional field trips possible (fee assessed to cover transportation costs of optional trips).

PREREQ: GEOLGY 100 OR GEOLGY 101 OR GEOLGY 204 OR GEOLGY 214 OR GEOGRPY 210 OR BIOLOGY 142 OR CONSENT OF INSTRUCTOR

### GEOLGY 318 GEOLOGIC STRUCTURES AND FIELD METHODS 4 Units

Study of causes behind formation of major structural features of earth plus identification techniques and description of geologic structures in field. Emphasizes (1) Understanding and quantifying geologic deformation, (2) material response to conditions of deformation, (3) identification/description of geologic structures in multiple scales, and (4) geologic field/data analyses techniques such as stereographic projections and preparation and interpretation of geologic maps.

PREREQ: (GEOLGY 100 OR GEOLGY 101 OR GEOGRPY 210) AND (MATH 139 OR HIGHER)

### GEOLGY 319 STRATIGRAPHY AND SEDIMENTATION 3 Units

Classification and description of the various kinds of sediments and sedimentary rock units; with emphasis on carbonates; cyclic sedimentation and sequence stratigraphy. Techniques of correlating sedimentary rocks will be the focus of the exercises. One field trip is required. A special fee will be assessed to cover transportation costs to those students electing to participate on any optional field trips.

PREREQ: GEOLGY 100 OR GEOLGY 101 OR GEOGRPY 210 OR GEOLGY 204 OR CONSENT OF INSTRUCTOR

### GEOLGY 352 GEOHAZARDS 3 Units

The course will focus on the physical processes that create environmental hazards (e.g. earthquakes, volcanoes, severe weather), the primary controls on their frequency and intensity, and how human decision-making can influence the magnitude of impact that they have when they inevitably occur. Comparisons are made between impacts of hazards on developing versus developed countries.

PREREQ: GEOGRPY 210 OR GEOLGY 100 OR GEOLGY 101

### GEOLGY 490 WORKSHOP *Repeatable* 1-3 Units

Variable topics. Group activity oriented presentations emphasizing 'hands on' and participatory instructional techniques. Repeatable.

**GEOLGY 491 TRAVEL STUDY *Repeatable* 1-3 Units**

Variable topics. Faculty-led field courses.

**GEOLGY 492 FIELD STUDIES IN GEOLOGY *Repeatable* 1-3 Units**

Field studies of classic geologic regions. Emphasis will be placed on training in the basic techniques and methods of field studies, recognition and interpretation of geologic structures, and the use of field observations to develop both geologic understanding of the region studied and geologic reasoning ability. Students will be responsible for the cost of the university van rental and other trip expenses. Repeatable 3 times in the major and degree, up to 9 credits total.

COREQ: GEOLGY 100 OR CONSENT OF INSTRUCTOR

**GEOLGY 493 INTERNSHIP IN GEOLOGY *Repeatable* 1-3 Units**

Students will be placed in an outside private or governmental agency where they will utilize geographic techniques in approaching practical problems relevant to the agency's mission. An on-campus seminar with fellow interns and the supervisory instructor is required.

**GEOLGY 494 SEMINAR *Repeatable* 1-3 Units**

An intensive study of one or more philosophical issues that supplement the curriculum. Original research papers may be expected as partial fulfillment of the course requirements.

**GEOLGY 496 SPECIAL STUDIES *Repeatable* 1-3 Units**

Variable topics. Group activity. Not offered regularly in the curriculum but offered on topics selected on the basis of timeliness, need, and interest, and generally in the format of regularly scheduled Catalog offerings.

**GEOLGY 497 EXCHANGE STUDY *Repeatable* 1-12 Units**

Variable Topics

**GEOLGY 498 INDEPENDENT STUDY *Repeatable* 1-3 Units**

Study of a selected topic or topics under the direction of a faculty member. Repeatable.

PREREQ: EIGHT CREDITS IN GEOLOGY OR CONSENT OF INSTRUCTOR AND PROGRAM COORDINATOR

**GEOLGY 498R INDEPENDENT STUDY - UNDERGRADUATE RESEARCH *Repeatable* 1-3 Units**

Study of a selected topic or topics under the direction of a faculty member. Repeatable

**GEOLGY 499 GEOLOGY THESIS *Repeatable* 2-3 Units**

Individual research for major writing a thesis under direct supervision of a member of the faculty. Available only for senior students.

PREREQ: SENIOR STATUS