

## 2007-09 Cal Poly Catalog

### Physics Department

#### GEOL–GEOLOGY

##### **GEOL 102 Introduction to Geology (4) GE B3**

Processes responsible for the Earth's minerals, rocks, and structure surface features. Volcanism; mountain building; plate tectonics; weathering. Erosion and deposition by streams, glaciers, wind and waves. Geological resources, earth hazards, and interaction of man with global processes. 4 lectures.

##### **GEOL 200 Special Problems for Undergraduates (1-2)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisites: Consent of department chair.

##### **GEOL 201 Physical Geology (3)**

Processes responsible for the Earth's rocks, structural surface features, geologic hazards, and natural resources, with emphasis on interactions with human activities. 3 lectures. Prerequisite: MATH 119 or equivalent.

##### **GEOL 203 Fossils and the History of Life (4) GE B5**

Fossil record. Geologic time scale. Evolution and the fossil record. Evolution – creation controversy. Early earth and early life. Features, lifestyles, origins, and histories of major invertebrate, vertebrate, and plant groups. Mass extinctions. 3 lectures, 1 discussion.

##### **GEOL 204 Geologic History of California (3)**

Development of California through geologic time. Where and why the rocks appeared. Movement on faults, and mountain building. Geologic processes at work today and yesterday. Relationship of California geology to the rest of the world. 3 lectures. Recommended prerequisite: GEOL 102 or GEOL 201.

##### **GEOL 205 Earthquakes (4) GE B3**

World-wide seismicity and plate tectonics. Seismic waves and their recording. Earth structure and composition. Intensity, magnitude, and energy. Major California faults and earthquakes. Paleoseismology, fore-casting and prediction. Acceleration, resonance, and effects of ground shaking on structures. Earthquake safety. Tsunamis. 3 lectures, 1 discussion.

##### **GEOL 206 Geologic Excursions (1) (CR/NC)**

Field trips to places of geologic interest. The Schedule of Classes will indicate destinations. Students must provide their own transportation, food, and camping equipment. May be repeated for a maximum of 3 units provided field trips are taken to different locations. Credit/No Credit grading only. 1 laboratory. Recommended prerequisite or concurrent: GEOL 102 or GEOL 201 or GEOL 204.

##### **GEOL 241 Physical Geology Laboratory (1)**

Properties and identification of minerals and rocks. Topographic maps and landform analysis. Geologic maps and interpretation of rock structure. 1 laboratory. Prerequisite or concurrent: GEOL 102 or GEOL 201.

##### **GEOL 305 Fundamentals of Seismology (4) GE B6**

Theory of plate tectonics. Elastic waves in layered media. Principle of the seismometer. Seismic properties, structure and composition throughout the Earth. Intensity, magnitude, and seismic moment and energy calculations. Major California faults and earthquakes. Paleoseismology, forecasting and prediction. Analysis of ground motion. Resonance. Effects of ground shaking on structures and bodies of water. Earthquake safety. 3 lectures, 1 discussion. Prerequisite: PHYS 132.

##### **GEOL 400 Special Problems for Advanced Undergraduates (1-2)**

Individual investigations, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department chair.

##### **GEOL 401 Field-Geology Methods (4) (Also listed as ERSC 401)**

Collecting and interpreting field-geologic data. Description of sedimentary rocks and construction of stratigraphic columns. Mapping geologic structures in the field. Surficial geologic stratigraphy and surficial geologic

mapping. Understanding geologic processes through field study. Communicating results of field study. 1 lecture, 3 activities. Prerequisite: GEOL 102 or GEOL 201, GEOL 241, SS 223, SS 323.

##### **GEOL 402 Geologic Mapping (4) (Also listed as ERSC 402)**

Bedrock geologic mapping on topographic maps and aerial photos. Surficial geologic mapping on topographic maps and aerial photos. Correlating and defining surficial geologic map units on the basis of soil development. Understanding landscape evolution using soil development 4 activities. Prerequisite: ERSC/GEOL 401.

##### **GEOL 415 Structural Geology (4)**

Recognition, interpretation, and depiction of geological structures. Understanding rock deformation through the study of faults and folds. 3 lectures, 1 laboratory. Required weekend field trips. Prerequisite: GEOL 201, GEOL 241, ERSC/SS 223.