

**GEOL 351 Petrology (3).** The classification, description and genesis of igneous, sedimentary, and metamorphic rocks. One or more field trips are required. Prerequisites: GEOL 201/201L. Concurrent enrollment: GEOL 351L. (Alt S)

**GEOL 351L Petrology Laboratory (1).** Identification and description of igneous, sedimentary, and metamorphic rocks in hand specimen and thin section. Three hours laboratory per week. Prerequisites: GEOL 201/201L. Concurrent enrollment: GEOL 351. (Alt S)

**GEOL 403 Petroleum Geology (3).** Theory regarding the origin, migration and accumulation of oil and gas; types of reservoirs; exploration and development of fields. A field trip is required. Prerequisites: GEOL 311/311L, 312/312L. Concurrent enrollment: GEOL 403L. (Alt F)

**GEOL 403L Petroleum Geology Laboratory (1).** Exercises that simulate work done by petroleum geologists. Problems of contouring, log interpretation and correlation, and other analyses of oil fields and well records. Three hours laboratory per week. Concurrent enrollment: GEOL 403. (Alt F)

**GEOL 410 Environmental Geology (3).** The human relationship to the geologic environment: resources, utilization and exploitation; how geologic processes past and present have altered economic and sociological patterns. Prerequisite: consent of instructor.

**GEOL 417 Economic Geology (3).** Occurrence, classification, temporal and spatial distribution and origin of metallic mineral deposits; exploration, development and mining of deposits. One or more field trips are required. Prerequisites: GEOL 351/351L. Concurrent enrollment: GEOL 417L. (Alt S)

**GEOL 417L Economic Geology Laboratory (1).** Study of ore sites and exploration techniques. Three hours laboratory per week. Concurrent enrollment: GEOL 417.

**GEOL 420 Environmental Geochemistry (3).** Review of basic chemical concepts. Geochemistry of natural waters, soil and the atmosphere. Water, soil and air pollution, hazardous waste, and toxicology. Prerequisite: GEOL 113 or GEOL 151. (S)

**GEOL 424 Geology Summer Field Camp (8).** Geological field procedures, techniques, and instrumentation used in field work in the classic geological areas of the southwest—Arizona, New Mexico, Utah and Colorado. Students are required to pay transportation, food, housing and lab fee to cover course expense. Prerequisites: GEOL 151/151L, 152/152L.

**GEOL 439 Teaching in Geology (1).** Methods, resources, safety and lesson plans in teaching geology lecture and laboratory. Prerequisites: GEOL 151/151L, 152/152L; senior standing with major or minor in science; consent of instructor. Open only to students working toward teaching licensure. Concurrent enrollment: CHEM 439 and PHYS 439. (F)

**GEOL/PHYS 450 Principles of Geophysics (3).** The application of basic principles of physics and geology to the study of the earth, with an emphasis on applications to petroleum exploration. Prerequisites: GEOL 311/311L, 312/312L; PHYS 303, 305L. Concurrent enrollment: GEOL 450L.

**GEOL/PHYS 450L Principles of Geophysics Laboratory (1).** Collection and interpretation of gravimetric, seismic and sonic data. Concurrent enrollment: GEOL 450.

**GEOL/CHEM 454 Geochemistry (3).** Application of chemical principles to the study of geologic systems, aqueous geochemistry; crystal chemistry; surface chemistry; thermodynamics; oxidation-reduction; radioactive crystal chemistry; surface chemistry; thermodynamics; oxidation-reduction; radioactive and stable isotopes; kinetics. Prerequisites: CHEM 151/151L, 152/152L; GEOL 301/301L. (Alt S)

**GEOL 465 Senior Research Project (2).** A project for student research; includes original research in geologic mapping (surface or subsurface), or other project deemed fitting; procedures of writing and illustrating the report. Prerequisites: senior standing; at least 24 hours GEOL; consent of instructor.

**GEOL 468 Workshop in Geology (1–3).** As announced. (May be repeated for a maximum of 6 hours.)

**GEOL/BIO/CHEM/PHYS/ANTH 475 Scanning Electron Microscopy (2).** Basic concepts of electron optics, resolution, scanning theory and image formation in the operation of the scanning electron microscope. Laboratory work will include SEM general maintenance, scope alignment, sample preparation and photographic procedures. One hour lecture and three hours laboratory weekly. Lab fee charged to cover laboratory material. Prerequisite: junior standing. (F)

**GEOL 481 Geological Literature and Writing (1).** (May be repeated for a maximum of 3 hours.) Prerequisite: consent of instructor.

**GEOL 482 Geology of New Mexico (2).** The stratigraphic, structural and geomorphic history of New Mexico. May not be taken in lieu of General Education science requirement. Field trip required. Prerequisites: GEOL 113/113L or 151/151L. (Alt S)

**GEOL 484 Geology of Western National Parks (3).** National parks in the American West: Structure, stratigraphy and physiographic evolution. A field trip is required. Prerequisites: GEOL 113/113L or 151/151L. (Alt S)

**GEOL 491 Directed Study (1–3).** Independent study. (May be repeated for a maximum of 4 hours.)

**GEOL 493 Topics in Geology (1–3).** As announced. (May be repeated for credit.)

**GEOL 494 Senior Seminar (1–2).** Selected professional topics. (May be repeated for a maximum of 2 hours.) Prerequisite: senior standing.

## (GR) Greek Courses

**GR 201 Beginning Greek (4).** Fundamentals of the Greek language. (Alt F)

**GR 202 Continuation of Beginning Greek (4).** Continuation of GR 201. Fundamentals of the Greek language together with simple passages from the Greek New Testament. Prerequisite: GR 201. (Alt S)

**GR 268 Workshop in Greek (1–3).** As announced. (May be repeated for a maximum of 6 hours.)

**GR 293 Topics in Greek (1–3).** As announced. (May be repeated for credit.)

**GR 301 Intermediate Greek (3).** The Greek language with reference to John's Gospel and Matthew. Prerequisite: GR 202. (Alt F)

**GR 302 Continuation of Intermediate Greek (3).** Continuation of GR 301. The Greek language with reference to Paul's writings. Prerequisite: GR 301. (Alt S)

**GR/REL 423 Advanced Greek Translation and Exegesis (2).** Selected passages from the New Testament and other Greek writings.

**GR/REL 424 Advanced Greek Translation and Exegesis (2).** As announced. Continuation of GR 423.

**GR 468 Workshop in Greek (1–3).** As announced. (May be repeated for a maximum of 6 hours.)

**GR 491 Directed Study (1–3).** Independent study. (May be repeated for a maximum of 4 hours.)

**GR 493 Topics in Greek (1–3).** As announced. (May be repeated for credit.)