

GEOL 310 Global Tectonics 3.0; 3 cr.

A course on large-scale processes of rock deformation within the Earth, the theory of plate tectonics, and the origins and modes of deformation of major tectonic features. These include ocean ridges and continental rifts, transform and transcurrent faults, subduction zones, and mountain ranges.

Prerequisite: GEOL 213.

GEOL 313 Photogeology 2.2; 3 cr.

A course on the principles of air photo interpretation and remote sensing; the construction of planimetric geological maps, profiles and mosaics from vertical photographs using pocket and mirror stereoscopes; and an introduction to analysis of satellite imagery.

GEOL 317 Micropaleontology 2.2; 3 cr.

An introduction to the study of the main groups of microfossils and their application, with emphasis on the foraminifera, and techniques in their preparation for examination.

GEOL 318 Hydrogeology 3.0; 3 cr.

A course on the fundamentals of hydrogeology; groundwater occurrence, movement, development and management; pumping tests; and groundwater chemistry, quality, and contamination.

GEOL 319 Geostatistics 2.2; 3 cr.

This course deals with the study and application of different statistical techniques of interest to the geological sciences. Topics to be covered include analysis of sequences of data, map analysis, and analysis of multivariate data. *Prerequisite: GEOL 213 or consent of instructor.*

GEOL 320 Graduate Seminar 3.0; 3 cr.

Seminars given by department and graduate students attending the course are designed to cover a particular theme on one of the various aspects of the geology of the Middle East, such as earthquakes, tectonism, and stratigraphy of the region, magmatism in the Nubian shield, etc.

GEOL 321 Diagenesis I: Advanced Petrography of Sedimentary Rocks 3.0; 3 cr.

A course that covers some advanced petrographic techniques used in the study of sedimentary rocks (e.g., conventional and cathodoluminescence microscopy, scanning electron microscopy), major diagenetic processes, and the resultant products in sedimentary environments. *Prerequisites: GEOL 212, GEOL 214, and GEOL 222, or consent of instructor. Bi-annually.*

GEOL 322 Diagenesis II: Advanced Techniques in Geochemistry of Sedimentary Rocks 3.0; 3 cr.

A course on the various geochemical methods (e.g., trace elements, stable isotopes, radiogenic isotopes, fluid inclusions, and microthermometry) commonly used in the study of diagenesis of both carbonate and clastic reservoirs. *Prerequisites: GEOL 212 and GEOL 222; corequisites: GEOL 214 and GEOL 221; or consent of instructor. Bi-annually.*

GEOL 323 Geological Oceanography 3.0; 3 cr.

A general introduction to climatic and oceanographic interactions, characteristics of oceans, and a detailed analysis of near shore and coastal environments.

GEOL 324 Engineering Geology I 2.2; 3 cr.

A course on engineering geology and earth materials that focuses on the interaction between engineering and geology in relation to the geotechnical properties of soil and rock mechanics and site investigations.

GEOL 325 Engineering Geology II 3.0; 3 cr.

A course on environmental and applied engineering geology that deals with environmental planning, natural disasters, and terrain evaluation, with special applications to mass movements, geology of man-made structures, and the urban environment.

GEOL 329/330 Selected Topics in Advanced Geology 3 cr.

May be repeated for credit.

GEOL 399 MS Thesis 9 cr.