Geoscience (GEO)

Courses

GEO 210 Introduction to Geographic Information Systems 3 Credits (2,1)
Geographic Information Systems (GIS) encompass all aspects of spatial data analysis from data acquisition and manipulation through problem solving to the graphic presentation of results. This course surveys GIS theory and applications as students learn to store, retrieve, manipulate, analyze, and display spatial data according to a variety of user-defined specifications. Lectures will emphasize fundamental principles of GIS while computer-based exercises will emphasize training.

GEO 215 Introduction to Geoscience 3 Credits (3,0)
Geologic time scales; plate tectonics; seismicity, waves; volcanism, magma chemistry; karst terrain, aquifers, sinkhole collapse, phreatic and vadose zones, water table withdrawal, drought; Earth's core, mantel, and crust; elements, molecules, minerals, rocks; oceanic and continental crust; chemical and physical weathering; mass wasting; fluvial processes and patterns, watersheds, floodplains, precipitation, evapotranspiration; hydrologic cycle, surface water, groundwater recharge, effects of precipitation; climate classification; aeolian processes and features, aridity, desertification; glaciology, snowfall; ice accumulation/ablation; oceanography; soils; topographic quadrangles, computer mapping, orogenesis.

GEO 310 Advanced Geographic Information Systems 3 Credits (1,2)
Advanced GIS is designed to further develop the concepts and principles learned in GEO 210, Introduction to GIS. Lectures will focus on current theories and technology trends in geographic information sciences integrating theoretical knowledge with hands-on technical training in the computer classroom. Weekly discussion of the latest developments in GIS will reinforce these experiences while fostering an appreciation of GIS as an effective analytical tool for understanding complex processes. The course culminates in a class project involving scholarly research by teams of students based on GIS applications.
Prerequisites: GEO 210

GEO 402 Geographic Information System Applications 3 Credits (3,0)
Application of GIS concepts for project management and problem solving. Geospatial data acquisition, management, and visualization in 2-D and 3-D; location analysis; change over time; value comparisons; geographic distribution; pattern analysis and/or cluster identification; current developments in GIS.
Prerequisites: GEO 310