

GENERAL SCIENCE (SCI)

SCI 201 PHYSICAL SCIENCE (3 Hours)

A study of the universe and natural events in the environment.

SCI 204 GENERAL SCIENCE FOR TEACHERS (3 Hours)

Topics in astronomy, biology, chemistry, geology and physics are studied. Laboratory work provides for experiments and projects.

SCI 205 EARTH & SPACE SCIENCE (3 Hours)

A geophysical study of the earth with emphasis on the major scientific discoveries about the earth and its relation to the universe.

SCI 215 GLOBAL CHANGE (3 Hours)

SCI 228 SCIENCE SOCIETY & TECHNOLOGY (3 Hours)

An overview of contemporary topics in science technology and environment.

SCI 310 EARTH HISTORY (3 Hours)

SCI 320 SEDIMENTARY ENVIRONMENTS (3 Hours)

SCI 325 MINERALOGY PETROLOGY (3 Hours)

SCI 331 INTRO TO GIS & REMOTE SENSING (3 Hours)

This course is open to any undergraduate student who have an interest in learning the basic theory of Geographic Information System (GIS) and Remote Sensing (RS). The course also demonstrate the application of RS and how to use GIS as an analytic tool. We will also discuss theoretical and methodological issues associated with the integration of remote sensing and geographic information systems. GIS is a specialized computer database program designed for the collection, storage, and manipulation, retrieval, and analysis of spatial data. It is a hands-on course in which students are given beginning-level opportunities to process, analyze, and visualize spatial data and information using commercially-available GIS software. In the process, they are introduced to the principles of GIS and its usefulness as an analytical tool and as an effective communication technique in addressing global, environmental, and social science questions. GIS analysis is used in public and private sectors in areas as wide-ranging as policy making, public health, community/regional/state planning, environmental science, sociology, crime analysis, terrorism, agriculture, engineering, business, and marketing. GIS is an analytic tool that many of our majors should learn how to use. One of the primary purposes of the course is to generate enthusiasm and interest in using GIS to make environmental assessments and to analyze social, political, geographic, and economic issues. In addition, in this course, we will also focus on the basic concepts of remote sensing, airborne and space borne sensors, digital image processing, and the principles and practices of remote sensing. We will survey the basic atmospheric radiation and understand imagery interpretation. The course will cover electronic-magnetic frequencies from visible to microwave, descriptions of important satellite orbits and sensors the retrieval of atmosphere variables from active and passive systems, and basic principles of interpretation.

SCI 401 SCIENCE FOR CHILDREN (3 Hours)

Prerequisite: Junior standing.

Designed to familiarize students with materials, techniques and unifying principles of science with laboratory exercises emphasized.

SCI 403 SEMINAR IN SCIENCE (3 Hours)

Prerequisite: Senior standing.

Provides an opportunity for the student to discuss the most pertinent trends in the fields of science.

SCI 410 MET&CUR MAT FOR SCIENCE CR (3 Hours)

Curriculum materials designed to train the students in the selection, preparation and use of curriculum materials in the teaching of science at the secondary level.

SCI 415 GEOCHEMISTRY (2 Hours)

SCI 420 STRUCTURAL GEOLOGY (3 Hours)

SCI 425 ENVIRONMENTAL GEOLOGY (2 Hours)

SCI 431 APPLIED GIS AND SPATIAL ANALYS (3 Hours)

This course emphasizes geographic information systems (GIS) applications and spatial data analysis in atmosphere-related sciences. Students learn through hands-on case studies, and in-class thinking exercises. GIS is the computerized system designed for the storage, retrieval, and analysis of geographically referenced data. GIS uses advanced analytical tools to explore spatial relationships, patterns, and processes of cultural, biological demographic, economic, geographic, and physical phenomena. This course covers underlying geographic concepts (world coordinate system and projections, vector map topology, tiled and layered maps, etc.), map design and outputs, geodatabases, attribute data, digitizing, geocoding, spatial data processing, and advanced spatial analysis in atmosphere-related sciences. This course will teach students the core functionality of ArcGIS Desktop software: how to make maps, carry out spatial analysis, and build and edit spatial databases in the context of realistic projects. The technical focus of the course includes computer lab exercises and case studies using the Desktop GIS software, ArcGIS from ESRI. The applications covered in this course include tornado density mapping, tornado siren analysis, hurricane track visualization, social vulnerability mapping for atmospheric disasters, gridded surface temperature (Net CDF) visualization, housing assessment, landuse changing, census population and demographic studies, and business applications.

SCI 432 HYDROLOGY (3 Hours)

SCI 480 EARTH SCIENCE SEMINAR (1 Hour)