Geographic Information Systems (GIS)

GIS 1600. Principles of Geographical Information Science. (3 Credits)
Introduces strategies for integrating GIS to support instruction and learning on any topic of spatial data. Discusses concepts of basic GIS activities that enhance student learning and critical thinking. Teaches skills to visualize global, regional and local data and establish connections to those disciplines. Explains design standards and processes for investigating a problem and preparing a GIS map. Introduces ArcGIS Online to increase GIS applicability to the workplace.

GIS 2640. Fundamentals of Geographic Information Systems. (3 Credits)
Introduces the concepts and components of a Geographic Information System (GIS). Includes the essential skills of operating a functional GIS through the use of ArcGIS 10.x software. Explains the operational processes of spatial data acquisition, editing, file geodatabase design, spatial query and display, spatial analysis, map layouts and various visualizations, preliminary application development, and project applications. Describes various GIS data sources.
Lab access fee of $45 for computers applies.

GIS 2800. Geographic Information Systems. (3 Credits)
Explains the history, theory, and operation of Geographic Information Systems (GIS) in many disciplines. Teaches geospatial data sources, database design, data input, and geospatial data analysis. Prepare typical maps using cartographic production principles and practices. Includes valuable preparation for careers in the geospatial sciences. Uses ArcGIS Pro.

GIS 3620. Advanced Geographic Information Systems. (3 Credits)
Prerequisite(s): GIS 2800 and University Advanced Standing
Presents Geospatial data and modeling principles and techniques using raster and vector geoprocessing. Teaches Geovisualization and Geospatial information sources, digital terrain modeling, spatial data analysis, and mapping project implementation. Describes concepts of real property related to land registration and information systems and the value of maps for governance, commerce, and research of social and environmental systems regionally, nationally, and globally.
Lab access fee of $45 for computers applies.

GIS 3630. Geographic Information Systems Application Development. (3 Credits)
Prerequisite(s): GIS 2800 or GEOG 3600 and University Advanced Standing
Develops customization skills for geospatial data, modeling, and automation. Introduces and defines basic Python concepts and scripting environments for the most common GIS software. Delineates common scripting errors and applies Python syntax rules when writing scripts.
Lab access fee of $45 applies.