Geography 3812: Introduction to Geographic Information Systems

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Syllabus

Course Description:

This course aims to provide students with an understanding of the foundational concepts of *Geographic Information Science* (*GIScience*) and practical training in the use of desktop GIS software. GIS is a combination of software and hardware with capabilities for manipulating, analyzing, and displaying **spatially-referenced** information – that is, information which is referenced by its location on the surface of the Earth (for example, with latitude and longitude coordinates). As various industries such as Public Health, Planning, Government, Private Industry, etc., involve the study of location and spatial relationships, today's employers increasingly expect graduates of related degree programs, new applicants, and current staff to possess a working knowledge of GIS and GIScience.

By linking data to maps, a GIS analysis can reveal relationships not apparent with tradition, item-referenced information systems and database management products; additionally, by displaying information in a visual, graphic form (i.e., a "map"), GIS can communicate complex spatial patterns with ease. This course emphasizes the concepts needed to use GIS correctly and effectively for manipulating, querying, analyzing, and visualizing spatial-based data. Students will also develop basic proficiency in industry-standard GIS software used for analyzing spatial patterns in social, economic, environmental, and geologic data, and for generating cartographic output from the analysis.