Welcome to the Geography and Geology Department at Western Kentucky University

Geographic Information Systems (GIS) -- Dynamic Spatial Analysis

Geography is an exciting field and one that offers tremendous opportunities in a variety of areas. Many practicing geographers follow their dreams by perusing maps and envisioning grand excursions to distant lands. Others seek to make their mark by exploring the complex workings of their immediate surroundings using such analytical tools as GIS. Whichever the case, geographers help identify and solve human-environment problems, and GIS is a powerful tool for helping in this process. For those who share similar dreams, there is ample opportunity in the early twenty-first century in the field of geography, and especially in GIS.

A Geographic Information System, or simply GIS, combines very sophisticated computer technology and trained people to develop digital models of the world around us. These models can help us to understand and plan for the future of communities and regions more effectively. A GIS includes capabilities for digital data creation, the storage and retrieval of digital data, the manipulation and analysis of those data, and the presentation of data using maps, graphs, tables, and other displays.

Digital data creation involves ways of taking the world that we see around us and representing it in machine-readable form. Global positioning systems (GPS) technology provides a high-tech way of collecting geographic data. A hand-held GPS unit in the field receives signals from satellites to determine the latitude, longitude, and elevation to within less than one meter of a person's location on the surface of the Earth. This technology can be used to build GIS databases for mapping features such as roads, property lines, buildings, wetlands, trees, manhole covers, and a variety of other features.

Once data are collected they can be stored in a computer database. Users can then retrieve information from the database by making queries. A water department, for example, interested in preventative maintenance might ask the GIS to identify locations of PVC water pipes that are six inches in diameter and were last maintained prior to 1995. The capability to query the GIS database and display the results on a map is a rather simple, yet very powerful, tool.

Western Kentucky University's GIS facility provides students with the training to become productive users of GIS technology and it positions Western to play a constructive role in helping local and regional organizations and businesses to plan for a positive future. We hope you too will fulfill your dreams and discover the rewards of geography and GIS.

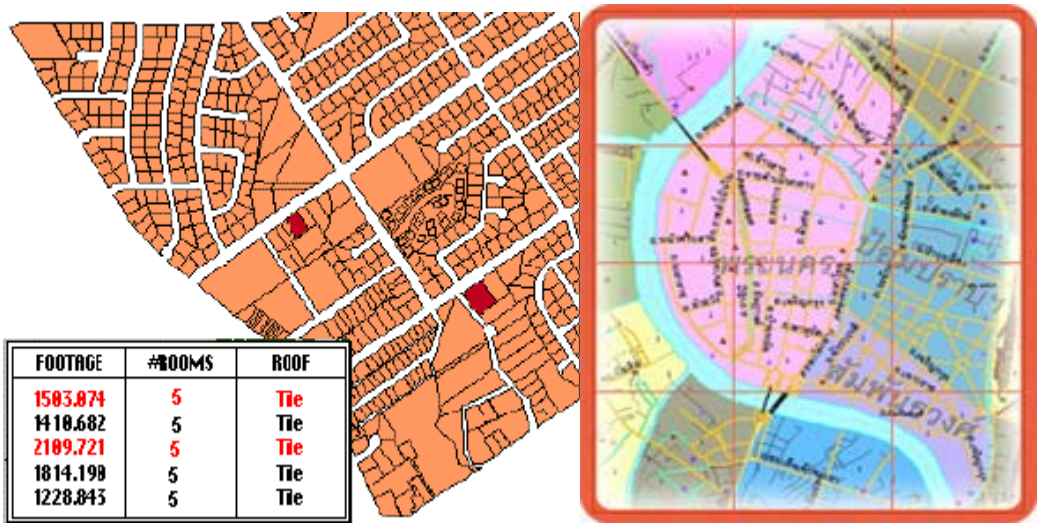
Professional Extended Major in Geographic Information Science (#576):

Core Requirements ……	28 hours
GEOG 100 or GEOL 102, GEOG 101 or 110, 300, 316, 317, 391, and CS 145, CS 230, AMS 163,	
Professional GIS Courses……..	19 hours
GEOG 414, 417, 418, 419, 443, 477	
Other Required Courses ……	10 hours
GEOG 475 or 495 (6 hours), 492, 499,	
Program Total	57 hours
Additional Program Requirements ……..	19.5 hours
CE 160/161, CS 240, ENG 307, MATH 118 (or 116 + 117), and MATH 126	(or 20.5 hours)

Successful completion of this program will allow students to meet qualification standards for the education section (one of three sections) in becoming a certified GIS professional (GISP). "A GISP is a certified geographic information systems professional who has met the minimum standards for ethical conduct and professional practice as established by the GIS Certification Institute" (http://www.gisci.org).

*Welcome to the **Geography** Program at Western Kentucky University*

The Geographic Information Systems (GIS) Program



The 13-Hour GIS Certificate Program

Geography 316	GIS Fundamentals	4 hours	Fall/Spring
Geography 317	Geographic Information Systems	3 hours	Fall/Spring
Geography 417 (G)	GIS Analysis & Modeling	3 hours	Fall/Spring
Geography 419 (G)	GIS Application Development	3 hours	Fall/Spring

A "C" or better is required for all courses in the GIS Certificate.
Workshop courses in GIS also are offered during the Summer period.
*Students completing the 13-hour Program receive a GIS Certificate.
** Students completing the 13-hour GIS Certificate Program are strongly encouraged to take: Math 118 (or Math 116 and 117), CS 226 or 230, and AMS 202 as supporting courses for GIS.

For Students completing a BS Degree in Geography (#674):

The Planning and GIS Concentration

Concentration Requirements: 100 or GEOL 102, 101 or 110, 240, 300, 316, 317, 391, 474, 475 or 495, 484, 499 = 32 hours
Electives: 350, 360, 414, 416, 417, 419, 423, 451, 477, 480, 487, 488, 497 = 4 hours
NOTE: A "C" or better must be earned in GEOG 316 and 317 to enroll in GEOG 417.

Additional Requirements:
Math 118 (or Math 116 and 117), CS 226 or 230, and AMS 163

For the GIS Minor:

- ***GIS* – GEOG 100 or GEOL 111, GEOG 101 or 110, GEOG 316, 317, 417, and 419; and either GEOG 414 or 477**.