Applications in Geographic Information Systems. Data collection, incorporation of local and global data, and analysis of spatial information that can be used to investigate major application areas, and national GIS policy.

PREREQUISITES

GEOG 120 and GEOG 220

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)

Upon completion of this course, the student will be able to:

1. Locate and obtain data for use in a GIS.
2. Organize spatial information.
3. Collect data using proper field techniques.
4. Use maps for location, data gathering, and the study of spatial relationships.
5. Analyze and apply the information learned in the course to real world scenarios.
6. Identify and evaluate local and global data for GIS.
7. Describe the national GIS policy.
GENERAL EDUCATION OUTCOMES (ESO)

Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.
PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

1. Demonstrate the ability to learn and apply required GIS software to solve problems or analyze geospatial data.
2. Demonstrate critical thinking skills and recognize issues related to GIS applications.
3. Acquire, modify, organize, and apply geospatial data sets.

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes will be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Tests (1, 2, 4-7)
2. Quizzes (1, 2, 4-7)
3. Projects (1 - 6)
COURSE OUTLINE FORM

DISCIPLINE: Geography

COURSE TITLE: Applications in Geographic Information Systems

Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Basics of cartography
   A. Thematic maps
   B. Multiple themes

II. Incorporation of data into a GIS
   A. Data collection
      1. Global Positioning System
      2. Remote sensing
      3. Landsat/Satellite Imaging
      4. Internet
   B. Incorporation of data
      1. Global sources for data
      2. Data Integration problems
      3. Examples of global data use

III. Analysis
   A. Types of analyses
   B. Data source
   C. Data types
   D. Appropriate methods

IV. Major areas of GIS applications
   A. Facilities management
   B. Environment and natural resource management
   C. Business marketing
   D. Street network
   E. Planning and engineering
   F. Land information system

V. GIS standards
   A. Operating system
   B. Networking
   C. Database use
   D. Security

I. 4/22/09
E. Performance tradeoffs
VI. National GIS policy
VII. Internet project
   A. Data mining
   B. Meta data

II. VII. Student project