DATE SUBMITTED

DATE DICC APPROVED 12/15/09

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CATALOG NO. GEOG 120

COURSE INFORMATION FORM

DISCIPLINE Geography

COURSE TITLE Introduction to Geographic Information Systems (GIS)

CR.HR 3 LECT HR. 3 LAB HR. CLIN/INTERN HR. CLOCK HR. 

CATALOG DESCRIPTION

Fundamental concepts of Geographic Information Systems (GIS), elements of GIS, analysis of spatial information, real-world applications, map creation, and analysis. Primary objective is to investigate interactive GIS application rather than develop expert users.

PREREQUISITES

None

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)

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

1. Explain the diversity of this course.
2. Demonstrate knowledge of history and information resources.
3. Describe elements of mapping for specific GIS application.
4. Differentiate types of data and metadata.
5. Produce simple maps.
7. Demonstrate querying techniques, searches, and spatial analysis.
8. Evaluate GIS software for practical usage
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. Exhibit professional ethics, knowledge of industry practices, and employability issues.
4. 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. Written tests and/or quizzes (1, 3, 4, 6)
2. Class activities (2, 5, 7, 8)
3. Projects (2, 5, 7, 8)
COURSE OUTLINE FORM

DISCIPLINE

Geography

COURSE TITLE: Introduction to Geographic Information Systems (GIS)

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. Elements of GIS
   A. Applications of GIS
   B. History of GIS
   C. Sources of information on GIS
   D. Features
      1. Points
      2. Lines
      3. Areas

II. Elements of mapping
   A. Map and attribute information
   B. Map scale and map projections
   C. Coordinate systems
   D. Maps as numbers

III. Data information
   A. Metadata
   B. Raster vs. vector data
   C. Vector data formats
   D. Raster data formats
   E. Topology

IV. Making maps with GIS
   A. Design
   B. Getting the map into the computer
   C. Analog to digital maps
   D. Finding existing map data
   E. Digitizing and scanning
   F. Field and image data
      1. Geographic Positioning Systems
2. Image and Remote Sensing

V. Applications of GIS
   A. Querying techniques
   B. Searches by attribute
   C. Searches by geography
D. Spatial analysis

1. E. Choosing the appropriate GIS software