

M: Course Objectives / Learning Outcomes

At the conclusion of the course, the student will be able to:

1. Explain the appropriate uses of different map projections.
2. List and describe the components and functions of a GIS.
3. Create data files, add attribute values and manage data files.
4. Digitize spatial data, correct errors and display maps.
5. Query the database and display results as tables, charts and figures, or combinations of all three.
6. Communicate results orally and/or graphically in a professional manner.

N: Course Content:**1. Introduction to Geographic Information Systems**

- 1.1. What is a GIS?
- 1.2. Advantages of a GIS over traditional modes of spatial analysis
- 1.3. Questions a GIS can answer

2. Components and Functions of a GIS

- 2.1. Geographic features and data
- 2.2. GIS functions: data entry, display, manipulation and analysis
- 2.3. Characteristics and comparisons of the available software

3. Data Entry and Storage

- 3.1. Spatial data and topology
- 3.2. Digitizing and correcting errors
- 3.3. Attribute data tables

4. Displaying Data

- 4.1. Coordinate systems
- 4.2. Map projections
- 4.3. Converting data acquired from other sources

5. Data Management and Manipulation

- 5.1. Raster and vector data
- 5.2. Relating and joining tables
- 5.3. Organizing data for analysis

6. Database Query and Analysis

- 6.1. Querying the database
- 6.2. Spatial analysis of the database
- 6.3. Calculating statistics

7. Output of Results

- 7.1. Cartographic elements
- 7.2. Cartographic design
- 7.3. Drawing and modifying a map
- 7.4. Adding tables and charts
- 7.5. Oral and graphic presentation skills

O: Methods of Instruction

This course will employ a number of instructional methods to accomplish its objectives, including some of the following:

1. Lectures
2. Labs
3. Seminar Presentations
4. Slides, Films
5. Small group discussions
6. Group projects

P: Textbooks and Materials to be Purchased by Students

Environmental Systems Research Institute, Inc. (1993). Understanding GIS: The PC ARC/INFO Method.
Longman Scientific & Technical, Harlow, Essex, England.

or an equivalent textbook

Text will be updated periodically.

Q: Means of Assessment

The instructor will present a written course outline with specific evaluation criteria at the beginning of the semester. Evaluation will be carried out in accordance with Douglas College policy and will be based on some of the following:

1. Laboratory assignments with a combined value of up to 50%
2. Multiple choice and/or short answer tests with a combined value of up to 50%
3. A term project or paper with a value of up to 25%
4. An individual or group presentation on an assigned topic with a value of up to 15%

An example of one possible evaluation scheme would be:

| | |
|-------------------------|------------|
| Laboratory Assignments | 35% |
| Mid-term Examination | 20% |
| Term Project | 15% |
| Individual Presentation | 10% |
| Final Examination | <u>20%</u> |
| | 100% |

R: Prior Learning Assessment and Recognition: specify whether course is open for PLAR

Course Designer(s)

Education Council / Curriculum Committee Representative

Dean / Director

Registrar