Douglas College

A:	Division:	**INSTRUCTIONAL**	Effective Date:	**JANUARY 2005**

B:	Department / Program Area:	**GEOGRAPHY** **FACULTY OF HUMANITIES & SOCIAL SCIENCES**

Revision	**X**	New Course	

If Revision, Section(s) Revised: **H**

Date of Previous Revision: **APRIL 2004**

Date of Current Revision: **OCTOBER 2004**

C:	**GEOG 2270**	**D**:	**GEOGRAPHIC INFORMATION SYSTEMS (GIS)**	**E:**	**3**
	Subject & Course No.		Descriptive Title		Semester Credits

F: Calendar Description: Geographic Information Systems (GIS) are a set of powerful computerized tools designed to work with digital data referenced by geographic coordinates to store, retrieve, analyze and display geographically referenced information. With a GIS an analyst can explore complex geographic relationships and discover patterns that were previously undetectable through conventional methods. GIS analysis has become important in many industries and provides students with employable skills in several fields of study. This hands-on course examines the components and functions of GIS, the characteristics of spatial data, and spatial analysis and display. Students will be introduced to GIS theory, which will be reinforced with hands-on lab exercises.

G: Allocation of Contact Hours to Type of Instruction / Learning Settings

Primary Methods of Instructional Delivery and/or Learning Settings:

Lecture and Lab

Number of Contact Hours: (per week /semester for each descriptor)

Lecture:	**2 hrs. per week / semester**
Lab:	**2 hrs. per week / semester**

Number of Weeks per Semester: **15**

H: Course Prerequisites:

One 1100-Level Geography Course (GEOG 1170 is recommended)

I: Course Corequisites:

NONE

J: Course for which this Course is a Prerequisite

NONE

K: Maximum Class Size:

25

L: PLEASE INDICATE**:**

	Non-Credit
	College Credit Non-Transfer
X	College Credit Transfer

SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS (www.bccat.bc.ca)

M: **Course Objectives / Learning Outcomes**

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

1. Describe the components and uses of an effective GIS.

2. Describe the characteristics of spatial data and explain how projection, coordinate and datum systems impact GIS precision and accuracy.

3. Use the components of a GIS to input data, create topology, analyse data and produce maps to communicate the results of the analyses.

4. Employ critical thinking skills to evaluate data, analytical methods and results.

N: **Course Content**

1. Introduction to Geographic Information Systems
   a. How GIS is Affecting Our Lives
   b. What is a GIS?
   c. Introduction to Arcview GIS

2. GIS's Roots In Cartography
   a. Map and Attribute Information
   b. Map Scale and Projections
   c. Coordinate Systems
   d. Geographic Information

3. Characteristics Of Spatial Data
   a. Vector Data and Raster Data
   b. Remotely Sensed Imagery
   c. Geodata Accuracy and Precision
   d. Error and Uncertainty in GIS

4. Getting the Map into the Computer
   a. Analog-to-Digital Maps
   b. Finding Existing Map Data
   c. Digitizing and Scanning
   d. Data Conversion

5. Database Management
   a. Searching by Attribute
   b. Searching by Geography
   c. Basic Queries

6. Spatial Analysis
   a. Describing Attributes
   b. Statistical Analysis
   c. Spatial Description
   d. Spatial Analysis

7. Making Maps with GIS
   a. The Parts of a Map
   b. Choosing a Map Type
   c. Designing the Map

N.	**Course Content Cont'd.**

8. Introduction to Remote Sensing
   a. Data Acquisition
   b. Satellite Characteristics
   c. Electromagnetic Radiation
   d. Active vs. Passive Sensors
   e. Spatial Resolution

O: **Methods of Instruction**

The course will employ a variety of instructional methods to accomplish its objectives, including some of the following:
- Lecture
- Labs
- Multimedia
- Individual and/or Team Projects
- Small Group Discussions

P: **Textbooks and Materials to be Purchased by Students**

Texts will be updated periodically.   Typical examples are:

Clarke, Keith C. (2003). *Getting Started with Geographic Information Systems.* Upper Saddle River, NJ: Prentice-Hall.

Series in Geographic Information Science (Complete with CD-Rom).

Q: **Means of Assessment**

Evaluation will be based on course objectives and will be carried out in accordance with Douglas College policy. The instructor will provide a written course outline with specific criteria during the first week of classes.

An example of a possible evaluation scheme would be:

Labs	25%
Quizzes	20%
Midterm Exam	25%
Final Exam	30%
	100%

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

Students may take a challenge exam to apply for recognition of prior learning.

Course Designer(s):   Peter Eredics

Education Council / Curriculum Committee Representative

Dean / Director

Registrar