

I. COURSE DESCRIPTION:

GIS software and applications develop rapidly. The most recent software (ArcGIS 9.2) will be reviewed with attention given to the changed GIS environment. Specifically, the following topics will be covered: the ArcGIS environment, Geodatabases, presenting data, manipulating data, editing and creating data, querying data and geocoding.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Use ArcMap, ArcCatalog and ArcToolbox (ArcGIS)

Potential Elements of the Performance:

- Create map layouts using ArcMap
- Edit and input data using ArcMap
- Perform data conversion, projection and analysis operations using ArcToolbox
- Perform GIS file management using ArcCatalog
- Work with Coordinate Systems

2. Develop GIS applications using a Geodatabase

Potential Elements of the Performance:

- Describe and design a Geodatabase
- Construct and edit a Geodatabase using ArcCatalog
- Explore the relational database behind a Geodatabase
- Understand the geometry inherent in a Geodatabase
- Import and export other GIS formats to a Geodatabase

3. Create and Edit Spatial Data

Potential Elements of the Performance:

- Import and digitize data using on-screen digitizing
- Learn fundamental aspects of manipulating and creating geographic data
- Perform advanced editing of spatial data

4. Work with Tabular Data

Potential Elements of the Performance:

- Perform queries using attribute data
- Learn SQL query methods on attribute data

- Perform table joins and relates in ArcMap

5. Geocoding / Address Matching

Potential Elements of the Performance:

- Describe and perform Geocoding and Address Matching analyses
- Perform database editing to prepare data for geocoding

III. TOPICS:

1. ArcGIS – ArcMap, ArcCatalog and Toolbox

- ArcCatalog - creating a Geodatabase, GIS file management
- ArcMap – data editing, digitizing, topology and map production
- ArcToolbox – data conversion, projections and spatial analysis
- Coordinate systems and projections

2. Geodatabases

- Geodatabase theory
- Designing a Geodatabase
- Geodatabase geometry and topology
- Relational databases and geodatabases
- Coverage, shapefile and projection import and export

3. Spatial Data Editing

- Basic editing process
- Use of snapping in the editing process
- Adding features to map layers
- Using sketching tools and context menus to precisely position features

4. Tabular Data

- Know types and structures of tables in ArcGIS
- Creation and modification of tables
- Editing fields and calculating new values in tables
- Querying, calculating statistics, creating summaries
- Creating joins and relationships between tables

5. Geocoding / Address Matching

- Geocoding locations based on addresses and reference files

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Price, M. 2008. Mastering ARCGIS, Third Edition. McGraw-Hill.

V. EVALUATION PROCESS/GRADING SYSTEM:

Exercises	65%
Midterm Test	15%
Final Test	<u>20%</u>
Total	100%

Note: Students must achieve a mark of at least 50% on the Test components to pass the course.

The following semester grades will be assigned to students in post-secondary courses:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.