MORAVIAN COLLEGE
PHYSICS & EARTH SCIENCE DEPARTMENT
COURSE SYLLABUS

Instructor: Thomas K. Edinger
Office Location: HSBC 213, or as designated
Office Hours: Monday 5:30pm to 6:30pm
Office Phone: 610-504-5147
Email Address: tek@moravian.edu

Course Title: Introduction to GIS
Course Number: EASC 210 PM
Term & Year: Spring 2009
Credit Hours: 1 course unit
Class/Lab Room: HSBC 213
Class Time: Mon. 7:00pm-10:00pm

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Catalog Description:

Geographic Information Systems are a primary tool for analysis of spatial data. ArGIS desktop software is used to edit query, and analyze spatial databases and display the results of analysis. Both vector and raster data are considered. Emphasis on applications of GIS to the lecture/laboratory sessions.

Prerequisite Course(s):

None

Text(s), required:

Getting to Know ArcGIS Desktop, Second Edition, Updated for ArcGIS 9.3, ESRI Press, ISBN: 9781589482104, 2008, 600 pp.

Recommended text and material:

Some additional materials (readings) will be provided in a folder in the library. Other materials are found in ArcGIS Desktop online documentation. Optional book ordering information will be provided in class.

Suggested Materials:

Flash Drive

Course Goals/Objectives:

An intermediate working knowledge of computers and the Windows environment will help. The course is designed so that students without GIS background can succeed, but previous experience will be helpful. Lab and lectures are intimately linked and "live" software demonstrations are included in the lecture. The first weeks of the course will provide a broad view of how you can display and query spatial data and produce map

products. The remainder of the course will focus on applying spatial analytical tools to address questions to solve problems. As the semester develops, more tools till be added to your GIS toolbox so that you can complete a final independent project that integrates material learned during the course. Students will be encouraged to design individualized final projects using your own or other available data.

Upon successful completion of this course students will be able to do the following:

- Describe the various concepts, terminology and technology used in GIS.
- Demonstrate the ability to successfully use ESRI's ArcGIS 9.3 GIS software.
- Understand and utilize the physical geography principles used in GIS such as datum, projections and coordinate systems.
- Demonstrate an understanding of the database administration principles used in GIS, such as data models, tables and relationships.
- Demonstrate and understanding of map accuracy issues.
- Utilize multiple GIS data sources, including CAD, dBASE, EXCEL.
- Demonstrate a functional knowledge of theme display, control and editing.
- Demonstrate a functional knowledge of project creation, editing and output.
- Demonstrate a functional knowledge of cartographic layout creation.
- Demonstrate a functional knowledge of standard GIS analysis tools.
- Demonstrate a functional knowledge of common GIS applications and uses, including environmental studies and civil technologies.
- Demonstrate a conceptual and working knowledge of ArcGIS extensions and customization options, including 3D Analyst, Spatial Analyst and Network Analyst.
- Demonstrate first-hand experience with GIS analysis from start to finish through individual projects.

Grading System & Course Requirements:

Assignment & Quizzes	35%
Exams (2)	40%
Final Project	25%

An average of 90% or higher will earn a grade of "A"
An average of 80% or higher will earn a grade of "B"
An average of 70% or higher will earn a grade of "C"
An average of 60% or higher will earn a grade of "D"
An average below 60% will earn a grade of "F"

Attendance Policy:

Attendance is required at class and laboratory time.

Assignment & Course Calendar (tentative)

Week 1 (1/19) Introduction & Overview of Geographic Information System
        Lab Activity - Chapters 1,2 & 3

Assignment: Getting started with displaying map data

Week 2 (1/26) GIS Basics: Importing Spatial and attribute data; datums & projections; setting up work project areas
Lab Activity – Chapters 4 & 13
Assignment: The Basics, Data Management in GIS copying/moving/renaming/placing files

Week 3 (2/2) Data Representation
Lab Activity – Chapters 5,6 & 7
Assignment: Symbolizing and classifying data

Week 4 (2/9) Querying Data and Building Relationships between tables
Lab Activity – Chapters 8& 9
Assignment: Relate Census data with tracts/counties

Week 5 (2/16) Creating and Editing Data
Lab Activity – Chapters 14,15 & 16
Assignment: Build campus

Week 6 (2/23) Exam 1 & Spatial Analysis
Lab Activity – Chapters 10,11 & 12
Assignment: Demographic decisions

Week 7 (3/2) Spring Break

Week 8 (3/9) Presenting Data/Map Production
Lab Activity – Chapters 18& 19
Assignment: Maps

Week 9 (3/16) Geocoding & Model Builder
Lab Activity – Chapters 17& 20
Assignment: Location Analysis

Week 10 (3/23) Working with 3D Analyst (surfaces/terrain analysis)
Lab Activity – Assigned readings
Assignment: DEM Analysis

Week 11 (3/30) Working with Spatial Analyst
Lab Activity – Assigned readings
Assignment: GRID Analysis

Week 12 (4/6) Begin Research Project
Week 13 (4/13) Continue Research Project
Week 14 (4/20) Project Presentations
Week 15 (4/27) Project Presentations
Week 16 (5/4) Final Exam