MORAVIAN COLLEGE
PHYSICS & EARTH SCIENCE DEPARTMENT
COURSE SYLLABUS

Instructor: Thomas K. Edinger
Office Location: HOSCI 210A, or as designated
Office Hours: Monday 5:30pm to 6:30pm
Office Phone: 610-504-5147
Email Address: metke01@moravian.edu

Course Title: Introduction to GIS
Course Number: EASC 210 PM
Term & Year: Spring 2014
Credit Hours: 1 course unit
Class/Lab Room: HOSCI 210A
Class Time: Mon. 6:30pm-9:30pm

Catalog Description:

Geographic Information Systems are a primary tool for analysis of spatial data. ArcGIS 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, Third Edition, Updated for ArcGIS 10.1, Esri Press, ISBN: 9781589483088, 2013 749 pp.

Recommended text and material:

Some additional book and reading materials will be provided 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 will 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 10.1 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.
- Demonstrate a basic understanding of GPS.
- Utilize multiple GIS data sources, including CAD, dBASE, and EXCEL.
- Demonstrate a functional knowledge of layer display, control and editing.
- Demonstrate a functional knowledge of map document 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 some ArcGIS extensions and customization options, including 3D Analyst and Spatial Analyst.
- Demonstrate first-hand experience with GIS analysis from start to finish through individual projects.

Grading System & Course Requirements:

Assignment & Quizzes	35%
Exams (2)	35%
Final Project	30%

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.

Students with learning disabilities:

Students who wish to request accommodations in this class for a disability should contact Ms. Elaine Mara, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services.

Assignment & Course Calendar (tentative)

Week 1 (1/13) Introduction & Overview of Geographic Information System
Lab Activity - Chapters 1, 2 & 3
Assignment: Getting started with displaying map data and creating a summary report of a GIS project.

Week 2 (1/27) GIS Basics: Importing Spatial and attribute data, online resources; datums & projections; setting up work project areas
Lab Activity – Chapters 4, 5 & 6
Assignment: The Basics, Data Management in GIS copying/moving/renaming/placing files

Week 3 (2/3) Data Representation
Lab Activity – Chapters 7, 8 & 9
Assignment: Symbolizing, classifying and labeling data

Week 4 (2/10) Querying Data, Building Relationships between tables and Creating Reports
Lab Activity – Chapters 15 & 16
Assignment: Relate Census data with tracts/counties

Week 5 (2/17) Creating and Editing Data, GPS
Lab Activity – Chapters 11, 12 & 13
Assignment: Build campus

Week 6 (2/24) Mid-Term, Spatial Analysis and Catch-up
Lab Activity – Chapters 17, 18
Assignment: Demographic decisions

Spring Recess Begins Saturday March 1, 12:00 noon
Spring Recess Ends Monday, March 10, 7:30am

Week 7 (03/10) More Spatial Analysis and Presenting Data/Map Production
Lab Activity – Chapters 19 & 10
Assignment: Maps

Week 8 (3/17) Geocoding, Working with Spatial and 3D Analyst (surfaces/terrain analysis)
Lab Activity – Chapters 14, 20 and assigned readings
Assignment: Location Analysis and DEM Analysis

Week 9 (3/24) Begin Research Project

Week 10 (3/31) Continue Research Project

Week 11 (4/7) Continue Research Project

Week 12 (4/14) Project Presentations

Week 13 (4/21) Catch-up

Week 14 (4/28) Final Exam

All assignments are due the next week of class and no later than 3 weeks after the handout date.