**GLG 567 – GIS for Geoscientists**

Fall 2009

**Credit Hours:** 3

**Class Time:** T Th 11:10-12:35

**Class Room**: ARD (Bld. 56) Room 226

**Instructor:** Mark Manone

**Office:** ARD (Bld. 56) Room 224

**Office hours**: T TH 11:00 – 12:00 or by appointment

**Course Description**

This course will introduce students to the use of Geographic Information Systems and specifically how they are used in the GeoSciences. Students will work with the most recent edition of ESRI ArcGIS software and learn the basics as well as advanced extensions of ArcGIS. The course may also cover “field based” GIS techniques which include the use of a tablet PC or GPS units. An individual project will be required which will use all of the techniques learned throughout the first 11 weeks of the class, the project will ideally collect, edit and present data that could be used for a students senior project or graduate research.

**Course Ojectives**

1. Understand basic concepts and components of a GIS and how it is used in the Geosciences.
2. Become proficient in using ESRI ArcGIS and the Spatial and 3D analyst extensions.
3. Learn how to use GIS in the field in conjunction with a GPS unit.
4. Be able to collect, process, edit, project, analyze and present ones own data using a ArcGIS.

**Evaluation Methods**

Grading will consist of:

35% - 9 Lab Exercises

10% - Spatial Analysis of Geohazards, ESRI virtual campus course

10% - 1 student selected ESRI virtual campus course, INSTRUCTOR APPROVAL

20% - 1 exam – From lectures and material covered in class exercises. (Open software)

25% - Independent project

90%=A, 80%=B, 70%=C, 60%=D, <60%=F

**Text**

There is no required book for this course. All course material will be provided or made available electronically. **However,** I strongly suggest you buy a GIS text as a resource for when you are finished with this class. Suggestions will be made in class.

**Course Outline**

**Week 1-8/25**-- Introduction to ArcGIS 9.3 – Introduction to GIS Concepts

**Week 2-9/1** -- Introduction to ArcGIS 9.3 –GIS concepts and Displaying Data

Lab Exercise 1

**Week 3-9/8**-- Introduction to ArcGIS 9.3 – Querying a database ,working with spatial

data and tables

Lab Exercise 2

**Week 4-9/15**--Introduction to ArcGIS 9.3 – Editing data, georeferenced data and

presenting data

Lab Exercise 3

**Week 5-9/22**-- Introduction to 3D Analyst and ArcScene

Lab exercise 4

**Week 6-9/29**-- Introduction to Spatial Analyst and Data Mining

Lab exercise 5

**Week 7-10/6**--Using real data to develop a GIS – Sandbar Studies Module

Lab exercise 6

**Week 8-10/13**-- Georeferencing and entering hand collected field data in a GIS

Lab exercise 7

**Week 9-10/20**—**Exam** -- GPS

Lab exercise 8

**Week 11-10/27**—KML and Google Earth

Lab exercise 9

**Week 12-11/3**-- Individual project using field based GIS

**Week 13-11/10**-- Individual project using field based GIS

**Week 14-11/17**-- Individual project using field based GIS

**Week 15-12/24**-- Individual project using field based GIS

**Week 16-12/1**—**Project presentation and reports due**

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