

GIS FOR ENVIRONMENTAL STUDIES
Fall 2012

Professor:

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Office Hours:

Tuesday: 10:00-12:00, 3:10-5:10
Wednesday: 10:00-12:00
Thursday: 10:00-12:00
And by appointment

Course Description:

The study of the environment is inherently spatial and global in nature. One way to view and analyze data in a geographic context is through using a geographic information system (GIS). GIS is typically a combination of hardware (computers, digitizers, global positioning units) and software that allows you to enter, map, and analyze spatial data. Today, GIS is being used to map and analyze wildlife preserves, marine mammal movements, locations of industry, human demographics, and a myriad of other spatial data. In this class students will learn the theory behind GIS, how to use one GIS software package (ArcGIS) and will participate in mapping the campus or a nearby wilderness area.

The specific objectives for this course are:

- Become familiar with the theory behind cartographic mapping and modeling
- Master one GIS software program (ArcGIS)
- Complete a hands-on mapping project

Text:

Required: Price, Maribeth. 2011. Mastering ArcGIS. Mcgraw-Hill College; 5th edition

Evaluation*:

In-class Midterm & Final (10% each)	20%
Lab Practical Midterm & Final (15% each)	30%
Annotated Bibliography or GIS Exercise Proposal (5%)	5%
Homework (11 assignments, drop 1, 1.5% each)	15%
Projects (5 projects each worth 5%)	25%
Participation in Group GPS Mapping	5%

*this is a hands-on class, you will lose points each time you have an unexcused absence. If you have **more than 2 unexcused absences your grade will be impacted.** (illness documented by doctor's notes, family tragedies, and some athletic events are excused)

In-Class Midterm & Final

The exam is closed book and covers all major concepts/vocabulary discussed in lectures. Format includes multiple choice, short answer, and longer answer. You are entitled to prepare and use a 3x5 card with notes.

Lab Practical Midterm & Final

These are in the computer lab and are open book. HOWEVER, they are timed and you will not receive any help. If you have a documented learning disorder and need additional time or other

accommodations, please have the counseling center send me the documentation. Then, meet with me to discuss a test format and schedule when you will take the exam

Homework

Homework is based on the book and work you do using ArcGIS (you'll need to go to the lab). **I will only accept homework turned in at 1:40 on the day it is due.** In class, there will be an envelope into which you should place your homework by 1:40pm. You may drop your lowest homework (or one that you didn't get in on time).

Written assignments should represent the quality expected of upper level college students. Each screenshot or answer should be preceded by the number of question it is answering. For example: "1. Steps 1-7." "2. Steps 8-16." Any verbal responses may be handwritten, but should be neat, legible, and multiple pages should be stapled together. Ragged edges from pages torn out of a spiral notebook are unacceptable. *(There are scissors, stapler and other supplies available in the NAS lobby if needed.)*

You need to do your work BY yourself. A small amount of help from a TA or friend is allowed, but the work you submit for grading must be your own. Do not work side-by-side in lock step with another student in the class. Do not give any homework material to another student or receive any homework material from another student, in either written or electronic form. Failure to follow this requirement will be considered a violation of the Eckerd College Honor Code and will be referred to the Honor Council.

Annotated Bibliography / GIS Exercise Proposal

There will be one written assignment, which has two options. One option is an annotated bibliography, several pages in length. The other option is to design an interesting GIS exercise, including the identification of necessary shapefiles. Details of the assignment will be distributed in class.

Software

If you want to try and install the ArcGIS software on your computer, you can get a trial version that will last 60 days (so about ½ of the semester). Here is the link:

<http://www.esri.com/software/arcgis/arcview/eval/evalcd.html>

You need to have a pretty new computer (PC only – mac's can't run it) with lots of hard-drive space and memory.

Projects

Projects will entail creating one or more maps. We will spend time during class on all the project assignments but you may require time out of class. If you miss a lab, you will need to make up the work on your own. Exported, digital versions of your maps (.GIF) must be uploaded and appear in my folder by the start of class on the day they are due. If you get them in later that day (**there will be a 5 point deduction**). If you still have not finished, you can get them in by the next class period for a 10 point deduction. **Maps will not be accepted after the next class period.** IT IS UP TO YOU TO MAKE SURE THAT YOU HAVE UPLOADED THE CORRECT .GIF FILE.

Participation in Group GPS Mapping

Everyone will be in a small group of 3 students (8 groups total). Each group must choose something to map that can be represented by a "point" and doesn't have to be extremely accurate (our GPS units can be up to 15 ft. off). You will have 4 class periods to complete your mapping project and it must be done during these times (it also needs to be a big enough in scope to last all 4 class periods or be repeatable). You will also be collecting attribute data.

You will enter the data into Excel (combining all the data from your group) and you'll create maps with it for Project 5 (on your own). Some ideas for projects:

- Map of the location of several species of wading birds (record behavior, habitat)
- Map the location of ibis groups (record group size, habitat)
- Map the location of rabbit pellets (record # of pellets, habitat)
- Map locations of Brazilian peppers in the palm hammock or on campus in general (record dbh, if it has berries)
- Map the location of yellow bikes (record serial number, condition)

Etc.

Help

For conceptual or clarification questions, please stop by my office for help during office hours or email me to set up a meeting. I may not be available to answer questions if you come outside of office hours. Please plan ahead and do not wait to ask for help until just before the assignment is due. I may be able to answer a question in the lab and will do so if possible. If you need more extensive one-on-one computer help, please visit the computer lab during the TAs office hours.

Attendance and the semester schedule

Attendance for this class is required. The schedule is included below. Please note the dates of exams, both for in-class exams and lab practicals. They cannot be rescheduled. Lab practicals are divided into two sections and you can arrange to swap with someone in another section, if necessary.

Honor Statement

For all assignments, please remember to type/write "pledged". The **Honor Pledge at Eckerd means you agree to this statement** "On my honor, as an Eckerd College student, I pledge not to lie, cheat, or steal, nor to tolerate these behaviors in others." Suspected violations of the Honor Code will be referred to the Eckerd College Honor Council.

Semester Schedule Disclaimer

The attached schedule for lectures, tests and assignments in the course is subject to change in response to, among other things, threatening weather conditions, or cancellation of classes/campus evacuations in anticipation of such events. In the event of a campus evacuation you are expected to take your textbook and course notes with you and to check your email daily. All changes to the schedule will be announced in class and/or via your campus email address. You are responsible for ensuring an awareness of the announcement of any such changes. **You must read your campus email.**

Schedule – Fall 2012

Date		Subject	Assignment (what is due)
9/4	T	<i>Lecture:</i> Intro. To GIS, GIS data & ArcGIS (Ch 1)	
9/7	F	<i>Lab:</i> Set up your account and explore ArcGIS (A-K meets at 1:40, L-Z meets at 2:20 in SHC115)	Read Intro & Ch 1 BRING YOUR BOOK TO LAB!!
9/11	T	<i>Lecture:</i> Class mapping projects, GPS & Mapping GIS Data (Ch 2)	Assigned homework questions from Ch 1 due, Read Ch 2
9/14	F	<i>Lab - Group A:</i> off – Project 1 rescheduled 9/12 at 3:20, 9/13 at 1:40 <i>Group B:</i> GPS project (data set 1)	
9/18	T	<i>Lecture:</i> Presenting GIS Data (Ch 3), Research assignment	Assigned homework questions from Ch 2 due, Read Ch 3
9/21	F	<i>Lab - Group A:</i> GPS project (data set 1) <i>Group B:</i> Learn FTP, project 1	Assigned homework questions from Ch 3 due, Group A: project 1 due
9/25	T	<i>Lecture:</i> Tables (Attribute data) & Queries (Ch 4&5)	Read Ch 4&5
9/28	F	<i>Lab:</i> Group A: project 2 <i>Group B:</i> GPS project (data set 2)	Assigned homework questions from Ch 4&5 due, Group B: project 1 due
10/2	T	<i>Lecture:</i> Spatial Joins (Ch 6)	Read Ch 6 Research/exercise topic due
10/5	F	<i>Lab:</i> Group A: GPS project (data set 2) <i>Group B:</i> project 2	Assigned homework questions from Ch 6 due, Group A: project 2 due
10/9	T	<i>Lecture:</i> Map Overlay and Geoprocessing (Ch 7) Discuss mid-terms	Read Ch 7
10/12	F	<i>Lab: midterm practical</i> (Group A) <i>Group B - off</i>	Assigned homework questions from Ch 7 due, Group B: project 2 due
10/16	T	In-class paper midterm	
10/19	F	<i>Lab: midterm practical</i> (Group B) <i>Group A - off</i>	
10/23	T	<i>Lecture:</i> Coordinate Systems (Ch 11)	Read Ch 11
10/26	F	<i>Lab:</i> Group A: project 3 <i>Group B:</i> GPS project (data set 3)	Assigned homework questions from Ch 11 due
10/30	T	FALL BREAK	
11/2	F	<i>Lab:</i> Group A: GPS project (data set 3) <i>Group B:</i> project 3	Group A, project 3 due
11/6	T	<i>Lecture:</i> Basic Editing & Topology (Ch 12-13)	Read Ch 12 & 13 Research/Exercise due
11/9	F	<i>Lab:</i> Group A: project 4 <i>Group B:</i> GPS Project (data set 4)	Assigned homework questions from Ch 12 due, Group B, project 3 due
11/13	T	<i>Lecture:</i> Geocoding (Ch 10), entering your own data using x, y coordinates	Read Ch 10

11/16	F	<i>Lab:</i> Group A: GPS Project (data set 4) Group B: project 4	Assigned homework questions from Ch 13 due, Group A, project 4 due
11/20	T	<i>Lecture:</i> Geodatabases and raster analysis (Ch 14 & 8)	Assigned homework questions from Ch 10 due
11/23	F	<i>THANKSGIVING BREAK</i>	Group B, project 4 due Monday 11/26
11/27	T	<i>Final Project discussion</i> <i>Review for final exams</i>	Assigned homework questions from Ch 14 due
11/30	F	<i>Lab:</i> Group A: final project Group B: off	
12/4	T	In-class final	
12/7	F	<i>Lab:</i> Group A: off Group B: final project	Group A, project 5 due
12/13	Th	timed lab practical exam	group A: 11:30am-1:00pm*** group B: 1:00pm-2:30pm*** Group B, project 5 due

*** You must also alert me by 12/7/2012 if you are switching time slots with another student.