

GIS 5050/EVR 4934 ENVIRONMENTAL GIS

DEPARTMENT OF ENVIRONMENTAL STUDIES
FLORIDA INTERNATIONAL UNIVERSITY
FALL 2008

Location: GL 274

Time: TR 2:00 - 3:15 PM

Instructor: Assefa M. Melesse

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Office Hours: TR 1:00-2:00 PM

COURSE DESCRIPTION: In this course, students will study and analyze the various concepts of GIS: Data input, data analysis and management, and spatial project design. Students will also study the applications of GIS through lectures, guest presentations, outside reading, practical exercises, and applied project.

COURSE OBJECTIVES: The primary objective of the course is to give students an understanding of the concepts of GIS. By the end of the semester, students should:

- Understand the concepts of data input, analysis, and output related to GIS;
- Understand spatial data, as well as the analysis and interpretation of this data;
- Understand spatial data models;
- Understand the nature of spatial databases, including data management;
- Understand the various applications of geographic information technology.
- Select a GIS data input method based on available sources and user requirements;
- Design a GIS project, propose, manage and perform GIS operations; and
- Create and deliver presentations related to GIS analysis.

TEXTS:

- Ormsby, Tim, Eileen Napoleon, Robert Burke, Carolyn Groessl and Laura Feaster. 2004. **Getting to Know ArcGIS Desktop** (ESRI Press: Redlands, CA), 2nd edition, 572 pp.
- Longley, P. 2005. **Geographic Information Systems and Science**. NY, NY: Wiley & Sons, 454 pp.

ADDITIONAL REFERENCES:

- Price, Maribeth, 2004. **Mastering ArcGIS**, McGraw-Hill
- C.P Lo, Albert K. W. Yeung, **Concepts and Techniques of Geographic Information Systems**, Prentice Hall, 2002, 492 pp.
- Clarke, K.C. **Getting Started with Geographic Information Systems**, 4th ed. Prentice Hall, 2003, 340 pp.

GRADING:

Attendance	5%
Home works	40%
GIS tools knowledge Test	15%
Final Project	40%

A	90-100
B	80-89
C	70-79
D	55- 69
F	<55

ATTENDANCE: Each student is responsible for attending all classes. Attendance is a part of the participation grade which covers 5% of the final grade.

COURSE OUTLINE

Lecture #	Date	Lecture	Reading and assignments
1-2	8/26 8/28	Course Overview Introduction to GIS History and application of GIS	Reading: 1) Chapters 1 & 2 (Ormsby) 2) Chapters 1& 2 (Longley)
Friday September 5: Last day to complete late registration. Drop/Add period ends. Last day to change a grading option. Last day to drop courses or withdraw from the University without incurring a financial liability. Last day (by 5 pm) for students to apply for a Short Term Tuition Loan.			
3-4	9/02 9/04	GIS data models and geospatial representation	Reading: Chapters 3 (Longley)
5-6	9/09 9/11	Introduction to ArcGIS: ArcMap, ArcCatalog and ArcToolbox	Hands-on Chapters 2, 3 and 4 (Ormsby)
7	9/16	Exercise I: Navigating and browsing maps	Ch. 3 & 4: Exploring ArcMap and ArcCatalog
8	9/18	Exercise II: Displaying and querying data	Hands-on: Section 3-4 (Ormsby) Home work 1
9-10	9/23	Georeferencing and map	Reading: 1) Chapter 5 (Longley) 2)

	09/25	projections: working with georeferenced data	Hands-on: Chapter 13 (Ormsby) Home work 1 Due
11	09/30	Exercise III: Projection and georeferencing	Projection on the fly, defining projection Ch. 13
12-13	10/02 10/07	Geospatial data analysis	Reading: 1) Ch 8, 16 (Longley)
14	10/09	Exercise IV: Data analysis and analyzing feature relationships	Hands-on Chapter 10-12 (Ormsby)
15	10/14	Geospatial data collection and creation, metadata	Reading: Chapter 9,10 (Longley)
16	10/16	Exercise V: Creating and editing data	Hands-on Chapter 14-16 (Ormsby)
17-18	10/21 10/23	Presenting Data: Cartographic Concepts and Design Exercise VI: Making maps	Reading: Chapter 12, 13 (Longley) Hands-on: Chapter 18 & 19 (Ormsby) Home work 2
Friday, October 17 Deadline to drop a course with a DR grade. Deadline to withdraw from the University with a WI grade.			
19	10/28	GIS Project Design: Final project overview	Reading Ch. 1 (Price) Project proposal Due
20	10/30	Working with Tables: Join and Relate, query, summarize and getting statistics	Home work 2 Due
21	11/04	Exercise VII: Joining and relating tables	Hands-on Ch. 9 (Ormsby)
22	11/06	Remote sensing overview and grid GIS Integration	
November 11: No class: Veteran's Holiday			
23	11/13	Advanced Spatial Analysis and Modeling (grid data model)	Reading: Chapter 8, 16 (Longley) Home work 3
24	11/18	Raster Analysis	Grid-based modeling
25	11/20	Exercise VIII: habitat selection exercise	Grid-based modeling Home work 3 Due
26	11/25	GIS tools knowledge test	
27	11/27	Thanksgiving Holiday	
28	11/29	Project presentation preparation	
29	12/04	Final project presentation	
30	12/09	Final project presentation	
31	12/11	Final project presentation	