

IP621 Geographic Information Systems (Seminar)

SYLLABUS - FALL 2005 FERNANDO DE PAOLIS (fernando.de.paolis@miis.edu)

COURSE FORMAT

Lecture: Wednesdays 2:00-3:50 TBA

Office Hours: Tuesday - Thursday 2:30-4:30 PM. 116 McCone. (Also by appointment)

Virtual Classroom: Visit <http://faculty.miis.edu/~fdepaolis/courses.htm> for changes and additions to syllabus, homework, datasets, and assignments. Also, check daily the course conference on First Class. Once the information has been published, I will assume that you are aware of the changes or additions. Please, check both sources regularly.

COURSE DESCRIPTION

GIS is a spatial analysis system designed to improve decision-making in areas such as environmental policy and security. This course is based on student's projects and assumes that students have been already exposed to the basic concepts of GIS. Topics include data structure, acquisition, integration and manipulation (including database management and map production). Additional topics refer to organizational aspects of designing, implementing and managing GIS projects. This is a lab-intensive course focusing on developing working knowledge and understanding of GIS software. Therefore, it is assumed that students are proficient in Windows OS environment and its jargon.

Upon completion of this course, students should be fully qualified to develop and manage medium and high complexity projects using GIS software.

TEXTS

Required

- **Ormsby, T. et al.** (2004) ***Getting to know Arc GIS. Second Edition (or latest, it must cover version 9.0)***. ESRI Press (Includes CD-ROM with software, tutorials and exercises).

Recommended Textbooks:

- **(*) Longley, P. at al.** (2005) ***Geographic Information Systems and Science. Second Edition***. Wiley. (Included as **required** at the bookstore)
- Bernhardsen, T. (2002) ***Geographical Information Systems: An Introduction***. Third Edition. Wiley.
- DeMers, M. (2005) ***Fundamentals of Geographic Information Systems***. Third Edition. Wiley.

COURSE METHODOLOGY AND POLICIES

METHODOLOGY

The course is developed as a series of weekly lectures/lab sessions and class discussions. In general, the course consists of two main parts. **One** of them is based on two sets of lectures. Lectures on GIS theory and applications are based on a diverse collection of sources, hence the importance of attending class regularly and taking good notes. Lectures on the specifics of GIS software loosely follow Ormsby (2004). Additional readings will be handed-out in class or posted electronically. Slide presentations will also be available for downloading and printing. The **second** part consists of student's hands-on work during and outside the class. To reinforce that, the seminar design requires a **substantial participation** by students.

WORK SUBMISSION

Homework is due by 5:00 p.m. of the date specified. It will be returned one week from that date. Homework which is submitted late, but before the week is over will be marked down a grade. Late homework must be submitted before the graded homework is returned. Late submission of the final project is not allowed.

ACADEMIC CONDUCT

Students are responsible for abiding the rules in the Academic Policy and Standards Manual (APSM). The most serious academic offense in this course is plagiarism, as defined in APSM. I treat this issue very, very seriously. Assignments in which students failed to cite source in the proper fashion will receive a failing "F" grade. I reserve the right to submit any of your work (including drafts and informal pieces) to plagiarism search engines and sites. **No replacement assignment will be given in lieu of the failed assignment.** Students who, through action or omission, facilitate the commission of plagiarism are violating academic integrity. This behavior is unacceptable in all cases (written assignment, in-class tests, etc.) and will be severely penalized.

COURSE WORK REQUIREMENTS

Participation and classroom work	20%
HW problem assignments	30%
Final project (including presentations and partial submissions)	50%
<hr/> Total 100%	

- The course is almost entirely centered on the final project, which will be conducted by the students on individual basis. This assignment is intended to have the highest "professional" quality possible, and serve as a core component of the student's portfolio to be submitted to prospective employers.
- "Letter grades" will be derived using natural breaks in the distribution of numeric grades.

COURSE SCHEDULE

Week 1 August 31

Class plan. Methodology. Introduction to “geographic thinking” and GIS.

Week 2 September 7

The structure of the ESRI model. ArcMap I. Overview. Symbology. Labeling.

Week 3 September 14

ArcMap II. Querying. Joining.

Week 4 September 21

ArcCatalog.

Week 5 September 28

Preliminary student’s presentations of final project topics.

Week 6 October 5 (For beginners...)

ArcGIS technical applications and examples. Data preparation. Projections.

Week 7 October 12 (For the initiated..)

More ArcGIS technical applications and examples. Editing.

Week 8 October 19 (For the connoisseur...)

Geodatabases. Design and implementation. Introduction to databases.

Week 9 October 26 (For the masters...)

Metadata. Uses and applications. Norms, rules, and tools.

Week 10 November 2 (For the bosses...)

GIS Projects. Graphic design, resource sharing, etc.

Week 11 November 9

(For il capo di tutti il capi)

Managing of GIS. Challenges to technology adoption. Cost-benefit analysis. Interagency coordination.

Week 12 November 16

Because life is uncertain, we leave this week as “the adjustment factor”...☺

Week 13 November 23

Floating week for guest speakers*

Week 14 November 30

Student’s presentations of final project.

Week 15 December 7

Student’s presentations of final project. Summary and Closing.

Readings will be assigned in one/two weeks in advance.

Final paper due on December 9 @ 5PM

***We have planned a series of guest speakers, but the schedule is a function of their availability. Stay tuned.**