Geography 625 -Intermediate Geographical Information Systems
Fall 2009

Class Place & Time: Lec 401 (TR 9:30am-10:45am) at Bolton Hall (BOL) 281
Lab Place & Time: Lab 801: W 1:00 pm - 2:50 pm at SAB 240
Lab 802: R 12:00 pm- 1:50 pm at SAB 240

Instructor

Professor Changshan Wu
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Office Hours: Tuesday, Thursday 11:00 am – 12:00 pm or by appointment

Teaching Assistant

I-Hui Lin
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Office Hours: see lab syllabus

Textbook:

- O'Sullivan, David and Unwin, David J., 2002, *Geographic Information Analysis*, John Wiley & Sons, Inc, ISBN: 0-471-21176-1 (**required**)

Class website:

Class website can be accessed through D2L.

Course Description and Objectives

The objective of this course is to introduce students the concepts, implementations, and applications of the geographic information analysis within the context of GIS technology. Specifically, this course has three major goals: (1) introducing the concepts of geographic information analysis, (2) implementing geographic information analysis functions using geographic information systems (e.g. ArcGIS) and programming languages (e.g. R,

GeoDa, etc.), and (3) applying geographic information analysis in a specific area (e.g. public health, transportation, political studies, etc.).

Credit Hours

This course has four credit hours (graduate and undergraduate) consisting of two 75-minute lectures and one two-hour laboratory each week.

Prerequisites

Geography 525, or equivalent, or permission of the instructor. Permission to take this course may be granted based upon GIS courses taken elsewhere.

Course Evaluation

Undergraduate

1. **Examinations (70% of class grade)** - There will be a mid-term and a final examination for this course (35% each).

2. **Laboratory exercises (20% of class grade)** – Bi-weekly lab assignments will be given and collected corresponding to topics covered in class.

3. **Class participation (10% of class grade)** - Throughout the semester, quizzes and other assignments may be given as a component of class participation. Attendance and participation in class discussion are expected of all students.

Graduate

1. **Examinations (60% of class grade)** - There will be a mid-term and a final examination for this course (30% each).

2. **Laboratory exercises (20% of class grade)** – Bi-weekly lab assignments will be given and collected corresponding to topics covered in class.

3. **Class project (10% of class grade)** – A project that utilizes GIS technologies to solve research problems is required for graduate students. Students are encouraged to discuss the project with the instructor. A project proposal is due at 9:30 am, Nov 3, 2009, and a final project report is due at 9:30 am, December 10, 2009.

4. **Class participation (10% of class grade)** - Throughout the semester, quizzes and other assignments may be given as a component of class participation. Attendance and participation in class discussion are expected of all students.

Grading Scale

- A = 90-100%, A- = 87-89.99%
- B+ = 83-86.99%, B = 80-82.99%, B- = 77-79.99%
- C+ = 73-76.99%, C = 70-72.99%, C- = 67-69.99%
- D+ = 63-66.99%, D = 60-62.99%
- F = 0-59.99%

Make-up: No make-ups will be allowed without emergency reasons with written proof.

Final Exam: At the same classroom.

Notices:

- Grades, once given, are final except in cases of clerical error
- Cheating on exams, map quizzes, or exercises will not be tolerated. Additional information about the policies and procedures can be found at http://www.uwm.edu/Dept/Acad_Aff/policy/uniformsyllabus.html and are posted in the Geography Department main office, BOL 410.
- Attendance is not required but strongly recommended.
- Students are expected to attend each class, and are responsible for their own notes.
- If you are having trouble in class, please come and see me.

Disability Statement:

Any student who feels he or she may need an accommodation based on the impact of a disability should contact me privately to discuss his or her specific needs.

H1N1 Related Statement:

In the event of disruption of normal classroom activities due to an H1N1 swine flu outbreak, the format for this course may be modified to enable completion of the course. In that event, you will be provided an addendum to this syllabus that will supersede this version.

Geography 625 Tentative Schedule (Fall 2009)

Week	Dates	Topic(s)	Text	Due
1	September 3	Introduction	Chapter 1	

2	September 8 September 10	Pitfalls and Potential of Spatial Data	Chapter 2	
3	September 15 September 17	Fundamentals: maps as outcomes of processes	Chapter 3	
4	September 22 September 24	Point pattern analysis	Chapter 4	
5	September 29 October 1	Point pattern analysis	Chapter 4	
6	October 6 October 8	Practical point pattern analysis	Chapter 5	
7	October 13 October 15	Practical point pattern analysis Mid-term preview	Chapter 5	
8	October 20 October 22	**Mid-term examination** Lines and networks	Chapter 6	
9	October 27 October 29	Area objects and spatial autocorrelation	Chapter 7	
10	November 3 November 5	Area objects and spatial autocorrelation	Chapter 7	Graduate project proposal due
11	November 10 November 12	Describing and analyzing fields	Chapter 8	
12	November 17 November 19	The statistics of fields	Chapter 9	
13	November 24 December 26	The statistics of fields Thanksgiving holiday (no class)	Chapter 9	
14	December 1 December 3	New approaches to spatial analysis Final exam preview	Chapter 12	
15	December 8 December 10	Project presentation (graduate) Project presentation (graduate)		Graduate project report due
	December 17	**Final exam** (10:00 am – 12:00 pm)		