Geography 625 - Intermediate Geographical Information Systems

Fall 2012 (09/04 – 12/12)

Class Place & Time: Lec 401 (MW 9:30am-10:45am) at Bolton Hall (BOL) B95
Lab Place & Time: Lab 801: W 1:00 pm - 2:50 pm at LAP 271
Lab 802: R 12:00 pm- 1:50 pm at LAP 271

Instructor

Professor Zengwang Xu
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Teaching Assistant

Wenliang Li
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Textbook:

O'Sullivan, David and Unwin, David J., 2010, *Geographic Information Analysis (second edition)*, John Wiley & Sons, Inc, ISBN: 978-0-470-28857-3 (**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. for this semester, an average student is expected to spend the following amount of time (hrs) in this class: time in classroom (40), time spent online reading lecture and other materials (13), time in discussions online or in persons(8), time in laboratories (22), time taking exams(4), time in tutorials (44), time for completing assignments(22), and time for preparation and study(39).

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

5:00pm, Nov 7, 2012, and a final project report is due at 5:00pm, December 12, 2012.

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: 1**0:00-12:00 noon on Dec. 14** at the same classroom.

Notices:

- Please note that it's students' responsibility to regularly check your D2L and UWM email accounts, which are designated as the official communication channels in this class. For email communication with TA or instructor, students should always use their UWM email accounts.
- Please refer to the following link for all UWM policies and procedures (http://www.uwm.edu/Dept/Acad_Aff/policy/uniformsyllabus.html), which will be fully abided by in this class. Additional questions can also be consulted in the Geography Department main office, NWQ B 6450.
- Full attendance is strongly recommended. Students are expected to attend every class, and are responsible for their own notes.
- Grades, once given, are final except clerical error

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.

Geography 625 Tentative Schedule (Fall 2012)(09/04-12/12)

This schedule is subject to change as the class proceeds

Week	Dates	Topic(s)	Text	Due
1	September 5	Introduction	Chapter 1	
2	September 10 September 12	Pitfalls and Potential of Spatial Data	Chapter 2	
3	September 17 September 19	Fundamentals: maps as outcomes of processes	Chapter 3	
4	September 24 September 26	Point pattern analysis	Chapter 4	
5	October 1 October 3	Point pattern analysis	Chapter 4	
6	October 8 October 10	Practical point pattern analysis	Chapter 5	
7	October 15 October 17	Practical point pattern analysis Mid-term preview	Chapter 5	
8	October 22 October 24	**Mid-term examination** Lines and networks	Chapter 6	
9	October 29 October 31	Area objects and spatial autocorrelation	Chapter 7	
10	November 5 November 7	Area objects and spatial autocorrelation	Chapter 7	Graduate project proposal due 5:00PM on Nov. 7
11	November 12 November 14	Describing and analyzing fields	Chapter 8	
12	November 19 November 21	The statistics of fields	Chapter 9	
13	November 26 December 28	The statistics of fields Thanksgiving holiday (no class)	Chapter 9	
14	December 3 December 5	New approaches to spatial analysis Final exam preview	Chapter 12	
15	December 10 December 12	Project presentation (graduate) Project presentation (graduate)	Graduate project report due by 5:00PM on Dec 12	
16	December 14	**Final exam** , (10:00 am – 12:00 pm) in the same classroom		