Geography 525 — Geographic Information Science

Spring 2009

Class Place & Time: Lec 401 (42786): TR 9:30am -10:45am at BOL B95
Lab Place & Time: Lab 801 (42788): W 10:00am -11:50am at LAP 271
Lab 802 (42790): R 11:00am - 12:50pm at MER 214
Lab 803 (46748): F 10:00 am – 11:50 am at MER 214
Credit hours: 4

Instructor: Prof. Changshan Wu

- Office: BOL 482
- Phone: 229-4860 (office)
- E-mail: cswu@uwm.edu
- Office Hours: 11:00 am-12:00 pm on Tuesday or by appointment

Teaching Assistant: Greg Rybarczyk
- Office: 441 Bolton Hall
- E-mail: gar2@uwm.edu
- Office Hours: see lab syllabus

Geography Department:

- Main Office & Mail Room: BOL 410
- Phone: 229-4866

Descriptions:

This course is designed to be an advanced undergraduate GIS class, as well as an introductory graduate class. It emphasizes the understanding and implementation of geographic information system theories, including map projections and coordinate systems, vector and raster data models, spatial data management and query, and spatial data analysis. Relevant applications of GIS theories are demonstrated in the computer laboratory portion using ArcGIS.

Textbook:

Chang, Kang-tsung, 2008, *Introduction to Geographic Information Systems*, McGraw-Hill, 5th edition.

Lab manual:

Price, Maribeth, 2008, *Mastering ArcGIS*, McGraw-Hill, 3rd edition

Class website:

Class website can be accessed through D2L.

Course Evaluation

Undergraduate

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

2. **Laboratory exercises (30% of class grade)** - Weekly lab assignments will be given and collected corresponding to topics covered in class. The laboratory exercises will require the use of ArcGIS software.

3. **Class participation (10% of class grade)** - Quizzes and other assignments may be given as a component of class participation. Attendance and participation in class discussion is expected for all students.

Graduate

1. **Examinations (50% of class grade)** - There will be a mid-term and a final examination for this course (25% each).

2. **Laboratory exercises (30% of class grade)** - Weekly lab assignments will be given and collected corresponding to topics covered in class. The laboratory exercises will require the use of ArcGIS software.

3. **Class project (10% of class grade)** – A project that solves geographic or other problems using geographic information science is required for graduate students. A final report (about 10 pages double space) and a short presentation (about 8-10 minutes) are required for graduate students. The due date of the report is 9:30 am, May 7, 2009.

4. **Class participation (10% of class grade)** - Quizzes and other assignments may be given as a component of class participation. Attendance and participation in class discussion is 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%, D- = 57-59.99%
- F = 0-56.99%

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 lab 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.

Geography 525 Tentative[#] Schedule Spring 2009

Week	Date	Content	
	Jan. 27	Introduction	Chapter 1
1	Jan. 29	Introduction	Chapter 1
	Feb 3	Map projections and coordinate systems	Chapter 2
2	Feb 5	Map projections and coordinate systems	Chapter 2
	Feb. 10	Vector data model	Chapter 3
3	Feb. 12	Vector data model	Chapter 3
	Feb. 17	Raster data model	Chapter 4
4	Feb. 19	Raster data model	Chapter 4
	Feb. 24	GIS data acquisition	Chapter 5
5	Feb. 26	GIS data acquisition	Chapter 5
	March 3	Geometric Transformation	Chapter 6
6	March 5	Geometric Transformation	Chapter 6
	March 10	Spatial data editing	Chapter 7
7	March 12	Midterm Preview	
Spring recess: March 15 – 22			
	March 24	Midterm	
8	March 26	GIS Data in AGSL	
	March 31	Spatial data editing	Chapter 7
9	April 2	Attribute data management	Chapter 8
	April 7	Data display and cartography	Chapter 9
10	April 9	Data exploration	Chapter 10
	April 14	Data exploration	Chapter 10
11	April 16	Vector data analysis	Chapter 11
12	April 21	Vector data analysis	Chapter 11

	April 23	Raster data analysis	Chapter 12
	April 28	Raster data analysis	Chapter 12
13	April 30	Final exam preview	
	May 5	Project presentation (graduate)	
14	May 7	Project presentation (graduate)	Project report due
15	May 12	Final exam (10:00 am – 12:00 noon)	

 # Class contents can be changed according to the instructor during the semester.