

Geography 403 Syllabus

Remote Sensing: Environmental and Land Use Analysis

Spring 2009

COURSE DESCRIPTION AND OBJECTIVES

This course is designed to explore basic principles, concepts and applications of remotely sensed data in the evaluation of geographic problems. Materials regarding the theories and principles of remote sensing, types of sensors, and analysis of remote sensing data will be addressed along with specific applications to environmental and land use problems. In addition, students will become familiar with image processing functions of the IDRISI software.

LECTURE TIME & LOCATION	LAB TIME & LOCATION
TR 11:00 - 12:15 in Bolton Hall B95	Lab 801: T 1:00 - 2:45 in Merrill 214 Lab 802: W 1:00 - 2:45 in Merrill 214 Lab 802: R 1:00 - 2:45 in Lapham 271

INSTRUCTOR	TA
<i>Dr. Woonsup Choi</i> Office: Bolton Hall 479 Phone: 229-2671 Email: choiw@uwm.edu Office Hours: TR 3:00 - 4:00 or by appointment	<i>Mr. Rama Mohapatra</i> Office: Bolton Hall Phone: See lab syllabus Email: rama@uwm.edu Office Hours: See lab syllabus

TEXTBOOKS

Required: John R. Jensen, 2007, *Remote Sensing of the Environment: An Earth Resource Perspective*, 2nd ed., Prentice Hall → available in UWM Bookstore

Optional: Thomas M. Lillesand and Ralph W. Kiefer., 2000, *Remote Sensing and Image Interpretation*, 4th ed., John Wiley & Sons → available in Library Course Reserve

CLASS WEBSITE

Class website is available on D2L.

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

Junior status & Geography 215, or graduate status or consent of Instructor

COURSE REQUIREMENTS

Examinations:

There will be two exams (midterm and final) equally weighted. They are not cumulative. The final exam will be given on the 14th of May from 10 to noon.

Laboratory exercises:

Weekly lab assignments will be given and collected corresponding to topics covered in class. The laboratory exercises will require the use of IDRISI software. Each assignment will be handed out in the lab and due at the beginning of the following lab session. TA will be the person who administrates labs. All questions regarding labs are to be directed to TA.

Class participation:

Throughout the semester, pop quizzes and other assignments may be given as a component of class participation. Attendance and participation in class discussion is required for all students. Some pop quizzes will be graded and constitute 10% of the undergraduate total points. Therefore, if you miss a pop quiz, you will lose points for both pop quiz and participation. More than five detected, unapproved absences will result in an F grade.

Class project (GRADUATE students only):

A project that applies remote sensing technology for a specific problem is required for graduate students. The project consists of topic (1 page), preliminary report (2 pages), in-class presentation, and paper, each of which is due on different days and graded separately. The final report has to include at least one publication quality color figure (TIFF with minimum resolution of 500 dpi). PAPER FORMAT: 10-13 pages excluding cover and references, 1-inch margins, double-spaced, paginated, and 12-pt font size. PAPER DUE DATE: 7 May (on D2L or in person).

Term paper (optional for UNDERGRADUATE students):

Undergraduate students have an opportunity for extra work to improve their total score. A term paper of the same nature as the graduate paper is required for additional points. Only one who submits a 2-page proposal by 23 April is allowed to submit a paper. The paper has to be presented in class along with graduate papers and submitted no later than 7 May, either on D2L or in person.

EVALUATION

Grades will assigned on the basis of the total points accumulated from the course requirements throughout the semester.

Points:

	UG	G
Exams	140	140
Pop quizzes	20	20
Assignments	200	200
Project	N/A	100 (Topic 10; Preliminary 10; Presentation 20; Paper 60)
Term paper	(50)	N/A
Participation	40	40
TOTAL	400	500

Grading scale:

- A: 90-100%, A-: 87-89%
- B+: 83-86%, B: 80-82%, B-: 77-79%
- C+: 73-76%, C: 70-72%, C-: 67-69%
- D+: 63-66%, D: 60-62%
- F: 0-59%

OTHER COURSE POLICIES

Disability statement:

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

Late submissions:

Any late submission results in loss of 5% of the maximum point per hour or 1/5 of the maximum point per day, whichever is smaller.

Religious observances:

A student should notify Instructor, within the first three weeks of the beginning of class, of the specific days or dates on which he or she will request relief from an examination or academic requirement for a religious observance. The exam or academic requirement will be rescheduled or the student will be given a make-up. The student notification will be kept confidential.

Finality of grade:

All grades, once released on D2L or PAWS, are final except in cases of clerical error. You cannot do anything to get an extra 1% to upgrade your letter grade to the next level, say, from C+ to B-.

Other notices:

- Make-ups will be allowed at the discretion of Instructor when a pre-approval has been obtained or in case of emergency with written proof
- Cheating on exams, quizzes, or lab exercises will not be tolerated. Additional information about the policies and procedures can be found at

<http://www4.uwm.edu/secu/SyllabusLinks.pdf> and are posted in the Geography Department main office, BOL 410

- Other unspecified matters will be handled according to the University policies listed on <http://www4.uwm.edu/secu/SyllabusLinks.pdf>
- If you are having any trouble in class, please see Instructor as soon as possible.

TENTATIVE SCHEDULE

Week	Date	Class content and due date	Chapter
1	27-Jan	Introduction to RS	1
	29-Jan		
2	03-Feb	RS principles	2
	05-Feb		
3	10-Feb	Aerial photography	4
	12-Feb		
4	17-Feb	Elements of visual interpretation	5
	19-Feb		
	20-Feb	LAST DAY to withdraw from the course without notation of "W" on academic record	
5	24-Feb	Photogrammetry	6
	26-Feb		
6	03-Mar	Multispectral RS	7
	05-Mar		
7	10-Mar	Review for exam	
	12-Mar	Midterm exam	
8	17-Mar	Spring break	
	19-Mar		
9	24-Mar	Multispectral RS	7
	26-Mar	RS data in AGS Library	
	27-Mar	LAST DAY to withdraw from the course	
10	31-Mar	Thermal RS	8
	02-Apr	RADAR RS	
11	07-Apr	RS of vegetation	11
	09-Apr	RS of vegetation Graduate project topic due	
12	14-Apr	RS of water	12
	16-Apr	RS of water	
13	21-Apr	RS of the urban landscape	13
	23-Apr	RS of the urban landscape Project preliminary report (G) or proposal (UG) due	
14	28-Apr	RS of soils and geology	14
	30-Apr	Project presentation	
15	05-May	Project presentation	
	07-May	Review for exam Term paper due	
16	14-May	Final exam	