Remote Sensing (GEOL 409/509), 3 credits, Spring 2008

Instructor
Nancy F. Glenn
glennanc@isu.edu
208-345-1994 work office
208-221-1245 work mobile
ISU-Idaho Water Center
http://www.isu.edu/~glennanc
http://bcal.geology.isu.edu/

Class Schedule
10:00-11:30 am Tuesday and Thursday
Sections: 01: Boise; 02: Idaho Falls; 03: Pocatello

Office Hours
Feel free to contact me anytime via phone or email. If I am busy, I would be happy to set up an appt when we can both meet.

Textbook
We will use the following textbook:


We will also use the following for references. One copy will be available in Idaho Falls, Pocatello, and Boise:

On-line resources we will use:
- John Jensen’s on-line teaching materials: [http://www.cas.sc.edu/geog/Rsbook/index.html](http://www.cas.sc.edu/geog/Rsbook/index.html)

Software
ENVI 4.4 image processing software ([http://www.itvis.com/](http://www.itvis.com/)) will be used for homework/labs. We will use Moodle ([https://elearning.isu.edu/login/index.php](https://elearning.isu.edu/login/index.php)) for ppt lectures, homework and lab submissions, etc. We will use Distance Learning (video conferencing) for class and Macromedia Professional Connect (Breeze) for in class demonstrations and powerpoints: ([http://breeze1.isu.edu/](http://breeze1.isu.edu/)).

Course Goals
- To introduce students to the electromagnetic spectrum and its relationship to remote sensing in the ultraviolet, visible, infrared, and microwave
- To introduce students to the concept of digital imagery and to enable students to effectively manipulate digital images through image processing
- To help students with interpretation of digital images, and particularly how to design an image processing experiment to effectively extract desirable information from images
- To help students understand the current state of knowledge in remote sensing and sensor technology
Course Prerequisites
Computer, map reading, and quantitative skills are essential for this course. GIS is not a prerequisite but is encouraged.

Course Grading
A ≥ 93 %; A- = 90.0 % to 92.9 %
B+ = 87.0 % to 89.9 %; B = 83 % to 86.9 %; B- = 80.0 % to 82.9 %
C+ = 77.0 % to 79.9 %; C = 73 % to 76.9 %; C- = 70.0 % to 72.9 %
D+ = 67.0 % to 69.9 %; D = 63 % to 66.9 %; D- = 60.0 % to 62.9 %
F ≤ 59.9 %

Two exams = 20%
Final = 15%
Quizzes, class participation = 20%
Homework/lab assignments = 30%
Image processing and interpretation project (written) = 15%

You are responsible for attendance and if you miss class, it is up to you to make arrangements ahead of time for missed work (see quizzes).

Quizzes/Class Participation
Approximately 4 quizzes will be given, not necessarily with advance notice. Class participation includes attending class, participating in discussions, turning in assignments/quizzes/exams, and working collegially with your fellow classmates.

Homework/Labs
Out of class homework and labs will be assigned. We will give you an introduction to ENVI and guidance in class; however, you are responsible for learning the software in order to complete the labs. There will not be a separate designated lab time; however, the TAs will provide approximately 2 hours / week to help.

Image Processing and Interpretation Project (written)
You will complete an image processing and interpretation project. The project will include a written report with 1) a thorough review of the image processing technique(s) /subject(s) using peer-reviewed journal articles (not books); and 2) image processing and interpretation of data. Undergraduates will be given a dataset and guidelines (similar to a lab). Graduate students will be responsible for developing their own image processing experiment.

Graduate Students
Graduate students will read and report on supplemental journal articles throughout the semester. We may meet 2-3 times informally to discuss papers. See above regarding image processing experiment.

Our program is committed to all students achieving their potential. If you have a disability or think you have a disability (physical, learning disability, hearing, vision, psychiatric) which may need a reasonable accommodation, please contact the ADA Disabilities & Resource Center located in Graveley Hall, Room 123, 282-3599 as early as possible.