GEOG 470: Remote Sensing and Air Photo Interpretation
Spring 2003
M&W 3 PM - 4:15 PM

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Textbooks:

NOTE: THERE ARE ALSO MATERIALS ON RESERVE IN THE LIBRARY

Course Description:
This class will introduce you to the application of remote sensing systems to study the earth system. This includes: interpretation of multispectral scanner, RADAR and thermal imagery; and the study of spectral characteristics of vegetation, soils, water, minerals, and other materials. Students will also receive some hands-on experience in the fundamentals of digital image processing and analysis.

Grading:
There will be no curve in this course. Each student’s grades will be determined from the following:

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<th>Grading Scale</th>
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<tr>
<td>Exam I</td>
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<td>Exam II</td>
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<td>Final (Exam III)</td>
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<tr>
<td>Homework (labs)</td>
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<td>Annotated Bibliography</td>
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Exams:
The exams will test/reaffirm your knowledge about knowledge of air photo interpretation, remote sensing principles, and digital image processing techniques taught in class. The format will be short answer and discussion/essay. Make-up exams will only be given in cases of emergency (i.e. w/ a doctor’s excuse). NO EXCEPTIONS!!

Homework:
This class emphasizes learning by doing. Throughout the semester, homework assignments will be given to reinforce or compliment what is being taught in lecture. These homeworks are designed to introduce air photo interpretation and digital image
processing techniques in conjunction with imaging software. Conceptually, our discussions will be independent of any commercial software. However, we will use ERDAS Imagine for implementation. Other homework may include summaries/reaction papers written in response to journal articles that will be handed out.

**Warning!** Do not wait until the day before your assignment is due to start work. There will be no sympathy due to computer or network failures that are beyond your control. Moreover, there are 3 different courses using this computer lab this semester so please plan accordingly. You are expected to turn your work in on time. No late homework will be accepted!

**Annotated Bibliography:**
In order to fully introduce you to the broad discipline of remote sensing and its applications, you are to submit annotated bibliographies of 10 refereed journals articles. Five of the bibliographies are to be turned in no later than March 21\textsuperscript{st}. The remaining five bibliographies are to be submitted no later than May 2\textsuperscript{nd}. An example annotated showing proper format will be handed out later in the semester. Some journals you may wish to use include *PE&RS, Remote Sensing of the Environment*, and *International Journal of Remote Sensing*. Finally, you will be assigned a date in the semester during which you are to give a ~15 minute presentation on one of the articles you used in your annotated bibliography. You need to submit your article to me no later than 10 days before your presentation so that I may make copies for your classmates. Moreover, you should prepare a one page outline detailing the content of the article to be handed out to your classmates on the day of your presentation.

**Other Info:**

*The GIS lab is a shared university resource. Out of respect for yourself and fellow students, please make an effort to keep the lab clean and organized. NO FOOD OR DRINK IS ALLOWED IN THE LAB. Repeated violation of this rule will result in the loss of your lab privileges. Moreover, If I continually see printouts laying around in the lab with your name on it, I will begin subtracting 5 points for each incident from your homework assignment. Moreover, if you leave the lab for more than 10 minutes, please log out of your machine. If you do not, you may find data missing - please log out of the computer as a security precaution! If you encountered problems with the PCs/software, please notify the Lab TA (or myself if they are unavailable).*

*Components of this course places emphasis on digital image interpretation and analysis. If is VERY IMPORTANT that each student have a basic understanding of computers and Windows OS. Certain software functions and computer basics will be reviewed in this course, but you should not continue in this course if you are uncomfortable using PCs. Examples of concepts you should understand are: directory structures, moving/copying files, starting applications, files types, ftping, and telnet.*

The contents of this syllabus are subject to change in the event of extenuating circumstances and at the discretion of the instructor.
Out of respect for your fellow classmates (and me!), cell phones, pagers, etc. need to be turned off while in class. If it is an emergency and you are expecting a phone call, please set it to vibrate and take the call outside of the classroom.

Any student with a documented disability who would like to request accommodations should contact the University Disability Services Office at 933-0816 (V), 933-3334 (TTY), campus Center Room 311, as early in the semester as possible.

**Course Topics:**
Introduction to Remote Sensing
Electromagnetic Spectrum & Atmospheric Interactions
Aerial Photography
Elements of Visual Image Interpretation
Multispectral remote sensing systems
  - Passive sensors
  - Active sensors
Remote sensing of:
  - Water
  - Vegetation
  - Urban Areas
  - Soils, minerals, geomorphology
Digital Image Processing
  - Image rectification
  - Image classification
Using GIS w/ remote sensing