

Remote Sensing and Geographic Information Systems (Env 384 / Bio 384)  
University of Portland, Fall Semester 2006  
Thursdays 7:10 – 9:55 pm  
Buckley Center 211 Computer Laboratory

Scott Nowicki

Office Hours: BC 211, 6-7 pm Thursday  
Available on the discussion forum on [pilots.up.edu](http://pilots.up.edu).

Text: Breslin, Pat; Frunzi, Nick; Napoleon, Eileen; Ormsby, Tim; *Getting to Know ArcView GIS, the geographic information system for everyone*. (Third Edition). ESRI Press, Redlands, CA. 1999.

Software that will be used in the course:

ArcView GIS, installed on computers in BC 211, and educational version included in textbook.

Idrisi Kilimanjaro, available on the computers in BC 211

Erdas Imagine, available on the computers in BC 211

Google Earth, available free for PC, Mac, and Linux from <http://earth.google.com>

Open Source Remote Sensing and GIS software, OSSIM and GRASS, available free from <http://www.osgeo.org>

#### Course Policies:

##### **Attendance**

Perfect class attendance is essential to master the material and hands-on applications of the course. Considering the small number of classroom meetings, only one unexcused absence is allowed for the entire semester. After a second unexcused absence, students may be withdrawn from the course. An absence will only be considered excused if I am contacted with an appropriate reason before the missed class.

##### **Homework**

Assigned readings and homework must be completed before the start of each class. Missed homework may be made up only in the case of excused absences. Reading to be completed by the next class period will be assigned during most classes, and will consist of the required text, paper handout materials, and/or web-available articles. Some homework assignments that require the use of specific software must be completed in the BC 211 computer laboratory. The room will be scheduled for other uses during the week, so it is important to schedule your homework time early.

##### **Semester Project**

One major assignment will be required to complete the course. This will be a project that involves three aspects of the course material, including: manipulation of a remote sensing or GIS dataset in one of the approved software suites; use of the data to address a specific scientific problem, interest, or mapping application; and analysis of the common software, algorithms, or methods typically used to perform such tasks. Topics are open, and the possibilities are endless. A 1-page project proposal is due by October 26. The final project will be due on December 7<sup>th</sup>, and each student will present a short (7-minute) project summary.

**Exams**

Attendance at each exam is mandatory. Each exam will consist of 10 short-answer/short essay questions.

The Mid-term exam will occur on October 12 starting at 7:10 pm. The exam will conclude at 8:30, and after a short break, we will return to the classroom for additional lecture/labwork.

The Final exam will occur on December 12 starting at 7:00 pm, and ending at 9:00 pm.

Grading Policy:

Homework/Lab assignments	25%
Mid-Term Exam	25%
Semester Project	25%
Final Exam	25%

<u>Course Schedule</u>	<u>Topics</u>	<u>Notes/Assignments</u>
Aug 31	Introduction and Software; Remote Sensing Image Characteristics	
Sep 7	Calibration and Image Manipulation; Projections and Georeferencing	
Sep 14	Data Enhancement; PCA and Classification	Text, Part 1
Sep 21	Change Detection and Deconvolution; Satellites and Sensors	Text, Part 2, Sec 1
Sep 28	GIS Data and Model Types; Surface to Sensor Physics	Text, Part 2, Sec 2+3
Oct 5	Atmospheric Corrections; Electronic and Vibrational Spectroscopy	Text, Part 2, Sec 4+5
Oct 12	Mid-Term Exam; Radiometry	Text, Part 2, Sec 6+7
Oct 19	No class	Fall Break
Oct 26	Thermal Modeling; Vegetation Mapping	Project Proposals due
Nov 11	Radar Physics and Applications	
Nov 9	Topography and DEMs; Database Construction and Queries	
Nov 16	Data Fusion; Environmental Monitoring	
Nov 23	No class	Thanksgiving
Nov 30	Hydrological Modeling; Biodiversity Mapping and Modeling	
Dec 7	Urban Planning and Natural Disasters Applications	Project Presentations
Dec 14	Final Exam	