Syllabus GEPL 4500/5500 Digital Image Analysis

Class: M W 4-5:40 pm  
Office hours: M 3-4, W 3-4 pm
Place: 4440 M or GEPL computer lab, 4380 W, University Hall
James Coss  
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Phone: (419) 530-5120

Course web site: www.remotesensing.utoledo.edu/edu/DIclass.html

Other web sites of interest:
OhioLINK Landsat 7: http://dmc.ohiolink.edu/GEO/LS7
OhioView: http://www.ohioview.org
UTView: http://www.remotesensing.edu

Objective: There are three main objectives for this class. The first is to expose students to the procedures involved in digital remote sensing. The second is to provide students some very basic experience in the handling/processing of digital remotely sensed data. You will not learn everything about image processing, however, experience, practice, technical understanding and artistry all contribute to being a good image processor/analyst. What I hope you will learn over this semester is an introduction to critical components of image processing/handling, so that you can overcome the obstacles to remote sensing and learn how to teach yourselves given the building blocks learned in the class. Finally, I want you to walk away from class with an understanding of why remote sensing is a valuable tool for studying the earth.


Grades: Class grades will be based on lab exercises, the term project paper and the final poster presentation:

   Computer labs/Project Updates: 50% of grade
   Webpage: 25% of grade
   Poster Presentation: 25% of grade

Students with Disabilities: Students with disabilities should talk to me so that appropriate arrangements can be made.

Possible Labs:
1. Using Excel to Understand Digital Imagery
2. ArcView Image Analyst and NDVI mapping
3. Using Mulispec to prep an image
4. Classification Envi/Imagine
5. Regression IDL or ENVI
6. Hyperspectral Data Processing
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<th>Date</th>
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| 1/10 and 1/12 | M...Introduction and talk about term project  
W... Digital Imagery Pros and Cons/Intro | Ch. 1                        |                                               |
| 1/17 and 1/19 | M...No Class (Martin Luther King Day  
W... Image Statistics       | Ch. 2, 24-60                  | W...Gather 5 web sites that have satellite data |
| 1/24 and 1/26 | M... Collection of Remotely Sensed Data  
W.. Digital Image Pre-Processing: | Ch. 4, Ch. 6                  | Lab 1                                         |
| 1/31 | M... Radiometric and Geometric Corrections  
W.. Atmospheric correction | Ch. 7                        | Lab 2                                         |
| 2/7 | M...  
W.. Channel calibration, NDVI and AV IA | Ch. 7                        |                                               |
| 2/14 | M... Project update #1  
W.. |                                               | Project update 1          |
| 2/21 | M... Classification Conceptual Foundations  
W.. Classification: Supervised and Unsupervised | Ch.8,p.197-230, Ch.8, p.231-252 |                                               |
| 2/28 | M...  
W.. |                                               |                                               |
| 3/7 | M... Spring Break 3/7 and 3/9 |                                               |                                               |
| 3/14 | M... Project update #2  
W.. |                                               | Project update 2, Lab 3          |
| 3/21 | M..Spatial Statistics, classification evaluation  
W.. |                                               |                                               |
| 3/28 | M..  
W.. |                                               | Lab 4                                         |
| 4/4 | M...  
W.. Digital Change Detection | Chapter 9                     |                                               |
| 4/11 | M... Project update #3  
W.. |                                               | Lab 5, Project Update 3          |
| 4/18 | M...  
W.. Integration into a GIS |                                               |                                               |
| 4/25 | M... Future Sensors and Digital Image Processing Issues  
W.. Last day of classes |                                               |                                               |
| 5/5 | **Poster Presentation, May 5, 2:45 – 4:45 pm** |                                               |                                               |
Supplemental Reading (Texts)