1051-420-01 Environmental Applications of Remote Sensing

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Office Hours by appointment

Course Meeting Time and Place: TR 12:00-1:50pm, 76-1235 (location will change to undergraduate teaching lab in week 7)

Course description
An introduction to the wide range of environmental applications of remote sensing. Systems for detecting physical phenomena and analysis techniques for extracting useful information are described for active and passive sensors operating throughout the electromagnetic spectrum from both airborne and spaceborne sensors. The Earth’s atmospheric, hydrospheric, and terrestrial processes are examined at a global scale. Applications areas studied include monitoring vegetation health, identifying cultural features, assessing water resources, and detecting pollution and natural hazards.

Grading
5 Homework Assignments – 60%
Final Project – 40%

Schedule
Week 1
Reading Assignment: Lillesand, Kiefer, and Chipman, Chapter 1
Reading Assignment: Lillesand, Kiefer, and Chipman, Chapter 2.1-4, 2.6-12, 2.14-15
Demonstration: Handheld radiance and irradiance sensors

Week 2
Reading Assignment: Lillesand, Kiefer and Chipman, Chapter 3.1-8.
Demonstration: WASP camera system, WASP lite
Homework Assignment 1: Photogrammetry: scale and parallax measurements
Due December 15, 2005

Week 3
Reading Assignment: Lillesand, Kiefer, and Chipman, Chapter 4
Homework Assignment 2: Image interpretation, natural features
Due January 10, 2005
Week 4

Homework Assignment 3: Image interpretation, cultural features
Due January 17, 2006

Week 5

Reading Assignment: Lillesand, Kiefer, and Chipman, Chapter 5
Demonstration: MISI line scanner
Homework Assignment 4: Thermal image calibration
Due January 26, 2006

Week 6

Reading Assignment: Lillesand, Kiefer, and Chipman, Chapter 6
Class held in computer lab
Demonstration: UNIX workstations and ENVI software
Homework Assignment 5: Image enhancement
Due February 9, 2006

Week 7

Reading Assignment: Lillesand, Kiefer, and Chipman, Chapter 7.1-7.6
Class held in computer lab
Final Project: Landcover Supervised Classification
Due March 1, 2006 (Finals week)

Week 8

Reading Assignment: Lillesand, Kiefer, and Chipman, Chapter 7.7-7.22
Class held in computer lab
Final Project: Landcover Supervised Classification
Due March 1, 2006 (Finals week)

Week 9

Reading Assignment: Lillesand, Kiefer, and Chipman, Chapter 8.1, 8.8, 8.20, 8.21
Class held in computer lab
Final Project: Landcover Supervised Classification
Due March 1, 2006 (Finals week)

Week 10
Class held in computer lab
Final Project: Landcover Supervised Classification
Due March 1, 2006 (Finals week)