

## **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)