

# VISUAL IMAGE ANALYSIS

Fall 2005

GEOG 480 / 580

CRN 14365 / 14366



**Instructor:** Joe Poracsky (503/725-3158  
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**Course approved for major distribution:** 4 credits  
research skills.

**Prerequisite:** GEOG 380, MAPS AND  
GEOGRAPHIC INFORMATION

**Text:** (1) Lillesand, Kiefer & Chipman. 2004.  
*Remote Sensing and Image Interpretation, 5<sup>th</sup> ed.*  
(about \$120)  
(2) Lab fee of \$25.

## Summary of Course Content:

The listed prerequisite is essential to success in this course: it is assumed that students are familiar with issues of scale, locational reference systems, map projection, and geographic data symbolization. Students should have a working knowledge of the Windows operating system and a background in a particular systematic area of study (e.g., agriculture, forestry, hydrology, soils, climatology) to which they want to apply remote sensing techniques.

Students will utilize Idrisi, a low-cost, powerful, and easy-to-use image processing system. Issues of data display, registration, symbolization, visual enhancement and annotation will be covered. Exercises designed to enhance the student's understanding of these topics will be assigned.

This course will deal with:

- the ways in which aerial photography and electronic devices (scanners, radar) **measure, collect and store** data about the earth and features at or near its surface;
- critical **characteristics of various sensing systems** (both capabilities and limitations) for producing information that is useful in a variety of environmental areas;
- **visually interpreting / analyzing** the collected data so as to understand what you are looking at

- and understanding the information presented;
- **planning and organizing** an image analysis project.

The course deals broadly with how remotely-sensed data can be utilized as a source of information to help us answer questions and better understand the world. Within this topic, the focus is on how the useful information can be extracted from remotely-sensed data using *visual techniques* and the *human eye*.

Subsequent remote sensing courses in the department focus on numerical / statistically-based approaches to information extraction. This visual-based course is important because all digital procedures require visual identification of features when establishing training sets, naming unsupervised classes, and performing accuracy assessments.

This course is a prerequisite to GEOG 481/581, DIGITAL SATELLITE IMAGE ANALYSIS.

**Reading:** A total of about 500 pages from the text and several journal articles.

**Requirements:** Regular attendance at lectures and class-time lab sessions; approximately 50 pages per week of assigned readings; timely completion of weekly exercises; five short quizzes over the readings & lectures; term paper/research project (Graduate students).

**Grading** (approximate percentages):

	Exercises	Exams	Paper
Undergraduates:	50%	50%	--
Graduate Students:	40%	40%	20%

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