

ES 107 Remote Sensing of the Environment Fall 2015

Room B210 Earth and Marine Sciences Bldg

Tu – Th 8:00 – 9:45

First Class: Thursday, September 24, 2015

First Lab meeting: September 29 and 30, depending on section chosen

Ming Ong Lab: 2:30 – 5:30 pm

This class is an introduction to remote sensing, covering visible, infrared, and radar frequencies. It encompasses a variety of flown and satellite sensors and their use applied to geological, biological, oceanographic, environmental and land use problems. Labs are a key part of the course, providing the tools to carry out studies of multispectral and hyperpectral data. Term projects are taken from real datasets and are individually constructed to meet the student's particular interests.

Instructor: Eli Silver, A142 EMS Bldg, x9-2266; esilver@ucsc.edu

Office Hours for Eli Silver: MWF 9-3; TuTh, 1-3.

TAs: Joel Edwards jhedward@ucsc.edu

Allison Pfeiffer ampfeiff@ucsc.edu

Required Text: Remote Sensing of the Environment, 2nd Edition, by John R. Jensen
Available in the Bay Tree Bookstore

Quizzes: At least once each week

Labs: Ming Ong computer Lab.

Tuesday, 2:30-5:30 pm, or

Wednesday, 2:30-5:30 pm

Computer Account: Be sure that your UCSC computer (email) account is working.

Computer Memory: Required –a small portable hard drive or a flash drive (at least 1 Gb).

Term Project: Required (Due by Noon on Monday, December 7). This will involve processing and interpretation of a remote sensing data set, and will be focused on a problem of your choosing. A significant part of the class grade will be based on the term report. It needs to be complete, correctly done, and clearly written.

EART 107 Class Schedule Fall 2015

September

- 24 Course overview, Introduction
- 29 Fundamentals, Resolution (Chapter 1,2)

October

- 1 Air Photo and image interpretation (Chapters 4, 5)
- 6 Photogrammetry (Chapter 6)
- 8 Radiance, Reflectance, History (Chapters 2, 3)
- 13 Quiz
- 15 Multispectral Scanners (Chapter 7)
- 20 Classifications
- 22 Vegetation (Chapter 11)
- 27 Hyperspectral Imagery
- 29 Spectral Absorptions

November

- 3 Thermal Remote Sensing (Chapter 8)
- 5 Water (Chapter 12)
- 10 Soils and Geology (Chapters 13, 14)
- 12 Reference Frames
- 17 LiDAR (Chapter 10)
- 19 Radar (Chapter 9)
- 24 Sensor Design

December

- 1 Student Presentations
- 3 Student Presentations
- 7 Final Report Due by Noon**

Some Helpful Web pages:

- <http://asterweb.jpl.nasa.gov/> (Locate and download Satellite data)
- <http://www.nasa.gov/home/index.html> (NASA's Homepage)
- <http://emerald.ucsc.edu/~hyperwww/chevron/index.html>
- <http://masterweb.jpl.nasa.gov/> (MASTER home page)
- http://www.digitalglobe.com/?goto=products/qb_gallery (Digital Globe)
- <http://opentopo.sdsc.edu:8080/gridsphere/gridsphere?cid=otgoogleearth> (Calif LiDAR)
- <http://www.californiacoastline.org/> (Oblique air photos – CA coast)
- <http://www2.jpl.nasa.gov/srtm/> (Shuttle Radar Topography Mission topo data)