

*Department of Atmospheric Sciences*

COURSE ANNOUNCEMENT – SEMESTER II – 2005–2006

**ATMS 411: Satellite Remote Sensing**

*Call number:* 30897

*Instructor:* Prof. Larry Di Girolamo, 112 Atmos. Sci. Bldg., 333-3080

*E-mail:* larry@atmos.uiuc.edu

*Room and Time:* 109 Atmos. Sci. Bldg.; 10 a.m., M W F

*Credit:* 4 hours

*Prerequisites:* Math 385 or 386, or consent of the instructor

Satellite remote sensing has become an indispensable tool in current day research of the climate and weather of Earth and other planets in our solar system. This course is intended to meet the needs of students looking for a physical understanding of the tools and techniques used in retrieving atmospheric and surface properties of the Earth and other planets from satellite instruments. Limitations of the techniques are discussed. Laboratory work on radiative transfer modeling and satellite data analysis is emphasized. All students participate in a team project that has novel and practical applications. Students planning to use satellite remotely sensed products or fundamental remote sensing techniques in their graduate studies or work place are encouraged to enroll.

Course Content:

1. Overview of Satellite Remotely Sensed Products
2. Atmospheric Radiation and Transfer
3. Satellite Instruments, Orbital Configuration, Image Formation
4. Mathematics of Inversion: Application to Temperature and Trace Gas Concentration Retrieval
5. Surface Properties from Satellites
6. Winds from Satellites
7. Aerosols, Clouds and Precipitation from Satellites
8. Radiation Budgets from Satellites

**Text:** *Satellite Meteorology: An Introduction*, by S. Q. Kidder and T. H. Vonder Haar, Academic Press, 1995. (Required)

A substantial amount of handouts will be given to supplement the text.