

5.11.11
HCSB 2011/11/11

Geography 1

Earth from Space

Instructor: Catherine Gautier

Winter 1992

The objective of this class is to familiarize you with new types of observations that are made from satellites in space to study physical geography and the earth in general. This class will not have the comprehensive coverage of GEO 3: Physical Geography, but will contain some similar material, in addition to the necessary background to understand and interpret satellite images. A minimum level of understanding of physical geography is necessary to interpret satellite images. This understanding will be acquired through a combination of presentations in class and readings to be done individually. There is no specific book that address the content of the class and therefore the reading material will be taken from a reader (containing articles) and a series of chapters in books that will be put in reserve in the library. Because of the necessity of understanding the content of the reading assignments in order to acquire the new material, there will be a short (10 min) quiz each Monday to check your level of understanding of the material that you will be learning by yourselves. Weekly homeworks will address the more quantitative aspects of the class. The labs will be spent discussing the homeworks for their content and their corrections. The midterm exam will test you on the first half of the class, including reading material. The final exam will test you on the entire class material, including reading material and will include some quiz, as well as homework, questions.

Grades will be awarded on the following basis:

Quizzes	25 %
Homeworks	25 %
Midterm Exam	25 %
Final Exam	25 %

Honor students will be required to write a 5-page term paper which will test their understanding of the material taught in this class.

**Earth From Space
Geography 1
Prof. C. Gautier**

Lectures: Monday, Wednesday, Friday 10:00 -10:50
Text: *Watching the World's Weather*. W. J. Burroughs

Date	Lecture	Lab Due
1/3	1. Introduction to Earth from Space Text: Chapter 1 Reader: Planet Earth and its atmosphere (p 3-13) Powers of ten (Suppl.)	
1/5	2. Remote Sensing and Electromagnetic Radiation Text: Chapter 2 (p 6-10) Reader: Remote Sensing coming of age (p 30-35, Suppl. p 35-52)	
1/7	Quiz, Video and Group Work	
1/10	3. Radiation Matter and Gases Interactions Text: Chapter 2 Reader: Energy interactions with earth and surface features	HW # 1 (1,2)
1/12	4. Satellites, Orbits, Coverage and Repetitivy Text: Chapter 4 (p 41-43) Reader: How remote sensing works (p 13-25) A guide to earth observing satellites (section 1 B)	
1/14	Quiz, Video and Group Work	
1/19 2 (3)	5. Sensors, data transmission and collection Text: Chapter 4 (p 44-64), Chapter 5 (p 65-67) Reader: How remote sensing works (p 25-46) A guide to earth observing satellites (section 1 A)	HW #
1/21	Extended Quiz and Video	
1/24 (4,5)	6. Radiative Energy Balance Text: Chapter 2 (p 11-13) Reader: Energy balance and climate (p 154-166)	HW #3
1/26	7. Gases and Clouds Reader: Atmospheric absorption (p 167 - 174) Clouds	
1/28	Quiz, Video and Group Work	

- 3/7 **17. El Nino overview** HW # 9 (15,16)
Text: Chapter 10
Reader: **El Nino**
- 3/9 **18. Synthesis: Basic Principles, Appl. Comparison**
- 3/11 **General Review**

COURSE DESCRIPTION

Geography 1: The Earth from Space

Physical and human geography at global scales through remote sensing from Earth-orbiting satellites. Examination of contemporary problems and global change, over both land and ocean: climate and hydrologic systems, biogeochemical dynamics, ecological systems, human interactions, and solid Earth processes.