

Earth System Science 5: THE ATMOSPHERE (Spring 2006)
(<http://www.ess.uci.edu/~yu/ess5.html>)

Professor Jin-Yi Yu
CH3315, 824-3878, jyyu@uci.edu

Mondays & Wednesdays 2:00-3:20, IERF 101
Discussion: Fridays 2:00-2:50, IERF 101

TEACHING ASSISTANTS

Ms. Angie Kao
CH-2101; 824-2997
hkao@uc.edu

Mr. Fuu-Ming kai
CH-1222B; 824-3271
fmkai@uci.edu

Mr. Fengpeng Sun
CH-2101; 824-2997
sunf@uci.edu

COURSE DESCRIPTION

This course introduces students to the fundamental properties of the atmosphere and helps them understand the physics behind the weather and climate. The course begins with an introduction of the thermal structure, mass distribution, and general circulation of the atmosphere and an explanation of how these properties are determined by the balance between the solar and terrestrial radiations. The second part of the course describes the weather features we experience in daily life, including midlatitude storms, tropical hurricane, tornadoes, clouds, and precipitation. The last part of the course looks into how the atmosphere interacts with oceans, land, ice, and human activities to determine the past and possible future climate changes. Students will be tested on their knowledge of the atmosphere and also on their understanding of the physical processes behind it.

<u>WEEK</u>	<u>DATE</u>	<u>TOPICS</u>	<u>CHAPTER</u>
Week 1	4/03	Composition and Structure of the Atmosphere	Ch.1
	4/05	Composition and Structure of the Atmosphere	Ch.1
Week 2	4/10	Solar Radiation & Seasons	Ch.2
	4/12	Energy Balance & Temperature	Ch.3
Week 3	4/17	Atmospheric Pressure & Wind	Ch.4
	4/19	Atmospheric Pressure & Wind	Ch.4
Week 4	4/24	Atmospheric Moisture	Ch.5
	4/26	Cloud Development & Forms	Ch.6
Week 5	5/01	Precipitation Processes	Ch.7
	5/03	Global Atmosphere/Ocean Circulations	Ch.8
Week 6	5/08	<i>Midterm Examination</i>	Ch. 1-7
	5/10	Global Atmosphere/Ocean Circulations	Ch.8
Week 7	5/15	El Niño & Climate Variability	Ch.8
	5/17	Air Masses & Fronts	Ch.9
Week 8	5/22	Mid-Latitude Cyclones	Ch.10
	5/24	Thunder & Tornadoes	Ch.11
Week 9	5/29	<i>(No class; Memorial Holiday)</i>	
	5/31	Tropical Storms and Hurricane	Ch.12
Week 10	6/05	Climate Changes: Past	Ch.15
	6/07	Climate Changes: Future	Ch.15
Week 11	6/14	<i>Final Examination (10:30am)</i>	All

Textbook: “*Understanding Weather and Climate*”, 3rd Ed., by Aguado, E., and J. E. Burt, Prentice Hall.

Grades: Homework (30%), midterm (30%), pop quizzes (10%) and Final Exam (30%).

Homework: Assigned every Wednesday and due on the following Monday (except for Week 9; due 5/31). There is a 20% penalty per day for late homeworks. Group discussions of homework problems are allowed, but you have to clearly describe how you obtain the answers and write them down at your own words. Group answers are not acceptable. Homeworks will be returned by TAs in the discussion section.

Optional Discussion Section: TAs will review course material and answer questions about the homework problems. They will also provide reviews for midterm and final examinations.

OFFICE HOURS (or by appointment)

	Monday	Tuesday	Wednesday	Thursday	Friday
9:30-11:00	Sun	Kao	Kai	Kao	Sun
2:00-3:30	(lecture 1)		(lecture 2)	Kai	(discussion)
3:30-5:00		Yu		Yu	