AS1 Climate Change: from Puzzles to Policy.

Tues/Thurs 9:30-10:45AM
Knudsen 1240B

INSTRUCTOR: Prof. Alex Hall (alexhall@atmos.ucla.edu)
Math Sciences 7955
Office Hours: Tuesday, 10:45AM-12PM
Telephone: (310) 206-5253

TEACHING ASSISTANT: Greg Masi (gjm142@atmos.ucla.edu)
Office Hours: Thursday, 10:45AM-12PM, location TBA
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We will also hold virtual office hours, accessible through the course web site. All questions relating to the course material should be submitted through virtual office hours.

COURSE WEB SITE: http://www.atmos.ucla.edu/web/ugrads/winter2004/1.html

OVERVIEW: This course is designed for students from all backgrounds. It has three aims: (1) to provide the scientific background necessary to understand climate-related issues. (2) to gain a scientific understanding of the human influence on climate over the past 100 years and the coming century. (3) to gain an appreciation for the role of science in shaping political debate on issues where accurate scientific information is critical. There will be a midterm and a final, as well as four homework problem sets.

REQUIRED TEXT: The Earth System, by Kump, Kasting and Crane (abbreviated as ES)

GRADING: Participation 5%, Homework 20%, Midterm 30%, Final 45%. Exams are based on course readings, lecture material and homework assignments. The four homework assignments are designed to highlight essential concepts.

SCHEDULE

1. **Global Change**
   Course Overview (1-8-2004)
   Lecture 1 (1-13-2004): Pressing Environmental Issues (ES, Chapter 1)
2. **The Greenhouse Effect**
   Lecture 2 (1-15-2004): Radiation in the Atmosphere (ES, pp 34-45)
   Lecture 3 (1-20-2004): Radiation and Climate (ES, pp 46-54)
3. **Atmospheric Circulation**
   Lecture 4 (1-22-2004): Motion of Air on Earth (ES, pp 55-68)
   Lecture 5 (1-27-2004): Atmospheric Circulation and Climate (ES, pp 68-78)
4. **Ocean Circulation**
   Lecture 6 (1-29-2004): Motion of Water on Earth (ES, pp 79-88)
   Lecture 7 (2-3-2004): Ocean Circulation and Climate (ES, pp 88-96)

REVIEW (2-5-2004) and MIDTERM (2-10-2004)

5. **Past Climate and Climate Variability**
   Lecture 8 (2-12-2004): Glaciation (ES, pp 211-228)
   Lecture 9 (2-17-2004): The Holocene (ES, pp 229-243)
   Lecture 10 (2-19-2004): Internal Climate Variability (ES, pp 243-252)
6. **Future Climate**
   Lecture 11 (2-24-2004): The Carbon Cycle (ES, pp 253-262)
   Lecture 12 (2-26-2004): Future Climate Projections I (ES, pp 262-269)
   Lecture 13 (3-2-2004): Future Climate Projections II (IPCC summary for policymakers)
   Lecture 14 (3-4-2004): Climate Change Impacts (ES, pp 269-273)
   Lecture 15 (3-9-2004): Policy Alternatives (ES, pp 273-277)
7. **The Role of Science in Climate Change Politics**
   Lecture 16 (3-11-2004): Discussion

REVIEW (3-16-2004) and FINAL (3-25-2004, 8AM-11AM)

Homework and lab assignments will be given one week prior to their due date. They should be turned in by 5PM on the due date to Greg Masi's mailbox (in Math Sciences 7139). Late homework will not be accepted.

HOMEWORK DUE DATES

Assignment #1: 1-30-2004
Assignment #2: 2-13-2004
Assignment #3: 2-27-2004
Assignment #4: 3-12-2004

LABORATORY DUE DATES For those of you taking the "L" or laboratory option for this course, the due dates for the lab assignments will be staggered with the homework assignment due dates as follows:

Assignment #1: 1-23-2004
Assignment #2: 2-6-2004
Assignment #3: 2-20-2004
Assignment #4: 3-5-2004