

The Earth System Syllabus

ISC2937-02, OCG 5106-01

Fall 2008

Instructor: Professor Kevin Speer
Office: 431 Oceanography-Statistics Building
Office Hours: after class (but see below)
Telephone: 644-6700 main office; 645-4846 my office
Email: kspeer@ocean.fsu.edu (For problems - please save questions for class)
Web page: <http://www.ocean.fsu.edu/~www/Facultyhome/speer.html>
Textbook: The Earth System, by Kump, Kasting, and Crane (2nd edition)

Other Required Reading: Occasional articles to be assigned in class.

Course Description. The goal of this course is to expose students to the modern approach to understanding Earth's climate history and climate change on the global scale. The topics covered will be important to your role as a citizen, making choices that affect the Earth's environment, and to some of your future careers, even if you do not become scientists.

The first part of the course involves the study and discussion of the principal elements of the climate system: self-regulating mechanisms, the Greenhouse Effect, the movement of the atmosphere, ocean, and continents, and the carbon cycle. During the middle part of the course you'll have hands-on laboratory work at the FSU Antarctic Research Facility (<http://arf.fsu.edu/>), where you will dissect sediment cores for information about ice ages and climate in the Southern Hemisphere. The last part of the course is oriented to short-term climate change such as El Nino and the Southern Oscillation, and finally, global warming.

You are responsible for all the material covered during the class periods. The pace and material have been selected with the aim of making the course interesting, challenging and enjoyable.

Class Meetings. Tuesday Thursday classes meet in 327 OSB from 2:00 – 3:15. These classes involve discussion, exercises, and lectures all designed to help you to understand natural phenomena. The Thursday meeting will be less of a lecture format and more of a hands-on, demonstration oriented format, partially devoted to in-class discussion of that week's important concepts, usually from the Chapter being read that week. Discussion will be led by students – this is part of your grade. Attendance will not be taken, *but experience shows that your grade is strongly correlated with your attendance record!*

Office hours. My formal office hours are after class T/Th 3:25-4:25 or by appointment, but in reality I am usually available to meet with you almost any afternoon outside of class hours.

Homework. Homework assignments mainly involve reading and preparation for the discussion and presentation sessions, but occasional written work may be required as needed.

Examinations. There will be two examinations based on material from class, and a test covering lab material. There is no final exam.

Course points. Your point total for the course will be determined by a combination of your exam scores (50%), your lab score (20%), and class/lab attendance, a formal presentation, and participation (30%).

Course Grade. Determined from a class curve. The following is a guide to grading:

90-100%: A,

80-90%: B,

and so on, but the final result will depend on the shape of the class curve (so that everyone could get an A in principle!).

Exam 1	25%
Lab Test	20%
Exam 2	25%
Class exercises	30% (includes homework, participation, presentation)

Extra credit exercises will NOT be available. The final grade for the course will be based on a curve.

WEB SITE

The class web site (TBA) will provide updated information about the class. We will post all announcements regarding the course.

IMPORTANT STUFF

- You may work in small teams on the class/lab exercises. We also encourage you to study with other students in the course as you prepare for exams. However, we expect you to do and turn in your own work for any assignments.
- You may schedule to take a make-up exam, if and only if, you notify the instructor in advance. Regardless of the reason for missing an exam, make-up exams will consist of essay questions.

- Due to the active nature of the experience, missed in-class exercises cannot be made up. Students with excused absences must make arrangements in advance.

Academic Honor Code:

Students are expected to uphold the Academic Honor Code published in **The Florida State University Bulletin** and the **Student Handbook**. The first paragraph is:

The Academic Honor System of Florida State University is based on the premise that each student has the responsibility (1) to uphold the highest standards of academic integrity in the student's own work, (2) to refuse to tolerate violations of academic integrity in the University community, and (3) to foster a high sense of integrity and social responsibility on the part of the University community.

ADA Statement

Students with disabilities needing academic accommodations should:

- 1) register with and provide documentation to the Student Disability Resource Center SDRC;
- 2) bring a letter to the instructor from SDRC indicating you need academic accommodations. Please do this during the first week of class.

Week	Date	Chapter	Comments
1	T 26 Aug TH 28 Aug	1 (and appendices A, B)	Global Change: How do scientists think about climate change and the earth system? The Geological Time Scale; graphs
2	T Sep 2	2	Systems approach: Daisy World: feedbacks
2	TH Sep 4	2	Daisy World: equilibrium climate states
3	T Sep 9	2, 3	Global energy balance and greenhouse gases
3	TH Sep 11	3	Greenhouse Effect
4	T Sep 16	4	No class. Read Chaps. 4-6
4	TH Sep 18	4	Circulation of the Atmosphere
5	T Sep 23	5	Circulation of the Oceans
5	TH Sep 25	6	Climate Models
6	T Sep 30	7	Circulation of the "Solid" Earth
6	TH Oct 2	7	No class. Read Chaps. 8-9

7	T Oct 7	8	The Carbon Cycle
7	TH Oct 9	9	Life and climate feedbacks
8	T Oct 14	-	Review
8	TH Oct 16	-	Exam 1 (Chapters 1-8, in-class material)
9	T Oct 21		Class meets at Antarctic Research Facility (ARF, Carraway Building, lowest level)
9	TH Oct 23		Meets at ARF. Read Chap. 14, pg 270-280; Chap. 15, pg. 289-296
10	T Oct 28		Class meets at ARF
10	TH Oct 30		Class meets at ARF
11	T Nov 4	14	Glacial cycles; Lab Test based on material covered in lab
11	TH Nov 6	14	Glacial cycles
12	T Nov 11	15	Short-term climate variability; El Nino – Southern Oscillation, NAO, AMO, PDO
12	TH Nov 13	16	Global Warming
13	T Nov 18	16	IPCC Report
13	TH Nov 20		Review
14	T Nov 25		Exam 2 (Chapters 14-16, in-class material)
14	TH Nov 27		Thanksgiving
15	T Dec 2		Presentations in class
15	TH Dec 4		Presentations in class
16	T Dec 8-12		Finals Week