



Geography 40: Introduction to Earth System Science

Fall 2016

T and Th at 9:30 - 11:00 (and 1 lab section/week)

Davis Hall 534



Professor:

Dr. Laurel Larsen (laurel@berkeley.edu)
595 McCone Hall Office hrs: Tue 11:00 a.m.-1:00 p.m.

Graduate Student Instructors:

Saalem Adera (saalem.adera@berkeley.edu).
565 McCone Office Hrs: Tue 4:00 p.m.-6:00 p.m.
Yi Jiao (jiaoyi@berkeley.edu).
598 McCone Office Hrs: Friday 10:45 a.m.-12:45 p.m.

Labs: lab attendance is mandatory. Meet in computer lab at **535 McCone Hall**

- (1) Mon 3-5 p.m. GSI: Saalem Adera
- (2) Tue 2-4 p.m. GSI: Saalem Adera
- (3) Wed 2-4 p.m. GSI: Yi Jiao
- (4) Fri 8:30-10:30 a.m. GSI: Yi Jiao

Labs start on the week of August 29.

Course website – on b-courses, <https://bcourses.berkeley.edu> . Lecture slides will be posted on this site the night before the lecture (may be as late as midnight).

Required Text: Environmental Geology: An earth systems science approach, 2nd Ed. by D. Merritts, K. Menking, and A. DeWet. Copies will be placed on 2-hr reserve in the Earth Science and Map Library (basement of McCone Hall)

Grading (tentative, subject to change):

Labs	36%	12 labs
Midterm	20%	Tuesday, October 18, 2016 in-class
Final Exam	30%	Exam Group 7: Tuesday, December 13, 3-6 pm
Journal article synopsis	4%	Due Thursday, November 17, 2016 in class
In-class participation	10%	

PLEASE NOTE:

- Taking both the midterm and final is **required** in order to pass the course.
- Attendance at lab is **mandatory**.
- Missing lab without a valid excuse will result in a 0 for that lab. Requests for make-ups submitted after the missed lab will not be honored.
- If you know in advance you must miss a lab, give your GSI at least a 1-week advance notice in writing and make arrangements to attend an alternate section.
- Missing 5 or more labs will result in a fail grade for the class, regardless of your standing.

Your responsibilities:

- * **Attend lectures and all labs**, and be punctual.
- * Check our bCourses website for announcements and reading materials.
- * Keep up with the readings
- * Participate and ask questions!
- * Maintain the highest academic integrity.
- * Bring a calculator to class and lab.

Course description

- This first course in physical geography lays out the **scientific understanding of global changes to the Earth system**.
- We will study fundamental concepts of systems and the Earth system in particular—feedbacks and Earth’s energy balance.
- Documenting the occurrences and understanding the causes of past global changes gives us a perspective and baseline for understanding the potential for the earth system to change. We will look at various cases of past global changes.
- All of the Earth’s components - the atmosphere, hydrosphere, biosphere, cryosphere, and lithosphere – are treated as an interactive whole in order to understand global environmental change. We will cover the various components to the earth system.
- Humans have been significantly changing the global environment over the last 100 years. We will examine these changes in the final weeks of class.

4 questions about Introduction to Earth System Science

1. What is Earth System Science?

Earth System Science is an interdisciplinary field that describes the cycling of energy and matter between the different spheres (atmosphere, hydrosphere, biosphere, cryosphere, and lithosphere) of the earth system.

2. What are some typical Earth System Science problems?

We will learn about how the atmosphere, oceans and lithospheric plates move; about the history of life and climate on our planet; and about modern issues of climate change, stratospheric ozone depletion, and biodiversity loss.

3. Why take a ‘systems’ approach?

The earth’s spheres interact with each other in an inextricably linked system to allow our planet to be habitable. Earth’s history is the key to understanding its present and future, and in order to understand the impact of humans on the earth, we need to understand how the earth itself functions as a system.

4. Are there pre-requisites for this class?

This class is a survey of earth system science, and it will involve chemistry, math, biology and physics. However, there are no prerequisites other than algebra, diligence, and an inquisitive nature.

Berkeley campus code of conduct

Review the campus code of conduct (<http://campuslife.berkeley.edu/conduct/integrity/definition>), in particular with attention to what constitutes plagiarism (quoted below):

“Plagiarism is defined as use of intellectual material produced by another person without acknowledging its source, for example:

- Wholesale copying of passages from works of others into your homework, essay, term paper, or dissertation without acknowledgment.
- Use of the views, opinions, or insights of another without acknowledgment.
- Paraphrasing of another person’s characteristic or original phraseology, metaphor, or other literary device without acknowledgment.”

There will be a zero tolerance policy for acts of plagiarism or cheating. Plagiarism or cheating will result in a failing grade and referral to campus disciplinary committee.