Earth System Science 60C —
Global Environmental Issues

Syllabus

Class Information

Lectures: Tues Thurs, 12:30 – 1:50pm, Location: MTSB 118

Discussions (Optional): Mon, 9-9:50am, Location: RH 184
Wed, 11-11:50am, Location: RH 184

Instructor: Steven J. Davis, sjdavis@uci.edu

Office Hours: Mon, Tues, Thurs, 2pm-3pm, Location: Croul Hall 3232
Book an appointment here: https://calendly.com/sjdavis/15min

Teaching Assistant: Paul Levine, paul.levine@uci.edu

Course Description

This course will cover a number of looming global environmental problems, what society can do about them, and the reasons why we aren't doing more. We will introduce the a number of psychological and socio-economic factors that contribute to environmental issues, and use them to gain insight into and draw parallels between specific environmental problems.

Textbook: There will be no textbook for the course (but see Required Reading below)

Student Learning Outcomes

After completing this course students should be able to:

1) explain the scientific basis of the global environmental issues covered in class, including the technical options available for avoiding or contending with each problem.
2) discuss social, psychological, economic and political issues surrounding each of the global environmental issues covered in class

Course Requirements

Required Reading: One scientific paper will be distributed by email prior to each lecture and students should have read the paper and be prepared to answer questions about the reading on the exams. The class TA will lead discussion of the reading materials and answer questions in the optional Discussion Sections.

Participation (25%): Attending lectures is the best way to learn the material and to maximize your overall performance and attendance is mandatory. Exam questions may be drawn from the topics discussed in class but not covered in the readings. Your questions are encouraged, so please do not hesitate to ask. To get full participation points, you must use your iClicker to respond to 75% of the iClicker questions asked in 13 of the 14 lectures over the quarter (not counting the introductory lecture), ***and*** submit score sheets for your classmates' final project presentations.

Field trips: Students are expected to attend the on-campus field trip to the Central Power Plant, which will happen during class time. Bonus participation points will be awarded to students that participate in the off-campus field trip.

Final Project (25%): Working in groups of 4, students will choose a global environmental issue to study in greater detail, identifying the key drivers and characteristics that make the issue difficult to solve.

Groups will present a short summary of their work during the last week of class and will produce a written report of at least 2000 words. Further details on the projects will be provided in class during Week 3.

Examinations - Mid-term (25%) and Final (25%): There will be two "closed book" exams, i.e., books, notes, calculators, cell phones and other forms of assistance are not permitted. No early exams will be given. If you miss an exam, a make-up oral exam will only be permitted a) within 1 week following that exam b) if you first provide authentic documentation of a genuine emergency excusing you from the exam and c) you personally request an appointment with the instructor. If you miss one exam, a make-up exam will not be permitted for the other exam.

Summary: The value of each assignment (exams and final project) and associated percentage of total points possible this quarter is presented below.

Table 1: Point values of assignments

Assignment	points total	% total
Participation	25	25%
Midterm	25	25%
Final Project	25	25%
Final	25	25%
Total	100	100%

Class Schedule

Week			Topic	Reading
1	Tues	29-Mar	*Introduction*: Goals, history global environmental problems, pathologies framework	
	Thurs	31-Mar	*Population Growth*	Lutz and Samir 2011 (*Science*)
2	Tues	5-Apr	*Fisheries Depletion*	Ludwig et al. 1993 (*Science*)
	Thurs	7-Apr	*Eutrophication*	Smith and Schindler 2009 (*Trends in E&E*)
3	Tues	12-Apr	*Climate Change (pt. 1):* Physical Science and Impacts	Hansen and Sato 20!6 (*ERL*)
	Thurs	14-Apr	**No lecture: FIELD TRIP** to UCI Central Power Plant on **Friday 15-Apr**	Davis and Caldeira 2010 (*PNAS*)
4	Tues	19-Apr	*Climate Change (pt. 2):* Human Drivers and Solutions	Raupach et al. 2007 (*PNAS*)
	Thurs	21-Apr	*Air Pollution* ***Project topics due in class***	Lin et al. 2014 (*PNAS*)
5	Tues	26-Apr	*Ocean Acidification*	Ricke et al. 2013 (*ERL*)
	Thurs	28-Apr	*Biodiversity Loss*	Cardinale et al. 2012 (*Nature*)
6	Tues	3-May	**MIDTERM**	
	Thurs	5-May	*Invasive Species*	Simberloff et al 2012 (*Trends in E&E*)
7	Tues	10-May	*Antibiotic Resistance*	Spellberg et al. 2013 (*NEJM*)
	Thurs	12-May	**FIELD TRIP** to Orange County Sanitation District Water Treatment Facility ***Draft Project Reports due in class***	
8	Tues	17-May	*Infectious Disease and Pandemic*	Fauci and Morens 2012 (*NEJM*)
	Thurs	19-May	*Food Security*	Godfray et al. 2010 (*Science*)
9	Tues	24-May	*Deforestation*	Defries et al. 2010 (*Nature Geoscience*)
	Thurs	26-May	*Nuclear War*	Toon et al. 2007 (*Science*)
10	Tues	31-May	Final Project Presentations	
	Thurs	2-Jun	Final Project Presentations	

Academic Honesty & Civility

Cheating and disruptive behavior in any form are never allowed. Guidelines established by the UCI Academic Senate will be followed if a student is caught cheating or disrupting the educational process. These policies are available available online and highlighted below. You have a responsibility to refrain from any form of academic dishonesty and to treat your fellow students, teaching assistants, and instructors with courtesy, civility, and respect.

Consulting on assignments is acceptable and encouraged as a potentially valuable learning practice. Study together, discuss methods, and check your answers against each other. You must do the work yourself and write your answers in your own words. It is your responsibility to make it clear to the grader that you worked through the entire problem yourself. Plagiarism (e.g., copying another student's answer, submitting others' work without attribution) results in an automatic score of zero on the assignment/exam and possible additional penalties, beginning with loss of whole grades. Ask the instructor or a TA if you have any questions about what this means. One way to be safe is to never show your written work to others or ask your study partners to see their answers. Focus instead on discussing the correct methods or principles. It is also academic dishonesty to operate another person's iClicker!

Highlights from the UCI Academic Senate Policies on Academic Honesty:

Types of Academic Dishonesty:
Cheating
Copying from other students (or staring inappropriately at their work) during an exam.
Telling answers to another student during an exam.
Taking an exam for another student or having another student take an exam for you.
Making changes to a corrected exam and then returning it for more credit.
Using hidden notes.
Dishonest conduct (e.g., stealing an exam from an instructor)
Plagiarism
Collusion (i.e., helping another student to cheat such as operating their iClicker)

Students have a responsibility to:
Refrain from cheating and plagiarism.
Refuse to aid or abet any form of academic dishonesty.
Notify professors and/or appropriate administrative officials about observed incidents of academic misconduct. The anonymity of a student reporting an incident of academic dishonesty will be protected.
Refrain from cheating and plagiarism.