

**BIOL 420 - Global Change**

CSULA / Winter 2013

Lecture: TR 6:10 – 7:50 PM, BIOS 244

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Office hours: Th 1:00PM - 2:00 PM

Course web page – <https://moodle.calstatela.edu/>

**Course Description:** Prerequisite: BIOL 300, 320, 360; CHEM 103. This class is an introduction to the emerging discipline of Earth System Science, which considers interlinked physical and biological processes. We will examine the major transformations occurring on the Earth, the causes of these changes (both anthropogenic and natural), and their likely consequences for Earth's biological systems. The impacts of global change on specific systems, including fisheries, forests, agriculture, as well as impacts on ecosystem processes, biodiversity, biological productivity, and sustainability will be considered. An important aspect of this rapidly developing field of science is the ability to evaluate the validity of scientific claims as a basis for sound policy decisions. Thus, the course will emphasize critical thinking by asking you to carefully consider the nature of the scientific evidence discussed, and the integrity of public statements on this topic.

**Learning Objectives:** Upon completion of this course students should be able to:

- Be able to describe the relationship between human activities and climate change.
- Analyze and compare carbon-producing resources.
- Assess the impact of human activities and carbon production on the environment.
- Propose solutions to climate change issues.
- Collect, interpret and present information.
- Communicate about strategies to confront climate change to a variety of audiences, including other students and the local community.

**Text:** Reports, handouts and online articles.

**Course Format:** The bulk of the course will combine lectures with class discussions and periodic assignments focused on recently covered class material (film, lectures, scientific literature, the popular media and internet-based assignments). There will be two exams (midterm & the final). Readings will be drawn primarily from the current scientific literature (recent books, journal articles, and summary reports), as well as from the popular media (newspapers, magazines and the internet). All homework assignments MUST be typed; classroom and calculation-based assignments may be neatly handwritten.

**Drop Policy:** Please see the schedule of classes for information. No exceptions will be made to the established University Deadlines.

**Expectations:** Regular attendance and participation is required. You are expected to have read the articles assigned for each class meeting.

**Exams:** There will be two exams (midterm & the final). The midterm and final are each worth 150 points. All personal items such as book bags, backpacks, briefcases and purses brought to exams must fit completely under your seats. If you need to leave the room for any reason during the exam, all exam materials including your lab manual must be left at your desk. There will be no make-up exams or assignments. Please inform your instructor should any special circumstances arise.

**Academic Honesty:** Students are expected to read and abide by the University's Academic Honesty Policy, which can be found at [www.calstatela.edu/academic/senate/handbook/ch5a.htm](http://www.calstatela.edu/academic/senate/handbook/ch5a.htm). Students who violate this policy will be subject to disciplinary action, and may receive a failing grade in the course for a single violation.

**ADA statement:** "Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation."

Instructor reserves the right to alter and/or amend the syllabus throughout the quarter as necessary.

**Recording Lectures:** You may bring audio recorders to the front to tape lectures if you desire. **No videotaping.**

**Assessment Procedures:** Your final class grade will be based on your total score out of 500 possible points. Grades will not be assigned until after the final exam, when all scores are available. You may estimate your grade at any time by calculating a percentage based on all possible points.

Midterm exam	150 points
Final exam	150 points
HW and Class Assignments	200 points
<b>Total</b>	<b>500 points</b>

<u>Letter Grade</u>	<u>Percent of Total</u>	<u>Total points (out of 500 possible)</u>
A	92-100	≥460
A-	90-91.9	450-459
B+	88-89.9	440-449
B	82-87.9	410-439
B-	80-81.9	400-409
C+	78-79.9	390-399
C	72-77.9	360-389
C-	70-71.9	350-359
D+	68-69.9	340-349
D	62-67.9	310-339
D-	60-61.9	300-309
F	Below 60	<300

<b>Date</b>	<b>Topic</b>	<b>Reading</b>
01/08	<b>Introduction / BIOL 420 Survey</b>	
01/10	<b>Many Planets, One Earth</b>	TBA
01/15	<b>The Atmosphere Part I</b>	Trenberth et al.
01/17	<b>The Atmosphere Part II</b>	The Importance of Understanding Clouds/NASA
01/22	<b>Oceans</b>	TBA
01/24	<b>Ecosystems Part I</b>	TBA
01/29	<b>Ecosystems Part II</b>	TBA
01/31	<b>Human Population Dynamics</b>	UN Millennium Goals Population Age Structure
02/05	<b>Risk, Exposure, and Health</b>	TBA
<b>02/07</b>	<b>MIDTERM EXAM!!! PLEASE BRING SCANTRON FORM #882!</b>	

02/12	<b>Agriculture and Land Use</b>	Pew Feeding the World
02/14	<b>Water Resources</b>	TBA
02/19	<b>Biodiversity Decline Part I</b>	TBA & Prospect for Biodiversity (State of the Planet Debate)
02/21	<b>Biodiversity Decline Part II</b>	TBA
02/26	<b>Energy Challenges</b>	
02/28	<b>Atmospheric Pollution</b>	TBA
03/05	<b>Earth's Changing Climate Part I</b>	TBA
03/07	<b>Earth's Changing Climate Part II</b>	TBA
03/12	<b>Looking Forward: Our Global Experiment Part I</b>	GEO4 Report
03/14	<b>Looking Forward: Our Global Experiment Part II</b>	TBA
<b>03/21</b>	<b>FINAL EXAM (150 pts.) THURSDAY, MARCH 21, 2013, BIOS 244. NOTE: SPECIAL TIME!!!! 7:30 – 10:00 PM.</b>	