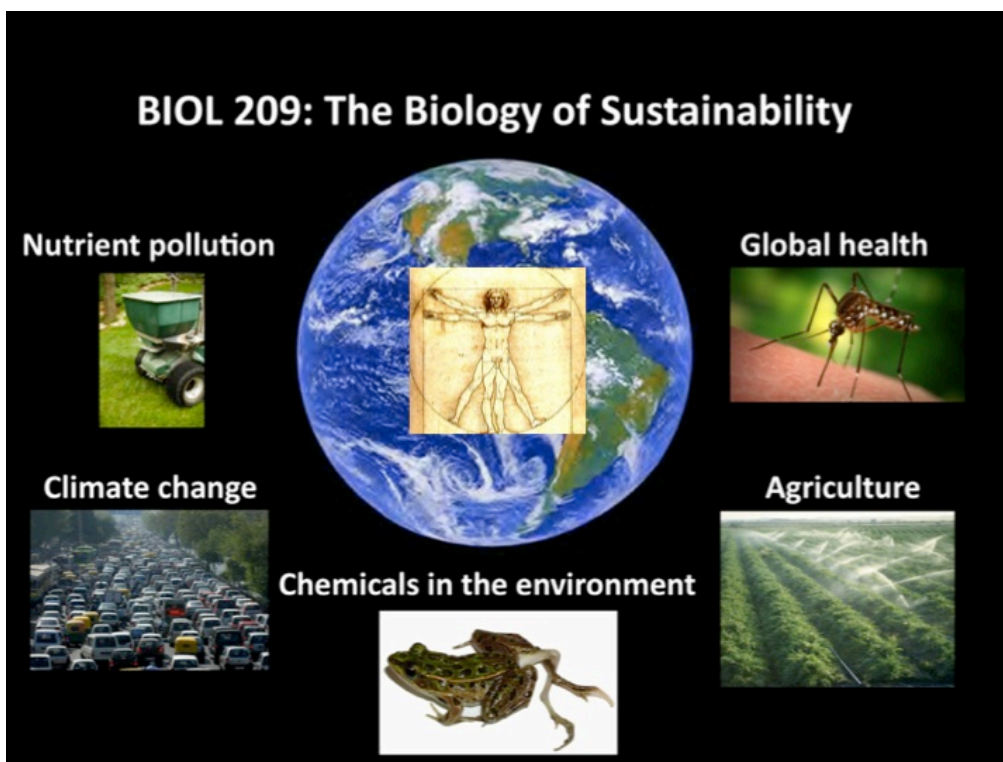


BIOL 209: Biology of Sustainability Fall 2015

OWS 250
TR 3:25-5:00

Instructor: Dr. Chip Small
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Office hours: M,F 9-11 (or by apt. or drop-in)



Course description: The success of humans as a species has been due in large part to our ability to modify our environment. As human population has exceeded 7 billion, it is becoming increasingly clear that these changes to our environment affect human health and the functioning of natural processes that we depend on for life. This course explores the relationship between humans and the environment through examining issues such as climate change, nutrient pollution, agricultural production, chemical contamination, and emerging diseases.

What is this class about?

Although BIOL 209 is part of the core course sequence in Biology, it differs from 207 and 208 in some important ways. This course (both lecture and lab components) will prepare you for higher level biology courses by emphasizing skills such as critical thinking, data analysis, and scientific communication. It is less focused on content knowledge. However, we will study many important core biological topics such as organismal physiology, evolution, energy and nutrient mass balance, and population dynamics.

IDEA Learning Objectives

1	Gain factual knowledge (terminology, methods, etc.)	<i>Important</i>
2	Learn fundamental principles and theories	<i>Important</i>
3	Learn to apply course material (to improve thinking, problem solving, and decisions)	<i>Essential</i>
8	Develop skills in expressing yourself orally and in writing	<i>Essential</i>

Class Format: The “lecture” part of the course (I think of it as a “concept lab”) will be centered around active learning activities. *Not only attendance, but active participation is required in order to succeed in this course.* Regular reading and writing assignments will be required outside of class, that make up a large part of your semester grade and are critical for preparing you for class activities. Much of our work will be done in teams; you’ll be assigned to a team for the semester and evaluated by your fellow team members on your effort and quality of contributions.

Reading Materials:

Instead of a traditional textbook, we are using primary literature articles, science articles written for popular articles, and other internet-based resources. You will also be reading one of four books: *The Wild Life of Our Bodies*, by Rob Dunn; *Changing Planet, Changing Earth*, by Paul Epstein and Dan Ferber; *Toxic bodies: hormone disruptors and the legacy of DES* by Nancy Langston; or *The Sixth Extinction: An Unnatural History* by Elizabeth Colbert. Each of these books is available for ~\$20. We will coordinate book assignments during the first weeks of class.

Lab Format: You are required to attend a 3-hour lab each week. The labs will provide hands-on experience with many of the topics and issues discussed in lectures as well as providing you with exposure to a variety of techniques and tools for data collection.

Expectations:

- I expect us to converse freely and respectfully in a true seminar format. This requires that you come prepared, having completed reading and writing assignments.
- I expect you to respect your team members, to contribute to the team effort, and to treat all team members fairly.
- I expect you to become independent in your thinking and in your experimental work. Problem solving, finding resources, and trouble-shooting are things you should expect to do routinely in this course, as a part of your independent work.
- I expect you to address any concerns that you might have about the course in a timely manner. This will allow me to recognize that there is a problem and allow me to address it quickly.

Grading	
Lecture	
Exam 1	100
Exam 2	100
Final Exam	100
Reading quizzes (individual)	25
Reading quizzes (team)	25
Journal article discussion #1	10
Journal article discussion #2	15
Group journal	20
Peer evaluation	30
Seminar attendance	15
Total for lecture	440
Total for lab	160
Total for course	600

Exam Dates

Exam 1: Thursday, Oct. 8

Exam 2: Thursday, Nov. 11

Final exam: Tuesday, Dec. 22
10:30-12:30

University Catalog Grading Standards

A	92.5	100
A-	89.5	92.4
B+	86.5	89.4
B	82.5	86.4
B-	79.5	82.4
C+	76.5	79.4
C	72.5	76.4
C-	69.5	72.4
D+	66.5	69.4
D	62.5	66.4
D-	59.5	62.4

Attendance:

Attendance is required at all lecture and lab meetings. If you will have to miss a class due to a University-sponsored event, notify me at least one week before. If you miss a class due to illness or family emergency, let me know by e-mail as soon as possible. Written documentation may be required for any late assignments.

More details on assignments:

Exams

The exams in this course are designed to apply course material using critical thinking skills. I might ask you, for example, to come up with examples that demonstrate your understanding of central concepts, to analyze and interpret data, and to explain the rationale behind different sides of an argument. *Simply memorizing facts is not going to result in succeeding on these exams.* However, if you complete all assigned reading, engage in the group journal activities, and actively participate in class, you will be well prepared for the exams. We will go through practice exam problems in each unit, so you will have a good idea of what I'm looking for in grading these. A typical exam may be 6 questions (each with ~4 separate parts), of which you choose 5 to answer. You will have the opportunity to earn 25% of missed points back on Exams 1 and 2 by completing a post-exam analysis by the class period after the exams are returned.

Team discussion leaders

We will be reading and discussing a series of science journal articles throughout the course. One of the teams will be selected at random to lead each discussion—*so all students need to come to class prepared to lead the discussion*, i.e. with a list of questions and observations. Each team will be graded on the quality of the discussion they lead.

Team peer-reviewed journal activity

In your teams, you will be participating in an ongoing writing assignment in which you reflect on the readings and class material each week, and then respond to the reflections written by your group members. Each Tuesday (beginning 9/15) you will submit a 500-word reflection on the assigned readings for *the upcoming week*. (Yes, that means you have to read ahead, and yes, it has to be at least 500 words). This is not a book report! It does not have to have a beginning, middle, and end, or have a thesis that is supported by arguments. This is informal writing. You should briefly summarize the important concepts from the readings, and describe what you found interesting, surprising, or confusing. Write about what you do not understand, or what you half-understand, or how this week's material might connect to last week's, or how this material fits in with your prior knowledge and other experiences. Your challenge is to make your entry interesting for your team members to respond to.

In Blackboard, go to "Groups", and then click on your group. Under "Group Tools", choose "Group Journal". Click on "Create Journal Entry." Add a title and text (>500 words) below.

Then, the following Thursday, (beginning 9/17), you will write a 250-word response to all three of your group members, according to the schedule that will be posted. Post responses as a comment under the original entry. Your job in writing these responses is not to evaluate the quality of their ideas or writing. Instead, highlight ideas that you found particularly interesting. Write about how your struggle with these ideas compares to theirs.

You will not get comments back from me on these journals during the semester, although I will be reading them and may occasionally make some general comments to the class. You will get a grade at the end of the semester based on participation (in writing the original reflections and in responding to your group members) and the improvement in the quality of your ideas over the course of the semester.

Seminar attendance

You are required to attend two seminars over the course of the semester on topics related to the content of this course, and submit a 500 word reflection on Blackboard. Include a brief summary of important concepts, and what you found interesting, surprising, or confusing. Biology department seminars will be on Friday afternoons; there will also be other seminars throughout UST (chemistry, geology, geography) that qualify, as well as at other nearby colleges and universities (Macalester, U of M). I will make announcements of seminars throughout the semester.

Reading quizzes

There will be short (5 question) reading quizzes on the background readings for each unit. These quizzes will have both an individual and a team component, for a total of 5 points per quiz.

Peer evaluation

In the last week of the semester you will complete an evaluation of your team members, rating their effort and contributions relative to your own. During the third week of the course, you will complete the same survey as formative feedback for your team members.

Additional Resources:

You may find this course challenging. If you find that you need additional help, there are several avenues available to you, at your initiative. Look at the Academic Counseling Resources web page for more information:

<http://www.stthomas.edu/academiccounseling/resources&links.htm>

- **Form or join a study group:** Frequently, students who do the best in rigorous courses study in groups. It is an excellent idea to form a study group early in the semester and stick with it. Grades in this course are determined as a percentage of the total points possible, so you are not competing against one another for your grade. In other words, it would theoretically be possible for everyone in the course to get an "A". Therefore, it is to your advantage to help one another succeed.
- **The Writing Center:** This center is located in 361 John Roach Center. You will be doing a lot of writing in this course. If you find that you are having difficulty with assignments, call (2-5601) or stop by the writing center to check out the opportunities available to you for help. Their hours are 9 a.m. to 8 p.m. M-Th, 9-noon on F, and 6-9 p.m. on Sunday.
- **Academic Support Center:** This center is located OEC 123. If you are having trouble in the course, and would like some help with your study skills, stop by or make an appointment (2- 6317). Their hours are 8-5 M-F.
- **Academic Counseling:** This office is located in 119 OEC. If you are having difficulties with this course or anything else related to your personal life or academic performance, the people in this office will be happy to help you. They can help you with many things including managing your schedule, improving study habits, test taking, etc. Don't be shy about using this service, you are paying for it - make use of it! Hours are Mon-Fri, 8-4:30 p.m. The number for this office is 2-6300.
- **Make an appointment with me (or your lab instructor):** We are always willing to meet with you to answer questions about anything in the course. If you have questions about the course material or grading you are welcome to arrange a meeting time with me personally or with your lab instructor. Email contact is also recommended as a good method of answering routine questions or to make an appointment.

Accommodations for students with disabilities:

Academic accommodations will be provided for qualified students with documented disabilities including but not limited to mental health diagnoses, learning disabilities, Attention Deficit Disorder, chronic medical conditions, visual, mobility, and hearing disabilities. Students are invited to contact the Disability Resources office about accommodations early in the semester. Appointments can be made by calling 651-962-6315 or in person in Murray Herrick, room 110. For further information, you can locate the Disability Resources office on the web at <http://www.stthomas.edu/enhancementprog/>.

UST Academic Integrity Policy:

Honesty and trust among students and between students and faculty are essential for a strong, functioning academic community. Consequently, students are expected to do their own work on all academic assignments, tests, projects and research/term papers. Academic dishonesty, whether cheating, plagiarism or some other form of dishonest conduct related to academic coursework and listed in the *Student Policy Book* under “ Discipline: Rules of Conduct” will automatically result in failure for the work involved. But academic dishonesty could also result in failure for the course and, in the event of a second incident of academic dishonesty, suspension from the university. See:

http://www.stthomas.edu/policies/student_policy_book/Academic_Integrity_Policy.asp

Examples of plagiarism:

If you are unsure about whether you have plagiarized a source or not, you should look at the examples below to remind yourself of what constitutes plagiarism. For more information, definitions, and examples refer to the following websites: <http://www.chem.uky.edu/courses/common/plagiarism.html> (click on “Examples”) <http://www.bio.davidson.edu/dept/plagiarism.html>

<http://www.bio.davidson.edu/dept/plagiarism.html>

The following are examples of plagiarism:

- Phrases copied from original text without quotation marks
- Paraphrasing that utilizes the same vocabulary, sentence, or paragraph structure, but rearranges phrases or words within the sentences or paragraphs.
- Proposing an idea that is not your own but is based on published works
- Failure to give credit to another person’s scientific findings (improper citations)
- Using images from the internet or another print source without proper citation
- Duplicated phrases or ideas from another student’s work

Note that changing some or many of the words in a quote does not make it your words, nor are you allowed to change words and still use quotation marks as those mean it is an exact quote.

Original material: *The vascular plants, like all living things, had aquatic ancestors, and the story of their evolution is inseparably linked with their progressive occupation of the land.*

Plagiarized statement: *The vascular plants, like all living things, had ancestors that originated in water, and their evolution cannot be separated from their sequential occupation of the land.*

Acceptable paraphrasing: *Since plants originated from the sea, their evolutionary history is closely tied to stages in colonization of the land.*

Acceptable statement with reference citation: *It has been noted (Raven et al. 1981) that all vascular plants had aquatic ancestors and, therefore, their evolution is linked to a progressive occupation of the land.*

Source: Plagiarism Guidelines - Smith College, Biology 202 Fall 2000

<http://www.science.smith.edu/~mmarco/Hortwebpage-fall/termpaper/plagerismlesson.htm>