Biology 490, Climate Change, Spring 2018

Course overview

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Class Schedule

Week	Date	Class Topic	Due Dates
1	Jan. 24	**INTRO TO CLIMATE CHANGE**	
2	Jan. 30	Climate Modes	
3	Feb. 6	Geographic Variation	Feb. 10 (Saturday): Project Outlines **(10pm)**
4	Feb. 13	Trophic Effects	
5	Feb. 20	Seasonality	Feb. 24 (Saturday): Annotated Bibliographies **(10pm)**
6	Feb. 27	Student-Led Discussions I ___ & ___	
7	Mar. 6	Student-Led Discussions II ___ & ___	Mar. 11 (Sunday): First Drafts **(10pm)**
8	Mar. 13	Student-Led Discussions III ___ & ___	
	Mar. 20	**SPRING BREAK: No Classes**	
9	Mar. 27	Student-Led Discussions IV	
10	Apr. 3	Student-Led Discussions V	
11	Apr. 10	Student-Led Discussions VI	
12	Apr. 17	Future of Changing Climates	Apr. 17 (Tuesday): Draft Revisions **(9pm)**
13	Apr. 24	*Project Presentations I*	Apr. 24 (Tuesday): Peer Reviews I (**5pm**)
14	May 1	*Project Presentations II*	May 1 (Tuesday): Peer Reviews II (**5pm**)
15	May 8	*Project Presentations III*	May 8 (Tuesday): Peer Reviews III (**5pm**)
			May 18 (Friday): Final Drafts **(10pm)**

Course description

This course examines ecological patterns and outcomes of events such as the last ice age, explores effects of ongoing changes in terms of habitat alteration, migration, adaptation, and extinction, and attempts to predict consequences of future anthropogenic climate change for life on Earth. In addition to lectures and group discussions, students are required to read, discuss, and review scientific literature.

Course goals

Upon completion of this course you should be able to:

- Demonstrate an understanding of climate change, the basis for its importance as a topic in biology, and relate the ubiquity of topics in climate change biology to applied fields such as conservation and management.
- Differentiate among types of questions that biologists study in relation to climate change, compare the methods that biologists use to study these questions, and specify the fundamental lessons that have been learned.
- Demonstrate the ability to write and orally present biological information that is articulate and grammatically correct with properly documented and organized ideas, data, and references.
- Critique your own and others' written and oral communication skills by providing and applying useful feedback.

Course readings

In this course we will discuss the relevant scientific literature, which I will provide prior to each class. A substantial portion of your grade depends on how well you read, synthesize, and discuss the material for this course. I expect you to keep up on readings AND to read them for content. Much of the scientific literature is highly technical, jargon rich, and extremely dense in terms of information content. *You will not do well in this class if you only spend a few minutes before each class scanning the readings*. Gaining a true understanding of a single paper may take an hour or more, and, yes, this is what I expect you to do. My advice is that you sit down in a quiet spot and carefully read the paper, then come to class and ask questions about things you don't understand. Also, looking up words you do not understand can be critical for comprehension. However, be skeptical of what you read. You should be able to address the following questions: Do the authors actually have the data to support their conclusion? Take your time on the readings and take notes. What you DON'T understand can be a great topic for discussion and count positively toward your participation grade. *At very least, you should be able to interpret the data presented in the figures of each paper*.

Course evaluation

Your grade in this course will be based on the following components (totaling 400 pts.):

Discussion Participation	Discussion Lead	Paper Outline	Annotated Bibliography	1st Draft	2nd Draft	Peer Reviews (3)	Final Paper	Oral Presentation
50 pts.	25 pts.	10 pts.	25 pts.	25 pts.	50 pts.	75 pts.	100 pts.	40 pts.

Discussion Participation

Class attendance and participation is expected. Participation, which is 13% of your final grade, includes your contribution to lectures and discussions of lecture topics and outside readings. Ask questions, make observations, engage!

Discussion Lead

Each student (as part of a pair) will lead a discussion this semester. To complete this assignment, you and I will meet two weeks prior to your particular week to consider possible papers for discussion. Then the week before you lead discussion this will be given to the class to read. The week of your assignment you are expected to keep the conversation going by raising salient points or issues of concern pertaining to your topic. This assignment is worth 6% of your grade.

Term Projects

You will choose a *biological* topic related to predator-prey interactions, research that topic, and write a review of the ideas present in the literature. You should approach this assignment as if you were writing a review paper of a relevant issue for publication in a journal with your peers performing the evaluation and me as editor. Projects include an outline of areas to be researched, an annotated bibliography of relevant literature, a draft paper (evaluated by me), a second draft to be peer-edited (for which both drafts and reviews are graded), and a final draft. The paper should be *8-12 double-spaced* pages (title page, figures, and references are *extra*) and ONLY consist of peer-reviewed literature as source material (*no web sources allowed*). The entire term project is worth 53% of your grade.

Peer Reviews

As part of the term project you will be assigned three papers from your peers (one per week) to critique and provide useful feedback. This is meant to expose you to the world of peer review in which others in the field evaluate your work. These assignments are meant to offer a mechanism to continue improving your writing at the same time exposing you to a broader spectrum of ideas from your classmates. You grade is based on how useful I deem your critique for your classmate and is worth 19% of your grade in this course

Project Presentations

You will orally present a brief overview of your research project findings, which includes at least one quantitative element (e.g., a data figure from the literature). There will be four of these each day and you will have 15 minutes to summarize your research and 5 minutes to answer questions. Your grade on this assignment is based on three main components: i) how well you orally summarize the findings of your research; ii) how well you present your findings with the aid of PowerPoint, and iii) how well your presentation stimulates questions or discussion. Combined this assignment is 10% of your grade.

Final Grades

Your final grade is based on the percentage of points that you earn.

$\geq$93% = A, $\geq$90% = A–, $\geq$87% = B+, $\geq$83% = B, $\geq$80% = B–, $\geq$77% = C+, $\geq$73% = C, $\geq$70% = C–, $\geq$67% = D+, $\geq$60% = D, <60% = F

Comprehensive Exam

Satisfactory completion of this course requires that you take the Biology Department's comprehensive exam. Although your performance on the exam will not influence your grade in BIO 490, grades may be withheld until the exam is complete. The comprehensive exam is scheduled for either Wednesday, May 2, or Thursday, May 3, from 6-7 pm in TNR 120.

In-Class Behavior

You are expected to be respectful and considerate of your fellow students' learning environment. *All cell phones* are to be silenced and put away during class. No texting, no calls, no exceptions (I may not say anything at the time, but you should expect your participation grade to be affected negatively if you violate these guidelines). You are not required to *agree* with every opinion expressed by your peers or by me; in fact, healthy skepticism is to be expected of any good scientist. However, you should respect the right of others to hold different opinions and perhaps even learn from their viewpoints. You are expected to ask questions and participate in discussions where appropriate.

Disabilities

If you have a documented disability that may have some impact on your work in this class for which you may require accommodations, please see me during the first two weeks of the semester so that such accommodations may be arranged.

Academic Integrity

Any misrepresentation of your work, including plagiarism or cheating, will result in a zero (0) for that assignment. You should become familiar with the Student Academic Standards and Disciplinary Procedures governing academic conduct.

Notification of Participation in College Sanctioned Events

Individuals who must miss a class to participate in a college-sanctioned event must notify me in advance. It is your responsibility to communicate with me in advance regarding absences and determine a schedule for make-up work.