

Biology 490, Climate Change, Fall 2021

Course overview

Faculty	Dr. Peter A. Zani
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Office Hours	By appointment only

Course Schedule

Week	Date	Class Topic	Research Paper Due Dates
1	Sept. 8	History of Climate Change	Topic choice by 09/08
2	Sept. 13	Climate Modes	
3	Sept. 20	Range Shifts / Sea Ice	
4	Sept. 27	Trophic Effects	Project outlines by 09/29
5	Oct. 4	Seasonality / Human Impacts	
6	Oct. 11	Student-Led Discussion:	
7	Oct. 18	Student-Led Discussion:	
8	Oct. 25	Student-Led Discussion:	First drafts by 10/27
9	Nov. 1	Student-Led Discussion:	
10	Nov. 8	Student-Led Discussion:	
11	Nov. 15	Student-Led Discussion:	
12	Nov. 22	Student-Led Discussion:	Second drafts by 11/27
13	Nov. 29	Student-Led Discussion:	
14	Dec. 6	Future of Changing Climates	Peer reviews by 12/08
15	Dec. 13	<i>Project Presentations</i> by 12/21	Final drafts by 12/18

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. Much of the scientific literature is highly technical, jargon rich, and extremely dense in terms of information content. 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.

Course evaluation

Your grade in this course will be based on the following components (totaling 420 pts.):

Weekly Worksheets	Discussion Lead	Discussion Worksheets	Paper Outline	1 st Draft	2 nd Draft	Peer Reviews (3)	Final Paper	Oral Presentation	Presentation Evaluations (3)	Comment Response
50 pts.	20 pts.	40 pts.	10 pts.	25 pts.	50 pts.	60 pts.	100 pts.	40 pts.	15 pts.	10 pts.

Weekly Worksheets

Twice each week (by Tuesday and Thursday) I will post to Canvas a pdf of a scientific paper for consideration along with a set of questions to address from that reading. You will have about four days to complete the assignment and return your answers. Each set of answers is worth 5 pts, for a total of 50 pts., or 12% of your grade.

Discussion Lead

Each student will choose a paper for consideration this semester. To complete this assignment, you and I need to agree upon a particular paper for reading in advance of the week listed on the schedule. You can expect an e-mail from me detailing the limits to the paper choice and your individual due dates. Prior to week of your assignment you will need to send me a pdf of the paper for reading and a set of questions you want the class to answer. Your paper choice and questions will be worth 20 pts., or 5% of your grade.

Discussion Worksheets

The questions you draft for your reading should pertain directly or indirectly to the topic at hand. That is, you should have some central idea you're trying to explore in the paper you chose. Usually this is closely allied to the ideas you are reviewing for your term project. Each graded set of answers is worth 5 pts. each, but I will not be grading each set. Rather, over the course of the semester I will randomly select eight (8) of your worksheets to grade for a total of 40 pts., or 10% 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 51% of your grade.

Peer Reviews

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 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. Your grade is based on how useful your critique is for your classmate and is worth 60 pts., or 14% of your grade.

Project Presentations

You will orally present an overview of your research findings, which must include at least one quantitative element (e.g., a data figure from the literature) that you explain during your presentation. Presentations should be 15 minutes in which you summarize your research. Your grade is based on three main components: i) how well you summarize the ideas; ii) how well you present with the aid of PowerPoint, and iii) the quality of your explanations of the required quantitative elements. This assignment is 40 pts., or 10% of your grade.

Project Presentations

Of the presentations provided by your peers, you will be assigned three to review by me. These reviews are meant to provide feedback to the presenters about the content and style of their presentation. Together, the three reviews will be worth 15 pts, or 4% of your grade.

Comment Response

Once you have received peer reviews, you need to indicate how you incorporated my comments as well as those of your peers in your final draft. This final written assignment is worth 2% of your grade

Final Grades

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

≥93% = A, ≥90% = A-, ≥87% = B+, ≥83% = B, ≥80% = B-, ≥77% = C+, ≥73% = C, ≥70% = C-, ≥67% = D+, ≥60% = D, <60% = F

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.

Teaching and Learning in the Era of Coronavirus

These are unusual times in that we are trying to continue teaching-and-learning while a very serious viral epidemic rages globally. Yet, we seek to persevere and overcome this (and any other) challenge. In this case, the challenge is going to be meeting regularly to discuss the topic at hand and actually participating in the process. The work itself you can do on your own, but the meetings will aid you greatly. Thus, while I expect you to attend online meetings, I understand that life (including illness) sometimes gets in the way. The key is open and honest communication. If you cannot attend our meetings I can assign individual work, but this is less ideal in that the group discussions are key to advance your understanding in this class. If you contract Covid-19, the disease caused by the novel coronavirus, I will make every attempt to pause the due dates on any assignments and allow for make-up work as needed. If something happens and you cannot meet, please try to let me know in advance so I can adjust as needed. So, am I flexible? Absolutely. Do I still have expectations for your education in this course? Absolutely. The key is, I am willing to work with you to ensure that you can master the learning outcomes of this course in a reasonable manner. Carry on, and be safe.

Late assignment policy

Due dates are meant to ensure that you keep pace in this course. Unless you have a valid, documentable excuse (e.g., an obituary for the funeral you attended, a hospital admissions form, a positive Covid-19 test), late assignments will lose 10% of their grade each day they are late. This means that late assignments will be accepted for a grade up to 10 days following their due date, but not later.