

Geography 312 – Climate Change: Science and Society

Generic Syllabus

General Information:

Instructor:
Prof. Simon Donner
Department of Geography
Room 133, 1984 West Mall

Course Description:

Climate change is one of the greatest challenges facing humanity. This course provides students with the critical scientific grounding to understand the dynamics of the climate system, the causes of climate change, the impact of climate change on society, and the challenges of mitigation and adaptation.

The first part of the semester is devoted to the science of the climate system. This includes how the sun and planetary motion affects the Earth's energy budget, atmospheric composition and radiative forcing, the carbon cycle, global atmospheric and oceanic circulation, and modes of climate variability. The second part of the semester is devoted more to the interactions between society and the climate. We begin by examining how climate has varied in the past and the effect on the development of human society. Then we discuss the current and predicted impacts of climate change on environment and society, the communications challenge, and the politics and economics of controlling greenhouse gas emissions.

During the semester, students are expected to keep track of news related to climate change science, politics and solutions. A set of links to some of the many relevant news organizations and web-sites is available in the Climate News Blog section of this course site on Connect. News can be posted on the Climate News Blog page.

Key Information

Prerequisites: At least one GEOG 102, GEOG 200, GEOG 204, ATSC 201, EOSC 112.

Learning Objectives

At the end of the semester, a student that does the readings, reviews the course material, participates in the classroom and devotes time to the assignments and group project should:

- Be able to explain the scientific evidence for human-induced climate change or “global warming” to a member of their family
- Possess the language and knowledge-base necessary to discuss the science, politics and policy of climate change with their peers
- Have an appreciation for the effect of climate variability and change on society throughout history

- Be able to evaluate the quality of scientific information presented in the media
- Understand some of the cultural, political and economic challenges of responding to climate change (via the “Climate Summit”)

Course evaluation, policies and expectations

The grading elements are listed in the order they occur in the course:

- Assignment #1 – 10%
- Climate literacy test – 30%
- Assignment #2 – 5%
- Climate summit – 25%
- Class activity – 10%
- Final exam – 20%

Climate literacy test

This test is designed to ensure your comfort with the core concepts covered in the first part of the course. There are no calculations or formulas on the test. The test is done over two classes; on the second class, you are required to improve answers that were incorrect.

Final exam

The final exam covers the material discussed during the second-half of the semester. It will feature a mix of short and long answer questions based on the in-class material. Like the literacy test, there are no calculations or formulas on the exam.

Assignments

The two assignments are completed via Canvas. They are due at 5 pm on the date indicated in the system. **No late assignments will be accepted** unless the student is absent for illness or university business.

Class Activity

There are a number of interactive components of this course. Students are expected to keep up participate in weekly discussions of current events as well as in interactive discussions and activities related to the discussion readings. The class activity grade is based on your effort to contribute to these interactive activities, virtually and/or during class.

Climate News Blog + Burning questions

Students are asked to spend a few minutes each week looking at current news related to climate change science, policy and politics. The objectives of this exercise are to examine the lens through which climate change news is reporting, to learn how to assess information found online or in the media, and to become informed on the public and political conflicts about climate

change. Relevant news items you wish to mention in class can be posted to the Climate News Blog on Connect. Links to some news organizations and web-sites are provided on Connect.

Each class we will begin with “Burning Questions”. Students will be expected to volunteer to discuss a news item mentioned on the blog, reflect on the media source, what made the item newsworthy, and to ask any burning question(s).

Discussion readings + journal:

Most classes will have short required discussion readings. Students are expected to complete the readings in advance of class and be prepared to discuss the readings with their peers. The *Weekly readings journal* informal journal on Connect, seen only by yourself and the instructor, is an opportunity to reflect on the discussion readings in advance of class. It is an ideal way to gather your thoughts before class and ensure a lively discussion.

Climate Summit

In the second half of the semester, students will prepare to participate in a mock UN climate summit. Pairs of students will represent the different countries and attempt to negotiate an agreement following upon the recent Paris Climate Agreement, covering key international climate issues including emissions targets and funding for adaptation. Grades will be based on a written paper (15%) and participation in the Summit (10%). **No late papers will be accepted.**

The summit is a lot of fun and a terrific learning experience. See Canvas for documents explained the Summit in detail.

Readings

There is no required textbook for this course. The course Canvas page lists the required readings for discussion each class as well as background readings for those wishing to learn more or for further background on the scientific material. Students are expected to do the discussion readings and come to class prepared to participate in group discussions.