

SYLLABUS
Spring Semester, 2022

Climate Change and its Major Effects & Risks

Course Code:	ENV – 306
Course Instructor:	Dr. Michael Brody
Course Duration:	15 Weeks
No. of Credit Units:	6
Class meeting:	Mondays & Wednesdays
Time:	15:35-16:50
Mode:	Lecture & Seminar
Appointments/Hours	By appointment

Contact Information

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Important Dates:

- First class will be Monday January 24
- Wednesday, February 23, no classes (Defender of Fatherland Day)
- Monday, March 21 – no classes - Nooruz Holiday
- Spring Break: Monday, March 28 – Saturday April 2
- Wednesday, April 6 – Initiation Day – Classes are 50 minutes
- Monday May 9, no classes – Victory Day
- Saturday May 21 – last day of classes
- Final Exams – May 22 – May 28

Course Content & Description

Global climate change is one of the most serious global challenges of our times. It is an ongoing process caused by our increasing emissions of greenhouse gases. The effects from atmospheric warming are increasing and are increasingly serious. The societies we live in are already regularly subjected to different types of natural and man-made environmental disasters. Disasters and risks are increasing in both severity and frequency as human settlements expand into new regions, we begin to exploit more resources, and as global temperatures increase, and our climate changes around us. The impact of climate change on our world and way of life is not to be underestimated, and the consequences of not adapting to our new reality will be serious.

This course aims to introduce students to some of the most basic science of global climate change, its future path and most likely and common effects. Students do not have to be science majors to understand this part of the course! The material is for both science and non-science students alike. This material will show the very strong evidence that current climate change is anthropogenic, and not natural. Students will also learn to understand and respond to many of the arguments of climate change denial.

Students will then be introduced to concepts of disaster risks and concepts of environmental management as they relate to the natural environment and the impacts of climate change. The course

will cover an introduction to the types, causes and impacts of natural and environmental disasters, along with an explanation of their connections between climate change. This overview of climate and disaster risk analysis will lead to a better understanding of the management strategies that can be used to reduce the impacts of such occurrences. Finally, the course will cover material on how societies and countries can adapt to long-term climate change, and not merely respond to short-term emergencies.

Teaching Approaches

This course will feature a combination of lectures, and seminar-based discussions. There will also be demonstrations of online climate analysis resources and tools, that student can use for their main projects. There will be many opportunities for regular student discussions, presentations, and other activities. Students will be expected to keep up to date on their readings and homework assignments throughout the course, and students may earn marks for certain homework assignments or in-class activities. Participation will be graded based on the quality of class participation in the in-class discussions and exercises. Attendance is mandatory without an excused absence. Points will be taken off for unexcused absences.

Student-led sessions will begin with a presentation on assigned readings by a student or pair of students. This will be determined after the class size is final. These presentations should be seen both as an exercise in learning content but also to develop improved communication skills on a technical subject. This will help prepare students for their final presentations on their regional project.

Final grades will also be determined based on a term-long project analyzing the impacts of climate change and the risks posed by certain types of natural disasters in a specific location/region (of the students' choice) and how to best manage these. Progress on the assignment will be evaluated at various stages, with a grade assigned at mid-term, when students will have evaluated the current environmental risks present in their selected region, and after the final project is submitted, when students will have evaluated the effects of climate change on the environmental risks present in their chosen regions, identified what has been done so far to deal with these, and proposed potential management strategies.

Most weeks will include lectures, readings & discussions. There will be a series of student-led presentations throughout the semester. Think of these presentations as opportunities to develop communication skills for eventual conference participation!

Readings, Supplementary Materials & Assignments – Readings will be assigned during the course, depending upon progress and will be posted on the e-course site. There is no textbook.

Main reading topics will include:

- Scientific primer on the basics of climate change science - & how we know it is anthropogenic
- Climate Change and Human Health
- Facts on climate-related disasters
- Water Resources in Central Asia
- Climate adaptation
- Climate resilience
- Basics of climate policy
- Climate risk profiles of countries in Central Asia
- Online tools for climate risk analysis

Grading scheme:

Class Participation	10%
Presentations (in class) on readings, & topics of interest	20%
Quizzes (at different times during the class)	10%
Regional case study & final presentation (includes mid-term assignment)	35%
Final Exam	25%

General Course Schedule

(Subject to change at Professor's discretion)

Timing	Topic	Assignments
Weeks 1 & 2	<p>Introduction to Climate Science & Climate Change – understanding the basics – how we know it is anthropogenic, recent climate history, basis of climate forecasts, understanding the difference between variability and uncertainty</p> <p>Review lectures will be included so all students are able to understand this science – no matter what your major concentration is.</p>	<p>Read all of Chapter 1 during the first 2 weeks of class: https://www.global-warmingprimer.com/primer/primer1/</p> <p>Select a climate subject of your choice that is of great interest to you. Prepare a very brief presentation that shows the reasons for your interest (format to be discussed in class)</p>
Weeks 3 & 4	<p>Review of Various Types of Climate Change Effects</p> <p>Including climate effects on wildlife/ecosystems</p> <p>- With some student led discussions</p>	<p>Preliminary & brief presentations – based on Issues of Interest above</p> <p>First Quiz – on Weeks 1 & 2</p>
Weeks 5 & 6	<p>Concepts of Climate Risk and Resilience & Water Resources – a leading risk from global warming</p>	<p>Readings to be assigned – on resilience concepts & water issues</p> <p>Assign second set of short presentations</p>
Weeks 7 & 8	<p>More on Climate Change Impacts</p> <p>Lectures, student presentations and demonstration of online tools</p>	

Weeks 9 & 10	Mid-Semester Quiz. Student presentations on semester-long projects – progress to date; not the finished project	Regional Case Study Mid-term Assignment
Spring Break	No Class Week of March 28 - April 2	
Weeks 11 & 12	Flood risks and adaptation Includes both coastal and urban inland flooding Climate & Health Includes diseases and heat related illnesses	
Weeks 13 & 14	Management of Climate Risks Adaptation & Sustainability & Introduction to Climate Policy	
Weeks 15 & 16	Final Assignment Presentations	Final Assignment Due
Final Exam	Will cover all topics from the lectures	