GEOL/ENSS 212-2
CLIMATE CHANGE SYLLABUS
HARTWICK COLLEGE

Instructor: **Dr. Zsuzsanna Balogh-Brunstad**
Office: **Johnstone Science Center (JSC) 239**

Student Support/Office Hours:
Monday to Friday 11:00-12:00 or by appointment.

Class Room: **JSC 226**
Lecture: **MTTHF 1:00-3:25 PM**
(145 minutes/day)
The best way to contact me is via Email!

Course Description

212 Climate Change (3 credits) This non-lab course will examine the physical and anthropogenic geographical aspects of global environmental change, focusing on natural variations of the environment over time, the impact of human activities on the Earth's systems, and the projection of future environmental changes. Offered in alternate years.

Purpose of the course

- to practice the scientific method, critical thinking, and problem-solving skills
- to learn about the components and the natural driving forces of the climate system
- to learn about the natural and anthropogenic forcing of climate change
- to discuss impacts, adaptation, and mitigation of climate change
- to better understand how humanity impacts environmental processes, systems, and changes

Learning Outcomes

- Students will demonstrate knowledge of system science, interactions and feedback between various spheres of the Earth, energy balance, greenhouse effect, and atmospheric and ocean circulations.
- Students will familiarize themselves with the Earth system's past, present, and future climates.
- Students will demonstrate an understanding of climate change processes, impacts, adaptation, and mitigation by interpreting, explaining, and discussing the provided information.
- Students will improve their analytical and critical thinking skills, observations, note-taking, and public presentation skills.

Assessment and Evaluation

The work in this course will be evaluated through *in-class and homework assignments (25%), a presentation (25%), and a final exam (50%).* These will assess fundamental understanding of the topics, main concepts, content knowledge, problem-solving, and critical thinking skills. The final grade for the course is calculated as a weighted average of the above-listed components with their weight shown in parentheses. The following grading scale will be used (in terms of percentages): A (93-100); A- (90-92); B+ (87-89); B (83-86); B- (80-82); C+ (77-79); C (73-76); C- (70-72); D+ (67-69); D (63-66); D- (60-62); F (<60).

Class time will be spent discussing topics that are outlined in the semester schedule (see below). The lectures meet four times a week for 145 minutes (about 2.5 hours). The first half of the lecture time will be spent with traditional lectures (PowerPoint presentations and/or "chalk talks"), and after a 10-minute break the remaining of the class will be spent with in-class problem solving, analyzing data, discussions, and group work assignments, etc. You are RESPONSIBLE for **reading** the assigned text before class and **completing** the assigned work. You are expected to be present and participate in discussions and in-class assignments.

Presentations – a topic will be assigned to each of you (details will follow). You will need to complete the reading, prepare a 10-minute presentation in PowerPoint, and give a talk during the last week of the term.

The Final Exam will be given during the last lecture period, on **January 27th, 1:00-3:25 pm** in the regular classroom. The final will cover all the topics that we discussed during J-term. The exam will be a combination of multiple-choice questions, short essays, and problem-solving.

Required Text and Materials

- **Andreas Schmittner (2018) Introduction to Climate Science. Oregon State University. Print ISBN 978-1-955101-00-4. It is an open-source book and the pdf is available here: https://open.oregonstate.education/climatechange/**
- Other Course requirements a 2" binder to hold the handouts and assignments, a calculator, a ruler, a notebook (or notebook pages), and a **laptop computer** are needed for each class.
- **Communication** is done through D2L and Hartwick email. You are expected to check both email and D2L on a daily basis. All class materials are posted on D2L.
- Suggested Reading:
  - Bob McDonald (2022) The Future Is Now: Solving the Climate Crisis with Today's Technologies. Viking Publisher; ISBN-13: 978-0735241947

Class Policies and Requirements

- **Attendance:** REQUIRED. Hartwick requires that students attend all classes and that faculty take attendance. Attending class is crucial to your success in this class. If you must miss a class, please try to notify me prior to missing the class. *Students who have missed a class for any reason will be expected to find out what has been missed.* Utilize my student support/office hours.
- **Missed Work:** You are fully responsible for all missed work. There is NO mechanism for making up in-class assignments. The final exam must be taken on the date scheduled.
- **Incomplete Grade and Extra Credit:** Only under special circumstances!

- **Other expectations:**
  - Please arrive on time, or you may miss critical information or assignment. If you are late, please do not announce your presence in the class.
  - *Cell phones* should be in silent mode and placed on the desk in front of you during class.
  - Please Do NOT Text and/or listen to music during class! There is a 10-minute break at half-time of the class.
  - Bathroom visits are allowed, but *your cell phone should be left behind on your desk*.
  - Laptops/tablets/phones should only be used for specific in-class assignments.

- **Academic Adjustments and/or Modifications:** Hartwick College is committed to upholding and maintaining all aspects of the Federal Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973. If a student with a disability wishes to request academic accommodations, they should contact Lara Sanford, Director of AccessAbility Services, at sanfordl@hartwick.edu, or AccessAbilityServices@hartwick.edu. AccessAbility Services is located on the 5th floor of Yager Library in the Center for Student Success. Any information regarding a student's disability will remain confidential. **Requests for academic adjustments should be made as early as possible.**
- **Inclement Weather Plans:** If the college is closed for "inclement weather" there will be no class held. I may assign some asynchronous exercises depending on where we will be in the course schedule. Please check D2L for details.

College Policies and Resources

All college-wide policies, requirements, and resources are found on the Hartwick website – here are some specific links.

- **Academic Honesty**: https://www.hartwick.edu/academics/student-services/academic-affairs/academic-policies/
- **Title IX/Sexual Misconduct:** https://www.hartwick.edu/about-us/employment/human-resources/title-ix/
- **Covid-19:** https://www.hartwick.edu/about-us/covid-19-updates/
- **Counseling:** https://www.hartwick.edu/campus-life/health-wellness/counseling-center/ Counseling Center Phone: (607) 431-4420; Heart Peer Counselors Phone: (607) 431-5050.
- **College Catalog:** https://www.hartwick.edu/academics/student-services/office-of-the-registrar/college-catalog/
- **Student Services:** https://www.hartwick.edu/academics/student-services/
- **Student Handbook:** https://www.hartwick.edu/campus-life/student-affairs/code-of-conduct/student-handbook/

THE PLANNED COURSE SCHEDULE (SUBJECT TO CHANGE)

Day	Lecture Topics	Reading – Before Class
	Syllabus, Climate Change Survey, Introduction	Schmittner– Chapter 1. Weather
	The Climate System - Observations	Schmittner – Chapter 2. Observations
	Climate of the Past, **Little Ice Age**	Schmittner – Chapter 3. Paleoclimate
	Energy Budget and the Greenhouse Effect	Schmittner– Chapter 4. Theory
	Carbon Cycle	Schmittner– Chapter 5. Carbon
	The Climate System - Processes	Schmittner– Chapter 6. Processes
	Cryosphere, **Meltdown**	Kump et al. Chapter 6
	Natural and Anthropogenic Causes of Change	
	The Climate System – Models	Schmittner – Chapter 7. Models
	Impacts of Climate change	Schmittner – Chapter 8. Impacts
	Ecosystem Change – **Field Trip to Pine Lake**	
	Economics, ethics, and human health	Schmittner – Chapter 9 & 10. Economics and Ethics
	Solutions I.; Project Presentations	Schmittner – Chapter 11. Solutions
	Solutions II.; Project Presentations	
	FINAL EXAM – AT 1:00 PM IN JSC 226!	