Instructor: Dr. Abigail D'Ambrosia Carroll; arc234@pitt.edu
Office: SRCC 316
Office Hours: Thursday & Friday, 11am-12pm (*or by appt*)

Meeting Time: Tues & Thurs, 1pm-2:15pm
Meeting Location: Thaw 204/205

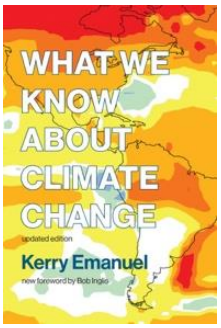
COURSE DESCRIPTION

Climate change poses a critical challenge for the global community, with increasing impacts on food security, water resources, human health, ecosystem diversity, and energy, among others. A fundamental step towards developing climate change solutions is the ability to recognize, understand, and communicate its causes and impacts. This course offers a multi-disciplinary approach to learning about climate change that both develops the science and enables students to build ongoing interactions with the broader community. We will cover the evidence supporting anthropogenic climate change, future climate projections, and the development of climate policy related to adaptation and mitigation strategies. Students will engage in active and collaborative learning exercises, integrate data analysis projects using physical and social climate science data, and develop written and oral communication techniques through workshops with local journalists and scientists.

COURSE GOALS

1. Understand the drivers of our planet's climate over space and time, on scales relevant to the Earth system.
2. Describe and evaluate the relative importance of various natural processes and anthropogenic activities that shape the modern Earth and lead to global environmental change.
3. Explore present and future societal impacts of climate change, as well as mitigation and adaptation strategies.
4. Develop scientific communication skills, and create an avenue for students to serve as climate science ambassadors as part of the Dietrich School Climate and Global Change Center.

REQUIRED TEXT



What we know about climate change, Updated edition
by Kerry Emanuel ©2018, MIT Press
ISBN: 9780262535915

I will frequently assign additional readings and multimedia sources. You will be responsible for the content, as many such assignments will form the basis of follow-up class activities and discussions.

ASSIGNMENTS

Learning Assessments (40% of final grade). Much of this course centers around in-class discussions and activities, sometimes accompanied by work that must be completed outside of the classroom. The main goal with these assignments are to encourage the exploration of scientific ideas, exercise scientific scrutiny, and practice communication.

Bi-Weekly Assessments (30% of final grade). Assessments will be administered at the end of class, roughly every other Thursday throughout the semester (see schedule for exact dates). Assessments will be based on previous lectures, activities, and reading assignments. At times, they may take the form of multiple-choice quizzes, essays, or concept sketches, etc. *I will drop your single lowest quiz grade at the end of the semester.*

***Un*Essay Term Project (20% of final grade).** This is a semester-long project that will encourage an alternative mode of communicating an area of interest relating to modern-day climate change. Projects can be prepared as an editorial-style news article, a blog post, or a podcast story. But it is encouraged to explore and be creative with other modes of communication like artwork, poetry, and music! Students will work with the instructor, and possibly members of the larger climate community, to form a personalized project. *More information to come.*

Participation (10% of final grade). Active participation in this course is imperative for your learning success! This part of your grade includes attendance, engagement, minute-paper reflections, and participation in "informal" activities. In preparation for any guest speakers, I will ask you to complete readings ahead of time, come prepared with questions in hand, and be prepared to participate in active discussion with our guests.

Make-Up Policy

Class attendance and active participation is required for full credit. Quiz grades may not be made-up. If you have a compelling issue (i.e., medical, family emergency) that causes you to miss an in-class activity, you must notify me as soon as possible, otherwise you will receive a *zero* grade. Do not wait weeks or months, or until the end of the semester to discuss late or missing work with me. ***Note on attendance:*** **Many activities (such as the in-class ones) cannot be made up on your own, as they are designed to be collaborative.**

ACCESSIBILITY

I am committed to providing a fair, accessible learning environment for all. If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

ACADEMIC INTEGRITY POLICY

Students in this course will be expected to comply with the University of Pittsburgh's Policy on Academic Integrity Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. *Anyone caught plagiarizing material will automatically fail the course.*

To learn more about Academic Integrity, visit the Academic Integrity Guide for an overview of the topic. For hands- on practice, complete the Academic Integrity Modules.

But really: **Be an ethical person… please don't cheat!** No grade is worth sacrificing your personal integrity. We all agreed to adhere to the Pitt Academic Integrity Code, and I take this very seriously. If I suspect you have violated that code, you will at minimum receive a *zero* on the assignment and will be required to participate in the procedural process as outlined in the University Guidelines on Academic Integrity.

Note on Generative A.I.

Intellectual integrity is vital to an academic community and for my fair evaluation of your work. **All work completed and/or submitted in this course must be your own**, completed in accordance with the University's Guidelines on Academic Integrity. You may not engage in unauthorized collaboration or make use of ChatGPT or any other generative AI applications at any time UNLESS EXPLICITLY STATED BY YOUR INSTRUCTOR, IN WRITING. Any use outside of this permission constitutes a violation of Pitt's Guidelines on Academic Integrity.

STATEMENT ON DIVERSITY, EQUITY, AND INCLUSION

The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, visit the Civil Rights & Title IX Compliance web page.

I require that everyone who steps into my classroom behave in a manner that ensures all members of this class can learn in a supportive and respectful environment. By attending class, you agree to adhere to that standard. If at any point you feel this standard is not being met, please reach out to me to discuss the issue. Please know that if you choose to report a Title IX issue to me (or any other faculty/staff member) I am required to communicate this to the University's Office of Diversity and Inclusion. Alternatively, you may contact the Pitt Title IX office directly (412-648-7860, titleixcoordinator@pitt.edu) or file a report online. If you wish to maintain complete confidentiality, you may contact the University Counseling Center (412-648-7930).

EMAIL COMMUNICATION POLICY

Each student is issued a University e-mail address (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to university communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Google, Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their university e-mail address. To forward e-mail sent to your university account, go to http://accounts.pitt.edu, log into your account, click on Edit Forwarding Addresses, and follow the instructions on the page. Be sure to log out of your account when you have finished. (For the full e-mail Communication Policy, go to www.bc.pitt.edu/policies/policy/09/09-10-01.html).

SCHEDULE OF TOPICS, ASSIGNMENTS, READINGS, ETC

SUBJECT TO CHANGE. Any changes will be announced during class and in Canvas.

NOTE: Not *all* lecture-related activities & homework assignments are accounted for here. Bi-weekly assessments will typically be given in the last 20-25 minutes of class on scheduled days.

WEEK	DATE	TOPIC	ASSIGNMENTS (due by beginning of class)	BI-WEEKLY ASSESSMENTS
Part I - The Earth is dynamic!				
1	26-Aug	Introduction to the course		
	28-Aug	What is the Earth System?	Read/prepare to discuss Steffen et al (2004), pages 4-13	
2	2-Sep	Earth System: Concepts & components	Prepare spheres pre-activity assignment	
	4-Sep	Earth System: Concepts & components	Submit spheres work-up	Bi-Weekly Assessment 1
3	9-Sep	Earth System: Processes & interactions		
	11-Sep	Energy budget & greenhouse effect	Read/prepare to discuss Em. chs. 1 & 2	
4	16-Sep	Case Study 1: PETM & ecosystem response		
	18-Sep	Case Study 2: Quaternary glaciation		Bi-Weekly Assessment 2
Part II - Our climate is changing				
5	23-Sep	The Evidence	Read/prepare to discuss Em. chs. 3 & 4	
	25-Sep	*SciComm Side:* What makes a good science communicator?	Listen to Ologies (EP296), prepare to discuss	
6	30-Sep	TBD		
	2-Oct	NOAA climate records: *Analysis*	Submit term project brainstorm	Bi-Weekly Assessment 3
7	7-Oct	NOAA climate records: *Presentations & discussion*	Submit data analysis work-up & present	
	9-Oct	IPCC & NCA: What are they? What is their purpose?		
8	14-Oct	IPCC & NCA figure conversations	Submit IPCC/NCA exploration work-up & present	
	16-Oct	TBD		Bi-Weekly Assessment 4
9	21-Oct	Anthro Climate Change: Current state and projections	Submit term project outline; Prep to discuss Em. ch. 5	
	23-Oct	Anthro Climate Change: Indicators (exploration)		
10	28-Oct	Anthro Climate Change: Indicators (presentations)	Submit climate change indicators work-up & present	
	30-Oct	*SciComm Side:* Revisiting climate communication	Read/prepare to discuss Em. ch. 6 & supp. materials	Bi-Weekly Assessment 5
11	***4-Nov***	***No Class - WORK ON CLIMATE SKITS OR TERM PROJECT***		
	6-Nov	*SciComm Side:* Climate communication skits!	Submit & present climate communications skits	
Part III - Our options				
12	11-Nov	Mitigation (Success Stories!): Ozone hole	Submit "first draft" of term project *(or sooner!)*	
	13-Nov	Mitigation (Success Stories?): The annual climate COPs	Read/prepare to discuss Em. ch. 7	Bi-Weekly Assessment 6
13	18-Nov	UN Climate Policy: Mock negotiations activity, part 1	Read/prepare to discuss Em. ch. 8	
	20-Nov	UN Climate Policy: Mock negotiations activity, part 2		
14	***25-Nov***	***Thanksgiving Break***		
	27-Nov			
15	2-Dec	TBD	Submit UN Climate Policy work-up	
	4-Dec	*SciComm Side:* Climate change mythbusters!	Submit mythbusters work-up & be prepared to share	Bi-Weekly Assessment 7
16	***w/of 9-Dec***	***UnEssay presentations & celebration during final exam period (open to GES department & peers!)***	Final UnEssay presentation & products due by final exam time slot (TBA by registrar)	