

EART 12 Intro to Weather and Climate

Many meteorological phenomena are familiar: clouds, fog, rain, snow, wind, lightning, and severe storms. However, the climate—weather averaged over decades and longer—is changing in response to human activities. In this course, we will use physics and chemistry to build an understanding of the fundamental features of the atmosphere from first principles as much as possible. The goals are to understand how weather and climate on Earth works, what is the climate forecast, and what can we do as individuals and as a society to mitigate the impacts of climate change.

Meets: MWF 10:40 am-11:45 pm in N. Sci Annex 101
Discussions sections meet in EMS D250

Instructor: Prof. Nicole Feldl
Email: nfeldl@ucsc.edu (“Dear Professor Feldl ...”)
Office: EMS A247
Office Hours: Monday 1:00-3:00 pm or by appointment

TA: Zachary Kaufman
Email: zskaufma@ucsc.edu
Office: EMS A170
Office Hours: Wednesday 1:00-2:00 pm or by appointment

Course website:
<https://canvas.ucsc.edu/courses/9184>
Log into Canvas with your CruzID and gold password.

Required textbook: *Global Warming: Understanding the Forecast*, 2nd edition, by David Archer, 2011. A copy of the book will be on reserve at the Science & Engineering Library. Additional readings will be provided as needed.

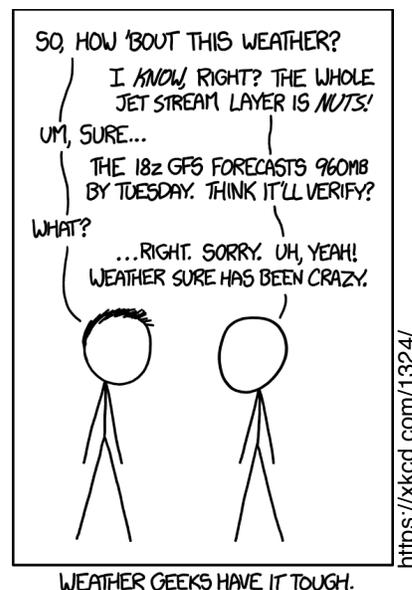
Homework policy: There will be weekly homework assignments throughout the quarter. Homework will be due in discussion section on the stated due date. All homework will also be returned in discussion section. Section is structured around giving you the necessary foundation to complete the homework assignments. Attendance is required.

Some assignments will incorporate activities using online climate models. You will need internet access to complete these assignments.

Grading: Comprehensive final exam (30%), Midterm (30%), Homework (35%), Section attendance (5%).

No Makeup Exam Policy: Makeup quizzes or exams will not be scheduled. They will be allowed only for medical reasons or in extraordinary circumstances. If you believe you have an extraordinary circumstance, contact the instructor as soon as possible.

No Late Work Policy: There will be 7 homework assignments throughout the quarter. No late work will be accepted. However, I will automatically drop your lowest homework grade without penalty. In other words, the 35% of your grade that makes up homework will be based on your top 6 out of 7 assignments.



Getting Help: If you have questions about the assignments, we invite you to come to office hours. If you cannot make office hours, we encourage you to make an appointment to meet with the TA or professor. Small group tutoring will be available through Learning Support Services.

Academic integrity: The cornerstone of intellectual life at UC Santa Cruz is a commitment to integrity in all forms of teaching, learning, and research. Class discussion is encouraged, as is discussion and collaboration with your classmates on the material and homework assignments. However, you must always submit your own work and your own thoughts.

Cheating, plagiarism, and all other forms of academic misconduct will not be tolerated. Suspected or admitted cases will be reported to your college provost, which will result in a permanent record, and possible additional consequences such as suspension or dismissal from the University. Students are responsible for becoming familiar with Sections 102.01–102.016 and 105.15 of the UC Santa Cruz Student Policies and Regulations Handbook.

Disability accommodation: If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me during my office hours or by appointment, ideally within the first two weeks of the quarter. Contact DRC by phone at 831-459-2089 or by email at drc@ucsc.edu for more information.

Tentative Schedule

Week	Lecture Topic	Reading
Fundamentals of Atmospheric Sciences		
1	Blackbody Radiation	Chapter 1-2
2	Greenhouse Effect	Chapter 3
3	Greenhouse Gases	Chapter 4
4	Humidity and Atmospheric Stability	Chapter 5
5	Winds, Currents, and Heat	Chapter 6
6	Clouds	Chapter 7
Weather		
7	Midlatitude Weather	TBA
8	Tropical Weather	TBA
Climate Change		
9	Evidence of Climate Change	Chapter 11
10	Impacts, Mitigation and Adaptation	Chapter 12-13