

ATS 556: Climate Intervention to Cool a Warming Planet

Colorado State University

Spring 2025

Monday and Wednesday, 2:00-2:50 p.m.

Eddy, Room 113

Instructor: Prof. James Hurrell (jhurrell@rams.colostate.edu)

Office hours: – by appointment

Prerequisites: None

Website: Canvas for ATS 556 (<http://info.canvas.colostate.edu/>)

Google Classroom (<https://classroom.google.com/u/1/c/NzMzOTM4MDM0OTcw>)

Hurrell's Website (<https://www.atmos.colostate.edu/people/faculty/hurrell/>)

Required Textbook: None

Optional Textbook: *Pandora's Toolbox: The Hopes and Hazards of Climate Intervention*, by Wake Smith

Climate Intervention – deliberate, large-scale intervention in the climate system designed to counter global warming or offset some of its effects – could well be in our collective future, especially as the impacts of climate change become more severe and climate intervention technologies are within reach. **This course will cover:**

- The major findings of recent national and international assessments of climate change and climate change impacts
- The major characteristics of proposed climate intervention techniques
- Ethical and governance considerations of any future climate intervention efforts

Course structure: The course is offered for two credits. The class will be conducted in a lecture/discussion format. PDF files of course notes and slides will be made available by no later than the end of every class session. **Homework** will mostly involve assigned readings, which will form the basis for in-class discussion, as well as individual and group projects. **Grades** will be based on the projects and in-class discussions and exercises, including a final project that each student will present to the class. The course will facilitate broad discussion of the many facets of anthropogenic climate change and climate intervention, informed and enriched by the diverse backgrounds and perspectives of the students. Students will emerge at the end of the semester with their own views on whether it makes sense to move forward with the deployment of climate intervention techniques.

Grading:

Class Discussions: 50%

Individual and Group Projects: 25%

Final Project: 25%

Tentative Schedule (Spring 2025):

Week 1 (Jan 20): Introductions and Welcome: Course Objective
Week 2 (Jan 27): Anthropogenic Climate Change: Scientific Basis
Week 3 (Feb 3): Climate Change
Week 4 (Feb 10): Impacts of Anthropogenic Climate Change
Week 5 (Feb 17): Class Projects
Week 6 (Feb 24): Adaptation and Mitigation Strategies
Week 7 (Mar 3): Introduction to Climate Intervention
Week 8 (Mar 10): Climate Intervention
Week 9 (Mar 17): Carbon Dioxide Removal (CDR) Techniques
Week 10 (Mar 24): Spring Break
Week 11 (Mar 31): Solar Climate Intervention (SCI) Techniques
Week 12 (Apr 7): CDR and SCI
Week 13 (Apr 14): Climate Intervention: Philosophical Perspectives
Week 14 (Apr 21): Legal Issues
Week 15 (Apr 28): Governance Frameworks
Week 16 (May 5): Policymaker Perspectives
Week 17 (May 12): Finals Week (Final Project Presentations)

CLASS POLICIES

UNIVERSITY POLICIES: Students are expected to follow the CSU Student Honor Pledge (<http://tilt.colostate.edu/integrity/honorpledge/>). This course will adhere to the CSU Academic Integrity Policy as found in the General Catalog (<http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf>) and the Student Conduct Code (<http://www.conflictresolution.colostate.edu/conduct-code>). At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services.

POLICY ON COLLABORATION: Students are encouraged to discuss homework assignments. However, each student must complete their own assignment. If I determine that students are simply copying assignments, I will pursue action through the Office of Academic Integrity (<http://tilt.colostate.edu/integrity/>).

POLICY ON LATE HOMEWORK ASSIGNMENTS: Late homework assignments will not be accepted, unless alternative arrangements have been made in advance with the Instructor.

POLICY ON REMARKING HOMEWORK: Students who disagree with how their assignment or project has been marked should resubmit their work with a written explanation of their concern. The work will be re-evaluated by the instructor in its entirety.

POLICY ON MISSED PROJECTS: Alternative arrangements for completing missed projects will be made given the submission of appropriate documentation.