ATS 580A5: Climate Change Scenarios in Practice
(Updated for Fall semester, 2024)

I. Instruction
Instructor: Patrick. Keys
Email: patrick.keys@colostate.edu
Class day and time: T, Th 10:00 to 11:15am
Class location: ATS 101
Office hours & location: TBD
Credits: 3

2. Course Focus
This course will provide graduate-level understanding of climate change scenarios, with a focus on equipping students with an understanding of the origin, considerations and applications of climate change scenarios. This course is focused toward graduate students that are actively using climate change scenarios in their research and study, or those that plan to use them in their professional life. The course will be accessible from multiple disciplines at CSU.

At the end of the course you will be able to:
1. Understand the history of past and contemporary climate change scenarios,
2. Apply your understanding to critique and evaluate existing scenarios,
3. Explore a broad range of climate change scenario applications, and
4. Construct novel scenarios using multiple methods.

3. Scheduling
Lectures will be taught on Tuesdays and Thursdays from 10 to 11:15am, in ATS 101.

4. Course Expectations
The following list presents the minimum expectations for passing this course (See "7. Grading" for more):
- keep up with the reading
- satisfactorily complete all assignments on time
- be prepared to think and discuss deeply in class

5. Course Web Page
The course web site (Canvas) will be used for posting lecture notes, homework assignments, and providing additional resources.

6. Prerequisites
Graduate student standing. Interested advanced undergraduates may contact me.

7. Grading
It is expected that you will spend at least 2 hours of effort outside of class for each hour of class time. You are encouraged to interact with your classmates by sharing ideas and discussing the specifics of the homework, essays, and the projects. You are, however, expected to hand-in your own work, and it may not be a direct copy of your classmate's or e.g., a chatbot (for more clarity, see "10. Academic Integrity" below). The grade breakdown is as follows:
1000 points possible in the course.
~ 15% is regular discussions
~ 50% is homework assignments
~30% is the Final Project
~5% TBD

The **discussions** are intended to gauge your understanding of the readings and lecture material and will be completed in class. The **homework assignments** are intended to gauge your grasp and ability to synthesize the course content. The projects will test your ability to synthesize content from the entire course.

A	100%	to 90%
B	< 90%	to 80%
C	< 80%	to 70%
D	< 70%	to 60%
F	< 60%	to 0%

8. Texts & Resources

No purchases required. Journal articles and other freely available materials

9. Tentative Weekly Schedule

WEEK	***TOPIC***
1	Course overview; What is a scenario and why do we need them?
2	History of climate change scenarios: physical dimensions
3	History of climate change scenarios: societal dimensions
4	Contemporary climate change scenarios: Overview of RCPs
5	Contemporary climate change scenarios: Overview of SSPs
6	Contemporary climate change scenarios: Implications of SSPs
7	The broader sustainability context
8	Analysis of climate change scenarios: Research and discovery applications
9	Analysis of climate change scenarios: Government applications
10	How are scenarios used? IPCC WG1 and WG2
11	Surprises and complications for scenario science
12	Frontiers of scenario science
13	Final project workshop: Building your own scenario
14	What's next for the future of climate change scenarios?
15	Synthesis

10. Academic Integrity

At minimum, academic integrity means that no one will use another's work as their own. This course adheres to the Academic Integrity Policy of the Colorado State University General Catalog and the Student Conduct Code.