Cooperative Institute for Research in Environmental Sciences
UNIVERSITY OF COLORADO **BOULDER**

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Statement of Teaching Philosophy

My overarching goal in teaching is to prepare students to be effective professionals and citizens in their future careers. There are a few components to this: fostering critical thinking and independent thinking, equipping students with necessary research tools, and training them to be excellent communicators. I believe that these are a necessary subset of skills for environmental professionals in a variety of disciplines.

In graduate school I was a teaching assistant (TA) for courses at various undergraduate levels in two different departments: Geography, and Forest Ecosystems and Society. My TA experiences relied heavily on active learning practices and promoting student engagement through collaboration and hands- on learning. The courses ranged from introductory Earth and atmospheric sciences to a multidisciplinary upper-division course that combined geology with history and ecology, and a quantitative research methods course, also for senior undergraduate students. These experiences taught me about communicating course material to different audiences. At the University of California, Santa Barbara I was a TA for introductory courses titled 'Oceans and the atmosphere' and 'Land, water and life' respectively. In these courses, we helped students understand broad and fundamental concepts relating to Earth's properties at local to global scales. We used simple measurements in a campus setting to understand complex earth-system phenomena, e.g., measuring the temperature of various collocated objects to learn about albedo and its effect on surface temperature, and measuring sky-temperatures on clear and cloudy days to help understand the greenhouse effect. For an upper division course at Oregon State University, I was a TA for 'Scientific methods for analyzing natural resource problems. In this course, we asked students to first identify a natural resource problem and then throughout the course helped them to understand it in a quantitative framework. This involved thinking independently, identifying and reading relevant scientific literature, and quantitative modeling. Student topics ranged from modeling the impact of wolf reintroduction on elk population in Yellowstone National Park, to modeling plastic waste in the Pacific Ocean. We used open-access, easy to use educational software, and students gave presentations and a written final project at the end of the class. In these classes, I also occasionally gave guest lectures. More recently in October 2020, I was invited to talk to undergraduate students at the City University of New York to give a guest lecture on the COVID-19 pandemic and the carbon cycle. Here, I explained the basics of climate change and the carbon cycle and synthesized recent research on the impact of lockdowns on the global CO_2 growth rate.

As I develop and teach classes, I intend to learn more about effective teaching techniques. I am particularly interested in the concept of the 'flipped classroom' where students watch asynchronous recorded lectures at home, and class time is used to solve homework problems and discussions. I think this breaks the imposed linearity of class time, and helps more students develop a relationship with the instructor by having a longer amount of active engagement with the students. I will also strive to create an inclusive classroom, where students from diverse backgrounds feel safe, empowered and respectful of each other. I would also like to develop courses focusing on biosphere-atmosphere interactions and environmental change, applications for Bayesian estimation in carbon cycle science, and scaling of ecophysiological processes from leaf to global scales.