Katherine Hayes - Teaching Philosophy

Teaching and inclusivity goals

I have two primary goals as a teacher: first, to spark curiosity and enthusiasm in students that empowers them to follow the rabbit holes of their own interests and passions. Second, to provide training, exposure and access to the communication, analytical and critical tools that allow students to engage with science, as a career, as an interest or as a responsible community member. Regardless of the discipline or educational context, I am particularly committed to the inclusion of underrepresented students in the sciences. To achieve these goals, I provide both inclusive learning spaces and clear class structure that empower students to engage with science with enthusiasm and trust. As a teacher, I am transparent about my expectations, goals, and assessment. The trajectory of my research interests and training has been winding and self-motivated, and I model that discovery of interests to my students by promoting interdisciplinary curriculum and perspectives in the classroom. I provide a space for interdisciplinary perspectives, student-driven inquiry, and skill-based learning.

My experience in higher education ranges from entry-level biology and biogeography to upper-level data analysis and biostatistics and finally to graduate-level seminars. As a teaching assistant for the Dept. of Geography at the University of Oregon and the Dept. of Biology at the University of Colorado Denver, I led independent laboratory sections and developed lessons, exams, and assignments. As an instructor of record at UC Denver, a Hispanic and AAPI-serving institution, my students have included science majors and non-science majors from diverse backgrounds and levels of experience. For students who do not intend to progress further in their scientific studies, I pride myself on building a stimulating and skill-based classroom environment that maximizes both their academic potential and their ability to engage with science as an interest and in their role as a community member.

Student feedback on my teaching evaluations has consistently indicated I am an organized and clear communicator, I am approachable and respectful of student needs, and I promote both interest and enthusiasm in the course material.

Teaching accomplishments

As a graduate teaching fellow at the University of Oregon, I worked with the undergraduate advisor at the Department of Geography to develop a new course called “The Professional Geographer”, which aimed to empower geography students from a diverse array of backgrounds to communicate their accomplishments, goals, and skills in a professional setting. The class was a success and is now a required course for graduating geography majors.

Teaching practices

Skill development

To promote scientific literacy skill development, I include lesson plans in all of my courses where students work in small groups to interpret data from scientific papers and present their interpretations to the rest of the class. I also use programs such as GIS, R, and Excel in my teaching whenever possible so that students are equipped with the digital tools necessary to navigate the world of increasing data. For example, in *Biostatistics*, I tasked students with completing their coursework in R Markdown files, to develop familiarity both with R and with

writing reproducible, independent code. This was the first time many students had used the program.

Flexibility and transparency
I am explicit about what I expect from students as an instructor, and about what they can expect from the course, the assessments, and my teaching. I found that both comprehension and student enthusiasm improved when I provide structure and transparency as an instructor, as seen in comments from student evaluations including "A terrific teacher who was very calm and composed throughout the semester. She was very flexible and attentive to students needs while still maintaining a knowledgeable and healthy learning environment".

Mentorship
In addition to formal teaching experience, I have successfully mentored undergraduates and others in a variety of settings. As a graduate researcher for both the University of Oregon and UC-Denver, I worked directly with undergraduate researchers in both the field (10 students) and the lab (6 students), guiding mentees in developing their own research projects, presentations and in applying to graduate programs. I worked with NSF REU students to develop their own independent research projects, conduct field research in remote regions in Interior Alaska and present their results at the American Geoscience Union annual meeting, a large international conference. I have also reviewed undergraduate abstracts for local conferences, guest-lectured in a variety of courses and advocated for student involvement at national meetings of the International Association of Landscape Ecology as a member of the executive committee. In addition to working with undergraduates, I have also participated in elementary learning by contributing to 6th grade curriculum videos produced by ScienceLive, leading science summer camp lessons on fire ecology and moderating National Geographic Geography bees at the local and state level.