

Katherine Hayes  
Teaching Philosophy

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. 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. I provide a space for interdisciplinary perspectives, student-driven inquiry, and skill-based learning.

While my research centers on my skillset as a landscape and spatial ecologist, my background is broadly interdisciplinary and involves training in geography, paleoecology, and systems biology. With this variety of teaching experience, I can lead introductory courses ranging from geography to biology, as well as develop upper-level seminars on disturbance ecology, long-term environmental change, fire ecology and scientific development. 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 have been teaching in informal ways since before entering higher education but honed my skills in college and graduate school. 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 Department of Geography at the University of Oregon, I led independent laboratory sections and developed lessons, exams, and assignments. I was explicit about what I expected from students as an instructor, and about what they could expect from the course, the assessments, and my teaching. I found that both comprehension and student enthusiasm improved when I provided structure and transparency as an instructor. Student feedback on my teaching evaluations indicated I was organized and communicated clearly, I was approachable and respectful of student needs, and I promoted both interest and enthusiasm in the course material.

As an instructor of record for the Department of Biology at the University of Colorado Denver, 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.

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 and the lab, guiding mentees in developing their own research projects, presentations and in applying to

graduate programs. Specifically, I have worked with several 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 6<sup>th</sup> 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.

Finally, regardless of the discipline or educational context, I am particularly committed to the inclusion of underrepresented students in the sciences. I bring my experience as a woman in remote field science to the field, to the lab, and to the classroom, and aim to create learning spaces that emphasize inclusivity, access, and growth. Leading undergraduates through their first field experience has strengthened my passion for providing field or laboratory opportunities to undergraduate scientists who may not have access to those experiences otherwise. As a graduate teaching fellow at the University of Oregon, I worked with the undergraduate advisor of the Department of Geography to develop a new course called “The Professional Geographer”, which aimed to empower geography students 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.

In sum, I have excelled in a wide range of teaching roles across educational contexts and scientific disciplines. I believe that effective teaching is inclusive, transparent, structured, and iterative. Ultimately, my goal as a teacher is to empower students to follow their intellectual interests, and to do so equipped with the research and communication tools that allow them to engage with science critically and productively as community members.