

Introduction

Over the last 16 semesters as a college educator, I have had the privilege to shape the courses I teach and play a foundational role in the careers of young scientists. I knew from a very young age that I wanted to teach. At age eight I started making quizzes for my little sister for fun. She did not think it was fun, but I like to think my teaching has improved since then. I was offered my first teaching assistantship in my junior year of undergrad for a mammalogy lab. It was my first experience offering my perspective on learning to others, and during this time I realized that most of my courses mostly favored students with excellent short-term memories. I knew there had to be more to teaching that would allow students to learn more holistically and promote better retention of material. In 2010 I attended the Smithsonian Conservation Biology Institute and discovered that the missing component to my education was experiential learning.

While my approach to teaching is continually evolving, there are several cornerstones of my teaching philosophy and practice: experiential learning, student agency in course direction, empathy, and a focus on capacity building. I believe that setting students up for success begins before they ever enter the classroom and that it is the responsibility of the educator to create and maintain a safe, welcoming learning environment. My objectives as a college science educator are to: 1) build skills and confidence while exploring science as a process, 2) accessibly promote scientific literacy, and 3) engage students with the natural world.

Objectives Demonstrated

The honors biology lab I lead during my master's program was the first time I helped students build capacity through scientific discovery. I guided students through a semester-long process of conceiving, conducting, and communicating science of their own design. Students were able to collect data outside in nature or inside with controlled experiments. Like all practicing scientists, students were met with obstacles and opportunities for problem-solving during their research. Critical thinking within the context of their projects created confident and effective problem solvers. Several of my upper division courses like Spatial Analysis and Remote Sensing have also promoted critical thinking by dissecting the scientific literature. In an age of rampant anti-intellectualism and misinformation, one of our biggest responsibilities as undergraduate educators is to accessibly promote scientific literacy. As I continue to develop my own curricula I will incorporate knowledge from outside of western paradigms. Traditional ecological knowledge and narratives from peoples that have been marginalized by western science are needed to fill a major gap in the representation of other cultures and ways of knowing in the modern science classroom. I also have a personal objective to engage students with the natural world. Students will be confined to sterile laboratories in chemistry, physics and many other courses. Courses in our field have the opportunity to provide students with a unique, tangible learning experience which may foster connections and motivate lasting interest in nature and the physical world.

Methods to Achieve Objectives

Learning doesn't happen in a vacuum and students can't thrive in an environment that isn't inclusive, intentional, and welcoming. It is my duty to create a place where students of all races, genders, and abilities feel seen and safe to thrive. I start every course with a short survey of their preferred name, pronouns, major, and interests. These surveys not only make it clear that

my classroom is a supportive environment, but help me tailor content and case studies throughout the entire course to keep students engaged.

For classes that traditionally use long lecture formats, I prefer to use a “flipped” classroom structure in which the majority of the lecture or reading takes place prior to class meetings with questions being submitted beforehand. Class typically begins with a short, 10-minute lecture in which I review key concepts and identify common challenges. This is followed by a “dissecting” period in which we review submitted questions in small groups. This format makes it more comfortable for students to ask questions and fosters student-based inquiry during discussion. Throughout most “lecture” courses, I also maintain a visual “Skills Board” to draw clear connections between readings and activities and the skills they help build. Whenever possible, I also take students outside of the classroom so that they can learn new material in context. For example, students in my Physical Geography course were able to learn about plant adaptations by finding representative examples in our university arboretum.

I believe that weekly to biweekly evaluations in the form of low-stakes, formative assessments are a powerful tool to direct my teaching. If I can identify common misinterpretations of introductory content, I can change my lesson plans to help students find new ways to navigate their mental framework to create stronger connections. I want to create curricula in which strong, multi-contextual, connections are made and students can take not only knowledge but skills and frameworks with them in the long term. Finally, both at the beginning and end of my course, I use summative evaluation of core content.

Motivations

On a personal level, teaching brings me immense joy. When I succeed in engaging students with course material, I can pass that enthusiasm on to my students and have a lasting impact on their education. When I see students making strong connections or taking ownership of their learning, I feel a shared sense of accomplishment. My status as a first-generation college student has also heavily influenced my teaching philosophy. I know that not all students begin college at the same level of familiarity with science, and that some students may lack critical academic skills needed to perform well in college courses. Approaching students who struggle from a position of empathy and letting them know that all great students need mentorship has really improved the progress of my students as a whole. I would welcome the opportunity to help your students reach their academic and career goals.

Teaching and mentoring are essential aspects to advancing every field, but geography is uniquely positioned to engage a diverse audience at the undergraduate level. This teaching position is the ideal opportunity to apply my philosophy of experiential learning, student agency, empathy, and capacity building to the courses offered by the department of Geography & Environmental Sustainability.