

My first experience with implicit biases occurred when my high-school guidance counselor told me that a first-generation woman from a low-socioeconomic status household could not apply to a prestigious institution like Cornell University, despite my academic achievements. Fast forward to my senior year at Cornell, when a professor told me that I would have to choose between a career in academia and having a family. Science and academia are riddled with implicit and explicit biases that inhibit the innovation and creativity the world so desperately needs to overcome global challenges, such as climate change. I have been incredibly fortunate to have a strong support system help me overcome these, and many other, challenges throughout my career. I have tried to take advantage of every opportunity to provide that support to others. Below I describe my philosophy on promoting diversity, inclusivity and equity in science education, as well as my goals for developing an inclusive research program.

Supporting Diversity in Ecology

Field experience is a requirement for most entry-level positions in ecology but can be difficult for students to acquire in a typical classroom setting. Moreover, out-of-class opportunities to gain field experience can exclude non-traditional and working students as well as students at small institutions without active research programs. As a coordinator of a long-term ecological research project on vernal pool ecosystems, I have had the opportunity to develop hands-on field experiences for undergraduate students. Over a three-year period, I have organized efforts to involve over 90 undergraduate and graduate students from a variety of local and regional universities. Field experiences were coordinated around student availability and transportation was provided, when necessary, to ensure that every interested student had an opportunity to participate. Individual student experiences have also resulted in funding for work-study and paid field technician positions to help with data generation and analysis. I have also successfully mentored two undergraduate women applying for undergraduate research grants to pursue independent research projects. One of these students is now pursuing a Master's degree in Ecology. I am working with the other to write a manuscript on her research.

Fostering Inclusivity in the Classroom

I strive to create an inclusive environment in every class I teach. In spring 2019, I designed and taught my first course as Instructor of Record: "Estimating population vital rates for management and conservation." Throughout the semester, I worked with students to develop their skills in reading comprehension, hypothesis testing, data collection and analysis, coding, and dissemination of results via oral presentations and written reports. My students represented a variety of backgrounds and included non-traditional learners as well as students with learning and non-apparent disabilities. To accommodate and engage this diversity of learning styles, I used inclusive strategies such as "think-pair-share", group evaluations of peer-reviewed literature, and applied research-based projects that fostered discussion and collaboration among students. Perhaps the most successful technique I employed was the use of an anonymous mid-semester feedback survey. Students provided input regarding the pace of the class, clarity of the material, and suggestions for improvement. I then reported back to the students with a summary of the results and changes I would be implementing to improve the class throughout the semester. By doing so, I was able to create an inclusive environment in which every student had a voice in their education.

Promoting Equity in Science Education

I actively encourage young adults to overcome real and perceived barriers in pursuing their science education. Most recently, I designed and co-taught a course on “Climate Change and Climate Justice” for Upward Bound’s Summer Academy, held at Penn State in summer 2019. Upward Bound is a national college-access program for high school students from low-income families in which neither parent holds a bachelor’s degree. Our class included sophomores and juniors from four high-schools in rural Pennsylvania. On the first day of class, we asked students: “Barring all barriers, what career would you like to pursue? Who would you want to be?” Student responses ranged from oncologist to artist and highlighted the diversity of interests and motivations in our classroom. Despite the general interest in STEM careers, our students repeatedly said things like “I’m too stupid for science,” and “I don’t belong in science.” Throughout the summer, we strived to show our students that science is for everyone, no matter their race, ethnicity, religion, sexual orientation, or gender. For example, we used a series of short films promoting culturally- and racially-diverse, young adult activists throughout our climate justice modules. Our course culminated in a project where students proposed large-scale solutions to climate change and identified actions they could do as individuals to reverse or impede the effects of climate change on their communities. Two of our students focused on mitigating hurricane impacts on their hometown communities in Puerto Rico, which they were forced to leave after Hurricane Maria in 2017. These students were thrilled to have the opportunity to share not only their culture, but their creative solutions for making Puerto Rico safer in the future. Their passion was infectious and helped other students remain engaged and motivated to complete their own projects. While our initial goal was to teach students about climate change and empower them to make a difference in their communities, I hope we were also able to show them that they were capable of pursuing their dreams.

Developing an Inclusive Research Program

My interdisciplinary research interests and academic experiences will allow me to facilitate conversations and collaborations between individuals from diverse backgrounds; I look forward to building these diverse, productive relationships in the future while maintaining my commitment to diversity, inclusivity and equity.