TEACHING PHILOSOPHY

Allowing students to become active and educated citizens is paramount in creating a progressive society. Therefore, encouraging students to develop critical thinking skills while maintaining curiosity and harnessing a basic understanding of the topic maternal are my ultimate learning goals as a science educator. I believe that active learning is essential to nurture curiosity and encourage critical thinking, and is a fruitful teaching approach for students from all backgrounds to engage in the classroom.

TEACHING APPROACH

Through my teaching, I aim to: (1) promote a classroom community that allows students the ability to safely fail and actively learn. I accomplish this largely by implementing small group work with rotating group membership, so students must interact with all of their peers. I find that student participation in discussion is more active and incorporates a broader range of students when students feel comfortable in the classroom. I also create opportunities for small group discussion with me, as the instructor. I do this in the context of online question forums, weekly office hours, and creating study groups. (2) I engage students to think beyond the classroom material and challenge status quo thinking by igniting their curiosity through my unbridled enthusiasm and excitement. This curiosity leads students to ask questions and think critically about the topic material. Many biology students are interested in pursing a career in medical sciences, and their high school experience has taught them that biology is a field of memorizing. In my classroom, students are challenged to break this assumption, make observations in the natural world, and begin to implement the scientific method by asking questions. (3) Lastly, I allow students to shape their own learning experience with frequent opportunities for feedback. In my experience, student investment in their own learning is highest when they contribute to their own educational experience. I use weekly exit cards to assess what topics were exciting or confusing. I design assessments to be multi-step, where each step of the process contributes to the overall grade, but misconceptions can be caught early. I have implemented peer review so students can learn to both give and receive criticisms in a low-stakes environment. These teaching aims have allowed students to engage with the material at hand, develop critical thinking skills, and build confidence in their abilities to do and learn biology. In turn, teaching has shaped my own understanding of the topic material, challenged me to think critically, and allowed me to learn new takes on old problems.

In addition to teaching in the classroom, a major professional goal of mine is to provide opportunities for students to obtain lab experience. My research program is highly amenable to students of all stages as well as students with diverse interests. I am excited to mentor students in many projects, including greenhouse or field based projects, lab-based or genetics projects, and genomics/computational projects. During my time as a graduate student and postdoc, I have had the pleasure of mentoring ten undergraduates with diverse backgrounds and interests. Although much of my mentorship style mirrors that of overall teaching approach (e.g. promote a sense of lab community, engage critical thinking, and provide ample opportunity for feedback and individual ownership of educational experiences), aspects of the implementation differ. As a mentor, I aim to create a welcoming and intellectually stimulating lab environment. Having regular lab and joint-lab meetings where undergraduate and graduate voices are heard and respected in central in this. Regardless of whether students seek research opportunities to stay in academia, or simply to gain hands-on skills, I believe that encouraging students to obtain a firm conceptual understanding of the project at hand is important. To this end, I have lead several evolutionary-genetics reading groups with undergraduates that I have mentored. As these reading groups are undergraduate focused, this allows students a safe space to question, think aloud, and challenge each other. Lastly, it is my firm opinion that mentored research projects are more likely to succeed, and undergraduate students more likely to engage in the research if they have the ability to shape their own learning experience. To this end, implementing ample opportunities for feedback is important to me. Each mentoring relationship begins with myself and the mentee outlining the learning goals for the semester (e.g. better understanding of the literature, improving communication skills, learning computational skills, or gaining molecular lab experience), and from there, we design projects and plans to achieve these goals. In my experience, the ability of

students to shape their own academic journeys and partake in academic discussions greatly improves students' ability to think creatively about science and their overall confidence in research. Increasing students' confidence in planning and completing projects, creating opportunities to improve communication skills, and fostering an environment that challenges students to further develop creative and critical thinking skills are my primary goals as a mentor. I believe that these skillsets will help students in almost any career path they decide to pursue. Additionally, creating a positive space for students of all backgrounds to explore scientific research is an important step in increasing diversity in ecology and evolutionary biology, and one that I am firmly committed to.

TEACHING EXPERIENCE

I have been instructor of record, a teaching assistant for several introductory and advanced courses, guest lectured for both seminar and large-lecture courses, and taught classes in public schools from kindergarten to high school. In the summer of 2018, I designed and taught a specialized, introductory class entitled *Genetics, Evolution, and Adaptation in Humans* at Duke University. This class was geared towards non-majors and explored the field of evolutionary genetics, focussing on humans. The course aimed to give an introduction to how the genetic basis of traits are determined, understand the inheritance of traits, explore the human history using a population genomics mindset, and promote discussions on the applications of genetics to humans, such as personal sequencing technologies.

As a faculty member of Yale, I would be excited to help teach core classes (i.e. *BIOL104 Ecology and Evolutionary Biology, E&EB 225 Evolutionary Biology, E&EB 324 Evolutionary Ecological Genetics, E&EB 380 Life History Evolution*), first year seminars (e.g. *E&EB 035 The Ecology of Food, E&EB145 Plants and People*), or design upper year classes on the genomics of adaptation & speciation, or conflict, cooperation, & evolution. I am also enthusiastic about the potential to teach graduate-level courses and seminars, including a methodological based course in modern genomic approaches, a historical overview of the Modern Synthesis, or courses that are aimed for professional development (e.g. intro to grad school or diverse careers in science).

Outside of the classroom, I have also found it valuable to continue my own professional development in teaching. I have a Certificate in College Teaching from Duke University, which involved several classes in pedagogy (syllabus design, college teaching and visualization, and teaching biology), as well as participation in a peer review based group in which teachers from different fields do classroom visits and provide feedback. I find teaching an incredibly important and rewarding experience, and continuing my own learning process in teaching is an exciting and important part of being a good teacher.