

Teaching statement: Teaching philosophy

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My passion for teaching originated from my experiences with teachers during my own education. Although I decided to study plant evolutionary biology based on my interest in the subject, it was a high school teacher in my motherland, Sri Lanka that turned me into an evolutionary biologist. She possessed exceptional teaching skills to make the difficult topics in biology come alive. Her teaching techniques are tailored towards the students and I am motivated by knowing that I am in a position to have a similar impact on my own students. After some time, my interest in teaching has also been shaped by the experience as a lecturer in two Universities in Sri Lanka, where I delivered lectures, designed syllabi and evaluated students in both agriculture and biology related subjects. Later, in the Department of Biology at the University of Florida (UF), I taught eight semesters as a graduate teaching assistant in laboratory courses. During my teaching career, I understood that three approaches are central to my teaching: experiential learning, build students' foundational knowledge and inclusive teaching.

My foremost teaching philosophy is connecting students to **experiential learning**, which is critical to develop lifelong skills. Therefore, I look for every opportunity to strengthen my teaching based on this concept. The classroom is a dynamic space, where a student can struggle, fail, and learn something with that experience. In order to keep students motivated in such environment, I have found that it is imperative to be a creative teacher, by utilizing various active learning methods such as group discussions, peer teaching and meaningful games. These methods allow them to 'feel' the concepts rather than listening to lectures. So, I applied these approaches while teaching at the UF, especially when introducing the concepts behind the laboratory activities. For example, to make students understand the basic statistics, I used seed-embedded confetti hearts as experimental units which enabled them to learn these basics without looking at slides. On the other hand, students rarely admit that they don't know something. So, using methods that allow them to bring their misconceptions or misunderstandings to light provides an opportunity for me to determine whether my teaching is effective. This process needs much patience and time commitment. However, the outcome is more engaged students.

My second goal as an instructor is to ensure that students have a concrete understanding of a subject from which to evaluate new information. I introduce novel activities to the classroom while maintaining students' **foundational knowledge**. I reinforce fundamental concepts by presenting topics from two angles: the history of the ideas until they arrive at our present understanding, and how the topic is currently being refined from current research. I also engage students with information in multiple modalities, including: relevant videos, small experimental demonstrations, allowing students time to synthesize points in writing, and excursion classroom techniques. For instance, animal diversity labs are designed to provide foundational knowledge about animal evolution but, students are not interested in looking at a large number of specimens. I designed escape room puzzles for the teams of students using the exhibits and teams which met the goals were awarded. Finally, this activity served to initiate guided discussions about the topic. Exercises derived from such introductions can develop real-world scenarios for which students need to seek solutions using knowledge derived from the provided teaching materials. In plant related labs, I provide a creative assessment based on the foundational knowledge. For example, flower dissection is an activity that students obtain basic knowledge about monocot and

eudicot flowers, but they are not interested in dissecting them because the original curriculum has not allocated points towards their overall grade. I encouraged them with adding points towards their grade for dissecting a flower, labelling and submitting its picture online during a given time. A broader goal of these methods is to train students toward being science-literate citizens, not just the students who have academic aspirations. I want to instill students with the idea that the foundational knowledge is critical to coming up with novel ideas and skills they are learning in my labs that are broadly applicable.

The idea of **inclusive teaching** was abstract to me until I started teaching an introductory biology night lab at UF which mainly consists of biology non-majors. These students are from diverse fields, specifically they are mathematics and chemistry majors. Initially, I wanted to provide them with basic concepts. However, I quickly realized that I also needed to be cognizant not just of their fields, but of backgrounds as well. Some students were enthusiastic about the subject, while others were tired after long days in the classroom. So, I adapted the lessons to keep everyone's interest up. I changed the method of teaching more than the original curriculum suggested to diversify learning strategies and keep students engaged. For example, on the evolutionary biology related lab in BSC2011L, I created an activity called 'wicked-plant-evolution' which is similar to kids' 'telephone' game and eliminated overly technical slides uninteresting to non-biology majors. During these redesigned activities, students grasped the material, and were always more than capable of excelling at the task at hand. By engaging students with activities, I overcame differences in background that might complicate self-guided learning. Several students in this non-major class began to form an interest in biology with these activities and they now take advanced biology courses. One student even continued to work with me in my PhD research. Sometimes, I had to customize the labs according to students' diverse concerns. When some students have ethical concerns for animal dissections, I used virtual pig dissection as a viable alternative which aided the students to learn material despite their ethical concerns. When I turned into an experienced teaching assistant, I passed these pedagogical techniques to new teaching assistants to put them into use in the future teaching in the department. I made some of these activities available online in my teaching portfolio (<https://www.prabhaamarasinghe.com/class-room>).

My teaching focuses on diverse ways to encourage students where they realize science is accessible to everyone. In the future, I am interested in teaching courses in plant evolutionary biology, which is the foundational area of my expertise. I am also excited for any opportunity to design introductory courses that build fundamental knowledge of students (i.e. general biology, ecology) with incorporating new activities to improve student interactions. I look forward to strengthening my teaching style while updating pedagogical knowledge throughout my lifetime using university teaching resources, professional development and student feedback.