Teaching Statement Lauren Pick

I have been engaged in teaching and mentoring in various capacities during my time as a graduate student and postdoctoral researcher. These experiences have all been very different both in terms of the material being taught and learning environments, which has let me distill useful approaches and considerations – regardless of environment or subject matter – for helping students learn and become comfortable with the material.

Teaching Approach

When teaching, my aim is that students gain intuition for applying concepts presented in class and develop confidence working with them. To achieve this, I try to center the students as much as possible, whether that means catering the material to their backgrounds, having them explain the material themselves, or creating a learning environment that allows students to focus better on the material.

Making the material relevant. While active learning activities like having class discussions can encourage student engagement with the material, cultivating student interest in the material can encourage engagement with the material even outside of these class activities. When possible, I try to understand students' interests and give examples of how the class material is relevant. When I taught the undergraduate statistics course MAT126 as part of Princeton University's Prison Teaching Initiative (PTI), the course material as written had many examples about baseball; however, since students had mentioned certain industries that they were interested in or had experience with, I created further examples based on these industries to demonstrate certain statistical tests. Student responses while working through these examples were more enthusiastic, and some students commented that the material not only made more sense after the examples but that they felt that it would be useful for them in later business endeavors.

Having students explain the material. Something that I have found particularly useful helping students build confidence and understanding is asking students open-ended questions about the relevant material in a relatively informal setting (e.g., in class or at office hours). For example, when serving as an assistant in instruction (AI) for an undergraduate data structures and algorithms course (COS226) at Princeton, I frequently called on students to explain the effect of the next step of an algorithm on a concrete example. In a classroom setting, this can also be an effective way to keep students engaged. In MAT126, I opened a class discussion by asking students what statistical tests would be appropriate to apply to situations I suggested, leading to a lively debate among the students.

This approach has also helped me identify misconceptions or gaps in students' knowledge, and the back-and-forth nature of the interaction has made correcting misconceptions and filling in gaps easier. In MAT126, during such exercises, students sometimes demonstrated confusion about how to apply certain statistical tests, and occasionally outright stated that they did not understand how to apply them. In response, I was able to explain the points that had caused confusion, go over relevant examples, and then have the students redo the exercises to confirm that the students understood.

In some cases, this approach also helps students self-correct. In cases where students had implemented a function incorrectly for a COS226 assignment, asking the students to explain

different aspects of their implementation often helped them realize what needed to be fixed and how to fix it. Students in such cases remarked that they felt that they had solved the problem themselves, which gave them more confidence.

Facilitating a comfortable learning environment. Depending on the cohort and external factors, student needs may vary. These needs can range from needing more or different coverage of some material to needing exam accommodations for health reasons, but all require some amount of flexibility in how a course is taught, administered, or organized.

From my experience having been an AI for both undergraduate and graduate classes, new undergraduates particularly are more likely to be worried about grades, attendance, and other administrative aspects. Carefully explaining what is expected of students up-front can help quell any related worries and help them focus on the class material. Being clear about what accommodations can be made can also ease anxiety for students who need them.

In some situations, a whole class may require adjustments to be made to a class schedule. Such situations occurred frequently with MAT126. Because of prison rule changes, there were often cases where the students were not allowed to attend class. In response, my co-instructors and I had to make changes to the overall class schedule and syllabus. While the environment of PTI classes presents more challenges than a typical university class, even in a more typical university setting, unforeseen events and students' personal circumstances may require similar kinds of accommodations.

Teaching Interests

I am primarily interested in teaching graduate or undergraduate classes related to programming languages, logic, and formal methods. Since participating in a group effort to design an introductory computer science course to be taught as part of PTI, I have developed an interest in the pedagogy of core undergraduate courses, including those covering topics like software engineering, algorithms, and data structures, and I would also be interested in teaching such classes.

Mentoring Approach

As a mentor of both graduate and undergraduate students, I have found that my teaching approach is also applicable in a mentoring context. For example, shortly after we had begun working together, I asked my undergraduate summer research intern to give an overview of the end goal of the project, its importance, and the student's contributions and their importance. As a result, I was able to emphasize the relevance of technical aspects like syntax-guided synthesis to the overall goal of the project and clarify the student's expectations for the internship.

As different students benefit from different amounts of and kinds of mentorship, I try to allow students to determine how hands-on I am as a mentor, while still meeting frequently enough to make sure that they are on the right track. I typically schedule regular meetings at a frequency decided upon with students' input and make it clear that I am available if students need to meet outside of our regular meetings or discuss things over email.