Teaching Statement

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I have an intrinsic passion and interest in teaching and mentoring students. During my undergraduate and graduate study, I took every opportunity to teach courses, including computer networks, computer security, data structure, introduction to data science, mobile computing, operating systems, and wireless communication. In those courses, I made an effort to help the students have a solid understanding of the basic concepts of computer science and the related mathematical tools (e.g., algorithms, data structures, and data analysis).

Teaching Philosophy

I believe good teachers should not only help students understand the knowledge taught in class but also spark their passion for exploring or creating more knowledge in the area. This belief is the source of my enthusiasm that is to educate young scholars and inspire new research ideas.

Students need an engaging environment in class, which makes the most effective utilization of limited class time. To this end, the students should be involved in class instead of just listening to the instructors. I strive to create an open atmosphere in classes by encouraging questions, discussions, and even debates. It will help students in keeping engaged as well as speak out about their obstacles in learning. As an instructor, I can quickly learn about the place where the students get stuck (it is usually the focus of their discussions), and make a change in the points that we will focus on in class according to their questions.

We should realize that students have different academic backgrounds and thinking styles. According to my experience in tutoring students, students have difficulties at different points or try to solve a puzzle in different ways. We cannot just give students direct answers, but need to ask ourselves a question: why do those students get stuck in this place? The main reason is the students’ heterogeneous academic backgrounds which shape their different thinking styles. For effective teaching, our answers should be adapted to the ways that students choose to seek our help. Otherwise, it will introduce extra confusion for the students. To understand students’ thinking styles, we should encourage students to proactively present their ideas in class and visit the instructors during office hours.

Thus, course preparation is crucial for teaching effectiveness, and our focus should be on class planning and homework design. In class planning, we need to carefully select the way of presenting the concepts being introduced in class in a simple and understandable way, avoiding too much jargon and ambiguous words, and sometimes, we can even trade off scientific rigor against intuition. Because my observation is that once a student cannot catch the class at some time point, she or he would not follow the instructor in the rest of the class in order to think the difficulty through. Once students grasp the intuition behind a concept, we can expect the students to spend more time after class for a better understanding of the applications of those concepts and tools taught in class. To help students, we need to carefully design their homework questions which should have different levels of difficulty for students with various academic backgrounds. After the homework is graded, we need to release detailed and clear solutions to assist their learning process.

My teaching philosophy is evolving as I gain more teaching experience. My enthusiasm for teaching will drive me to find more effective teaching practices and then apply them to my future students.
Teaching Methodology

The goal of my teaching is to let students understand concepts and necessary tools and then apply them to real-world problems. We will discuss the following points that can help us achieve this goal.

Class preparation: We cannot expect students to understand every detail of the course content, and thus, the main purpose of our class is to let the students obtain an intuition of the concepts and the related mathematical tools. To this end, the presentation should be as clear as possible. For example, we can use more videos and animations to elaborate a concept instead of just verbal descriptions. In my practice, I always start by introducing the background that every student knows for minimizing the students’ confusion. To have a better understanding of students’ backgrounds, I carefully design the related questions for the class discussion where the students can present what they know and what they do not know in terms of the class content. I also prepare class notes that have a great emphasis on the common points that the students find hard to understand (e.g., their focus in the class discussions), not just a simplified version of the textbooks. For technical details, we can integrate them into homework which is designed for helping students apply them to real-world problems. There should be a diversity in the difficulty of homework questions, and students can gradually improve their skills and avoid a deep learning curve that might discourage them from learning.

Answering questions: A rapid response to students’ questions is a key to teaching effectiveness, and it relies on collaboration between teaching assistants (TAs) and instructors. First, the TAs must have a full understanding of the course content or at least the part she/he works with the students. We can ask the TAs to have a short conversation with the TAs in the previous quarters for a basic understanding of what the course is about and to be familiar with the course content and the homework. Usually, the TAs need to answer the student questions online or in person, and they can organize a list of FAQs that are posted on the course website (e.g., Piazza, Canvas, etc.) for efficient use of their time. Second, the instructor needs enough time for office hours which are usually for the complicated questions that are not well answered by TAs. When the instructor meets the common questions during office hours, it is necessary to have a clarification in class.

Evaluation of teaching effectiveness: The class plan should always be adaptive to student feedback. We can use the course projects, midterm/final exams, and in-class quizzes. The quizzes are to test the students’ understanding of basic concepts introduced in class, and they should avoid complicated computations. The class should be adaptive to the quiz results, e.g., we can re-discuss the concepts that the students do not learn well. Midterm/final exams are for testing whether the students have a deep understanding of the concepts and tools. Finally, we use the course projects to examine the students’ abilities to apply the skills learned in class to real-world problems.

Future Courses

With my previous teaching experience and my research background, I am happy to teach the related courses at both undergraduate and graduate levels. It concludes, but is not limited to, the following courses:


Besides lecturing the courses, I would also like to organize seminars, reading groups, workshops, and other teaching activities that can help students enhance their abilities.