

Teaching Statement

Diana S. Kim

I believe that good teaching provides students with active guidance, encouragement to continue, dynamic and positive interactions. I hope to be a teacher who can create the constructive values in the classroom. I remember how years ago I had taught my younger sister how to color an apple and here I am now teaching my dear students how to draw hidden crystals in data.

My primary proficiency in teaching is being a helpful instructor. While pursuing my doctoral degree, I worked as a teaching assistant (TA) and a recitation lecturer in various subjects of computer science such as mathematics, artificial intelligence (AI), and machine learning. Based on a philosophy of being helpful, I have strived to be a TA who is knowledgeable, well-prepared, punctual, kind, and comfortably approachable, and who is able to explain complex concepts in an easy way. It has been a very fulfilling experience to directly help students to better understand the course contents and enable them to see the bigger picture about the subjects. In the years of my Ph.D. studies, I was assessed as a good TA and recitation lecturer.

In teaching coursework, I have two goals. First, I aim to make a low barrier to entry for difficult subjects. Making a lower barrier does not mean by teaching easier materials. It implies reframing and addressing preexisting contents in different orders and well-defined contexts. In preparing my recitations, I included key contents that have been taught for many years by other scholars and colleagues, but I also curated them to reflect my own interpretation about the subjects or to have a natural flow of topics. In addition, I added preliminary concepts to guide students to a smoother path in understanding the subjects. Through several course evaluations and students' remarks, I have confirmed that these modifications have helped students to understand difficult concepts by presenting them from different angles, and effectively clarifying tricky concepts that were not unclear in primary lectures.

My second goal is enabling students to have good discernment about course subjects. The good discernment entails understanding what the intellectual merits of the subjects are and how course contents are related to one another. Finally, I want students to have a clear knowledge map on the subjects. Through these specified goals, I hope students are able to recall relevant concepts and predict plausible outcomes when they design computational systems at their future workplace (whether industry or academia). In computer science, identifying feasible directions based on theoretical or empirical grounds is very important. Furthermore, developing a machine learning and AI system without such a discernment would be like finding a needle in a haystack. I believe that taking a course is a great chance for students to develop keen discernment from the works of prominent scholars.

Hence, the following questions will be explicitly or implicitly asked throughout my classes; If we were in the same situation, where a problem was originally addressed, could we come up with the original methodology? If not, what is the logical/knowledge gap between scholars and us? What knowledge is required to fill the gap? Is the suggested method optimal? If not, then how can we improve the scheme? As we improve the scheme, what kinds of limitations can we expect? and so on.

In class, these questions will be answered in detail as much as possible with very specific explanations. My class will be a place for students to understand how a whole computing framework operates to achieve specific goals based on rigorous mathematical derivations or programmed simulations. Some people

might say that revealing everything in detail may not be a good idea because it hinders students' ability to think independently or creatively. However, in my experience I have been able to have a clearer vision about a subject when detailed solutions or explanations were provided rather than when many things were just mentioned or hidden as riddles. As I had too many "why" questions, I was likely to be discouraged to go further rather than to be more curious about the subjects. Hence, my class will be a venue to see the subjects together with other students, where the class assignments are for the things I want students to see by themselves, while examinations are for the things they need to see again. Through these processes, I hope my students will have a clear knowledge map, will stay curious, and will finally have the confidence to tackle their future tasks based on strong knowledge and discernment. I want my class to have those practical merits.

Along with the two learning goals above, I have five rules to keep in my mind when interacting with students as a teacher, mentor, and advisor to foster inclusive culture both in and out of class, while acknowledging how the faculty's privileges and actions directly or indirectly influence on students' academic achievements and future career. I am fully aware of that responsibility, so I set my principles not to inadvertently disadvantage or advantage a certain group or to set a higher learning barrier for some students.

First, I will foster a sense of belonging in my classes and research lab, particularly those who have been marginalized by age, gender identity, race, socioeconomic status, and other demographic factors.

Second, I will respect all of my students. I will be responsive to their questions and requests, and make my best effort to be punctual for returning their feedback on their assignment or examinations and for holding office hours.

Thirds, as a research advisor, I will understand the individual goals and strengths of each of my students in order to help them to the best of my ability. I will be there for them when they struggle, believe in them, and assist them to update and refine their career goals as they progress in their studies.

Fourth, I will encourage students to participate in classroom decision-making to make sure their needs are understood and accommodated as best as I am able. Toward this end, I will routinely discuss the syllabus with the students in every first session of my class. I will offer flexibility with regard to office hours, exam dates, assessment options, deadlines extensions, and other policies to students who need it. I will often gather feedback from students to confirm whether anyone needs additional support.

Fifth, I recognize that students will come to my class with a wide range of prior knowledge, and I will particularly support those students who struggle because they have not been trained in traditional curriculum of computer science. I will regularly check to see whether they need additional help to succeed in my class.

▪ **Closing Statement**

Finally, I will be a teacher who keeps up-to-date on new knowledge and state-of-the-art developments in computer science, as it is a field that is rapidly growing and changing. I believe that it is an important responsibility as a higher education instructor to show the students unique and frontline perspectives, including newly updated knowledge, not to continue to repeatedly teach what I have learned before, which might be readily available from other online resources. In this sense, teaching and doing research have not been separate things for me. In doing research, I was able to better know the subject and could then emphasize or add the

new knowledge to my classes to give my students a broader spectrum of understanding. At the same time, through teaching students, I have learned new ideas and insights for my studies and have deepened my understanding about the subjects. Weighing both of doing research and teaching equally and greatly, I will be a faculty who cares about students really want to learn from my class, who endeavors to satisfy students' intellectual needs and curiosity, and who helps students to expand their boundaries in learning.

Appendix

- Introduction to AI, 2018-Fall (Recitation Lecturer)

- "She was very caring and showed efforts in helping us."
- "Goes over examples clearly."
- "The TA was very helpful during office hours and with answering students' questions."
- "I'm able to follow the logic through a problem from beginning to end, rather than look at it, skim it, and give up."

- Introduction to Discrete Structure II, 2020-Spring (Recitation Lecturer)

- "She asks us questions during recitation and helps us understand how to get the answer."
- "She made me comfortable asking very stupid questions that I thought might be simple, but she replied to them all and encouraged me to ask more. That benefitted me a lot because I used to be shy to ask such questions."
- "Great TA."

- Introduction to Discrete Structure II, 2020-Fall (Recitation Lecturer)

- "Super nice and teaching made a lot of sense to me."

- Introduction to Discrete Structure I, 2021-Spring (Recitation Lecturer)

- "Good at teaching and grading."
- "Helped me understand better."
- "The questions that were asked during recitation helped my knowledge."