As a future professor, I view teaching as one of my most important responsibilities: a role where I can inspire and engage students in the field of statistics while also expanding its reach to a broader audience. I have developed my teaching and mentoring skills through my experiences in both secondary and higher education: I taught precalculus as a student teacher at a Korean high school and served as an instructor for an introductory statistics course at Texas A&M University.[1] These teaching experiences, along with several class involvements as a graduate teaching assistant, greatly helped shape my teaching philosophy.

My teaching philosophy centers on (1) motivation (*why* students engage), (2) active learning (*how* students engage), and (3) inclusivity (ensuring *everyone* can engage).

Motivation. Through my teaching experiences, I have come to deeply recognize that motivation is the most important factor in students achieving success. Without feeling motivated by the course topics/materials and convinced that it's worth their time, students may miss the opportunity to explore their full potential and develop a deeper understanding of the course subject. On the first day of the class, I handed out a survey including questions asking what brings them to register for the class, what skills and knowledge they want to learn from the class, and if they have any special requests such as disability accommodation. This survey greatly helped me to understand the motivational drivers of the students and their needs and expectations, which led me to prepare lectures with more motivating data examples tailored to students' backgrounds and interests.

Active learning. Unlike asynchronous and pre-recorded lectures, a live classroom can provide an interaction between the instructor and students and students themselves. Fostering an environment where students can actively participate, learn from their peers, and develop skills and knowledge beyond textbooks greatly helps students find motivation and has a significant impact on the classroom atmosphere being active and energetic. When explaining new concepts, I try to utilize interactive demos as much as possible using tools like GeoGebra or R Shiny apps. By allowing students to handle data, draw plots, and run simulations by themselves, I found students were more actively participating and had a much better understanding. Also, as a teaching assistant in several statistics courses, I observed that student-led data analysis projects were the most effective way to motivate and engage students in real-world applications of data analysis skills.

Embracing different learning curves. A class instructor should try best to meet the diverse needs of all students with different learning curves. This becomes most tricky when it comes to assessment since too easy or too hard questions can both discourage students. To accommodate diverse students' backgrounds, inside the classroom I try to re-explain a single concept from multiple views as much as possible. For example, a concept of p-value can be illustrated with mathematical derivation, graphical depiction, multiple simulations, and concrete case study examples. Outside of the classroom, I regularly hold extended office hours for students, and one-to-one interaction with students allows me to better understand their needs and individual learning styles. In terms of assessment, I try to include bonus questions in quizzes and exams, comprising both easy and relatively hard questions. Compared to curving grades, I found that bonus questions are much more effective at motivating students in their different learning stages and fostering a growth mindset where grades are earned, not given.

Future plans. I believe that one of the most crucial roles of higher education is to equip students with critical thinking skills and the capacity for lifelong learning. This role is especially important for the statistics department, where data becomes more and more abundant, and insights from data are extensively utilized in the decision-making processes across nearly every field. Based on my teaching philosophy, my main teaching goal is to help students build the skills necessary to explore and tackle statistical problems they may encounter outside of the classroom. As a future faculty member, I am excited and prepared to teach courses in introductory probability and statistics, statistical inference, statistical computation, and probabilistic machine learning, as well as more practical courses in data science, such as exploratory data analysis or programming. I also look forward to the opportunities to design and teach new courses on both theoretical and practical aspects that can provide students with hands-on experience on modern statistical and machine learning tools that can last after graduation.

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[1]Course evaluation report: https://changwoo-lee.github.io/files/STAT303_Lee_Summer2021.pdf.