Shaocong Ma | Teaching Statement

385-439-4778 • scma0908@umd.edu • mshaocong.github.io

I firmly believe that teaching is not just about imparting knowledge but also about fostering an environment where every student feels valued and empowered to contribute, irrespective of their background. This belief has guided my three years as a teaching assistant at UC Santa Barbara and the University of Utah. During this time, I have developed my teaching skills and interests, utilizing real-world examples to make complex statistical concepts accessible and engaging to a diverse classroom. I am particularly adept at teaching courses such as Statistics, Probability Theory, Optimization Theory, Machine Learning, Reinforcement Learning, Deep Learning, Actuarial Statistics, and Survival Analysis.

Teaching Philosophy

My teaching philosophy centers on creating an inclusive, communicative, and accessible learning environment. Effective teaching goes beyond delivering content; it involves nurturing a space where students feel comfortable exploring, questioning, and engaging with the material and each other, regardless of their diverse backgrounds and learning styles.

❖ **Encouraging Inquiry**. I strongly emphasize creating a classroom culture where questions are encouraged. Even during pop quizzes, I allowed students to ask questions. In this case, I would not directly give the answer. Instead, I would explain the most basic definitions and lead the students to find the answer themselves. This approach not only aids in clarifying doubts but also fosters a learning environment where students feel the necessity and urgency of asking.

❖ **Promoting Communication**. Students in my classroom usually come from different countries and speak different languages, but I consistently encourage communication in English. This approach, which I also apply during office hours even when conversing with Mandarin-speaking students, stems from my personal journey as a non-native English speaker who once faced anxiety in speaking English. By maintaining English as the medium of communication, I aim to prepare students for a diverse classroom from different cultures and foster an inclusive atmosphere.

❖ **Improving Accessibility**. I ensured that all course materials, including lecture notes, slides, and lab codes, were readily available on GauchoSpace, the learning management system at UC Santa Barbara. This practice is pivotal in my teaching, as it guarantees that every student has equal access to the resources necessary for success regardless of their circumstances.

❖ **Guided Lab Instruction**. In my lab sessions, I proactively prepare detailed, step-by-step instructions, ensuring that every student, regardless of their prior experience or learning style, can successfully engage with and complete their experiments. Walking around the room and offering personalized guidance while students engage with lab tasks ensures that each student is fully supported and can complete their experiments. This hands-on approach helps break down complex tasks into manageable steps. It creates an inclusive and supportive environment where students feel empowered to participate and succeed.

Teaching Experiences

During my years as a teaching assistant at UC Santa Barbara and the University of Utah, I've developed a teaching philosophy centered on inclusivity, open communication, and accessibility. This experience has strengthened my dedication to education and significantly shaped my approach to teaching.

❖ **Teaching Lower-Level Statistical Courses**. At UC Santa Barbara, I taught sections in introductory statistical courses such as PSTAT 5A: Statistics, PSTAT 5LS: Statistics for Life Science, and PSTAT 109: Statistics for Economics. Recognizing the diverse academic backgrounds of new undergraduates, I found many struggle with basic probability concepts. My strategy in these courses is to start with recapping the fundamentals taught in the main lecture at the beginning of each section. This approach ensured that all students, regardless of prior knowledge, were on equal footing to grasp more complex topics. I aimed to foster an inclusive environment where every student felt supported and confident in their learning journey.

❖ **Teaching Higher-Level Courses**. In more advanced courses like PSTAT 172A: Actuarial Statistics, PSTAT 175: Survival Analysis, and ECE 3500 Fundamentals of Signals and Systems, my role as a teaching assistant shifts to covering more details not provided in the curriculum. For instance, in PSTAT 175, I conducted labs on the usage of the R package, while in PSTAT 172A, I offered step-by-step exercise solutions. These experiences were invaluable in enhancing my skills in creating tailored educational resources. I focused on clear, accessible content and hands-on examples to ensure students not only understood but also could apply complex concepts.

❖ **Preparing Course Materials**. Preparing course materials is a vital aspect of my teaching methodology. I aim to break down complex concepts into understandable components, provide relevant examples and visualizations, and give students sufficient background knowledge to grasp new ideas. The positive feedback from students on these materials also encourages me a lot. For example, I received an appreciative email in 2022 from a master's student at the University of Southampton studying Actuarial Science. He expressed how my online notes on Statistics and Actuarial Statistics significantly aided his understanding of complex topics such as Survival models, Life tables, and Annuities. He found these resources while searching online and mentioned that the clarity and depth of my notes provided him with much-needed support in his studies, referring to them as a 'life saver.'

Reflecting on my years at UC Santa Barbara and the University of Utah, I view my role as both educator and learner, dedicated to nurturing an inclusive and dynamic learning environment. My emphasis on inquiry, communication, and accessibility has positively impacted student success and my professional development. I am eager to apply these insights and skills to your department, aiming to inspire and empower students with innovative teaching methods that foster academic achievement and personal growth.