Teaching Statement

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1 Teaching Philosophy

The significance of teachers in all academic areas is profound. They inspire lifelong learning, equip students with vital critical thinking skills, and foster self-sufficiency and confidence in their education. Therefore, it's crucial for teachers to have a strong grasp of the subject matter and adapt to individual learning styles. In statistics, a logical and thorough analysis is essential for understanding the world around us. With the right approach, teachers can help students appreciate the value of statistical analysis in any area of interest. My teaching style emphasizes nurturing this intuition by highlighting the motivation behind mathematics and demonstrating how its logic aligns with the common sense that every person already possesses.

During my early undergraduate years, I had the opportunity to mentor a group of brilliant students on their journey to mathematical olympiads and various elite Indian institutions. This was my first experience with teaching, and I quickly realized the joy of sharing knowledge and the interactive process of lateral learning. As a student myself, I firmly believe in Swami Vivekananda's quote that "*Education is the manifestation of perfection already in man*".

At University of Chicago, I served as a teaching assistant for graduate and undergraduate courses, honing my teaching skills and passion for education while engaging with a diverse academic community. I have served as teaching assistants to myriad group of students: including students with no prior exposure to Mathematics or statistics, and doctoral students from other disciplines. I have also served as a senior consultant on statistical aspects to various researchers from non-statistical or mathematical background, and have been recognized for my activities by two consecutive *Senior Consultant Awards* in 2022 and 2023. Such varied experiences have enhanced my ability to temper around rigor and intuition, in order to cater to different needs of students from different backgrounds.

2 Teaching Experiences

Teaching Assistant, Department of Statistics, University of Chicago.

- STAT 24400 Statistical Theory and Methods I
- STAT 24500 Statistical Theory and Methods II
- STAT 30030 Statistical Theory and Methods 1a
- STAT 33910 Financial Statistics: Time Series Forecasting, Mean Reversion, and High Frequency Data
- STAT 22000 Statistical Methods and Applications.

3 Teaching methods

Inquiry-based path: the motivation behind formulas before tackling complex calculations:

I teach by motivating formulas through intuition and real-life examples before formal derivations.

For instance, in regression, I guide students from simple visual relationship between predictors and responses, to parameters and estimation rather than presenting the model directly. I emphasize intuition and cross-disciplinary applications, often introducing linear regression early to spark interest in broader statistical concepts.

Teaching approach and accomodating students' diverse perspectives:

I adapt my explanations to diverse student perspectives, drawing on insights even from apparently non-mathematical fields like music or cricket. My classroom emphasizes active learning: discussions, group projects, and rediscovery of concepts through inquiry. I prioritize "why" over "what," encourage questions, and use probing dialogue to build confidence and curiosity. For my teaching approach, I aim to employ diverse teaching methods for active and enjoyable learning, including in-class discussions, group projects, and student presentations. In upper-level courses, I encourage reasoning through abstraction and rediscovering concepts together.

Technology aids in student engagement and connectivity:

Technology also plays a role: interactive apps, coding sessions, and visual aids make abstract concepts concrete. My assessments often involve token real-life examples and hands-on visualizations, balancing fairness and creativity-always with the goal of nurturing critical thinking and problem-solving.

4 Inclusive classroom environment

I actively promote diversity in the classroom through structured peer discussions as well as individual mentoring. I have supported students of varied backgrounds, including mentoring undergraduates on research projects, many of whom advanced to graduate studies or professional roles. Looking ahead, I aim to enhance diversity by ensuring equal resource access, encouraging anonymous feedback, and creating mentorship programs for underrepresented groups. Beyond academia, I hope to contribute to outreach programs in coding and consultancy activities for researchers and students from other disciplines.

Teaching, for me, is a reciprocal process—the reward lies in watching students grasp difficult ideas and in continually improving myself as both teacher and learner.

5 Some encouraging comments from the students

- " Soham Bonnerjee stands out – excellent TA and explained everything very well in office hours." (STAT 24400, Fall 2022)
- "Shoutout to Soham! He is amazing at answering questions and explaining difficult concepts." (STAT 24500, Spring 2022)
- "The TA, Soham Bonnerjee, helps a lot by recommending me supplemental reading to better understand the lecture" (STAT 33910, Winter 2023)
- "Soham Bonnerjee. Friendly and highly knowledgable. Answers homework questions to the point. Thank you!" (STAT 33910, Winter 2023)
- "He was very good. He knows what he is talking about, that's all I need to say." (STAT 33910, Winter 2024)