

Teaching Statement

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Summary of my teaching background a philosophy

I have been teaching college level mathematics for over seven years at University of Illinois Chicago and Stony Brook University. Both are state universities with diverse student bodies. A significant portion of the students at both universities can be described as either commuting, urban, or coming from an underrepresented minority group, and many students are the first in their families to attend college. My goal as TA in the classroom was to promote active learning, to teach students to work collaboratively, developing students' problem-solving abilities, and reducing math and science anxiety among students.

In a world that is becoming increasingly quantitative and data driven, a thorough understanding of college level mathematical reasoning is essential for the success of any student to interpret complex situations and make rational decisions in their daily lives. The critical thinking skills developed by the mathematics curriculum are crucial in any student's toolbox. If the student chooses to specialize in technical fields or mathematics, these skills become even more essential.

My teaching experiences

I was Teaching Assistant at Stony Brook University between 2011 – 2013. SBU has a three-tier calculus education, and I had the opportunity to teach at all three levels.

- I taught Honors Calculus 1 (MAT 141) during Fall 2013. At SBU the honors calculus sequence takes the most motivated and prepared 20 students each year, and gives them a rigorous introduction to real analysis, including proofs. Here my task as TA was to ensure students understand foundational concepts, and to introduce them to mathematical proofs, such as delta-epsilon arguments for continuity.
- For two semesters, I taught Calculus 2 (MAT 132), part of the 3-semester calculus sequence for science/engineering majors. The goal of my recitation sections was to model expert problem solving, as these students had a strong background and were well prepared for the course. I also taught the Calculus A (MAT 125), of the general calculus sequence which has more emphasis on applications.

I am currently teaching assistant at the University of Illinois at Chicago with five years of experience (2014-2019).

- I have been teaching Calculus 1, 2, and 3. According to the UIC approach, we used the Triesman method and group-work format. I designed my own worksheets for the class, and have students work on the problems in groups of 3-4 as follows: (i) *0-15 minutes*: I hand out worksheets and assign a few problems to each group to present during class; (ii) *15-30 minutes*: I send each group to the board to work on their assigned problem on a given board space. In the meantime, I walk around answering questions and monitoring progress, giving hints if necessary; (iii) *30-50 minutes*: I use for team presentations; I call each group up to the board, one at a time. I ask them to explain their solution and answer questions from me or from other students.

- I also taught a diverse set of courses, such as Introductory Statistics, Linear Algebra, and graduate Real Analysis grading. This allowed me to gain experience teaching diverse population of business and life science students. I have extensive experience grading homework assignments and exams. For grading and HW assignments, UIC uses a mix of MyMathLab and Crowdmark or Gradescope, so I am familiar with these platforms. UIC has also invested heavily in active learning environments and classrooms which I have used.
- A few years ago, UIC introduced a standardization of the calculus worksheets, and I was involved in a project with Director of Calculus Prof. Martina Bode to compile and maintain the worksheet bundle booklets for Calculus 1 and 2. This has been ongoing for the past three years. Based on the worksheets I designed for my discussions, we created a print edition that we update each semester and is available for purchase the UIC bookstore for a nominal fee.
- For one semester I was an instructor for the UIC Emerging Scholars Program, which is an optional two-hour long problem-solving workshop for highly motivated group of students in addition to their math course where we work on more challenging problems than the regular curriculum requirements.

Additional teaching involvements

- In addition to holding discussion sections, I spent two hours per week in the Math Learning Center tutoring room where I helped students understand a wide range of undergraduate mathematics from the various courses offered at the university.
- If the syllabus permits, I like to introduce some concepts of my research in dynamical systems and hyperbolic geometry into the classroom, such as the length of fractals curves for geometric series (area of Sierpinski carpets and lengths of Koch curves), and iterating simple of quadratic and logistic like maps while discussing limits of sequences etc.
- I believe pre-college outreach is important, beyond TA work. While at Boston University, I volunteered at an on-campus science camp organized by “Innoworks” that introduced underprivileged and motivated middle school students to science in university lab environments.
- Last summer I volunteered to be a mentor at a high school student camp, the TTK ScienceCamp organized by the Budapest University of Technology, Hungary, where I graded the math competition problem sets, and supervised students field trips.

Conclusion

My role model is my undergraduate thesis advisor Prof. Robert Devaney, who has been recognized for teaching excellence by the MAA and by Boston University. I hope someday I will be able to teach math as passionately and as successfully as he has done. In the future I am looking forward for an opportunity to teach an introductory course on dynamical systems class aimed at an undergraduate audience, like to one I had taken, as well as have the opportunity to teach more advanced courses.