TEACHING STATEMENT

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Teaching has always been an important component of my mathematical life. It is, in my opinion, the duty of a mathematician to communicate the beauty and usefulness of mathematics to an audience as wide as possible, and teaching is the best opportunity to do this. That I also find great joy in teaching makes this activity not only a necessary complement to research, but a healthy one as well.

I formally began my teaching career during my graduate studies, where I served as the main instructor in several basic-level mathematics courses. In 2017, I became a Krener Visiting Assistant Professor at the University of California, Davis where I have taught various undergraduate courses: Calculus for Business and Administration, Calculus for Biology and Medicine, Introduction to Abstract Mathematics and Modern Algebra, which covers the basics of group theory. Besides, I enjoy organizing reading seminars with graduate students, where we have studied topics in representation theory such as affine Schubert calculus and combinatorial wall-crossing.

My teaching philosophy is based on flexibility and always being attentive to feedback from the students. To elaborate on the first point, I believe one should not be too rigid on the teaching style and make changes according to the needs of a class. For example, in my experience one needs to be more enthusiastic teaching an 8am class than teaching an 11am class. Or, as another example, students in higher level classes will appreciate a challenging problem more than those that are just taking a class as a requisite. On the other hand, in a class for non-mathematics majors, I put extra emphasis on applications and how mathematics can be useful in the students’ future careers.

Regarding feedback, I gauge the students’ understanding of the material by asking several control questions during lecture, and I try to give weekly or bi-weekly quizzes. While these serve to fulfill the obligation of evaluating the students, I use them as a way to keep the students up to date with the material in class, and also as a tool to identify their weaknesses in time. They also help me in identifying the parts of the material where the students are having the most trouble, and what topics I should emphasize in class.

For every course I teach, I also prepare a detailed webpage and post there typed solutions for all homeworks and exams. Whenever possible, I also make available my hand-written lecture notes, as well as other material from previous years. I have also used WebWork and other web-based course materials. For a calculus class aimed at biology majors, I made R an important part of the course, as I believe students should get acquainted with high-level mathematical software.

I plan to keep teaching as an integral and important part of my academic career. I will continue teaching a wide variety of undergraduate classes, and I also plan to teach graduate courses in topics that are closer to my area of expertise such as representation theory of Lie groups and Lie algebras, quiver representations or algebraic geometry, as well as more specialized and recent topics such as rational Cherednik algebras and quiver varieties. I look forward to continue teaching at both undergraduate and graduate levels, to make students aware of the usefulness of mathematics, and to make mathematics students acquainted with vibrant areas of research.

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