

## Juliette Bruce's Teaching Statement

**I. Introduction.** As an educator my goal is to serve as an active guide for students, providing them with environments where they feel supported and encouraged to let their own mathematical and quantitative curiosities guide how they engage and learn. By taking this approach, I hope to engage with students as the complete people that they are, asking them to bring all of their experiences, backgrounds, identities, and knowledge into the learning environment. In this way I hop to allow students experience mathematics in a humanistic away, seeing how mathematics and quantitative thinking are an integral aspect of their life. I have sought to develop and refine the skills, both by viewing each teaching assignment as my own opportunity for growth and learning and by actively seeking out learning from other educator and education experts. Recognizing that learning mathematics is not necessarily confined to the classroom I have sought out new and at times non-traditional teaching opportunities. As two of my former students noted, "Juliette obviously wants us to succeed not only in math but in life"

**II. Teaching Experiences.** As a graduate student at the University of Wisconsin - Madison, I served as a teaching assistant and course coordinator for Calculus I for multiple semesters, the instructor of record for Math for Early Education Majors, and the instructor of record for a Calculus I course providing students from generally under-represented groups additional support during their first college math course. Additionally, for several semesters, I held a non-traditional teaching assistantship for my role as the organizer of the Madison Math Circle outreach program. My passion for promoting an interest in and excitement for math – especially for people from generally underrepresented groups – led me to take on teaching and outreach roles through the *Girls Math Night Out* program and the *Wisconsin Directed Reading Program*.

My postdoctoral positions at Brown University and the University of California, Berkeley did not allow me to have formal teaching responsibilities, however, I have actively sought out non-traditional teaching opportunities and mentoring opportunities. For example, during 2020, in response to the COVID-19 pandemic, I helped Ravi Vakil and others organize *Algebraic Geometry in the Time of COVID*, a massive open access virtual algebraic geometry course, which drew over 1,200 participants from around the world. Inspired by this experience, in 2021, I organized my online open access course, Virtual Directed Reading in Geometry & Algebra, aimed at providing undergraduates under the country the opportunity to learn algebraic geometry and commutative algebra. A

During this time I continued to seek to grow as educator. For example, while at the University of California, Berkeley I actively participated in a reading/working group exploring antiracist and anti-oppressive pedagogy in the mathematics classroom. Further, I personally sought to engage with NEDED including works of Pamela E. Harris, Aris Winger, Rochelle Gutiérrez, Luis Leyva, and Francis Su. Since returning to the classroom I have found that this has substantially shaped my time in the classroom.

In the Fall of 2023, with a desire to return to the classroom and working remotely ar Brown University I had the privilege to teach a few courses at San Francisco State University. In particular, I served as the instructor of record for two sections of Business Calculus and one section of Pre-Calculus I. Two of these sections were part of San Francisco State University's "supportive pathways program" which seeks to improve the retention and success of students from underserved and underrepresented communities by providing them extra support including instructors selected for their NEEDEDE. NEEDEDEDE

My teaching has been recognized through both awards and student evaluations:

- In 2018, I was one of three graduate students recognized campus-wide with the Teaching Assistant Award for Exceptional Service.
- I received two TA awards from the math department, the TA Service Award (2018) and the Capstone Teaching Award (2019), the latter of which is awarded to just one teaching assistant each year, for an exceptional record of teaching excellence and service.
- My student evaluations are generally quite high; for instance, for one course 100% of students agreed that I was an effective teacher.

**III. Teaching Philosophy and Strategies for Classroom Success.** As an instructor, I view my role is to be an active guide. I encourage my students to explore, engage with, and question the course material for themselves. I try to structure much of the course around guided group work that gives students opportunities to develop and discuss their understanding and confusion with their fellow students. In addition to encouraging students to take an active role in learning, this format also helps students to learn to vocalize their thought processes and ideas.

Active learning presents challenges to me and my students, most notably, the challenge of managing student mistakes. In many ways, the most significant moments during the learning process are not necessarily the moments of success, but the moments of failure. It is at this moment that students can recognize errors and gaps in their understanding of a subject and can begin trying to correct them. It is also the moment that as an instructor I can understand what my students are finding difficult and nudge the conversation in such a way as to overcome these hurdles.

Making mistakes is hard, and most students, like most people, would prefer not to make mistakes. With this in mind, I think it is crucial to promote an inclusive environment where all students feel comfortable and safe participating. This environment encourages students to be open about what confuses them and where they are making mistakes. Creating an inclusive classroom environment requires active attention and work to maintain. However, in my experience, this work is well worth it.

My approach to creating an inclusive classroom environment has been influenced by the semester long course *Inclusive Practices in the College Classroom*, which I took through the *Delta Program for Integrating Research, Teaching and Learning*. For example, one activity I implemented successfully asks students to brainstorm attributes from classes they found productive and from classes they found less productive. After collecting a list of such attributes, we use this as a jumping-off point for forming community standards that we wish to shape our classroom environment. Examples of such community standards that my classes have often adopted include: “Respect everyone” and “Address the problem, not the person, when discussing mistakes”. I have found this helps the students buy into the belief that the classroom is an inclusive space where it is safe to make mistakes.

The effectiveness of this approach is highlight both in what I sense to be NEDEDEDED, but also in student comments:

- “I’ve always struggle with math and I’ve had a lot of teachers that didn’t believe in me so because of this I’ve always dreaded math courses. But Juliette always showed she cared, was constantly encouraging, believed in our class, and taught the material really clearly. From her constant availability to help and great instructing, her class became one of my favorites and I am more successful in a math course than I’ve ever been before.”
- “She went around and tried helping each student instead of giving broad answers to the whole class. She cared about each student’s success in the class and tried her best to make everyone understand the material.”

- “Juliette obviously wants us to succeed not only in math but in life. She is always making sure we know our resources especially when it comes to health. She also always wishes us a good day/weekend and that is awesome.”

**IV. Conclusion.** During my time as a graduate student, I have found teaching to be extremely rewarding. During my time as a postdoctoral fellow I have found creative ways to engage with students beyond the classroom and found enjoyment in working with students. Going forward, I am looking forward to new opportunities to grow and learn as a teacher. Further, I am excited to continue promoting inclusivity, diversity, and justice in the classroom.