

Juliette Bruce's Teaching Statement

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 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* and the *Wisconsin Directed Reading Program*.

My position as a postdoctoral fellow at the University of California, Berkeley and the Mathematical Sciences Research Institute did not all me from teaching formally, however, I have spent this time exploring forms of informal forms of teaching, as well as, directing student research. For example, during the Summer and Fall of 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 the Winter of 2021 I organized Virtual Direct Reading in Geometry & Algebra a virtual open access directed reading group for undergraduates interesting in algebraic geometry and commutative algebra. During the summer of 2021 I lead a group of 6 undergraduate students in a summer research project in combinatorial algebraic geometry.

My teaching has 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 student each year, for an exceptional record of teaching excellence and service.
- My student evaluations are generally quite high; for instance, in my most recent course, 100% of students agreed that I was an effective teacher.

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. This is not to say I set my students adrift with no guidance, but instead that I try to structure as 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. I have found such an environment is very helpful in encouraging students to be open about what they are confused by and where they are making mistakes. Creating an inclusive classroom environment requires active attention and work to maintain. However, it has been my experience that 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've 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.

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 advising student research. 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.