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Diversity Statement

Mathematics is fascinating in its own right, but it also unlocks doors to many other fields and topics. Unfortunately for many people, failure in mathematics actually locks doors. Many STEM fields have math requirements that create significant barriers that not all students can overcome. Does this exacerbate the under-representation of certain populations in STEM? I have personally witnessed colleagues and students change majors because of a math class. As a woman in math, I have been fortunate to have been in supportive environments with strong female role models. This is not a standard occurrence for many women and underrepresented groups. I would like to help all students succeed in mathematics by creating welcoming environments and a culture of support.

Teaching

I have had the opportunity to teach several diverse groups of students. At Duke University, I taught Math 105 and 106, which are year-long introductory calculus courses that historically contain a majority of students from underrepresented groups. In addition to full course loads, many students also had jobs, military training, learning disabilities, family commitments, and athletic contests. I do not want these outside factors to hinder student success, so I am considerate when students need extensions or accommodations and offer additional office hours outside of those required. I adjust class pace to the students' level using informal assessments. For example, after covering a challenging topic, I ask students to put up one to five fingers to express their comfort with the topic. Based on this feedback, I can further explain or move on. I encourage participation from all students and use group work in class to allow shier students to participate in a less threatening environment. On course evaluations, students said they felt respected and able to ask and answer questions in class.

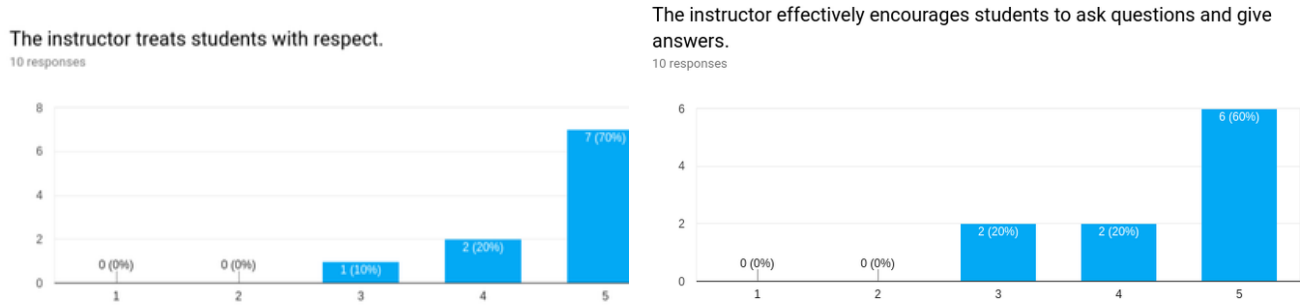

Figure 1: "Results from mid-semester survey for Math 106"

To assess students, I use tests, quizzes, homework, group work, and written reports. I like to use the names of my students in problems to make everyone feel included. To avoid implicit bias when grading, I blind tests and quizzes and write out detailed keys for consistency.

I have also taught several courses for Duke TIP. Students in these courses are often from diverse ethnic, racial, economic, and mathematical backgrounds. I allow students to choose projects that are meaningful to them. For example, in my machine learning class, students can pick any publicly available data to use for their final project. I feel that students are more engaged and invested in projects of their choosing. To account for the large discrepancy in mathematical backgrounds, students work on low floor-high ceiling tasks after a new topic is introduced. This allows me to meet students where they are by using individual remediation or challenging problems.

Mentoring

Last year, I founded a department-wide mentoring program. Although this program originally was only for female graduate students, it became apparent that there were not enough students from other underrepresented groups to form similar programs. This program was not only open to undergraduates, graduate students, postdocs, and faculty, but also to anyone who identifies as male, female, or non-binary/third gender. This year we had 35 participants, including many women and underrepresented individuals. I have had the privilege of serving as a mentor to 3 undergraduate math majors at Duke through this program. I hope to continue to promote a culture of mentoring in my future career and am equipt to duplicate this program or grow existing mentoring programs.

Outreach

It is important to promote diversity in math both in academia and in the community. As an organizer of the Graduate Faculty Seminar, I was in charge of finding speakers for the weekly seminar. The goals of this seminar were to help early-career graduate students choose research areas by having faculty from the department to explain their research at an accessible level and to give graduate students a low-pressure platform to present their research. In this role, I was also able to encourage many female faculty members and graduate students to give talks. Moreover, I have been an active member of the Association for Women in Math and Duke Noetherian Ring which holds social and networking events for women in the Duke math department. I hope to use future service positions to increase the visibility of diverse members of the mathematical community.