Vision for diversity, equity, and inclusion

As a mathematician who values diversity, equity, and inclusion (DEI), I often contribute to summer mathematical research programs that recruit students from under-represented backgrounds. I am convinced these programs are the best approach for improving diversity in mathematics. The programs provide a collaborative working environment, free from the pressures of grading and testing. They expose undergraduates to exciting research-level mathematics that would not ordinarily be presented during the school year. They build students’ research skills and provide letters of recommendation needed for graduate school admissions. Last, they convince bright students to apply to graduate programs in mathematics, rather than pursuing industry jobs. By recruiting a diverse group of students to take part in these summer research programs, we can ultimately build a more equitable and representative mathematical community.

I have participated in summer mathematical research as a research mentor and coordinator, and I will continue to contribute to these programs as a faculty member. In the following sections, I describe my past contributions in more detail and explain the early experiences that motivate my approach to promoting equity in education.

Contributions to summer mathematical research

In summer 2020, I coordinated New York University’s summer research program in applied mathematics, which especially recruits students from diverse and under-represented backgrounds. As program coordinator, I organized a lecture series, supervised weekly group meetings, and met individually with students to ensure their faculty-sponsored research projects went smoothly. Over the summer, I saw that the students honed their research skills, became more excited about mathematics, and improved their preparation for top mathematics graduate programs.

Later, I participated as a research mentor in a Caltech’s program for “incoming historically excluded and/or marginalized first-year students” in summer 2022. I supervised two students in a project simulating self-avoiding walks. The two students, Thanhthanh and Felipe, increased their skills and built their confidence while jump-starting a trajectory of research involvement. I later wrote letters of recommendation which earned Thanhthanh a role in Matilde Marcolli’s lab doing computational linguistics and earned Felipe a spot at NASA’s Jet Propulsion Lab. Thanhthanh and Felipe are just second year undergraduates, but have already established a strong research track record which will lead to attractive graduate school opportunities in the future.

Last, I served on my department’s DEI committee in 2021–2023 and worked with the committee to build a new mentoring opportunities website. The website provides information about research programs for undergraduate and high school students, especially students from under-represented backgrounds. It is a helpful resource for students getting involved in research and for Caltech graduate students, postdocs, and faculty members interested in serving as research mentors.
Early contributions to equity

In my earliest post-college years, I was dedicated to improving equity at a broad societal scale. In 2012–2013, I served as a Fulbright English teacher in rural Indonesia, where I taught high schoolers from low-income backgrounds, many of whom lacked access to textbooks. Then in 2013–2014, I worked as an AmeriCorps member in a homeless shelter, where I taught computer skills to homeless residents. Through these experiences, I saw that the world is not fair but we can do our part as teachers and mentors to make the world fairer. We can provide a high-quality education to all students and provide special support for students being challenged by new experiences. My fundamental belief in fairness is what motivates me to participate in DEI efforts on campus, with a special focus on contributing to summer mathematical research programs.

Robert J. Webber

✉️ rwebber@caltech.edu  ●  rwebber.people.caltech.edu