

Teaching Statement • Ben Whitney

I enjoy teaching. I enjoy the challenge of it, I believe it is a worthy pursuit, and I am proud of my role in my students' education. My work in the classroom is central to my identity as a member of the university and the larger community both, and I hope that teaching will play a prominent role in my continued growth as a mathematician.

My teaching career in Rhode Island has been bookended by service at a place very different from Brown: the state's men's medium security prison, about twenty minutes south of Providence. The summer between my first and second years in graduate school I cotaught and again this fall I am coteaching there a remedial arithmetic course designed to prepare students for associate's degree coursework. The prison curriculum is wide-ranging: the classrooms neighboring ours are used for, first on your left, a teaching barbershop; Bible study, taught by a rotating crew of Mennonites; and a course on the history of incarceration, taught by a Brown professor who brings an extra copy of the readings to give to the correctional officer at the front desk. In keeping with the diverse course offerings, the student population is widely variable. Most of our students have encountered the material before, and while they may appreciate a refresher on, for example, the mechanics of long division, they are largely self-sufficient. One such student, C., is hoping to become a lawyer; he doesn't need much from us except reminders to not shout out answers during class. But sitting a row over from C. is M., who received virtually no formal education as a child and has very little number sense to help him grasp new material. M. needs time, but with classroom hours strictly limited, office hours an impossibility, and the syllabus requiring that concepts usually taught over years be crammed into weeks, the course is not set up for him to succeed. Our conversations on the drive back to Providence gravitate from the practical matters of our pace through the syllabus and our notes on which concepts gave the class the most trouble to the fitful progress of M. and the other struggling students, our wistful desire for a teaching environment closer to Brown's, and how best to help the class as a whole as individuals inevitably fall through the cracks.

Though mundane in comparison, my traditional teaching positions at Brown have been no less interesting or fulfilling. Following a stint as a tutor in my first year, my teaching career began in earnest in my second year, when I worked as a teaching assistant for introductory statistics and ordinary differential equations classes. In addition to the usual tasks of leading recitation sections, holding office hours, and grading, I gave a guest lecture on numerical methods in the ODE course. The following year, my third, I again helped teach the ODE course, this time as the head TA. Teaching provided a welcome interpersonal complement to my research, an enterprise which, if not quite isolating, was often solitary. I received external funding that exempted me from teaching responsibilities in my remaining years as a graduate student, but I still sought out a few roles in the classroom. In addition to the aforementioned program at the prison, in the summer between my third and fourth years I served as a team leader in an exchange program between Brown and Kobe University. I wrote a tutorial (available online) on the message-passing library MPI and presented it to all of the participants in the first days of the program. For the remainder of the exchange, I guided a team of students through a project on data compression (also of my design). The results, touching on basic information theory, arithmetic coding, and compression using the Fourier and wavelet transforms, were presented at the end of the program in Kobe. Teaching has been some of the most rewarding work I've done at Brown, and I welcome the opportunity to teach in a university classroom again.

Beyond the enjoyable interactions with students and the opportunity to spread mathematical literacy, teaching at Brown has had the welcome effect of improving my command of subjects I don't often use in my research. I can't say the same of teaching in prison – humbly, I couldn't be much better at arithmetic – but I do think my time there has made me a better teacher, and I am happy to see math treated as an indispensable part of basic education: happy that an inmate who looks out his window at 6:05 PM on Thursdays and Fridays can spot in the group making its way across the yard, alongside the Mennonites with their hats and Bibles and the history professor with her bag of books, us, the mathematicians with their ambitious lesson plans and chalky pants.