

# EARLY CAREER

The Early Career Section offers information and suggestions for graduate students, job seekers, early career academics of all types, and those who mentor them. Angela Gibney serves as the editor of this section. In the next issue we think about the year to come.



## Good Ideas

### Teaching College-Level Mathematics in Prisons

*Annie Raymond*

Teaching inmates college-level mathematics has been one of the most important and rewarding experiences of my career so far. I started in 2016 when I was a postdoc at the University of Washington. The math department received an email from University Beyond Bars (UBB), a local non-profit that offers college classes to inmates at the Monroe Correctional Complex. The email asked if anyone in the

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department would agree to volunteer to teach Math 104 (Finite Math) or Math 106 (College Algebra) at the prison.

I had no idea that some prisons offered university-level classes, but my interest was piqued. As a kid, the elementary school I attended consisted of children from the nearby housing projects as well as children from middle-class families. I saw no difference between the kids who came from more affluent families and those who didn't. Each kid was some unique combination of smart, funny, and kind. Still, despite all of us being the same as kids, many of the kids from the projects got caught in the crushing cycle of poverty, and some ended up spending some time in prison. Thinking about all of the potential that had been wasted as a result of structures in place in our society, I volunteered to teach Math 104.

A few months later, after having completed some background checks and training sessions as well as having my syllabus approved by the community college awarding the credits to students participating in UBB, I taught at the prison for the first time. The men filed in and came one-by-one to introduce themselves. That's when it hit me that I was alone in a room with criminals. Obviously, I knew this would be the case, but I hadn't fully appreciated that fact. For a few minutes I was literally speechless. I was unable to greet my students; 'hi' was too complicated a word to utter. They finally all sat down and looked up at me expectantly. I finally calmed down; I knew that excited and nervous look: it was the same one students gave me at the beginning of every semester. These men were my students. Any other part of their identity was irrelevant in that moment. With the weight of this realization sinking in, I was able to start teaching.

My first semester went better than I could have ever expected. The course was basically an introduction to discrete mathematics, a topic that is particularly appealing for students who might dislike—and sometimes even fear—mathematics because of courses they have previously taken. With discrete math, we can talk about love, solve fun puzzles, do magic, become better poker players, optimize our lives in many ways, and so much more. Most students were at first surprised that these things all related to math, but very quickly they started seeing every aspect of their lives more mathematically. My students had such a fierce passion and thirst for learning the material. The continuous stream of questions during classes was a testament to their refusal to be satisfied by mere knowledge and to their incomparable commitment to achieve true understanding.

I won't lie; that first semester, and every subsequent time I have taught in a prison, has brought its share of challenges too. The size of the board available would make any mathematician want to cry. The disparity in the students' previous knowledge was much greater than in the most uneven freshman calculus class: some hadn't taken a math class in several decades, while others had finished their GED while in prison. Many needed to be taught how to study. The classroom was loud: there was a rock band practicing in the next room, though my own students would sometimes give them a run for their money when arguing about how to solve some problem. I couldn't hold office hours, and the students couldn't email me to ask me for help. Most students had full-time jobs at the prison and no quiet place to study the rest of the time. The prison was far away, and I had to rely on carpools and buses that would tally up to a commute of three hours in total. Classes were three hours long and in the evening, which was challenging for the students and for me. I also had to deal with a few correctional officers who thought inmates did not deserve to have this chance and refused to treat them like students. But all of this was amply worth it because of how enthusiastic, dedicated, and grateful my students were.

That first course proved to be very effective in making students care about math: my students asked me if I could come back the next semester to teach them again even though the class they had just completed was the only math class required for the associate degree they were completing. I suggested a traditional route: calculus or linear algebra. They requested that I teach them an introduction to proofs instead; I had occasionally shown them some proofs during the semester, and they wanted more. Given that the community college that was granting the students credits did not offer such a class, we settled on a lecture series that would be offered just for fun. Let me emphasize this: inmates took advanced math just for fun. My first students publicized the series so much that it was standing-room only. It was amazing. After that class, we went back to a more traditional mathematical route, since many of them now wanted to get bachelors of science—even PhDs in some cases—instead of associate degrees, some of them in mathematics. A few of my first students have now been released and are on their way to achieving their dreams.

The next semester I went to MSRI for the Geometric and Topological Combinatorics program. My experience with UBB had been so positive that I wanted to find a way to keep teaching inmates. I found out there was a program similar to UBB called the Prison University Project (PUP), and I volunteered with them at the San Quentin State Prison. There are many such programs around the country that are always looking for more mathematicians to volunteer: [prisonstudiesproject.org](http://prisonstudiesproject.org) lists many of them. For those who would like to volunteer but who might not have enough time to teach an extra three hours a week, most programs allow for classes to be cotaught by two or

three instructors. Tutoring is also another good option that requires a smaller time commitment. It can also be a good option for peridocral students who want to volunteer and who do not meet the instructor requirements set by the institute granting the credits for the course. Many programs also offer noncredited classes to prepare the students for the credited courses. Those preparatory classes can often be taught by grad students.

Unfortunately, not every prison and jail has a program like UBB and PUP. This was the case of the local jails near me. As I arrived to start my tenure-track position at UMass, I still wanted to keep teaching math to inmates, but there was no such program nearby. A few college classes in different fields had been taught over the years, but nothing with much direction and never any classes in math. It took many months of emailing with the administration at the Hampshire County Jail before they agreed to even meet with me; they were dubious that any of their men would be interested in taking college-level math.

I eventually convinced them to let me run a Math Circle with biweekly meetings where we would focus on the process of doing mathematics, solving mathematical problems, and exploring mathematics together instead of learning set rules. This would be a way of gauging students' interest for a potential course. The Math Circle was a success. The students would talk about it for days after our meetings, and the number of students wanting to attend increased steadily throughout the semester. This convinced the administration that it would make sense to offer a college-level class the next semester.

I was thrilled, but I was also nervous about how I could raise funds to pay for the credits the students would obtain, something that organizations like UBB or PUP usually take care of. One option would have been to go through The Second Chance Pell program, a program of the US Department of Education that was launched under Obama and serves 12,000 inmates a year nationally. Otherwise, there is a ban on federal financial aid for inmates. If this ban were lifted, about 463,000 prisoners would be eligible for a regular Pell Grant. Information on how to start new sites can be found here: <https://experimentalsites.ed.gov/exp/expectations.html>. I was very lucky that I got help in acquiring an easier source of funding: my department chair, Nathaniel Whitaker, was also very interested in prison education and was able to help me to get UMass to lift the tuition fees for our students. My chair had never had the opportunity to teach inmates before, so we decided to coteach the class together. It was a great experience for all involved.

Being at a small local jail instead of at a big prison has both advantages and disadvantages. Let's start with the negatives. Small jails are less likely to have a higher education program, which results in more fundraising work for those who volunteer. Inmates stay in general in small jails for a shorter amount of time and might be spending a lot of their

time in and out of legal proceedings. So class sizes might be quite small, small enough that you might wonder whether this is worth the effort, because not only are there fewer inmates to begin with but also few can commit to a full semester of classes. It is even more unlikely that they will be there long enough to complete enough classes while in jail to earn an associate degree (that is, if sufficiently many classes are offered to do so).

On the flip side, this means you can spend more time with each student and help them at the critical time of their release when they need support to transition to your own institution or some other local university or community college. The fact that you teach only a few students also makes it more likely that you can convince your institution to lift tuition fees. The small number of students also makes such classes good candidates for inside-out classes: classes where half of the students are inmates, and the other half are students from your institution. For the latter, this offers the opportunity to meet people very different from themselves and change the way they view the world in general as well as their education. After observing how much work the inmates put toward their classes, many are inspired to follow their example to make the most of their college experience, which they also come to regard as an amazing opportunity. For the inmates, an inside-out class offers them a boost in confidence. They get to see that they truly are college students—in classes without outside students, the inmates often falsely believe that the classes are diluted because they are not good enough—and what is more, that they are successful college students. Another advantage of inside-out classes is that your institution might accept to count them as part of your teaching duties. Training for inside-out classes is offered by the Inside-Out Center at Temple University; more information can be found at <https://www.insideoutcenter.org/training.html>.

So why do all of this? I believe that offering college-level math courses in our prisons is more important than offering any other subject. According to “Community College Students Face a Very Long Road to Graduation” by Ginia Bellafante, among the general population, about 40 percent of students who start at a 2-year college never finish because they do not complete the one math class they have to take. Math is the roadblock stopping so many people in America from getting a degree. By teaching that class in prison, it gives students a better chance of completing an associate degree either while in prison or after their release.

Moreover, the impact on the students’ lives is huge. In the US, 70 percent of prisoners return to prison within three years. The single most effective way to reduce recidivism is education: inmates that participate in any correctional education programs are 43 percent less likely to recidivate than those who do not according to [https://www.rand.org/pubs/research\\_reports/RR266.html](https://www.rand.org/pubs/research_reports/RR266.html), and earning an associate or bachelor’s degree while in prison drops the rate of recidivism to 13.7 percent and 5.6 percent, respectively.

Moreover, given that over 70 percent of state prisoners have not completed high school, it is clear that our social support systems, including our educational system, have failed so many of these men and women. Offering access to higher education in prisons is one way to attempt to break the cycle of crime and poverty that so many inmates are stuck in. In the words of UBB student Steve B., “UBB is an engine of change chugging within the junkyard. It is impossible to overstate the shift in thinking that takes place in a prisoner’s mind once he has been enriched with the potential found in higher learning. A real future has become conceivable, instead of just a dream for someone else.”

If you treat inmates like students, they will become students—and often they will surprise you and even become scholars. They will become inspiring agents of change whom we want to see out in our society.



Annie Raymond

#### Credits

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## How to Organize a Graduate Workshop

*Rohini Ramadas and Isabel Vogt*

### Introduction

In February 2018, we—Rohini Ramadas and Isabel Vogt—organized a Graduate Workshop in Algebraic Geometry for Women and Mathematicians of Minority Genders.<sup>1</sup> It was an overwhelmingly positive experience for us and (we believe) for the speakers and participants. This is an

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<sup>1</sup>*By mathematicians of minority genders we mean any mathematician who believes their gender is generally underrepresented in the mathematical community. This includes, but is not limited to, women and transgender and nonbinary mathematicians.*

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