**Science at San Quentin**

TROY LIONBERGER NEEDED approval for every object used in the college-level physics lab course he designed in 2012. The tennis balls and tape measures, the pulleys and string—all had to be cleared. Sharp objects were forbidden. For one experiment, he and his co-instructors wrangled a hot plate, but they weren’t allowed to bring in a glass beaker to heat water. “We ended up very carefully doing it with a plastic cup,” he recalls.

This was no ordinary science class: It took place in a mobile trailer next to the old laundry building at San Quentin State Prison in California. The students, all wearing blue uniforms, were convicted felons.

Lionberger is a postdoctoral researcher in the biophysics lab of Carlos Bustamante, an HHMI investigator at the University of California, Berkeley. Evenings and weekends, he teaches in the nonprofit Prison University Project, which offers San Quentin inmates a chance to take free college classes and earn an associate of arts degree. The unique project runs on private donations and volunteer faculty from nearby universities.

Lionberger remembers his first visit inside San Quentin, as an undergraduate in 2001. “I was pretty terrified,” he recalls. But soon he saw that prison students are just people eager to learn. “They come into the classroom to get away from their cells and their circumstances.”

Inspired to pursue a career in academia, Lionberger earned a biology PhD and an engineering master’s degree from the University of Michigan, then joined Bustamante’s lab in 2011. But he also wanted to return to San Quentin and set up a math-intensive physics course that included a lab, a component that Prison U didn’t offer but one that inmates needed to transfer credits to four-year colleges on the outside.

Lionberger recruited others at UC Berkeley to help teach the new class, including his wife, Diane Wiener (a postdoc in the lab of Susan Marqusee), and grad student Sam Leachman (in the Bustamante and Marqusee lab groups), who later organized a new chemistry lab course.

San Quentin had hosted a few science courses with rudimentary lab instruction, but Lionberger “brought an added level of rigor and determination” to the task, says Prison U executive director Jody Lewen.

The experience has been deeply rewarding, Lionberger says. For some inmates, learning scientific knowledge they never imagined they could handle instills self-confidence and a desire to build a better future through education. Studies show that higher education can reduce the odds that ex-convicts wind up behind bars again.

“Education is transformative,” says Bustamante, who at first questioned whether the volunteer teaching could really make a difference. Now a believer, he and Lionberger have even invited former San Quentin student Daniel Jackson to the Berkeley lab. The 52-year-old served 19 years in the state prison system for offenses related to drug dealing. He earned his degree from Prison U last summer and was released in October. In January, he began studying computer engineering part-time at San Francisco State University while holding a full-time job. He hopes to work with Lionberger on writing computer code for the lab.

Thanks to Prison U, Jackson says, “I got it together now. I can see the future.” —Ingfei Chen