David Acevedo: Eye on the Prize at Purdue

DAVID ACEVEDO IS FOCUSED on his chemical engineering thesis work in crystallization, and he’s taking that focus international. He’ll spend several months of the 2015-16 academic year in Ireland as an NSF Graduate Research Opportunities Worldwide Fellow, working with a researcher who has new techniques to teach him. “The lab I’m going to is developing control approaches that I haven’t used here,” he says. “It will help me in my thesis, and also help the group I’m working with at Purdue.” He’ll bring back the techniques so his group can use them.

His work at Purdue University in West Lafayette, Indiana, focuses on monitoring the size, shape and purity of crystals, which is important in the early stages of refining a chemical that may become a pharmaceutical product. “You can change the temperature of the reactor and add different chemicals to get the final quality of crystals that you want,” he says. “The framework by itself will achieve the final result.”

Acevedo earned his bachelor’s in chemical engineering at the University of Puerto Rico-Mayagüez in 2012 with a minor in pharmaceutical engineering. He got interested in pharmaceuticals in the 1990s, when the industry expanded in Puerto Rico and a plant was built near his house. As a youngster, he was good in math and science, and his uncle encouraged him to study engineering. He was the first of four brothers to attend college, but one of his brothers has since enrolled, studying computer science. Their parents hoped Acevedo would be a high school teacher; now, he’s aiming for a Ph.D. and considering teaching in college.

Acevedo connected with Purdue as a summer undergraduate research Fellow in 2011. He worked in Dr. James D. Litster’s spectroscopy lab, developing density measurements and validating models. After he returned to Puerto Rico, a professor suggested he apply for a GEM Fellowship. The National GEM Consortium recruits top grad-study candidates from underrepresented minority groups and matches them with corporate partners. Most GEM Fellowships include at least one summer internship with the corporate supporter.

Acevedo interned the summer following graduation at Merck Sharp & Dohme and worked with a hot melt extruder, which is part of the pill-making process. He was part of a team of about 10 working on several drugs, including one with potential for treating Alzheimer’s disease. “I was glad to work in a research lab, rather than manufacturing,” he says. He started graduate school at Purdue after the internship; as a GEM Fellow, his education expenses are paid.

Acevedo works with eight other graduate students, one post-doc and seven undergraduates. He mentors four undergraduates. He arrived on campus at the same time as his advisor, Zoltan Nagy, who came from the United Kingdom. They were a good match. “It’s crucial for anyone who wants to go to grad school to choose the correct advisors,” he says. “Your interaction with them is very important.” Nagy doesn’t add to the pressure Acevedo puts on himself. Acevedo is grateful for Nagy’s help when he needs it, but sets his own deadlines and goals. They collaborate, working on eight different topics simultaneously. If one isn’t working out, Acevedo can move on to another, getting some space to reflect on how to move forward with the project that’s stuck.

Acevedo relaxes with the Latino Graduate Student Organization, coordinating events and enjoying congenial company. He’s served as a recruiter for Purdue at three conferences. Purdue pays his expenses, so he can attend the conference for his own professional development as well. He’s also returned to Mayagüez to talk to students, and at least one has followed his lead to Purdue.

He played clarinet in the marching band as an undergraduate, but he doesn’t have time to keep up with that as a graduate student. No girlfriend, either. He’s got his eyes on the prize, earning his doctorate. “The pressure is different between undergraduate and graduate school,” he says. “You don’t realize how much pressure there is until you start.” — C.H.