

# UB SPPS Students Provide STEM Support at Bennett High

**WHEN IT COMES TO PROFESSIONAL EXCELLENCE, SPPS students are as committed to service and outreach as they are to advancing knowledge, practice and research in the field.**

In spring 2014, as chair of the UB student chapter of the American Association of Pharmaceutical Scientists (AAPS), Radha Ramakrishnan committed herself to defining service learning opportunities at nearby Bennett High School.

Located not far from the South Campus, the urban school was once an academic flagship of Buffalo Public Schools. Now is it federally defined as a “high needs” school where scholastic achievement lags critically, especially in STEM areas – science, technology, engineering and math.

“As part of AAPS, I wanted to do some kind of outreach. So I put out a few feelers to see how many students would be interested. We wanted to introduce pharmaceutical sciences to the students,” says Ramakrishnan, a pharmaceutical sciences PhD candidate with a research focus on therapeutic protein immunogenicity.

Professor Marilyn Morris, PhD, the AAPS faculty-student advisor, introduced Ramakrishnan to SUNY Distinguished Professor Joseph A. Gardella Jr., the director and principal investigator for the Interdisciplinary Sciences and Engineering Partnership (ISEP) with Buffalo Public Schools. Gardella helped her connect with the principal and ISEP coordinating teacher at Bennett. When she

discovered there was a chemical engineering student already assigned there through ISEP, Ramakrishnan and a fellow student decided to volunteer.

“We volunteered two hours a day twice a week, assisting with biology and earth sciences classes,” she says. “Some of the students really have good potential.”

While serving as vice president of the Rho Chi Honor Society, P4 PharmD student Ryan Dillon also coordinated fellow pharmacy practice classmates to volunteer at Bennett.

“We met with about six classrooms to give a discussion-based career talk. We were trying to encourage secondary education. That was our main goal, and to explain the profession of pharmacy. They asked a ton of questions,” says Dillon, who wants to pursue a clinical practice career specializing in critical care, infectious disease and emergency medicine.

When Ramakrishnan and Dillon were volunteering at Bennett last spring, Morris was working with Gardella to define SPPS support for the school through ISEP.

Funded by a \$9.8M grant from the National Science Foundation, ISEP is led by UB and facilitated in collaboration with Buffalo Public Schools, Buffalo State College, Buffalo Museum of Science and other partners. The program coordinates diverse community

resources to reform STEM education by improving teachers’ skills and knowledge: There are currently 78 teachers from 12 high needs ISEP schools embedded in research areas at UB or its partners.

“Identifying opportunities in the professional schools for teachers to work side by side with research professionals was really critical,” says Gardella. The teachers are supported by nearly 150 service learning students and volunteers. Each school is also assigned a PhD candidate who provides interactive, peer-to-peer STEM experience for the middle and high school students enrolled in ISEP, and support teachers’ transition from professional development back to the classroom.

“Each of the schools in ISEP has to identify some kind of interdisciplinary research theme that teachers can rally around,” explains Gardella. “I went to the principal at Bennett and said ‘what if we could make the research theme here pharmacy practice and pharmaceutical sciences. Nobody’s talking about that throughout the entire region.’”

Building on the altruistic ground work of Ramakrishnan and Dillon, in September Peter Bloomingdale became the first SPPS student to provide STEM support at Bennett High School through ISEP.

“A lot of the students are just not interested in science. They see it as something that’s just too hard for them, that they’ll never be able to do. But that’s not the truth. They need a lot more guidance and people to present opportunities that are available to help, especially in the field of STEM,” says Bloomingdale, a pharmaceutical sciences PhD candidate focused on systems pharmacology and PK/PD.

At Bennett, he helps 10th through 12th graders twice a week with their lab work, and started an after school science club that has grown from six to 13 members since the semester began.

“It’s been successful so far. Each week I design a module for them to work on that’s aimed at getting them engaged in science and learning, or just enhancing what they’ve learned in the classroom.”

Ultimately, Bloomingdale will help Bennett students design an experiment to present at the annual ISEP science summit in March. The team is thinking about testing regional tap water for pharmaceuticals.

“There are definitely a few students who stand out. I’ve seen some eyes sparkle when we’re done with some of these modules,” he says. “I really think I’m starting to connect with some of the students, in terms of getting them involved in science.”



After School Science Club Bennett High School

“Identifying opportunities in the professional schools for teachers to work side by side with research professionals was really critical.”