

# Guiding Young Researchers

## Undergraduate Research Program: Getting CST students into the lab

Begun in the summer of 2009, the Undergraduate Research Program's goals were straightforward: Get CST students into the laboratory with world-class Temple researchers and remove those obstacles that keep students from participating in advanced research projects as undergraduates.

Today, thanks to the coordinated efforts of many CST faculty and staff as well as researchers from across the university, 220 students have participated in research. URP projects have included testing an intelligent reasoning system, analyzing human tissue with laser electrospray mass spectrometry and studying the effects of ocean acidification on cold-water coral.

During the spring 2011 semester, 72 students participated in the program, URP's largest cohort to date. In addition, faculty participation—within CST and across the university—has grown by 50 percent since the program began. Recent URP students have excelled in the lab. Levi Mulladzhyanov, a biology major working with Professor Evgeny Krynetskiy in the School of Pharmacy, won third place in the School

of Pharmacy Research Day. Cui Chen, also a biology major, is co-author with Professor Marion Chan of the School of Medicine of a paper submitted for publication.

"Temple and CST are moving toward a stronger, more focused research enterprise," explains Rose McGinnis, director of Career Services & Undergraduate Research Program. "We want to give undergraduates all the benefits of a top-notch research institution. That means working directly with experienced researchers."

In such a competitive market—for jobs as well as for spots in top graduate programs—advanced research experience provides URP students with an edge. "Today's students need to have lab experience, especially if they are planning on going to medical or dental school," says McGinnis. "Along with a solid GPA and the right courses, research is required for a strong academic portfolio."

Each semester faculty members from CST and across Temple are asked to submit their new or continuing research projects. Once the projects are approved by the Dean's Office, CST students can review the projects online and apply for the research opportunities. To participate in the program, students must meet a high level of academic success including review of their coursework and GPA. "URP is highly competitive," states McGinnis, "so not every student who applies is selected and not every student who is selected is matched with a faculty member."



One of the highlights of the matching process between students and their potential faculty researchers is the URP Speed Match event. Akin to speed dating where participants whirl around a room looking for Mr. or Ms. Right, the event offers students exposure to multiple faculty members and gives researchers the chance to interview several candidates.

"I am looking for a student who is motivated, hardworking and responsible," says Jorune Balciuniene, an assistant professor in the Department of Biology whose work focuses on examining the molecular and cellular bases of nicotine addiction. "It doesn't matter if you are going to be a science teacher or a medical doctor, it is extremely important to know how research is done and what it means to analyze data, draw conclusions based on evidence and what your conclusion ultimately means. It short, it's good for students to cook a little bit in the research kitchen."

Students who are matched with a faculty member register for a research course or independent study within their major to receive academic credit. Students can earn a \$9 per hour stipend for work performed in the lab in excess of the required research course or independent study lab requirements. "The stipend really

helps students focus on getting as much research experience as possible," says McGinnis. "To expand the amount of funds available for research stipends and provide more opportunities for students to gain undergraduate research experience, CST will match—one-to-one—any financial contribution to URP made by alumni and friends."

Molly Mitchell, a neuroscience major working with Toby Ferguson, an assistant professor of neurology in the School of Medicine, understands the importance of undergraduate research and the value of a stipend. "Research is amazingly important both for knowing if you have the temperament for the work and for preparing for medical school," says Mitchell, who has been investigating the role of cell adhesion molecules in nerve regeneration. "Last summer I worked as a waitress and during the graveyard shift at Walmart. I'd rather do research."

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URP SpeedMatch



Above: The URP Speed Match event brought students and faculty together for interviews.

Top: Professor Marion Chan (left) of the School of Medicine works with URP student Grace Oey, an environmental science and anthropology major.