

UNDERGRADUATE RESEARCH REIGNS AT USU

Since its inception in 1975, more than 500 students have conducted research supported by the Undergraduate Research and Creative Opportunities (URCO) Grant program. From metal sculpture to chokecherry seed propagation and whirling disease in trout, real-life problems have been explored and solved by USU undergraduates.

Today, the results of these URCO projects are generating national recognition for USU's student researchers.

Experience Speaks

"URCO grants are designed to give students a chance to do independent research on a project of their own design," said Joyce Kinkead, USU's associate vice president for research. "Research is broadly defined; it encompasses creating a sculpture, composing a piece of music, doing archival scholarly work and working at the laboratory bench."

The grants, given by the Vice President for Research Office, award up to \$500 per student and their academic department matches the award. By providing

financial support to undergraduates for research or creative projects that are not routine requirements for a course or degree program, URCO grants encourage students to engage in independent projects.

"I soon discovered that my undergraduate research experience paid dividends I was not expecting," said Kyle Tubbs, a former URCO grant recipient. "My URCO grant helped me springboard into an exciting part of my life. I believe the research background I gained at USU was the key factor in my acceptance to medical school at the University of Washington."

Students applying for URCO grants are required to complete a formal research proposal, which teaches them the process of seeking funding, a vital part of graduate research. Many URCO alumni credit their undergraduate research experience for helping



Emily Stoker (from left) and Forrest Purser present their research about the effects of carbon nanotubes on the human lung at Research on Capitol Hill in Salt Lake City.

them get further funding for their projects, as well as prestigious scholarships.

“The URCO grant program taught me how to apply for funding and convey technical material to a varied audience,” said Stephanie Chambers, a former URCO grant recipient. “Because of the USU faculty providing fantastic research and training opportunities, I received the Barry M. Goldwater scholarship, which also led to my acceptance at the University of Utah School of Medicine.” Chambers also recently received a National Institutes of Health (NIH) medical student fellowship to study the genetic causes of infertility.

Past Tells

USU was ahead of its time in implementing URCO grants in 1975, when few institutions had organized student-faculty cooperative research activities. That spring, USU launched an URCO experiment with 60 student participants through the College of Agriculture and the College of Humanities, Arts and Social Sciences. The experiment elicited such positive responses that a plan was made to launch URCO on a universitywide basis.

By fall 1975, the USU Office of the Vice President for Research had allocated a small sum of money to support student projects, and URCO was officially made available to all undergraduate students at USU.

Impact Confirms

Each URCO experience helps students learn how to learn, develop critical skills, create important one-on-one connections with professors and get an academic step ahead of the competition. Additionally, projects often result in a professional conference presentation, a scholarly journal publication or an award.

“Not only did I learn a tremendous amount of chemistry during those years, I also gained a profound appreciation for the scientific method,”

Tubbs said. “I saw firsthand how literature review, hypothesis testing and data analysis all work together to advance knowledge.”

“The URCO grant made it possible for me to conduct my senior honors thesis,” said Robert Wright, former grant recipient. “In large part, due to my senior paper, I was accepted into Portland State University’s Applied Social Psychology doctoral program.”

Wright also presented his senior thesis at the Rocky Mountain Psychological Conference, where he was informed that his paper was accepted for publication by the editor of the *Psi Chi Journal of Undergraduate Research*.

Faculty also benefit from mentoring undergraduates in the research process.

“Few undergraduate researchers realize the stimulating effect they have on the faculty they work with,” said Bruce Bugbee, professor of crop physiology. “Science relies on fresh approaches and new ways of seeing the world. I have always preferred the errors of enthusiasm to the indifference of wisdom.

“For 26 years, my URCO student researchers have kept me at the lab into the evening hours,” Bugbee said. “I am gratified to know that they will carry on an inquisitive, impassioned approach long after I am retired.”

“As a land-grant and research university, USU takes pride in the fact that students learn science by doing science, learn art by producing art and learn scholarship by writing history,” Kinkead said. “Hands-on inquiry and study builds on classroom knowledge and goes beyond what can be accomplished through lecture. The application of knowledge is a hallmark of a land-grant university. URCO is a critical component of that mission.”

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