

CEAS Students Awarded National Goldwater Scholarship

By: Desiré Bennett

Engineering students Daniel Griffin and Jarod Gregory named Goldwater scholars.



Goldwater Scholarship recipient Daniel Griffin with President Santa J. Ono.

The Barry M. Goldwater Scholarship and Excellence in Education Program was established by the United States Congress in 1986 in honor of former United States Senator and 1964 presidential candidate Barry Goldwater, according to the Goldwater website.

The Scholarship—the most prestigious undergraduate award given in the sciences—is awarded to about 300 college sophomores and juniors nationwide. A maximum of \$7500 per academic year is granted. The scholarship is awarded based on merit, and the actual amount given is based on financial need.

Computer engineering student Daniel Griffin, and chemical engineering student Jarod Gregory are among this year's sophomores and juniors to win the award.

One part of Griffin's research, with the guidance of Professor Jason Heikenfeld, PhD, has dealt with the development of a [sweat sensing patch](#) that can be used to remotely monitor patients. "My research aims to develop cheap, novel, and easily distributable methods of remotely monitoring patients," Griffin said. "This includes developing new devices for monitoring people's health, as well as developing new test analysis methods."

He says that, eventually, the technology he's working on will be easily used by every person. "The sweat sensing patch, for example, could be used by military personnel for monitoring patients, or sports teams for monitoring athletes. We're experimenting with different setups to see how feasible it is to make a device with varying degrees of disposability, as well as remote monitoring capabilities."

Griffin says of the help and the opportunity to gain experience in engineering research afforded to him by Professor Heikenfeld, "Because he allowed me to work in his lab as an undergraduate researcher from a very early point in my college career, I was able to gain valuable research experience and be competitive for this award."



Goldwater Scholarship recipient Jarod Gregory

Jarod Gregory, a chemical engineering and environmental engineering ACCEND student, is the lead researcher on a project to design a hydrogel-based biosensor that can autonomously move through surface waters and, in real-time, detect E. coli and other waterborne pathogens. “So far, I have made a proof-of-principle system to show that our particular hydrogels can ‘swim’ in water by utilizing patterned shrinking and swelling,” Gregory explains. “Hydrogels shrink and expel water at temperatures above 33 C, and swell up with water when below 33 C.” Gregory says the publication for this part of the project is pending publication in the Journal of Applied Polymer Science.

“We also have shown that our hydrogels can be functionalized to capture E. coli cells, and I am in the process of writing a publication for this phase of the project,” he said. “I am planning to continue this project as a doctoral student in environmental engineering here at UC.”

Gregory, who is thankful for the guidance he received from research advisors professors Lilit Yeghiazarian, PhD, and Vasile Nistor, PhD, says this research will be used both for rapid harmful pathogen detection and improved watershed management techniques. “The average person will generally benefit from cleaner water, and both rapid detection and improved watershed management techniques will hopefully contribute to cleaner water in the future.”

The goal of the Goldwater scholarship is to provide a continuing source of highly qualified scientists, mathematicians, and engineers by awarding scholarships to college students who intend to pursue careers in these fields. Clearly, Daniel Griffin and Jarod Gregory are deserving recipients!