Three Students Serve Apprenticeship with Chemistry Professor

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By David Driver

Career changing is more common than ever before, and the most likely avenue is through further education. Two Mason students with degrees in other fields have turned to the sciences for their next career and are getting a jump-start with a Faculty-Student Apprenticeship for Undergraduates.

After graduating from Mason with a degree in English in 1999, David Stone worked in sales with a local home improvement company. He then spent a few years doing clerical and other work for an association management company. Frustrated with a lack of promotion options, Stone decided to go back to school.

“I always had this interest in the sciences. I figured, I might as well do this now,” says Stone.

Now a senior enrolled in the accelerated MS/BS program in biochemistry, Stone is one of three students doing research under Robin Couch, an assistant professor in the Department of Chemistry and Biochemistry, as part of the competitive Faculty-Student Apprenticeship. The others are Jamie Cheung and David Lieu.

“We were all pretty psyched and happy to get this award,” says Stone.

Cheung says that from what he understands, it is pretty rare to have three winners performing research with the same faculty member.

“I am indeed fortunate to have such dedicated and hardworking students participate in my research program,” says Couch. “Their efforts will help me secure research grants by generating scientific publications, while laying the foundation for their own futures.”
All three students say they enjoy working with Couch, a Canadian who came to Mason last year after doing postdoctorate work at Rice University and Dartmouth College.

“First of all, he seems like a cool guy. He is getting off the ground at Mason, and I feel like I am getting off the ground in a new field,” says Stone.

“He is energetic about his work,” Lieu says of Couch.

Cheung, a senior chemistry major, adds that Couch “gives us quite a bit of freedom in how we go about our research.”

Like her classmate, Stone, Cheung has gone back to school to switch careers. She graduated in 2002 with a degree in computer science from Georgia Tech. She then moved back to Northern Virginia, in part, she says, because many of the jobs in her field shifted to the Washington region after the Sept. 11 terrorist attacks. She worked for a government think tank in Washington, D.C.

But instead of working in a computer lab, Cheung’s research now takes her into a chemistry lab. Her proposal for the spring apprenticeship was “Designing Inhibitors for the Methylerythritol Phosphate (MEP) Pathway in Francisella tularensis.” The MEP pathway, she writes, is “a biosynthetic route to the production of isoprenes, compounds which are essential for cell survival. The MEP pathway is an excellent target for the design of new antibiotics because it is found in many pathogenic bacteria, including Francisella tularensis, but is not present in humans (humans have an alternative pathway for isoprene biosynthesis).

“Francisella tularensis has the ability to spread very easily,” she says. “It takes very little of this organism to spread.”

Unlike his fellow apprentices, sophomore Lieu is getting his first degree. But like Stone, he is enrolled in the accelerated MS/BS program in biochemistry, and the two are working together on the same research project.

The description of his Faculty-Student Apprenticeship proposal reads, “My research project will involve the optimization of a fungal fermentation to produce cyathin A3. Cyathin A3 is a natural product made by Cyathus helenae, a fungus commonly referred to as a ‘birds nest fungus’ due to its physical appearance. Dr. Couch’s lab has found that C. helenae produces cyathin A3 when exposed to the bacterium Escherichia coli, suggesting that cyathin A3 is a naturally occurring antibiotic.”

Lieu helped re-start the dormant George Mason Chemistry Club last semester and serves as its president.

The three students are scheduled to give a presentation to fellow researchers the weekend of March 10-11 at the Prince William Campus. They also plan to give a seminar at the end of the semester to the entire Chemistry Department.

For more information on the apprenticeship program, which is sponsored by the Center for Teaching Excellence, see the web site.

Return to Main Gazette Page