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Chemistry major Gwen Bitker '11, Le Sueur, explores and experiences the strength of bonds

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Summary: Bitker is the inaugural recipient of the Chemistry Undergraduate Research Fund Award.

(August 30, 2010)-This summer, Gwen Bitker ’11, Le Sueur, used sophisticated computer software to explore hydrogen bond strengths in acetic acid dimers. Her research focuses on “why.” Why are some bonds stronger than others? She’s reading academic literature and conducting computational chemistry, impassioned by the unknown and the discovery process. As the inaugural recipient of the Chemistry Undergraduate Research Fund (CURF) Award, Bitker is conversely energized by a known fact—alumni, faculty, and staff united in their gift giving to make this summer research opportunity possible. And she’s grateful.

“A big thank you to everyone who contributed to this new fund,” states Bitker. “Without you, I would not be doing this, and I love research.”

Bitker’s first introduction to Morris was through the Summer Scholars program that she attended as a high school sophomore and junior. She describes herself then as “not liking anything but science,” and the multidisciplinary program with biology professors Timna and Peter Wyckoff impacted her decision to enroll at Morris with its liberal arts emphasis.

As a first-year student, her interests began to expand…and merge. “I didn’t think I had any interest in math, but Pre-Calculus with Dave Roberts, professor of math, changed my mind. Everything seemed clearer and a lot easier to understand.”

Interest in research piqued in Introduction to Research. “When I was offered this summer research award, I knew immediately and exactly what I wanted to. I wanted to continue the research I started in that course, looking at hydrogen bond strength in acetic acid dimers. I love where math, physics, and chemistry intersect—the best of three worlds.”

Bitker will graduate next spring with a chemistry major and a math minor. While graduate school may be in the future, she’s first considering a venture into the hazardous waste industry.

“My work study job with Julie Kill, lab services coordinator, included boxing up hazardous waste, among other things. There’s a lot to be learned about safety procedures and disposal. This industry is looking for people with broad chemical knowledge, interest, and experience in both inorganic and organic chemistry. I think it would be very rewarding to work as a hazardous waste chemist and help clean up the industrial waste in our environment.”

Jim Togeas, professor of chemistry, serves as Bitker’s academic adviser. “Gwen, given her initiative, ability, efficiency, and resourcefulness, has been the perfect choice as CURF’s inaugural recipient,” says Togeas. “Her choice of the hydrogen-bonding problem proved optimal for me, because we are collating, checking, extending, and completing work done by Introduction to Research students in the past four years. As the summer draws to a close, she and I are co-authoring a manuscript that acknowledges their work. The CURF is a wonderful addition to our program. Deeply felt

thanks to all who have helped to make it a reality.”

Togeas and Nancy Carpenter, professor of chemistry, championed the Chemistry Undergraduate Research Fund project. With their encouragement, fellow faculty, staff, and many alumni—both chemistry and nonchemistry—joined together to contribute to the fund and, ultimately, to establishing an ongoing program for chemistry/biochemistry majors demonstrating outstanding aptitude for research and outstanding potential for future success.