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Travel Award Given to Biology and Chemistry Majors

February 2, 2010

BLOOMINGTON, Ill.—Two Illinois Wesleyan University students, Scott Krabbe, a senior chemistry major from Kirkland, Ill., and Maggie Olson, a senior biology major from Glen Ellyn, Ill., have been awarded a National Science Foundation Research Experiences for Undergraduate (NSF REU) Chemistry Leadership Group Travel Award.

Only 25 students in the nation were selected to receive this stipend, which will help with Krabbe's and Olson's travel expenses to attend the American Chemical Society's national conference in San Francisco on March 22. Both students will present their summer research findings as part of the NSF REU programs.

Last summer Krabbe spent 10 weeks at Boston University and Olson spent 10 weeks in Bangkok, Thailand, doing research under the ThaiREU program.

Under the supervision of Corey Stephenson, professor of chemistry, Krabbe's work involved the use of ruthenium complexes as photoredox catalysts in organic synthesis. According to Krabbe, the ruthenium complex is a catalyst that is activated by visible light such as a compact fluorescent bulb. Once activated, this complex enters an oxidation/reduction cycle, which eventually leads to a new carbon-carbon bond in the desired product. "This methodology," said Krabbe, "can also be considered 'green chemistry' because it is much more environmentally friendly than currently established methods."

At Illinois Wesleyan, Krabbe is conducting research in Professor of Chemistry Ram Mohan's Laboratory Friendly Organic Synthesis. He has worked with Mohan, who is IWU's Earl H. and Marian A. Beling Professor of Natural Sciences, since the spring semester of his sophomore year, including the summer of 2008.

Krabbe's research under Mohan is focused on the use of the bismuth (III) compounds as catalysts for organic synthesis that is also geared toward discovering environmentally friendly synthetic methods for chemists to use. "Bismuth (III) compounds are attractive catalylists," said Krabbe, "because they are remarkably efficient and non-toxic."

Accepted into several graduate school programs, Krabbe would like to work in the pharmaceutical industry following his studies in organic chemistry.

Olson's research in Thailand was under the guidance of Poonsakdi Ploypradith, professor of medicinal chemistry at Chulabhorn Research Institute. "My research focused on developing a synthetic route toward a 4,4-disubstituted-2-arylchromans, compounds with potential health benefits and medicinal application," said Olson. "My target compound was closely related to members of the flavonoid family, nutrients we often consume by eating or drinking citrus, tea, wine or dark chocolate. Flavonoids and their related structures are credited for their antioxidant properties and more recently for antimicrobial, anti-inflammatory and anticancer potential.

Unique to my project, I attempted to synthesize a flavonoid-related structure not previously found in nature or published by another researcher.” The research is still ongoing in Thailand.

Olson feels her studies in Bangkok have not only aided in building a solid foundation for her postgraduate work in medicinal chemistry, but the opportunity also instilled a passion for global diversity. Olson said that American students along with Thai graduate students traveled around Thailand to experience the Thai culture and its beautiful sites and scenery.

“My summer experience offered the opportunity to learn chemistry and conduct research among the best organic chemists in Thailand. Moreover, these advisors cared about forging a bond across cultures and the individual growth of the American students. Its [ThaiRUE program’s] unique quality of bringing students together for the purpose of chemistry and cultural learning truly accomplishes the goals of cultural understanding and global diversity.”

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