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### **Lab-grown talent**

### **UWL student explores the frontiers of biochemistry at Argonne National Lab**

Written by UW-La Crosse University Marketing & Communications

UW-La Crosse Junior and [Biochemistry](https://www.uwlax.edu/academics/biochemistry/) Major Ellie Schneider spent her summer at one of the world's foremost research facilities, helping a startup company create the first, lab-grown, sustainable elastic fabric. Walking into work every day at [Argonne National Laboratory](https://www.anl.gov/) was a “dream opportunity,” she says. The location is world renowned for its Advanced Photon Source — a massive racetrack for electrons generating ultra-bright, high-energy x-ray beams for scientific research.

Reflecting on her journey, Schneider admits that a summer at Argonne wasn’t on her mind when she began her studies at UWL three years ago. “When I started my freshman year at UWL, I barely knew what biochemistry was,” she shares.

However, her path quickly shifted after taking an Intro to Chemistry course with Dr. Eugenia Turov, who introduced her to various research opportunities available to first-year students. As the two scrolled through the list of UWL [Chemistry faculty](https://www.uwlax.edu/academics/department/chemistry-and-biochemistry/our-people/) research interests, they stopped on Professor John May who studies crystallography.

“When I was in high school physics, I did a project on crystallography, which is why Dr. May’s work piqued my interest,” explains Schneider. She then reached out to May, inquiring about potentially joining his research lab. May took Schneider on as a research assistant her first year of college, teaching her everything she knows about biochemistry and crystallography.

By the summer after her sophomore year, Schneider had amassed three semesters of research experience under May’s mentorship. Encouraged by Turov, she applied for a biochemical research internship at Argonne through the Science Undergraduate Laboratory Internship Program. Remarkably, despite not having taken any formal biochemistry courses at UWL, Schneider’s hands-on experience outshone that of many interns from larger R1 institutions, including graduate students.

“Some of the friends I made at Argonne were from R1 institutions, yet they weren’t getting the level of research experience I was as an undergrad,” she explains. “They didn't have their own projects and were often working as laboratory technicians for graduate students.”

The experience made Schneider happy to have chosen UWL where she could get solid preparation for a national lab experience and her future goals of attending graduate school in biochemistry.

Many chemistry and biochemistry students participate in research with faculty. And all biochemistry majors complete a course-embedded research experience as a required course in our curriculum, explains May. “We often hear from alumni who are continuing in science that their research experiences at UWL prepared them very well for employment as a bachelor's level scientist or for graduate school,” says May.

Schneider’s job at Argonne was researching elastic proteins that could aid in the creation of a new, lab-grown, sustainable fabric. She worked with her research mentor, Dr. Gyorgy Babnigg, and Dr. Alexis N. Peña, cofounder of the startup company Good Fibes, to purify and test the self-assembly and crosslinking abilities of candidate elastic proteins for textile applications. The biotech startup aims to produce lab-grown fibers through cellular agriculture and use engineered molecules to create renewable, biodegradable and non-toxic fibers.

The work was right up Schneider’s alley after assisting May with his research discovering how different mutations of proteins work. In May’s lab, Schneider researches a specific mutant protein coming up with new ideas on how to study, fund and share her work.

“Every step of the way, Dr. May would always explain the rationale behind each step and that was really helpful to me going to Argonne,” she says. “I am so grateful for the level of research mentorship I’ve had here at UWL. A lot of students from bigger institutions do not have this,” she says.

To future UWL students, Schneider encourages them to look for research opportunities early on in their academic career.  “Find a professor that does something you think is cool and just ask. There is no harm that can come from asking,” she says. “They may say, ‘you need to take this class first,’ or they may connect you with someone else who can take on researchers ... whatever the case is, be an advocate for yourself. That is my number one piece of advice.”

She also advises students to check out the Science Undergraduate Laboratory Internship Program that connects undergraduates in science with opportunities for research at labs across the country, as well as providing support with resume writing, LinkedIn profiles and other tools to prepare for future careers in STEM.