



# Science & Health NEWS

UNIVERSITY OF WISCONSIN-LA CROSSE COLLEGE OF SCIENCE AND HEALTH NEWSLETTER

VOLUME 12, NUMBER 2

SUMMER 2017

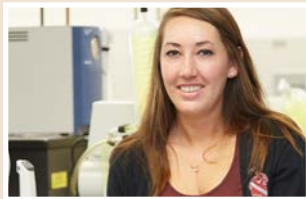
## Count on it

Mathematics-Statistics Department  
dates back to early days

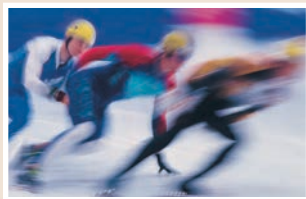


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## A tribute...

Longtime readers will notice that Professor Emeritus Phil Wilson is no longer editor of the College of Science and Health News.

Wilson was the brainchild for the college's newsletter, with the first issue appearing in PDF format in summer 2006. Exercise and Sport Science Professor Rick Mikat assisted Wilson for the first six years. Then in 2012-13, University Communications began helping with the writing and production, and the newsletter moved online with a more user-friendly format with advanced technology.

As we move forward, University Communications will continue to work with the CSH Dean's Office to share the college's impressive story. Designer Florence Aliesch and I are happy to welcome Interim Associate Dean Gubbi Sudhakaran to the editorial team.

Best wishes, Phil, as you re-enter your well-deserved second retirement! Your many years of leadership and dedication to sharing the college's story are deeply appreciated and won't be forgotten.

Brad Quarberg, Editor  
UWL News & Marketing



# Science & Health NEWS

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SUMMER 2017  
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### CLASS NOTES POLICY

Update your address and provide a class note for the Lantern at [www.uwlalumni.org](http://www.uwlalumni.org).



### COVER IMAGE:

Mathematics and Statistics Assistant Professor Tushar Das works with Hunter Rehm, a mathematics major, in the mathematics research room.



# Count on it

Mathematics-Statistics Department dates back to early days

The four original mathematics faculty of the La Crosse State Normal School would recognize the core math content of the current Department of Mathematics and Statistics curriculum, but they would be in awe of the changes that have occurred.

The first majors in mathematics education and mathematics began in 1958 — six years after the institution became the Wisconsin State College at La Crosse. By the mid-60s the department began hiring faculty with doctorates.

The department's faculty and curriculum continued to change through the '60s and '70s as more emphasis was placed on preparing mathematics students for graduate school and careers outside of education. For example, the statistics emphasis was added to the mathematics

major in 1977, in part to prepare students for actuarial science careers. In the late '90s and early 2000s, new faculty were recruited to enhance the mathematics education, applied mathematics, and statistics components.

More recently, UWL's Growth, Quality, and Access program allowed the department to hire faculty to support the robust and contemporary programs described below.

## A GROWING DEPARTMENT

The Department of Mathematics and Statistics now consists of 38 faculty and staff who share a dedication to excellence in undergraduate education. The faculty foster a positive environment for student learning and development both inside and outside of the classroom.

As one of the traditional academic disciplines, mathematics is an integral part of a liberal arts education and is the foundation for many areas of study.

The department offers a wide variety of courses including general education courses that serve the entire university, core courses for majors in mathematics, statistics, and the sciences, and advanced electives in both mathematics and statistics.

The department is committed to providing its majors with the appropriate knowledge, skills and dispositions to be successful. In addition, it provides a strong supportive curriculum for other sciences and is dedicated to the teaching of mathematics and statistics in the general education of all students.

*Continued on next page.*



Jennifer Kosiak received the 2012 UW Board of Regents Teaching Excellence Award. Kosiak has been involved in improving mathematics preparation of teachers, PreK-12, since coming to campus in 2004.

# Count on it

*Continued from previous page.*

This dedication has led to several prestigious state and campus teaching awards for both the department and individuals. (See sidebar below)

The department offers five undergraduate majors — mathematics, mathematics education, applied mathematics, statistics and actuarial science. In collaboration with five other UWs, it recently added an online master's in data science focused on helping working adults acquire a broad array of skills in this rapidly exploding field. Enrollment ballooned from 38 students in fall 2015 to about 220 students in spring 2017. The website [www.mastersindatascience.org](http://www.mastersindatascience.org) lists UWL's degree among the top 23 programs in the U.S.

In addition, a master's in applied statistics is expected to be approved and begin enrolling students in fall 2018.

This program will include a dual degree option that allows students to complete both a bachelor's in statistics and a master's in applied statistics in as little as five years.

## MATH MAJOR REVAMPED

The traditional mathematics major has recently been revamped to give students a stronger foundation and mastery over a broader set of skills and conceptual frameworks. There has been a marked

increase in students pursuing graduate school, more specifically pursuing doctorates in mathematics, statistics and related fields.

Most of these students engage in undergraduate research, either at UWL or through various National Science Foundation Research Experiences for Undergraduates (REUs) across the country. Many present their work at local, regional, and national conferences. Some even go on to publish in peer-reviewed journals.

In addition, most of these students advance well beyond the scope of courses offered in the standard major through independent study courses in graduate-level topics. The result of such efforts has led to a significant increase in students being accepted to excellent graduate programs nationwide.

Mathematics education majors account for roughly one-third of all department majors. There are currently five mathematics educators with a range of K-12 experience. Working closely with department colleagues and faculty from the School of Education, these faculty focus on preparing pre-service teachers for the classroom.

In addition to teaching mathematics courses within the department, they

## THE FIRST FOUR

The original four members of the Mathematics Department

- William Austin (1909-1912)
- Arthur Lewis (1912-1916)
- Lincoln Adkins (1916-1949)
- Leon Johnson (1917-1919)

## AWARDS ADDING UP

The department's dedication for quality has led to several prestigious teaching awards for both the department and faculty/staff. Honors include:

- Students Advocating Potential Ability Most Accessible Award (department in 2006, 2008 and 2014; individual in 2011 and 2015)

- Residence Life Professor of the Year (2012)
- UW Board of Regents Excellence in Teaching Award (department, 2015; individual, 2012)
- Provost/Eagle Teaching Excellence Awards (2013 and 2015)

also supervise and support elementary, middle and high school pre-service teachers in the field. The mathematics education faculty collaborate with educators, schools and community organizations to support the teaching and learning of mathematics.

For the past five years they have collaborated with the La Crosse Children's Museum to provide pre-service elementary teachers with opportunities to prepare and present mathematics activities at the museum. They have worked closely with local schools to set up tutoring programs and offer enrichment activities, such as Math Family Fun Nights and Assessment Interviews.

Through in-service teacher professional development, presentations at regional and national conferences, and service on the board of several professional organizations, department faculty promote mathematics education at the local, state and national level.

## APPLIED MATH GROWING

The applied math major has grown significantly. In 2012 department faculty began cultivating collaborations with UWL biology faculty and federal scientists leading to many innovative research problems for both faculty and students. The collaboration led to a three-year NSF-funded 10-week Summer Research Experience for Undergraduates program in mathematical ecology.

Through research opportunities and application-driven curriculum, more students are gaining mathematical and statistical methods needed for study of biological and ecological systems quantitatively. In the past two



*The Mathematics & Statistics Department has vastly changed over the years, especially in the last decades. Click on the image to get a look at the department's change in faculty from 1978 to 2017.*

years, faculty have also collaborated with local industries — Fastenal, Xcel Energy and Logistic Health Inc. — resulting in multiple student internships, presentations and an NSF-funded grant to offer an industrial math course.

In this course, students work with Fastenal to solve industrial math problems and present their findings directly to Fastenal executives and employees. The winning team is awarded \$2,500 for tuition reimbursement.

## A LEADER IN THE UW

UWL has been on the forefront of the UW System initiative to help first-year students who place into remedial mathematics. Traditionally, these students have a lower retention rate and a longer time to graduation. With a goal of getting these students prepared for a credit-bearing course, department members piloted the FastTrack program in summer 2012.

The program took students who placed into remedial mathematics, self-identified

as a multicultural student, and declared a Science, Technology, Engineering, and Mathematics (STEM) major through a six-week online instruction program, followed by a week of face-to-face instruction, including math workshops, cohort building, and the retaking of the math placement test.

The FastTrack program now includes two options for students, and has been implemented at five other UW institutions. The first option is an online-only cohort, where the students take the six-week online instruction and retake the math placement test on move-in weekend. This option, with unlimited enrollment, typically serves 300 students per year across the UW System.

The second option is the approach used in the pilot, called the hybrid cohort. Since the start of the program, approximately 90 percent of students in the online-only cohort and 98 percent of students in the hybrid cohort place into credit-bearing mathematics at program end.

*Continued on next page.*

# Count on it

*Continued from previous page.*

The department also pioneered the development of the Murphy Learning Center (MLC). What began as a small mathematics tutoring center has grown into a large interdisciplinary center for student learning employing over 30 mathematics and statistics tutors. These tutors provide the expertise they've gained from coursework and internships to approximately 5,000 student visits per semester across algebra, calculus and statistics.

Tutors receive training through the joint tutor practicum led by faculty from the Biology, Mathematics & Statistics, Chemistry & Biochemistry, and English departments. The course covers both discipline-specific topics (e.g., related rates and nonparametric statistical tests) and cross-discipline concepts (e.g., tutoring persona, MLC atmosphere, and how to work with at-risk, multicultural, or Veteran students). In the past three semesters, more than 120 students have been trained through this program.



*Assistant Professor Nathan Warnberg, left, tutors math students in the Murphy Learning Center. The department pioneered the development of the center that began as a small mathematics tutoring center and has grown into a large interdisciplinary center for student learning.*

From helping students struggling with mathematics remedially to supporting disciplines that use math as a tool, to leading the next generation of math educators and researchers, the Department of Mathematics and

Statistics strives to make all students successful. It has grown in size, scope and diversity since Normal School days, but the dedication to teaching students mathematics necessary to live in today's world has only grown stronger.

## TIME FOR CHANGE

In 2016, the then "Mathematics Department" received approval to add "Statistics" to the department name and use additional course prefix (STAT). This change emphasized the growth in the statistics major.

To better prepare statistics majors to enter the workforce, students participate in senior-level practicum in which they work as real statistical consultants supervised by a faculty member in the Statistical Consulting Center (SCC). The SCC has provided statistical consulting services to faculty, staff and students since 2004.

Over the past two years, SCC directors have advised student consultants in more than 70 projects. Student consultants gain invaluable firsthand experience applying their statistical knowledge at all stages of scientific research, including project planning, data collection, data analysis and communicating results to clients.



*Article by Rebecca LeDocq, professor in and chair of the Mathematics and Statistics Department*

# ACTIVELY PURSUING HIS FUTURE

December grad learns how his love for outdoors translates into a career

Daniel Weipert, '16



As a kid, Daniel Weipert fished and snowmobiled across the frozen lakes and snow-covered fields of northern Minnesota. When he started college at UWL, he picked up fly fishing and hiking in the rivers and bluffs — just miles from campus.

But Weipert had never considered that his future career could be about protecting the great outdoor resources he grew up to love — until he started college.

An earth science class his freshman year was the first inkling that he had a love for learning about science as it relates to the environment. Weipert eventually switched his major to geography with a concentration in environmental science and added a minor in environmental studies.

"I started loving class. My grades went up," he says. "Making that switch was the best thing I could have done."

December graduate Daniel Weipert realized how his interest in outdoors could translate to a career he cares about after pursuing the geography and earth science major. Weipert says UWL has given him a well-rounded experience that will make him a strong job candidate. The experience involves his internship; participation in a volunteering club, Circle K International; and a study abroad experience in Tanzania that focused on conservation management methods.

After taking classes on Geographic Information Systems (GIS), like mapping, he decided to pursue a GIS internship with the Upper Midwest Environmental Science Center, an ecological research center near La Crosse that supports the management of natural resources, fish and wildlife. For two years he's been working on projects from studying the migratory patterns of waterfowl in the Upper Midwest to creating maps of waterways for scientists to test waters or launch boats.

Weipert says opportunities in the geography and earth science field wouldn't have happened without support from faculty who are "personable and willing to help you."

Joan Bunbury, Weipert's advisor and an assistant professor of Geography and Earth Science, says students like Weipert, with a passion for what they're learning, shine in the classroom.

She describes Weipert as "enthusiastic" and someone who "takes pride in his work."

"One thing that struck me the first time I met him was how involved he was in taking control of his education," she says. "He came to advising meetings prepared with what to take the next semester and the following year."

Seeing graduates find their purpose in life through college experiences is "extremely rewarding," she says.

Weipert aims for a career in environmental science — potentially permitting. As he applies for jobs, he's kept his eye on his love of the outdoors — and protecting it.

"I want to protect the environment in a scientific way, which I learned from UWL," he says.

# Sticking to science

Health challenges, academic roadblocks don't stop May grad

UWL senior Emily Von Dollen graduated May 14, 2017. Despite health issues and academic challenges, Von Dollen hasn't slowed down in her pursuit of a future in chemistry.





As a youngster, Emily Von Dollen set goals for a future in medicine. But after two open-heart surgeries and a cancer diagnosis that resulted in losing her right hand — all by age 17 — Von Dollen was fed up with the healthcare field that was “ruining my life.”

She was tired of doctors and nurses and trying to comprehend what synovial sarcoma, a rare form of cancer, was doing to her body.

“I wanted someone who could explain what was happening in common-folk terms — someone I could relate to and who I could trust,” she recalls.

So the academically-strong and ambitious graduating senior from San Luis Obispo, California, gave up on medicine and embarked on a career in engineering at a top-ranked California university instead. She had ambitions to one day pursue a career developing prosthetics and improve upon the “paper weight,” cosmetic hand she used.

Von Dollen was surprised when she flunked her first general chemistry class. She realized she was competing with some of the best and brightest in the country. The failed test changed her academic course again — but not in the direction one would suspect.

“I decided I wanted to make chemistry my major,” says Von Dollen. “Chemistry was hard. There are all these rules and all these exceptions to the rules. And everything was applicable to everyday life.”

But when Von Dollen tried to switch majors at her former university, it wasn’t easy. So in September 2015, she decided to switch universities instead, coming to another highly-ranked university where her sister and brother-in-law worked — UWL.

Von Dollen strolls into UWL chemistry classes with a smile on her face. Professors describe her as “enthusiastic,” “absolutely buoyant” and “eager to learn.”

Von Dollen regularly visits Janet Kirsch’s office just to recap a recent lecture. Her questions will typically lead to more in-depth and interesting conversations, says Kirsch, associate professor of chemistry and biochemistry. “She likes to take it a little further, and I enjoy having conversations like that and getting to know students on a more personal level,” Kirsch adds.

The feeling is mutual. “I feel so privileged sitting there understanding stuff that Bohr or Einstein discovered — talking about equations these people spent their lifetimes on,” says Von Dollen.

Unlike her previous school, Von Dollen says she doesn’t feel like a number at UWL. She doesn’t feel like she is artificially being weeded out of the sciences. Her professors have high expectations — but for a reason.

“They genuinely care about you and want you to leave with as much knowledge as they possibly can,” she says.

Professor Jeff Bryan regularly watches his students rise to meet his high expectations. One of the most rewarding parts of his job comes at semester’s end when he gets to grade their final work and see how much they’ve learned.

Kirsch adds that one of the most important outcomes for students, whether continuing in careers or graduate school, is that they become flexible problem solvers. “Developing those skills isn’t something you can do without being challenged,” she says.

Kirsch’s physical chemistry class is one of the most difficult Von Dollen has taken, but it’s pushed her. In other classes, she’s excelled at lab work most people would consider technically difficult with two hands. Students in one of her courses had to use a glove box — a sealed container that allows a chemical reaction to be contained. They manipulate the experiment by putting their arms into gloves that enter the box. Von Dollen not only completed the experiment, but she did it in about 10 minutes — while some of her peers took 30.

Professors say they are impressed with not only her skills, but her resilience and determination.

“Someone in her circumstance could easily get weighed down by other things going on in life,” says Bryan. “It’s easy to turn in a lack-luster effort. In nuclear chemistry, a lack-luster effort is not going to cut it. You have to be devoted to this class or it’s not going to work. She is not only devoted, but she goes at it with this positive attitude.”

Von Dollen says she is now setting her sights on the medical field again — motivated by her love for science — chemistry, in particular. With a minority of women in STEM fields, Von Dollen encourages more to give it a try. She’s failed tests, changed majors, changed universities, and has overcome physical challenges performing chemical lab techniques, but she keeps at it anyway.

# WORLDWIDE WISDOM

Speed skating links UWL,  
Amsterdam university in long-term partnership

A decades-long partnership between UWL and the Vrije Universiteit-Amsterdam started because of a rare interest in the science of speed skating. The partnership has helped Olympic athletes set new records, but it's also brought benefits much closer to home.

Since the partnership started, about 40 Dutch interns have studied and conducted research in the Department of Exercise and Sport Science. Additionally, a regular stream of student from the University of Rome Foro Italico join the Dutch students in the UWL Human Performance Laboratory. Meanwhile, UWL faculty and students have led an increasingly popular clinical exercise physiology class in Amsterdam.

The partnership with the Vrije Universiteit-Amsterdam (VU) started in the late 1970s when Carl Foster, professor of exercise and sports science,



*John Porcari, left, and Carl Foster, professors in UWL's Exercise and Sport Science Department, have built a long-term partnership with the Vrije Universiteit-Amsterdam. It has resulted in 40 international interns and opportunities for UWL faculty and students to teach abroad.*

started working with American Olympic coaches, then based in Milwaukee, on new techniques and technology for faster times in speed skating. At the same time, Jos De Koning, a professor at VU, was conducting similar research for Olympic athletes in the Netherlands.

"There are not many people on the planet working on the science of speed skating, so we met and started doing projects together," says Foster.

They took up topics from pacing strategy and starting techniques to speed skating

gear that ultimately allowed new records to be made in the sport.

Over the years, Foster and De Koning became two of the world's leading scientists in speed skating.

When De Koning wanted to broaden curriculum at VU to include a clinical exercise physiology course about eight years ago, he turned to his long-term colleague and friend — Foster.

Foster has now taught the course for the last seven years during UWL's winter



intersession. Five years ago, John Porcari, program director of UWL's Clinical Exercise Physiology program, joined him. The course has grown in popularity from 40 to 165 students this past session.

The course, a highly-condensed version of UWL's graduate CEP program, offers students a look at the different types of exercise training that is proven to have a therapeutic benefit for patients with chronic diseases.

## A WORLDWIDE IMPACT

In both VU and UWL courses, Foster and Porcari relate the class material to what's happening in the real world and inject a bit of humor, says UWL Alum Chelsea Hahn, a December 2016 graduate of UWL's program.

Hahn, now a research and teaching assistant for the UWL Exercise and Sport Science Department, joined Foster and Porcari at VU this winter where she taught two practical sessions. She was impressed with how engaged the students were, raising their hands and making comments. One even left after class, got to the bus stop and walked back to ask a few more burning questions.

"Having experiences like that with students who are really interested in what they are learning is fun for me," she says. "This experience really solidified my career goals in the field."

Hahn recently interviewed for a lecturer position at a university in Nebraska. The interviewers saw UWL and immediately asked her about her connection with Porcari and Foster.

The two have earned a reputation — well beyond UWL and VU. Their research has changed the way professional athletes compete and everyday people exercise around the world for decades. They are frequently featured in national news media, providing scientific evidence related to the health benefits of the latest fitness craze. They have both been presidents of major professional societies, Porcari for the American Association of Cardiovascular and Pulmonary Rehabilitation in 2001-2002 and Foster for the American College of Sports Medicine in 2005-2006.

Hahn, who had them both as mentors, calls them "rock stars" in the field, yet down-to-earth in person. "It opens a lot of doors knowing these two," she adds.



*Carl Foster and John Porcari, pictured far right, at the 2002 Winter Olympics in Salt Lake City. Foster worked with the U.S. Olympic speed skating team until 2006, when training moved to Salt Lake City.*

# DIFFERENCE DUDE

Alum eats out of dumpsters, stops showering, wears trash to draw attention to environmental issues



Rob Greenfield, '09

**When Rob Greenfield looks at a river or a tree, he's grateful for a degree in biology.**

It's given him an appreciation of how the Earth works — like leaves soaking up sun to deliver oxygen. Or, how currents move just beneath the waves.

Greenfield credits his former UWL biology professor, Roger Haro, now interim associate dean for CSH, for getting him interested in science. Awareness of the Earth and everything living on it is an important first step to living an environmentally conscious life, he says.

Greenfield, '09, is earning a reputation worldwide for his fierce challenges surrounding environmentally conscious living. He is the author of "Dude Making a Difference" and the host of "Free Ride" on the Discovery Channel in the United Kingdom and other countries. Some of his most daring sustainable feats have been documented by news media nationwide.

Greenfield lived off the grid in a 50-square-foot tiny home in San Diego and then auctioned it off to build 10 tiny homes for homeless people. He has bicycled across the U.S. twice on a bamboo bike — one time documenting America's food waste problem by getting 70 percent of his

food from dumpsters during a 104-day span. He went an entire year without showering — washing himself only using natural water sources. He walked around New York City wearing every piece of trash he created for 30 days.

Why so extreme? Greenfield says it's the best way to get attention — and get people thinking. But Greenfield's solutions to the environmental problems aren't so extreme. He urges people to do simple things, like use less water, generate less waste and throw out less food. The average American uses 80-100 gallons of water a day and creates 4.5 pounds of trash. Americans waste \$165 billion in food each year, notes Greenfield.

"I do extreme things to counter how extreme our society is in hopes of bringing people more to the middle," he says.

## **BECOMING ENVIRONMENTALLY AWARE**

Greenfield admits he was also pretty extreme as a student, but not in relation to the environment. Instead, he was living it up in an extreme way during many late nights on Third Street. He focused on having fun and didn't pay much attention to the environment or social issues.

Then, his senior year, things began to turn when he took a cooking class at the People's Food Co-op in La Crosse.



CLICK TO WATCH



GREENFIELD TALKS TRASH AT A TEDX TEEN PRESENTATION

*Rob Greenfield's tiny house, which he lived in until March. He is currently traveling and doesn't live anywhere. Greenfield owns 111 possessions — they all fit in his backpack. He says living a life of less consumption and waste has been freeing.*

"It was eye opening to cook with real ingredients instead of macaroni and hot dogs," he says.

Greenfield started watching documentaries about from where his food was coming. "I realized all is not well in the world," he recalls.

He decided to start paying more attention to things that mattered instead of living the more frivolous party lifestyle. "I realized I was more part of the problem than the solution," he explains. "I needed to start making changes in life."

## LOSING THE CAR

Greenfield started with small changes. He started shopping at local businesses instead of big box stores. He biked more and drove less.

Then he took an even bigger step by ditching his car in 2012. Greenfield had saved up to buy a \$21,000 new car his junior year. He had spent countless hours washing the car and sitting in it during rush-hour traffic. Living in San Diego, he feared no car would mean losing freedom, relationships and opportunities.

But getting rid of the car was, instead, a "big release" — and a big increase in his time and financial freedom.

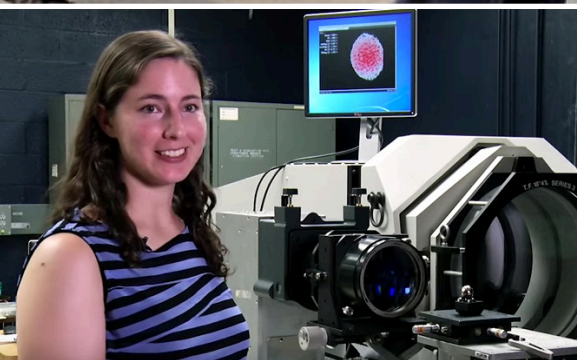
"Every time I cut back and lost something — like my car — I'd feel myself and realize I'm still here. I still exist ... my friends are still my friends. I'm not losing anything," he says.

In fact, Greenfield says the changes have made his life better. "It's the realization that life still goes on," he says. "Not just that, but it's continuously gotten better with those changes."

# High-flying chemist



UWL Alumnus Jason Schroeder, '09, after returning from a more than six-week stay in Korea, working 50-60 hours per week on the for the Korea-United States Air Quality study. "As much as I love Korean BBQ, I was ready to go home," he says with a smile. The NASA scientist team did 21 research flights over about one and a half months, measuring air pollution above South Korea.



CLICK TO WATCH ► [NASA GODDARD INTERN PROFILE ON UWL PHYSICS AND ENGINEERING MAJOR MADDY LAMBERT](#)

# Alumnus on NASA research team measures air pollution above one of the world's smoggiest places

**When Jason Schroeder was a UWL undergraduate student, he pictured his future in chemistry: a white lab coat and goggles while quietly conducting experiments in his lab.**

That image wasn't quite right. Instead, the 2009 graduate has been soaring thousands of feet above South Korea in a passenger jet with a dozen or more NASA scientists.

Inside the gutted plane, repurposed into an "air quality lab," the scientists use high-tech instruments to measure air pollution through a partnership with Korea called KORUS-AQ.

South Korea — home to about 50 million people — has some of the worst air quality in the world. The country wants change, so NASA is helping them better understand the source of the pollution — particularly how much is self generated and how much is coming from China.

Schroeder is a post-doctoral researcher with NASA. It's a position that's required plenty of high-flying endeavors, as well as developing new ways of using satellites to better understand air pollution.

Schroeder says his undergraduate research experience with UWL Chemistry Professor Keith Beyer initially got him interested in atmospheric chemistry and research, which led to earning his doctoral degree in chemistry and pursuing his current work with NASA. Schroeder says he didn't even know what atmospheric chemistry was until he

met Beyer, who studies how air pollution molecules affect solid formations in clouds such as ice crystals.

Schroeder was a "very curious and motivated" research student who was often coming up with his own research questions, recalls Beyer.

Schroeder has always enjoyed the outdoors and preserving nature. He also suffers from asthma, so atmospheric research was a natural fit, he says. "Being able to do work related to understanding nature and improving air quality and pollution that affect people like me seemed like something I'd like to do," he explains.

As an undergraduate researcher under Beyer, Schroeder authored five, peer-reviewed publications in a top chemistry journal, the *Journal of Physical Chemistry*. Beyer says that accomplishment is rare for an undergraduate researcher. Most undergraduate research students never end up co-authoring a peer-reviewed publication in an international journal let alone five times.

"Up until Jason, I had only two students who were undergraduate coauthors

on four publications, so having five publications from undergraduate work is simply unheard of," says Beyer. "In several cases Jason's work became the foundation on which other undergraduate students' work was based."

Schroeder calls Professor Beyer a great mentor. "The research projects he set up that were ideal for an undergraduate to work on," he says. "Sometimes you can have experiments where the student or researcher is not doing the actual experiment as much as getting it set up. When I joined Dr. Beyer, everything was set up. I came in, did the experiment, and with each experiment, I was able to produce a publication."

Schroeder says faculty at UWL in general are "excellent." Small class sizes allowed lectures to be more like discussions, which helped him gain a strong understanding of the fundamentals, he says.

"I didn't realize how lucky I was to go to smaller school with faculty who are good at teaching and doing research at the same time," he says.

## What does chemistry have to do with smog?

Smog is a mixture of multiple, different chemical compounds. Two of the most important, because of their detrimental effects on human health, are ozone and particulate matter, says Chemist Jason Schroeder. Both ozone and particulate matter are produced by chemical processes, meaning they are not emitted directly from human activity. However, human pollution is the precursor to creating them. Chemists like Schroeder help pinpoint the source of these hazardous chemical compounds.



# SEAL of APPROVAL

Biochemistry program earns high review as workforce demand increases

**UWL's biochemistry major has received national accreditation at a time when demand for biochemists in Wisconsin is on the rise.**

The Wisconsin Department of Workforce Development reports growth in biochemistry and biophysics-related employment at the top of chemistry-related occupations. The field is also ranked No. 11 on a list of Wisconsin's top 25 highest-growth occupations requiring a post-secondary degree. UWL is helping to meet that state demand.

UWL's biochemistry major was accredited by the American Society for Biochemistry and Molecular Biology (ASBMB) in January. UWL is the first UW System campus with an ASBMB accredited program, according to the ASBMB website.

The committee responsible for the accreditation was impressed with the rich and interdisciplinary curriculum, opportunities for experiential learning, promotion of problem-solving and communication skills, and a large number of graduates over the past five years, among other factors.

UWL students have shown a growing interest in the program since it was approved by the UW System Board of Regents in 2002. Over the past five years, 123 students have graduated with a UWL biochemistry major. The growth is a result of the UWL's administration's support and attracting highly-talented faculty and instructional staff over the past seven years, including Basudeb Bhattacharyya, Kelly Gorres, Daniel Grilley and John May, says Todd Weaver, professor of Chemistry and Biochemistry.

UWL Biochemistry has also earned a positive reputation. Faculty have served as site visit experts to review the academic programs of other undergraduate biochemistry majors at other Midwestern campuses, says Weaver.

*Zoey Good, undergraduate biochemistry major, with John May, assistant Professor, Department of Chemistry & Biochemistry in CHM 419: Advanced Biochemistry Lab. A research-embedded experience within this lab is just one of the impressive parts of UWL's Biochemistry curriculum which helped it earn national accreditation in January.*

Graduates of the biochemistry program go on to careers as chemists, quality control analysts, managers, healthcare professionals and much more. The majority of majors have found a career in their field after graduation. Among recent graduates, about 54 percent of those who responded to a survey have gone into healthcare-related graduate programs in areas such as medical, dental, pharmacy, physician assistant, chiropractic, and veterinary programs. About 36 percent found jobs in the biochemistry technology companies and another 10 percent have continued in bioscience doctoral programs.

## PROGRAM HISTORY

Weaver and Sandy Grunwald, a biochemistry faculty member who is now also interim associate vice chancellor for Academic Affairs, began developing a new biochemistry major in the early 2000s when a demand for trained biological scientists was growing. The UW System Division of Market Research found demand for biological scientists was anticipated to increase by about 36 percent, according to a spring 2002 study. That growth continued to be projected well into the future. Demand for biochemists and biophysicists for the 2014–24 decade tops the growth rates for chemistry-related occupations in Wisconsin, according to Dennis Winters, chief economist for the Department of Workforce Development, who presented the information to the UW System chemistry faculty in October 2016.



During the biochemistry program's formative years, UWL also had the faculty expertise and institutional resources to start a strong and interdisciplinary major, notes Weaver. The expertise of Grunwald, as well as Professor Adrienne Loh, Chemistry & Biochemistry, and Scott Cooper, Biology, were instrumental to the development of the program during these years, he says.

Over the years, the program has changed to reflect the needs of industry. Most recently, Weaver and Daniel Grilley, assistant professor of chemistry and biochemistry, redesigned the curriculum to implement a research-embedded experience within the CHM 419: Advanced Biochemistry Lab.

"Offering every major the opportunity to have an experiential learning experience using state-of-the-art equipment is essential," says Bhattacharyya.

The acquisition of the new laboratory equipment was made possible through the Growth, Quality and Access Initiative at UWL. The entire biochemistry staff worked collaboratively during the curricular redesign phase to ensure that the laboratory portions of the major aligned with the needs of the biotechnology industry and the ASBMB student-learning outcomes.



### Biochemistry spaces in new Science Labs building will foster collaboration

The Department of Chemistry & Biochemistry is one of many departments that will be moving into the new Science Labs Building.

Assistant Professor Daniel Grilley was instrumental during the design phase of the biochemistry teaching and research laboratory spaces. One of the design elements the group is most excited about is a biochemistry research space that will have a shared central resource for solution and sample storage and preparation.

"This aims to stimulate the sharing of ideas among faculty and students which is critical within an interdisciplinary field like biochemistry," says Grilley.

The space will also house advanced cell culturing facilities allowing biochemistry research programs to tackle new questions. "We are very excited about this shared space and the ability to continue to collaborate in our research," says John May.

The biochemistry lab teaching spaces in the new building will be designed to facilitate the research-embedded experience in the redesigned curriculum. Ample bench-top space for instrumentation and student work will provide the opportunity for each student to work on something slightly different. Also, students and faculty will have easy access to preparatory and cold room spaces from the advanced lab room allowing students to prepare and run additional experiments that are impossible in the current configuration in Cowley Hall, says Kelly Gorres.

**The Department of Chemistry was renamed the Department of Chemistry and Biochemistry during the 2011-12 academic year. Currently, the department graduates approximately equal numbers of chemistry and biochemistry majors annually.**



*Undergraduate biochemistry majors Kimberly Trochlil, left, and Mitchell Malecha record notes in advanced biochemistry lab. Lab experiences within two of the biochemistry program's advanced courses, CHM 417 and CHM 419, adhere to proper record keeping in a laboratory notebook, collecting high quality data and determining error within data. Students must be able to identify error within measurements to determine the meaningfulness of their experimental data. The biochemistry staff say that these skills have given UWL biochemistry majors an edge in hiring decisions because students understand the implications of error in acquiring meaningful results.*

# Top performers

Nearly all UWL therapeutic recreation majors pass national certifying exam on first try

UWL's therapeutic recreation students have one of the highest pass rates on the national certifying exam.

More than 98 percent of therapeutic recreation majors passed the National Council for Therapeutic Recreation Certification exam on the first try compared to a national average pass rate of about 88 percent. Results were compiled from the 2016 exam.

Successful completion of the NCTRC exam is a requirement to become a Certified Therapeutic Recreation Specialist, a nationally-certified professional who assists people with



UWL therapeutic recreation students create craft projects for residents at the Ping Manor in La Crosse during the fall semester.

disabilities or illnesses to improve their functioning and quality of life.

Program Director Nancy Richeson points to UWL's strong curriculum which includes 69 "job tasks" or competencies students must acquire based on the most current therapeutic recreation workforce

needs. Richeson says UWL students in the program are strong academically.

UWL is one of the few universities nationwide to offer therapeutic recreation as its own independent major. A total of 285 students are currently majoring in therapeutic recreation.



Daniel Plunkett, Tourism Research Institute director.

## UWL opens new Tourism Research Institute

Growth of tourism in the La Crosse area has spurred the development of a new Tourism Research Institute.

The new institute will be a resource for any organization that wants to conduct travel, tourism and recreation-related research to make informed decisions, says Daniel Plunkett, assistant professor and the research institute's director. Examples of organizations that might benefit include:

- Destination-marketing organizations looking to better understand visitor perceptions of the area.
- Event organizers looking to calculate an event's economic impact.
- Parks and recreation organizations wanting to know more about visitor use of facilities and services.
- Communities looking to conduct a needs assessment to make decisions regarding tourism in the future.

"As tourism grows in the La Crosse area, Wisconsin and throughout the Midwest, so does the need for research to better understand your visitors," says Plunkett. "It is useful to better understand visitors' perceptions of what destinations have to offer, what

# THE DEPTHS OF THE MISSISSIPPI



Cierra Neitzel setting up the underwater robot

As the spring semester was winding down, UWL junior Cierra Neitzel was exploring the outdoors in the La Crosse area — including the Mississippi River near Goose Island County Park. “This is our third field trip this week,” says Neitzel.

Neitzel, a recreation management and therapeutic recreation major, was with her class using an ROV — an underwater robot — to see what mysteries lie beneath the surface of the mighty Mississippi. The robot is often used to explore places that are difficult or impossible to get to.

“For example, it lets experts survey dock structures in strong currents, like the Mississippi River,” says Laurie Harmon, associate professor of recreation management and therapeutic recreation.

The field trips give students hands-on experience with tools and activities they’ll like use after graduation. “This will definitely help me in my professional field,” says Neitzel. “I never expected to do anything like this.”

CLICK TO WATCH



THE DEPTHS OF THE MISSISSIPPI

resources visitors are or are not using, and ultimately, whether or not they will come back and why.”

Faculty from several departments across campus will help guide research at the institute, allowing for interdisciplinary collaborations. Undergraduate students

will be involved in the research.

While the institute’s focus is tourism, Plunkett also encourages recreation organizations to contact the institute if they have research needs. Tourism is recreation away from home, and many visitors use resources managed by

recreation agencies, notes Plunkett. “It is important to know how visitors are using these resources, but also how residents are affected,” he adds.

Inquire about research opportunities via Plunkett at 608.785.8204 or [dplunkett@uwlax.edu](mailto:dplunkett@uwlax.edu).

# AN INSIDE LOOK INTO RESEARCH

From the Mississippi to the Meso-American Barrier Reef



As a geographer who studies human impacts on river systems, I never dreamed I'd one day be mapping marine habitats within the Meso-American Barrier Reef. But that is exactly what I set out to do in January 2017 when my student, Karl Radke, and I traveled to the South Water Caye Marine Reserve in Belize as part of a research effort with Associate Professor Gretchen Gerrish from the UWL Biology Department.

The South Water Caye Marine Reserve was established by Belize to protect an ecologically sensitive and biologically diverse zone within the Mesoamerican Barrier Reef System – the second longest barrier reef in the world. This conservation area has been the focus of numerous studies on coral reef ecology, geology, and human-induced environmental change by scientists from around the globe.

Gerrish studies the evolutionary ecology of bioluminescent ostracods within the South Water Caye Reserve. She has hypothesized that physical barriers to gene flow in the area contribute to observed high levels of genetic divergence between ostracod populations.

Over the past five years, Gerrish and I have collaborated on projects in the

A marine reserve in Belize served as the classroom for a UWL Geography & Earth Science associate professor and his student.

La Crosse area. Upon learning about her Belize work I suggested we use Geography's hydroacoustic and GPS technology to map currents, depths and substrate type (coral, sand, sea grass) to identify the physical barriers influencing ostracod movements through the reserve.

In a matter of days we could map habitat features at high resolution providing new information for local scientists and resource managers, and ultimately bring the data into a Geographic Information System to model factors affecting ostracod dispersal.

The Smithsonian's Carrie Bow Cay Field Station, located on a picturesque, one-acre white coral sand island in the South Water Caye Marine Reserve, served as our base of operations for seven days. In addition to providing direct access to the

reef habitats, the field station provided boats, a wet lab, and tools to support our efforts.

With only five to nine people on the island at a time, including a cook and facility manager, we virtually had the place to ourselves!

The daylight hours were spent mapping depths with an echo sounder, measuring currents with an acoustic Doppler current profiler, and imaging the seafloor with a side imaging fish finder and a GoPro camera. Our GPS helped guide us along 160 kilometers of transects in the study area. Although Karl had never piloted a boat before, he quickly became an expert at using GPS technology to steer the boat along perfectly straight lines at 5 mph.

As the sun set following a full day of surveying, Gerrish and I would put on our snorkeling gear and speed out to patch reefs to sample the bioluminescent

ostracods. My initial anxiety about snorkeling in the dark quickly transitioned into exhilaration as we became immersed in an underwater world illuminated by tiny flashes of light streaming in all directions as the ostracods performing their mating rituals. To get a glimpse of this surreal experience, I recommend watching David Attenborough's *Life that Glows* which features Gerrish working in the South Water Caye Marine Reserve.

Karl's research, made possible by a UWL Research and Creativity Grant, will continue to shape his life after graduation. He became well-versed in using the hydroacoustic and GPS technology and he has spent the spring analyzing the data in preparation for the end-of-year UWL Celebration of Student Research.

His trip was filled with new experiences, including snorkeling the coral reef, seeing large schools of colorful reef fish and holding a sea cucumber. Of his cultural

experience Karl stated, "I think one of the things that will have a lasting impact was meeting the people and hearing about their way of life, their struggles and their aspirations."

Opportunities like this, combined with access to high-end technology, help make graduates of the UWL Geography program highly marketable in geospatial fields. In just the past year two of our students were hired as hydrographers for a major environmental and construction company based in La Crosse.

In my eight years at UWL I have found collaboration across departments to be critical for my growth as a researcher and instructor. I am truly grateful to have had the opportunity to undertake this research with Gerrish that was sponsored by a UWL Faculty Research and International Travel Grant.

*UWL Associate Professor Colin Belby joined researchers from around the world conducting studies in the South Water Caye Marine Reserve in Belize.*



*Article by Colin Belby, an associate professor in the Department of Geography & Earth Science.*

# DECADES *of* CHANGE

Retiring Computer Science Professor David Riley saw many changes over 39 years

Dave Riley began teaching at UWL in fall 1978. He came to campus after earning a bachelor's degree from Wartburg College in 1973, and a master's and doctorate in computer science from the University of Iowa in 1977 and 1978, respectively. He retired at the end of the spring semester. Before he cleaned out his Wing Technology Center office, we asked him a few questions.

## **What brought you to UW-La Crosse in 1978?**

I came to UWL because it had, and still has, the strongest instructional computer science department in the upper Midwest. There are other excellent research-focused CS programs, but such departments must often sacrifice undergraduate and master's-level instruction. UWL has always valued scholarly activity, and in computer science we must do research to remain current, but our faculty maintain the perspective that students come first.

## **What department were you hired into?**

I began my UWL days as an assistant professor in Computer Science. Except for two brief stints as interim directors in Academic Computing and Information Services, I remained in the CS Department. I also chaired the CS Department during most of my time here.



**The Computer Science Department is probably the one department that has rapidly evolved during your time here. What have been some of the most noteworthy changes you've seen?**

According to Moore's Law, computers today should be roughly 8,000 times smaller and faster than 39 years ago. That is reasonably accurate from a purely hardware point of view. In terms of programming languages, I can count at least 25 that I've worked with, and our department has transitioned through at least five core languages during this time.

Perhaps the more important changes in computers have been in the way they relate to and impact society. In the late 1970s computers were expensive, owned only by large firms and universities. Most of the applications were scientific, financial or database related. In those days UWL, like most campuses, operated a single instructional computer and students had to type their programs on punched cards, or later on computer terminals.

In 1980 the IBM PC ushered in a new world of personal computers.

Desktop computers were a bit pricey for students so universities provided laboratories and computer-based classrooms. The most widely used applications on the desktop were probably word processing and spreadsheets. Our CS Department was fortunate to have devoted labs where students could write their programs on desktop computers more powerful than most personal computers of the day.

About a decade after the introduction of the PC, Tim Berners-Lee invented the concept we know today as the World

Wide Web. Web-surfing joined email as leading software applications. The underlying technology that made all this possible was networking. The Internet really grew out of older networks that those of us in Computer Science had already been using for some time, but suddenly the Internet and its resources serve to connect our world electronically.

The next societal change is a shift to smaller and more mobile computers. This transition is difficult to pinpoint in time. Certainly, the Osborne 1 had proven that luggable computer could be manufactured in the early 1980s. However, laptop, then pad-style, cell phones and eventually computer watches didn't really become popular until much later.

Today most university computer labs have become obsolete because students prefer their own laptops, or smaller computers. This change has been accompanied by the ability to use shared storage in the cloud and streaming video. We're also beginning to see a resurgence of artificial intelligence, often in the form of machine learning through software like IBM's Watson.

While personal computers have flourished by communicating directly with us humans, computing devices have also become ubiquitously embedded. TVs abandon old analog technology, using internal computers to handle the computer-generated digital signals. Film photography is replaced by digital cameras. Automobiles rely first on software to provide anti-lock brakes and traction control, then later collision avoidance, adaptive speed control, and (albeit experimental just yet) autonomous vehicles.

Today, the first thing that happens when a car is serviced is that it is connected to a service computer that "talks" to the several computers embedded within the vehicle. The current work in the Internet of Things only serves to increase the number of ways that computers impact our lives in conjunction with the Internet.

**Over the past four decades, how have students changed?**

Our CS Department has always been blessed with talented students. I can't say that current CS majors are any more or less intelligent than when I began. I do, however, think that the average UWL student — someone who might attend one of our classes for non-majors — is academically stronger today.

From the perspective of computing devices, today's students have always lived in a world with computers and the Internet, so they are not afraid of these technologies and they have some skills in their use.

To some extent this experience is good, but there is a dark side, as well. Cell phones have led to an exponential growth in texting. Unlike years past, students waiting in a hallway rarely speak to each other because they are too busy texting. I worry about how this might impact their verbal and socialization skills, not to mention their circle of friends.

I also have concerns about how hyperlinks in webpages have led to a kind of sound-bite generation. Students are quite accustomed to jumping from link to link and grabbing small pieces of information, but they tend to struggle more with linear information. I've noticed that today's student is far less comfortable reading books than those in the past. Textbooks are no longer

*Continued on next page.*

*Computer Science Professor Dave Riley retired this spring after nearly 40 years on campus. Riley has seen an array of changes on campus — in his department and otherwise. He expects fishing, as his shirt portrays, to be a big part of his retirement plans.*

# CHANGE

*Continued from previous page.*

viewed as essential sources of reliable teaching material.

## What advice would you give to the person replacing you and others starting on campus in fall?

The truth is that our department has been fortunate to hire some gifted junior faculty. These young people have raised the quality of UWL's computer science programs in almost every way. I hear similar statements from other UWL departments. So I'm not sure anything I could say about teaching or research would be of much value.

The one place where junior faculty might use a bit of help is in the area of shared governance. Through the years I have come to realize that faculty governance is not just a right, but a responsibility. The best decisions are made with broad input and thoughtful consideration. A university doesn't operate well under a military-like chain of command from the governor to Board of Regents to chancellors to provosts to deans.

These political and administrative folk are important contributors to decisions, but they make better decisions when faculty take their job seriously and contribute. There were many times throughout my time at UWL when the Faculty Senate strongly disagreed with administrative individuals on major issues and made their opinions well known.

Sadly, such events haven't really occurred in recent years. I'm not advocating for divisiveness, but collegial and professional disagreements more often than not lead to more discussion and often better decisions.

## What are your immediate plans for retirement?

Grandkids (ages 2.5, 2, and 0.8), photography, travel, fishing, kayaking and woodworking.



## UWL students collect data at Argonne National Laboratory, present research

"Seeing the larger scientific community really gave me the feeling that I am part of something great," says Timothy (Tim) Davie, a senior majoring in biochemistry. "I find it quite inspiring."

Davie along with UWL biochemistry research students Madeline Brunner, Megan Marlowe, Damien Rasmussen, Michael (Mike) Scheidt and Danielle Sweeting shared this experience in April as they collected data at Argonne National Laboratory. They presented their undergraduate research at the American Society for Biochemistry and Molecular Biology (ASBMB) Annual Meeting 2017 in Chicago.

## LONG HOURS IN THE LAB

The trip to Illinois was the culmination of hours spent in the laboratory. Under the mentorship of Department of Chemistry and Biochemistry faculty Kelly Gorres, Daniel Grilley, John May and Todd Weaver, these talented undergraduates have been studying diverse biochemical processes including bacterial pathogenicity,

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*Above photo: Madeline Brunner, left, under the guidance of Professor Todd Weaver, freeze protein crystals in preparation to collect data at Argonne National Laboratory.*



protein structure and function, and viral replication. The students have learned specifically about biochemical techniques and more broadly about being a scientist.

## ROAD TRIP TO ILLINOIS

Knowing the three-dimensional structure of a protein — how thousands of atoms are connected to form a specific structure — helps biochemists better understand how that protein works. One of the main techniques used to determine the structure of proteins is X-ray crystallography. In this process, proteins are placed in conditions that allow them to form crystals. These protein crystals are then placed in an X-ray beam, producing diffraction images that enable scientists to determine the three dimensional arrangement of atoms in the proteins.

One of the most powerful X-ray sources is the Advanced Photon Source (APS) at Argonne National Laboratory. This federally-funded lab allows for high-quality protein structure data to be obtained. In a collaboration between Associate Lecturer Basudeb Bhattacharyya, Department of Chemistry and Biochemistry, and UW-Madison Professor James Keck, these students



*Madeline Brunner and Tim Davie were awarded Honorable Mention during the national Undergraduate Poster Competition at ASBMB 2017.*



*From left, Tim Davie, Megan Marlowe, Mike Scheidt, Danielle Sweeting, Damien Rasmussen, and Madeline Brunner take a break from presenting at the ASBMB 2017 National Conference in Chicago.*

had the unique opportunity to collect data on protein crystals.

“It was great to get the opportunity to see what goes on at a national lab,” says Sweeting. “It was my first exposure to crystallography, so actually getting to sit down and work under the microscope to collect samples and freeze them in liquid nitrogen before using software and robots for X-ray diffraction was a great learning experience.”

## A COMMUNITY OF SCIENTISTS

The data collection at APS was only the start to a weekend of exploring being a scientist. The students presented their undergraduate research findings at the 2017 ASBMB National Conference.

“As a senior, it was an incredible experience to be able to present my work to other members of the scientific community and showcase the research that goes on at UWL,” says Scheidt.

Marlowe says attending the ASBMB meeting was “a great opportunity that exposed me to many different areas of research.”

Brunner, Davie, Rasmussen and Sweeting competed in the undergraduate poster session of more than 200 student posters judged by faculty. The poster session represents all biochemical research being done across the country at all types of institutions, undergraduate to research-intensive institutions.

Rasmussen says the poster competition was “a fantastic learning opportunity which provided great feedback regarding scientific presentations and how to best communicate research findings.”

UWL students shined. Brunner and Davie received Honorable Mention. “Being selected as a top presenter was both a shock and an honor,” says Brunner. “It was a confirmation that the hours and hours of work, late nights, and long weekends in the lab were worth it. Having two UWL presenters selected also cemented for me that La Crosse is not held back by its size.”

Attending the ASBMB National Conference has been a yearly event for the Department of Chemistry and Biochemistry that obtained ASBMB accreditation this year, becoming the first university in the state to achieve that.

The faculty hopes to continue trips to Argonne National Laboratory, as well to provide UWL students with unique opportunities summed up by Davie as “one of the most fun things I did as an undergrad.”



*Article by Basudeb Bhattacharyya, an associate lecturer in the Department of Chemistry and Biochemistry.*



# Got science?

Special career fair is just the formula for CSH majors

The UW-La Crosse College of Science and Health holds a Science Career Forum to help students discover the many science-related opportunities available in La Crosse and throughout the region.

A special career fair for College of Science and Health majors is creating the right mixture for students thinking about careers in science. The event is helping them discover the many science-related opportunities available in La Crosse and the region.

February was the third year a Science Career Forum was held on campus after Career Services staff discovered natural science majors were less likely to attend traditional career fairs on campus.

“We linked this to a lack of laboratory, field and research employers attending the regular fairs,” says Josh Bench, Student Services Coordinator in the UWL Career Services Office. “So, we started reaching out to those employers that have hired our science students in the past. The event has grown since.”

Bench cites three goals for the annual event:

- give students an avenue to explore opportunities where they can use their skills and knowledge in the sciences.
- educate employers so they become more aware of the quality and preparedness of UWL students.
- build and maintain community partnerships.

Employers are becoming excited about the fair, says Bench. It has grown from eight employers in 2015 to 21 employers in 2017. Most employers return once they’ve attended.

“They’re impressed by our students and like the educational nature of the event,” explains Bench. “They know that they will get more quality applicants for their positions and programs, but also get to feel good about passing on career advice to aspiring scientists.”

Bench says alumni in particular like to return for the event. “You can tell alumni get a good feeling coming back to campus to talk with the next generation of scientists,” he says.

The outlook for those heading into the science field is generally good, says Bench. While federal organizations have been impacted by a freeze, other science-related organizations, especially health-related, are growing.

“Healthcare remains strong and clinical lab hiring has been increasing, with Mayo attending multiple career events on our campus in recent years,” notes Bench. “In the private sector, at least in our region, the outlook seems to be strong, especially when you look at the big contract research organizations in Madison.”

Employers hesitant to attend just a few years ago are now happily sending teams and asking for on-campus interviews, says Bench. “Overall, the good news is our students in the sciences have always fared pretty well on the job market.”

Bench expects the Science Career Forum to be held again next academic year. Employers interested in attending should contact him at [jbench@uwlax.edu](mailto:jbench@uwlax.edu).

## Organizations participating the 2017 Science Career Forum:

- Aerotek
- Agropur Ingredients
- Catalent Pharma Solutions
- Conservation Corps Minnesota & Iowa
- Covance
- Fastenal Co.
- Forage Genetics International
- Gundersen Health System
- Ingersoll Rand - Trane
- LHI
- Mayo Clinic Department of Laboratory Medicine and Pathology
- Mayo Clinic Health System
- Mississippi Valley Conservancy
- Organic Valley
- PPD
- Superior Fresh, LLC
- U.S. Fish and Wildlife Service -Genoa National Fish Hatchery and La Crosse Fish Health Center
- U.S. Geological Survey (USGS)
- Wisconsin Department of Natural Resources - Bureau of Law Enforcement
- Wisconsin Diagnostic Laboratories
- WisCorps



# AN EXPLOSION OF INTEREST

Chemistry and Biochemistry Club demonstrates cool magic

Mix hydrogen peroxide and soap. What do you get? About 100 elementary school kids wondering how that “magic” worked.

UWL’s Chemistry and Biochemistry Club members call the mixture — an explosion of puffy foam — elephant toothpaste. It’s one of many tricks they have tucked up their sleeves to share with area kids throughout the school year.

UWL students and faculty advisors in the club organized a Halloween-themed Chemistry Magic Show at UW-La Crosse in October that attracted about 100 kids. UWL students also take their show on the road, traveling to where kids congregate, such as area schools and the Children’s Museum of La Crosse. In March, they brought a magic show to a local Boys and Girls Club — Schuh/Mullen Homes.

“All of the kids there were actually genuinely interested in it,” says Janek Walker, UWL biochemistry major and secretary for the club. “We’re giving everyone an opportunity to see how cool science is.”

The group also hopes their efforts encourage more young people to consider a future in chemistry, particularly kids in traditionally under-represented groups in sciences, says Basudeb Bhattacharyya, associate lecturer of Chemistry and Biochemistry and a faculty advisor to the group.

Elizabeth McMahon, the club’s next president, remembers her enthusiastic middle school and high school chemistry teachers who “would do cool experiments” — sometimes lighting things on fire. It’s what initially piqued her curiosity about chemistry.

“Even if these kids don’t want to go into a science field, I hope we can still inspire that passion and curiosity about how things work,” she says.

UWL students Rachel Butler, right, and Andrew Pitney, center, demonstrate the “magic” of chemistry. Kids from Schuh Homes Boys and Girls Club race to pack Styrofoam packing peanuts into two different containers — one filled with acetone and one with water. The winner quickly emerges as the packing peanuts immediately dissolve in the acetone, which shows principles of solubility and organic chemistry.

## A kid’s science education connection in UWL history

Another scientist who engaged kids through fun experiments was Donald Herbert, ’40. Also known as “Mr. Wizard,” Herbert conceived, wrote, starred in and produced the NBC hit series “Watch Mr. Wizard,” which ran from 1951 to 1965. Herbert became known as “America’s Favorite Science Teacher” by millions of admiring viewers for 14 consecutive years, according to the Mr. Wizard Studios website.

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LOCAL NEWS COVERAGE – ‘UWL HOSTS TRICKS OR SCIENCE’

# COMMUNITY COMFORT

Radiation therapy students reach out with warmth at local hospital

Students in UWL's Radiation Therapy program brought comfort to people receiving cancer treatment at La Crosse's Gundersen Health System this past holiday season.

They delivered 12 handmade, tie blankets to patients in the Oncology Department, a tradition they've continued for five years. The Radiation Therapy Club made the blankets during the group's last meeting of the year earlier in December.

Junior Carly Ferguson, the club's president, says the service project gives students a chance to interact with patients, which is a good experience as they prepare for future professions. "It is



Students in UWL's Radiation Therapy Club delivered handmade blankets to patients receiving cancer treatment at Gundersen Health System.

also an amazing way to give back to the community," she adds.

The club also gives back by visiting with residents at Hope Lodge who are receiving cancer treatment at Mayo Clinic in Rochester. They also participated in

Steppin' Out in Pink, a walk-a-thon for breast cancer awareness this fall.

Radiation Therapy Club is for students who are interested in radiation therapy as a major. The group helps prospective students prepare for the program.



## A heartwarming holiday hobby

Each year CSH faculty, staff and students come together to give handmade toys to kids in the La Crosse community at Christmas. The woodcrafters include, from left, Butch Bobenmoyer, of Gundersen Health System; Kurt Grunwald, a UWL radiation safety officer; Mark Sandheinrich, interim dean of UWL's College of Science and Health; and Scott Cooper, UWL biology professor.

[CLICK TO GET INSPIRED BY THEIR STORY](#)



[HEARTWARMING HOLIDAY HOBBY](#)