

Science & Health NEWS



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

VOLUME 9, NUMBER 1

WINTER 2013-14



Girls in Science program celebrates 15 years

BOYS CAMP IS THREE YEARS OLD

For 15 years, SAH and Continuing Education have partnered to offer a weekend summer science program for middle school girls. Three years ago, a boys' program was added as a separate, but similar program.

This past summer, more than 75 students from across Wisconsin and surrounding states spent a weekend on campus learning more about science and mathematics. The hope in offering

the programs is to maintain students' interest in science and mathematics and, hopefully, encourage more to pursue careers in these areas.

So far, the Girls in Science program has served more than 600 girls, while the Boys Exploration Camp has reached out to 100.

Girls in Science, which began as a collaboration with Sandy Grunwald

(Chemistry and Biochemistry), Susan Kelly (Mathematics) and Penny Tiedt (Continuing Education), targets middle school students — a time when many girls begin to shy away from science.

Feedback from girls in the program suggests it's a positive step for attracting more women into science. One wrote, "I really enjoyed it because I got to learn about things that I sometimes wondered about." Another

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6. Save the Trees!

Researchers, students working toward tree disease cure for the American chestnut



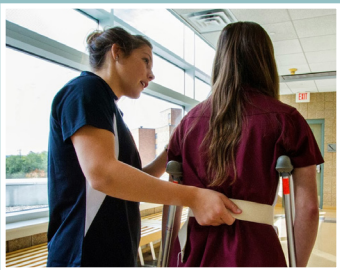
8. Art, science collaboration gains STEAM

Programs are geared to educators at all levels and anyone interested in ways of thinking across disciplines to enhance learning.



16. Student dives deep into UW-L research

Yer Lor wants to one day be a marine biologist and explore the mysteries of the deep sea.



18. UW-L's first doctoral degree will meet health care need

In spring 2014, UW-L will award its own clinical doctoral degree for the first time. It is anticipated that 45 students will graduate with doctor of physical therapy (DPT) degrees.

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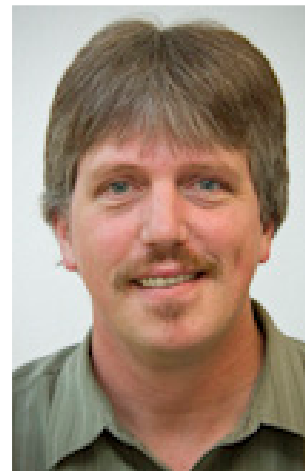
UW-L prof named top innovator in digital education

A UW-La Crosse professor has been named one of the nation's top innovators in digital education.

Mathematics Professor Bob Hoar, who also serves as the university's associate vice chancellor for Academic Affairs, was listed as one of the top 40 individuals and projects nationwide in the Technology Innovation in Education Yearbook.

Hoar was instrumental in spearheading the university's successful MOOC team. The university's College Readiness Math Massive Open Online Course developed by UW-L faculty and staff was the UW System's first MOOC and funded by a prestigious Bill and Melinda Gates Foundation grant. It won a national award — the 2013 Desire2Excel Award for individuals, groups or organizations that display exemplary ingenuity, creativity and collaboration in empowering students to achieve their academic goals.

Technology Innovation in Education says the 40 innovators are making a difference in their schools and universities. "These leaders are driving change in their schools and aren't afraid to try new things that could help students learn. Instead of focusing on the technology, they are focusing on learning and using technology tools strategically to accomplish their goals."



Bob Hoar

Find the yearbook at www.centerdigitaled.com/paper/2013-Yearbook-Technology-Innovation-in-Education.html

UW-L LEADING MERCURY POLLUTION RESEARCH

Mercury pollution is a serious problem for Wisconsin, the Upper Midwest and the nation. That's why UW-La Crosse scientists have been studying it in lakes and rivers of the Upper Midwest for decades.

They've contributed to the weight of evidence that shows what a serious problem the most toxic form of mercury — methylmercury — is for fish, wildlife and humans.

Now that research is being recognized statewide in the UW System initiative Knowledge Powers Wisconsin.

You'll find the story highlighted at www.uwpowerswi.com/. The direct link to the article:

www.uwpowerswi.com/uw-la-crosse-an-international-leader-in-mercury-pollution-research/

The Knowledge Powers Wisconsin site has been developed by UW System, with help from all campuses, to show how Wisconsin's public universities, colleges and extension networks are working to improve the state's competitive edge by leveraging the state's human capital, supporting business and industry, and strengthening local communities.



UW-L student Patrick Schulze enters fish measurements into the computer as UW-L students from left, Yang Liu, Greg Perrine and Laura Jacobson take measurements. Photo from July 2012 UW-L science lab.

MORE ON MERCURY RESEARCH SEE PAGE 20

Girls in Science

celebrates 15 years

CONTINUED FROM THE COVER



said, “It was fun hanging out with other smart, fun girls.” Another added, “I loved learning about science and this made me love it more.”

SMALL WORKSHOPS RANGE FROM CRIME SOLVERS TO LIP GLOSS

Both programs offer a large presentation for all participants. Through the years, the all-student workshops have included a chemistry magic show, a multi-demonstration physics presentation ending with a laser show, a chemistry presentation on the science of alternate energy and a river science cruise on the Mississippi River to learn the biology of the diverse habitat.

All students also have three, two-hour hands-on workshops taught by a UW-L faculty and staff member, assisted by college student teaching assistants. The workshops allow students to choose areas in archeology, biology, chemistry, computer science, geography, health professions, mathematics, microbiology and physics. The program is designed so all students have workshops in a variety of disciplines.

Here is a sample of the workshops, described by the assigned faculty and staff member.

- **In Faye Ellis’ biology workshop, “Kidnapped, The Case of Jason Worth”** ... students examine evidence collected from the crime scene. They analyze blood, fingerprints, and DNA samples. The kids really enjoy their part in solving a crime and using the scientific equipment following multi step protocols. Most of all, they get really excited when they combine all of their data to determine who the culprit is!
- **Nadia Carmosini’s chemistry workshop, “Lovely Lips”** ... piques the girls’ interest in chemistry by combining it with their interest in cosmetics. The students first learn about the different components of lip gloss. They then set out devising and making their own lip gloss. The lab ends with an opportunity for the girls to test each other’s finished product. Everyone gets to take their own lip gloss home at the end of the day.
- **Seth King’s physics workshop, “Renewable You”** ... gives students the opportunity to design and build their own mini wind turbine with the goal of building a design that will produce more electricity than any of their lab mates. In this activity students learn fundamental aspects of renewable energy, learn about engineering problems and the risk/reward game that must be played to maximize the efficiency of renewable energy systems, as well as about how numerous alternative energy devices are wired together to produce power necessary for everyday life. This is an excellent opportunity to give students an opportunity at hands-on learning through trial and error. Physics and engineering use mathematics to model physical situations, but the professional physicist and/or engineer must also have a physical intuition about what those mathematical models mean. These active learning environments give students an excellent opportunity to build this physical intuition in a fun, hands-on environment where they can actively engage experts who can further reinforce and encourage the students learning.
- **Susan Kelly’s mathematics workshop, “Catch a “Flying Car”** ... students spend part of the time learning about velocity and properties of gravity to allow them to predict where a Hot Wheels car will land after going down a track they have designed, and then flying off the table. They make measurements and calculations to determine where they will place a small box in the hopes of catching the car when it hits the ground. They also learn basic ideas about triangles of similar shape and are introduced to some basic trigonometry in order to determine the height of a building based on angles of elevation. The workshop exposes the students to mathematics they will study more thoroughly in upcoming years, while stressing some of the applications.



SIGN UP FOR 2014 PROGRAMS

In 2014, both programs will be held June 21-22. Middle-school aged students interested should visit www.uwlax.edu/conted/youth/. Sign up typically starts in early February. Refer other questions about the programs to Angela Coenen, acoenen@uwlax.edu, or Karen DeSchepper, kdeschepper@uwlax.edu, both in the Office of Continuing Education and Extension, or Susan Kelly, skelly@uwlax.edu, in Mathematics.

STUDENTS GET A FULL CAMPUS EXPERIENCE

The program begins on Saturday afternoon and runs through Sunday afternoon. On Saturday evening, both groups have dinner on campus and then settle in for fun activities planned by UW-L students, with recent alumni serving as resident assistants. Each student shares a dorm room with another participant, and engages in activities such as playing pool and ping pong, board and Wii games, as well as watching movies. It also is often a goal to see how little sleep they can get by with that night.

These programs have prospered and it is rewarding to see the collaborative effort of so many involved in this work. The programs would not be possible without the many faculty and staff who have taught in the program numerous times, and the hard work of so many in the Continuing Education Office.

It is also rewarding to see how many UW-L students have worked in the program, including many science education majors. This is a program taught by people who love science and wish to pass that passion on to another generation. As one past participant wrote, "It was awesome, and I'll come back! I haven't had so much science in a day!" This sums up the reason these programs are important to so many at UW-L.



SUPPORT SOUGHT FOR FUTURE PROGRAMS

To make a donation to the programs to lower cost for all participants and/or offer scholarships for students with the greatest financial needs, send gifts to: UW-L Foundation (earmarked Continuing Education Girls and Boys Science programs), UW-La Crosse, 1725 State St., La Crosse, WI 54601. Let us know if your employer may be interested in providing financial support to our Girls and Boys Middle School Science Program.

— Susan Kelly, Professor,
Mathematics
Department





Save the trees!

Researchers, students working toward tree disease cure for the American chestnut

UW-L Assistant Professor of Mathematics Eric Eager headed into the woods this summer to see firsthand how research is documented on the tree. Eager is modeling short-term and long-term hypovirus effects to predict what will happen in the future.

The loud, shrill clanking of a hammer hitting metal breaks the cheery chorus of birds singing mid-morning in May. With the stark, metallic sound you would think the trees are being harmed, but the opposite is true.

Scientists from UW-La Crosse, Michigan State University, the University of West Virginia

and the Wisconsin DNR are straddling steep Western Wisconsin hillsides near West Salem to capture tree trunk samples. They hope to save a unique grove of chestnut trees. Throughout the past two decades, these and other researchers have made an impact.

By 1987 the blight fungus affecting American chestnut trees in the Eastern U.S. had spread to the Coulee Region site with chestnuts dating back to the mid-1880s. The disease causes cankers in the tree bark that can expand around the trunk — cutting off the tree's nutrients and

killing the infected trunk or branch. In 1992, researchers introduced fungal viruses to study and attempt to start biological control of the disease in hopes of using one organism to control another.

They've found success. When the introduced viruses, called hypoviruses, infect the blight fungus they reduce the fungus' ability to invade and kill the tree. Once the fungus is weakened, the tree uses its own defenses by producing a healing tissue to wall off the disease.

OPPORTUNITY FOR RESEARCHERS, STUDENTS

UW-L Assistant Professor of Biology Anita Baines knows the 50-acre grove of chestnuts in West Salem well. She conducted research there while a Michigan State graduate student before she returned in 2009 to teach organismal biology and plant microbe interactions in UW-L's prestigious Biology Department.

Today, Baines is participating in a \$5,000 annual research grant spanning three years from the American Chestnut Foundation. This most recent grant brought the total for the Coulee Region research project among the three institutions to \$50,000.

Baines says the goal is to recreate what has occurred naturally in Europe and parts of Michigan — controlling the chestnut blight



Brynn Sundberg, a UW-L junior studying cellular molecular biology, treats a chestnut tree with a hypoviruses, intended to infect the blight fungus and reduce the fungus' ability to invade and kill the tree.

fungus by introducing a hypovirus that infects the fungus.

“By making the fungus sick, the growth rate and reproduction of the fungus decrease,” she explains. “By slowing down the fungus, the trees can respond to infection and recover.”

Researchers are also trying to understand why hypovirus infection is more successful in some places (such as Michigan) than in others (such as West Virginia).

Additionally, researchers want to understand how introducing the hypovirus in a canker can affect entire American chestnut populations. Along with scientists from Michigan and West Virginia, Baines is reaching out to colleagues from two UW-L departments — computer science and mathematics.

Assistant Professor of Mathematics Eric Eager has been modeling short-term and long-term hypovirus effects to predict what will happen in the future. “I’m getting a hands-on look at what my equations say,” notes first-year faculty member Eager joking that “I’m boldly going where few mathematicians have gone before.”

Along with Eager, Computer Science Assistant Professor Martin Allen has been developing a model to understand the dynamics of

interactions of individual cankers. Their findings could help determine where the hypovirus should be introduced in the canker — in one or more places.

Baines says all three departments are taking advantage of the research. “It’s all mutually beneficial,” she explains. “We all benefit from working together.”

Faculty aren’t the only ones benefitting. UW-L undergraduate biology and math students are getting firsthand skills.

Since 2009, more than 15 undergraduates have been involved with the West Salem grove, interacting with Michigan State and West Virginia University faculty and state DNR researchers. Several students have continued their research in graduate school.

GROVE GETTING NATIONAL NOTICE

Until the early '90s, the West Salem grove was the largest uninfected stand of American chestnuts in the U.S. Baines and the other researchers are now working to make it the country’s come-back grove.

“This stand has seen a lot of work done on it,” explains Baines who has witnessed benefits from introducing the hypovirus.

Over the years, she and other researchers have discovered the viruses they introduced have slowed down or in some cases even stopped the cankers. And, they’re finding the hypovirus introduced years ago is now naturally appearing in trees that haven’t been treated.

“That’s good because now it’s moving on its own,” she explains. “The trees are getting a chance to respond to the infection.”

Baines says there is national interest in saving the stand. She has been invited to give talks on the research at national conferences.

“If we are successful in protecting these trees, then we can try to apply what we have learned to other areas of the U.S.,” she notes.

The research could be key for the American Chestnut Foundation as it tries to reintroduce hybrid American chestnuts that have been bred with resistant Chinese chestnuts. The hybrids aren’t completely resistant to infection, so the hypovirus is important.

The researchers hope their work could help bring American chestnuts back into their native range in eastern U.S. deciduous forests.

See more photos at <http://goo.gl/ZlhuCa>.



UW-L Assistant Professor of Biology Anita Baines points to a canker in a chestnut tree caused by a blight fungus. The cankers can expand around the trunk — cutting off the tree’s nutrients and killing the infected trunk or branch. Researchers from UW-L and elsewhere are working to stop the blight.



Patrick Siwula, a UW-L biology major with an environmental science concentration, documents information about trees in the West Salem area stand.

A photograph showing two people, a man and a woman, sitting at a table and working on colorful, abstract art pieces. The man is on the left, wearing a grey hoodie, and the woman is on the right, wearing a grey and white striped shirt. They are both focused on their work. The table is covered with various papers and art supplies. The background is slightly blurred, showing other people and a room setting.

Art, science collaboration gains *STEAM*

Educators pictured at Leonardo's Workshop in May 2013. Photo by Hanqing Wu.

Integrating art and science to understand and create is not new. The Egyptians and the Greeks did it. In the last 100 years, Americans Frank Lloyd Wright and Louis Comfort Tiffany became famous for their ability to blend the biological world into their artistic designs.

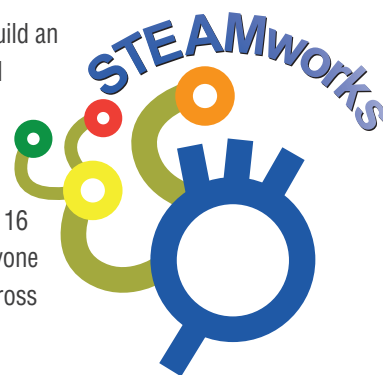
Separating the teaching of disciplines into distinct academic silos is a fairly modern concept, says Annette Valeo, outreach specialist with UW-La Crosse Continuing Education and Extension. But efforts to re-establish intersections between academic content areas are gaining steam among educators.

UW-L has a history of interdisciplinary programming. The STEM Alliance was formed in 2008 by the School of Education to enhance the teaching and learning of science, technology, engineering, mathematics and related fields. The “STEAMworks” series of programs for educators will continue that tradition.

Many are familiar with STEM — science, technology, engineering and math. STEAM recognizes art as an essential part of the mix.

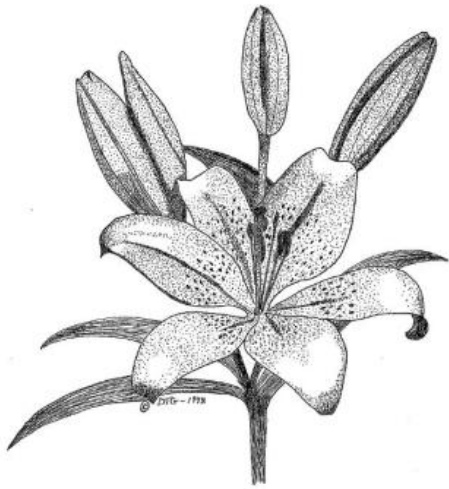
UW-L kicked off the STEAMworks series in May 2013 with Leonardo's Workshop at UW-L's Center for the Arts. It was aimed at K-8 teachers in all disciplines and offered ideas on teaching STEM subjects through art.

The goal of STEAMworks is to build an ongoing series of STEAM-related programs on campus. The programs are geared to educators at all levels, from future teachers to Pre-K through 16 practicing professionals, and anyone interested in ways of thinking across disciplines to enhance learning.



“We hope educators will leave with inspiration, ideas and connections with other educators that will allow them to use a multi-disciplinary approach in their classroom,” says Valeo.

A focus on integrating the arts in STEM has been gaining footing because of the need for creativity and innovation to solve problems and support global, economic and commercial movement forward in the 21st Century, says Valeo. When an engineer, scientist or artist approaches



Drawing by UW-L Biology
Professor Tim Gerber

a problem, they share many commonalities on the road to finding a solution successfully, she adds. For instance, they all must be open to new outcomes, take risks, exercise persistence and not be afraid of failure. STEAMworks programs stress the importance of these core characteristics in effective problem solving, as well as other common strategies among disciplines.

Biology Professor Tim Gerber, a co-leader of Leonardo's Workshop, says STEAM is not only a concept he teaches to educators, but also something he uses regularly in his study of botany. For instance, illustrations of plants are a great way to accurately document the maximum information about a plant. Botanists have done it for centuries, he notes.

"One common feature in art and science is observation — period," Gerber explains. "If you want to observe something, a good way is to make a drawing of it."

STEAMworks is a collaborative effort of many departments across campus, which gives it strength, notes Valeo. Partners in the initiative include faculty and staff of the School of Education; College of Science and Health; School of Art and Communications, Office of Continuing Education and Extension and Murphy Library. Additional funding to support the programs has come from the Steinke Saterbak Fund.

Anyone can get involved. Faculty and staff are encouraged to report on any related initiatives in which they are involved. Programs are documented on a website originally developed by the STEM Alliance and updated last spring by Valeo. In addition to past and present STEM and STEAM programs, the site offers resources, articles and ways for people to connect to form STEAM partnerships on campus and beyond.

Learn more on the STEAM website

www.uwlax.edu/conted/educatorpd/steam2.html



A participant in Leonardo's Workshop, which launched the STEAMworks series. This educator works on hands-on math and science related activities at the workshop. Photo by Hanqing Wu.

UW-L STEM Alliance

Spearheaded by the School of Education, the STEM Alliance is a campus-wide collaborative effort by the Office of Continuing Education and Extension, faculty members, researchers and administrators from across campus to enhance the teaching and learning of science, technology, engineering, mathematics and related fields. This is done both by coordinating existing programs and by creating new ones that positively impact STEM teaching and learning.

Pedagogy Lab promotes physical activity

Numerous health benefits of regular physical activity participation have been well documented. The Physical Activity Guidelines for Americans (Center for Disease Control and Prevention, 2008), recommends children and adolescents should accumulate at least 60 minutes of moderate to vigorous physical activity each day. However, many are not achieving this target.

As a result, obesity and being overweight among children and adolescents is increasing at an alarming rate. Physical education is considered a key strategy to overcome this phenomenon and eventually to develop their physical activity habits that are likely carried into adulthood. The goal of the Physical Activity Pedagogy Lab is physical activity promotion of children and adolescents through physical education programs.

The UW-L Physical Activity Pedagogy lab was created in 2011. The lab staff includes Jeff Steffen and Jooyeon Jin as lab directors and Breanna Yerks, a graduate student, as a research assistant.

The lab is located in Mitchell Hall and equipped with research tools/devices, such as laptops, cameras, camcorders, wireless microphones, iPads, iPods, systematic observation tools, pedometers, accelerometers and activity analysis software. The lab is currently focused on developing psychometrically sound instruments to measure physical activity and its related factors during physical education; and understanding physical activity behavior of children and adolescents in physical education settings through various behavioral theories.

There currently are several projects being conducted in the lab. For instance, Jin is developing a theoretically driven instrument to measure physical educators' intentions to teach physically active lessons in physical education classes. The instrument will help



Jeff Steffen



Jooyeon Jin

researchers to accurately measure physical educators' intentions, and also make it possible to link the intentions and their teaching behavior that has been inconclusive in the field of physical education.

Also, Jin and Steffen are conducting a study based on the Theory of Planned Behavior to examine if past physical activity behavior during physical education moderates the relationship of intentions and physical activity levels among college students. It is expected college students who were educated in high quality physical education programs are more physically active than those who didn't have quality physical education experiences.

In addition, Jin and Steffen are conducting research projects with graduate students to understand predictors of adolescents' physical activity behavior in physical education settings using behavioral theories, including the Theory of Triadic Influence and the Social Cognitive Theory. It is expected that the targeted intrapersonal (e.g., self-efficacy, outcome expectancy, goals) and interpersonal (e.g., family, teachers, peers) factors significantly predict adolescents' physical activity in physical education.

Currently two research grants are under review and three presentations have been accepted

for an international conference (February 2014; Auckland-New Zealand) and two national conferences (January 2014, Orlando-FL; April 2014, St Louis-MO).

The UW-L Physical Activity Pedagogy lab promotes a positive, supportive and collaborate working environment with lab meetings and seminars to advance knowledge and discover best practice in physical education. In addition to the research activities, the lab is used to train graduate students in the physical education teaching program to develop their instruction analysis skills.

By videotaping and observing their teaching behavior in physical education, they learn ways to reflect and improve their teaching effectiveness. This type of physical education lab is very rare at master's level programs, but is present in most doctoral degree physical education programs.

UW-L continues to provide leadership and innovations in physical education teacher education programs.

— Jooyeon Jin, Assistant Professor, Exercise and Sport Science Department, Physical Education Program



In the Physical Activity Pedagogy Lab graduate student Breanna Yerks works with Assistant Professor Jin Jooyeon.

Physics student travels to Russia to work in a nuclear physics laboratory

Travelling to a far off place to pursue a passion is something some can only dream of, but in the case of Brett Rosiejka, his dream came true. Rosiejka, a physics student at UW-La Crosse, got the opportunity of a lifetime last summer when he traveled to La Crosse's sister city of Dubna, Russia, to work for a prestigious nuclear physics laboratory.

With the help of Assistant Professor of physics Shelly Leshner, Rosiejka participated in an international physics program at the Joint Institute for Nuclear Research. He was the only westerner who was involved.

"Being the only westerner put a lot of pressure on me," Rosiejka explains. "It felt as though I had to represent the U.S. in every respect because I thought I might be the only American that some of these people might ever meet."

He says the experience reminded him of the first day at a new school: trying to find someone to sit with at lunch or partner up with in the classroom. Eventually, Rosiejka's colleagues got to know him and found that he was no different from them.

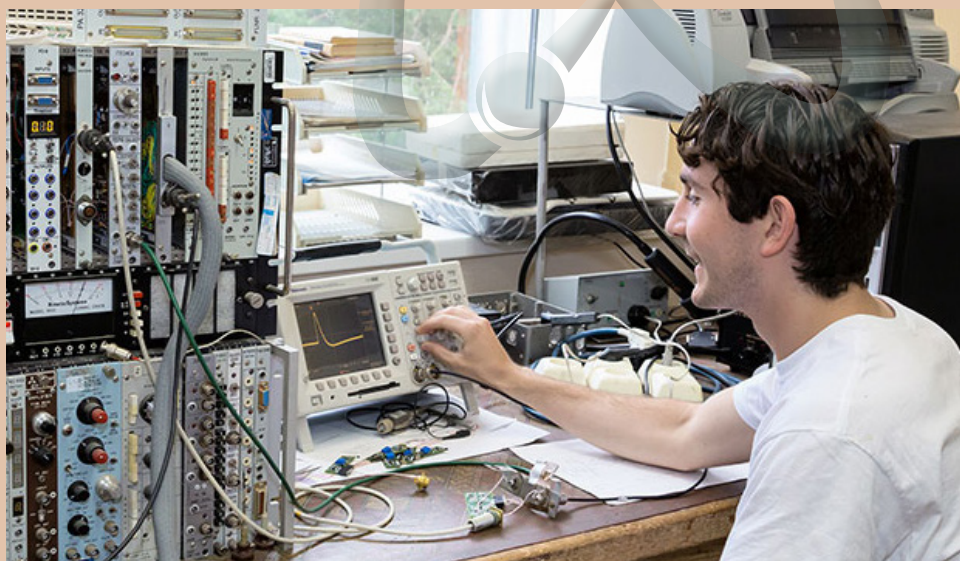
After he completed the program, Rosiejka continued to work with the group for another month because they were so impressed by his work. The scientists even invited him to work with them again next summer. He is excited to go back, because "utilizing two passions at the same time for a second time is something few people are fortunate enough to do." He also expresses his gratitude, saying, "Working at a world renowned physics lab is one thing, but working at Russia's premier lab is an honor."

Rosiejka got a chance to show off the knowledge he acquired during his time at UW-L, but he also brought skills back home.

"The whole time I was just applying what I had already known," Rosiejka says. "There were no textbooks or homework, but I learned so much. It's one thing to study equations and theories, but it is a whole new experience when you are doing the real thing."

Rosiejka is a dual degree student with UW-L and the University of Minnesota. He studied Russian and was excited to use his language skills while working in his major field of study. He said that his passion for the Russian language started with his grandmother.

"My grandmother's family is from Russia, so I thought maybe if I studied Russian, she might remember some from when she was younger,"



Brett Rosiejka, UW-L physics student, got the opportunity of a lifetime last summer when he traveled to Dubna, Russia, to work for a prestigious nuclear physics laboratory. He's pictured here in his boss's office where they were testing the PCBs he built.

Rosiejka explains. His passion for the language only grew after attending UW-L.

"Fall semester 2011, I started Russian with (Professor) Natalia Valeryevna Roberts. She is the reason why I am so passionate about the language. She pushed me to go beyond the obvious answer and to truly think in a different way," he says.

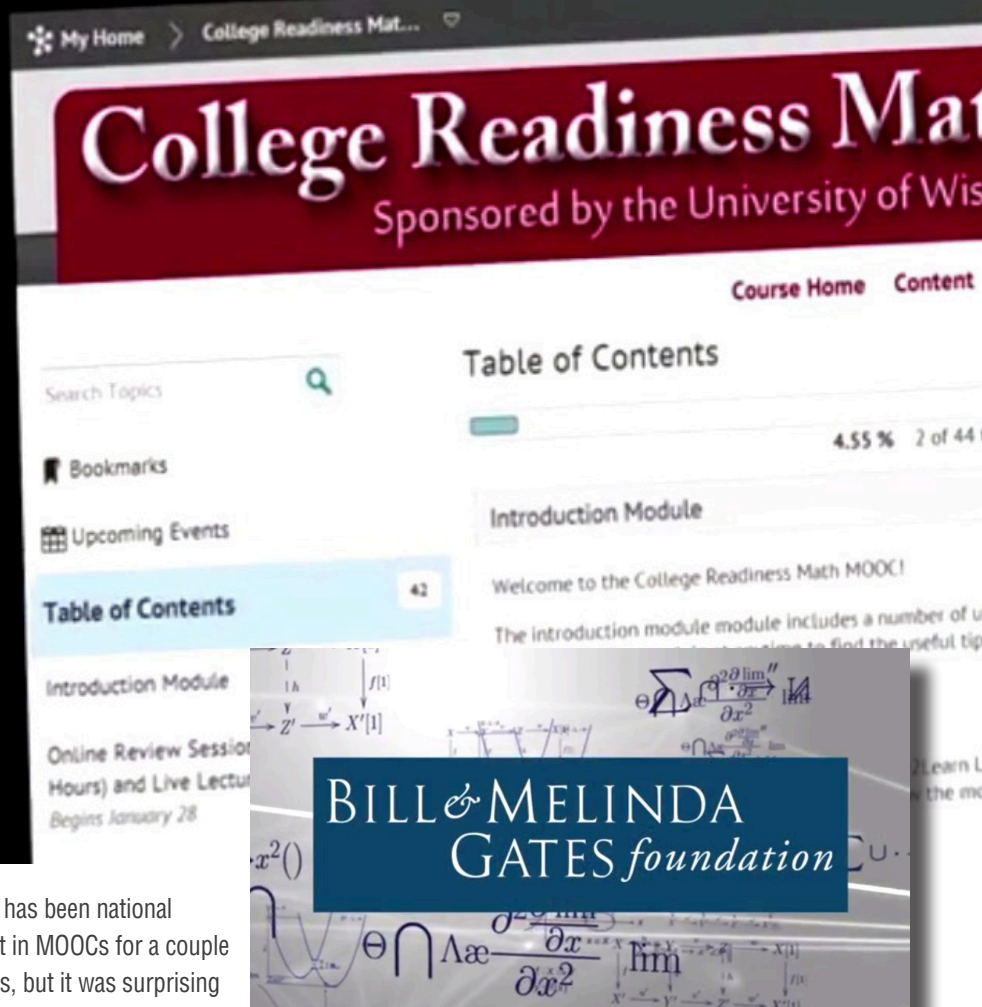
Rosiejka's passion for the Russian language and nuclear physics may have helped him secure an internship at the Joint Institute, but he also had time to have fun. He met up with a friend, a Dubna student who he had met while Russian students were visiting La Crosse. She and her family gave him an inside view of Russian culture he would never forget.

"We went to a dacha, which is like a cabin, and there was a banya, which is essentially a sauna," Rosiejka says, "The tradition of the banya is to go into the sauna, get beaten with wet birch branches, then have freezing water thrown on you. As torturous as it was, it was oddly relaxing."

Rosiejka will never forget the experiences he had, and is ready to go back. However, there is one thing he isn't looking forward to. "Even though the food was one of the best parts, the grocery stores are terrifying."

— UW-L student Breanna Levine

UW-L faculty, staff win grant to study massive, open online education



UW-La Crosse faculty and staff have received a national grant to study the effectiveness of a new, online learning option that some believe has the potential to transform higher education and make college more personalized and affordable.

UW-L was a successful applicant for a competitive grant competition run by Athabasca University (Principal Investigator: George Siemens). This project, the MOOC Research Initiative, will advance understanding of the role of MOOCs — Massive Open Online Courses — in the education sector and how emerging models of learning will influence traditional education. The MOOC Research Initiative is a project funded by the Bill and Melinda Gates Foundation.

The \$20,000 grant will allow UW-L faculty and staff to study data gathered from UW-L's MOOC, which was offered for the first time in winter, summer and fall of 2013.

A MOOC is a free course open to anyone with an Internet connection. UW-L's course, the first MOOC in the UW System, was designed to prepare students for college-level math and science courses so they don't need to take developmental math and can ultimately graduate in less time and at lower costs.

"There has been national interest in MOOCs for a couple of years, but it was surprising how quickly our MOOC gained national attention," says Bob Hoar, UW-L associate vice chancellor of academic affairs and principal investigator on the grant.

A relatively new concept in higher education, researchers, academics, students and policy makers are all eager to learn how effective MOOCs are in teaching and learning.

MOOCs are different from traditional courses not in terms of what is taught, but who is taught. Developers don't know the backgrounds of students in the course since anyone of any age or experience can sign up. Also, there is no penalty for dropping out or enforced attendance or participation.

"Answering questions relating to 'who' is the course helping, and 'which elements' are doing the most good will allow us to modify the course to broaden the impact and to advertise it better so that people will know if the course is right for them," says Hoar.

Specifically, UW-L's study will be able to examine the student characteristics that correlate to success, the effectiveness of the

online learning materials, what areas of college readiness are enhanced through the MOOC and more.

UW-L's selection for the grant came after a highly-competitive process. The MRI received 266 pre-proposals and invited 79 research teams to submit full proposals. In the end, only 25 projects were funded.

The reviewers gave the Math MOOC proposal offered UW-L high marks because of the quality of the proposed work, the planned data acquisition and research methods, the expertise of the research team, and a clearly defined project scope.

"The researchers have posed an important question that remains unanswered about MOOCs, namely to what extent they can serve a diverse population of learners ... This study has the potential to provide an excellent template for how rigorous course-level research can be done for MOOCs, and the research team is well qualified to undertake this work," noted a member of the selection committee.

th MOOC

consin System

Discussions Quizzes Grades FAQ

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Topics complete

Useful items that describe the course. You may return to
s, tours, and reminders.

Learning Environment as its course management system.
modules, and Java is needed to participate in the online

UW-L ONLINE COURSE WINS NATIONAL AWARD FOR COLLABORATION

A UW System College Readiness Math MOOC — a Massive Open Online Course developed by faculty and staff at UW-La Crosse — has won a national award for collaboration.

The 2013 Desire2Excel award is given to individuals, groups or organizations that display exemplary ingenuity, creativity and collaboration in empowering students to achieve their academic goals.

Desire2Learn (D2L), an online learning management system used by colleges and universities across the country, unveiled the winners July 16 at the company's annual users conference in Boston.

"It was an honor to be nominated and we were proud to be named as finalists, but this news is amazing," says Bob Hoar, UW-L associate vice chancellor of academic affairs. "It's a testament to all of the hard work of faculty, staff and students from various UW-L departments and the UW System who wanted to innovate and make this new learning option possible for students of all ages across the world. We have a great team."

A MOOC is a free course open to anyone with an Internet connection. UW-L's course, the first MOOC in the UW System, was designed to prepare students for college level math and science courses so they can enter college and graduate in higher numbers, in less time and at lower costs. Various groups at UW-L and beyond collaborated to make the MOOC possible, including UW-L's students, faculty, staff, the Information Technology Services Department, UW System and D2L. UW-Milwaukee students and staff also joined in to help offer online tutoring throughout the course.

"It is gratifying to hear that UW-L and UW System have been honored with this collaboration award," says Mark Nook, UW System's Senior Vice President for Academic and Student Affairs. "The

successful development and launch of this MOOC is the result of a real team effort — one that will yield broad, rich benefits."

D2L is the platform used for nearly all online courses in the UW System. The MOOC was a special form of online course and D2L, as the platform, helped make it accessible to the world.

Desire2EXCEL Awards were presented to other universities at the conference including: Fanshawe College, University of Wisconsin-Milwaukee, Katie Lashlee of Georgia Southern University, Umm al Qura University and Ohio State University.

"This year's Desire2EXCEL Award winners capture the spirit of innovation and collaboration that are critical to educating the world," said Desire2Learn Vice President of Marketing and Business Development Jeff McDowell.

The UW System Math MOOC, which was first offered in January 2013, was delivered with support provided by the Bill and Melinda Gates Foundation. The course is an extension of the very successful Fast Track project that was funded by an Institutional Change Grant, part of the University of Wisconsin System's Growth Agenda for Wisconsin Grant Program in 2012.



WHO'S INVOLVED IN UW-L'S NEW MOOC RESEARCH?

Natalie Solverson, director of Institutional Research, will compare the MOOC's impact on students to the typical university course.

Cari Mathwig-Ramsier, D2L coordinator in Academic Technology Services, will study the effects and implications related to the online design of the course.

Bob Hoar, UW-L associate vice chancellor of academic affairs, and **Jenn Kosiak**, associate professor in the Mathematics Department, are interested in the math that was learned and want to study the long-term impact the course will have on students who participate.

MORE ON UW-L'S MOOC

UW-L's MOOC — the UW System College Readiness Math MOOC — was funded by the Bill and Melinda Gates Foundation. It won a national award for collaboration in July. The 2013 Desire2Excel award is given to individuals, groups or organizations that display exemplary ingenuity, creativity and collaboration in empowering students to achieve their academic goals.



Several of the MOOC's primary contributors traveled to Boston to accept the award. From left, Cari Mathwig Ramseier, UW-L learning management system administrator; Maggie McHugh, UW-L associate lecturer in the mathematics department and director of UW-L's Murphy Learning Center; Lorna Wong, director of learning technology development for UW System; and Jennifer Kosiak, UW-L associate professor of mathematics.



Mo McAlpine, pictured in the Recreational Eagle Center, received the 2013 Academic Staff Excellence Award during the annual Academic Staff Council Kickoff Meeting in September.

MO McALPINE ADVOCATES A LIFETIME APPRECIATION OF RECREATION

Mo McAlpine remembers the first day she stepped into Mitchell Hall. The Division I basketball player and collegiate assistant coach was pursuing a master's degree for a career in coaching.

But during her UW-La Crosse visit in July 1990 she was offered a graduate assistantship in campus recreation. She's been on campus since, working with the Recreational Sports Department.

McAlpine says her day-to-day work with students and colleagues is what has kept her on campus. "They motivate me, they energize me and they make me smile," she says.

During the past two decades, McAlpine says recreational programming expanded with a move to its own building, the Recreational Eagle Center, in 1997. Recreational Sports now has nine programming

areas to help students nurture a lifetime appreciation of recreation. "We're 100 percent focused on students," she explains.

McAlpine says standard activities like softball, volleyball and basketball remain popular, but new activities such as futsal and stand-up paddle boarding get attention too. "It's challenging to keep up with the times and meet students' needs," she says. "But, that's the benefit of having an active student body."

UW-L students are active. More than 90 percent of the student body swipes their ID to use REC facilities at least once during an academic year, notes McAlpine. "We've always maintained a high level of participation in our programming," she says.

McAlpine also molds future rec leaders. She's a key player in hiring and training approximately 80 of the

250 students who work at the REC each year. "We're fortunate to have the student staff we have year after year," she says. "It's very rewarding and I cherish the many relationships that have continued with former staff members upon graduation."

McAlpine says it's an honor to be recognized by her peers with the 2013 Academic Staff Excellence Award. She attributes her success to those who surround her.

"I'm so humbled and honored to receive this award and to represent the excellence that happens on campus," says McAlpine. "There is truth to the statement 'surround yourself with UW-La Crosse' as it's the people around me, both past and present, who have helped my personal and professional development — and share in this recognition."

The Mo McAlpine file

- UW-L Recreational Sports Department, Associate Director 1997-present; Assistant Director, 1992-97.
- UW-L National Youth Sports Program, Activity Director, 1992-2003.
- UW-L Exercise and Sport Science Department, instructor, 1991-96.
- Awards: Rochester Lourdes High School Sports Hall of Fame; Rochester Quarterbacks Club Sports Hall of Fame; Volunteer of the Year for Tri-Quest Charities; UW-L Outstanding Adviser Honoree.
- Bachelor of science in physical education and recreation education, University of Iowa, 1987; master of science in physical education-human performance, UW-L, 1991.



Mo McAlpine, center of photo, is pictured with the REC service staff. She attributes her success to those around her.

Student enjoying reign as Miss La Crosse/Oktoberfest

UW-La Crosse junior Christa Brehm can “already feel the magic” after being crowned Miss La Crosse/Oktoberfest in September.

“In the past weeks since I’ve been crowned, I’ve met so many wonderful people and have been able to experience Oktoberfest from a very unique perspective,” Brehm says. “I’m so excited for what this year has in store for me.”

Brehm entered the pageant because she wanted to experience Oktoberfest traditions in a way she never had before.

“I come from a family that doesn’t practice any ancestral traditions, so the heritage and traditions of Oktoberfest were very appealing to me,” she explains.

The Miss La Crosse/Oktoberfest pageant isn’t like the beauty pageants in movies. A lot of preparation goes into the competition. Brehm says the key to success is to “manage your time wisely and never wait until the last minute, especially during rehearsal week.” Contestants must prepare a talent to perform during the competition.

“I have been playing the piano since I was in the fourth grade, and it has always been a form of relaxation for me,” she says. “When I found ‘Pirates of the Caribbean’ on YouTube, I absolutely fell in love and knew that I needed to challenge myself and learn it for the pageant.”

The participants also had to develop a platform based on issues in the community they are passionate about. Brehm’s platform was “Go Red for You-Keeping a Healthy Heart.”

“Two years ago I found out that I had very high cholesterol for my age,” Brehm says. “That’s when I realized that heart health isn’t something we really pay attention to because it’s not something we can physically see or feel. Our hearts are what keep us going, which is why it’s so important to pay attention to how our daily exercise and diet effect them.”

In addition to the many prizes, including a scholarship valued at \$10,000, Brehm won the chance to compete in the Miss Wisconsin pageant in June.

Brehm is studying computer science with a minor in psychology. She says she “hasn’t quite found [her] niche yet,” but her dream job would be to work for BrainGate, a company that creates technology that allows severely disabled individuals, like those with extremely traumatic spinal cord injuries, to communicate and control their everyday functions through thought.

— UW-L Student Breanna Levine

UW-L computer science major Christa Brehm won the Miss La Crosse/Oktoberfest pageant Sept. 21. Along with nearly \$10,000 in scholarships and gifts, she won an opportunity to compete in the 2014 Miss Wisconsin pageant.





UW-L senior Yer Lor is a cellular and molecular biology major and chemistry minor.

STUDENT DIVES DEEP INTO UW-L

research

UW-La Crosse student Yer Lor wants to one day be a marine biologist and explore the mysteries of the deep sea. While she looks forward to that adventure, her undergraduate education has already been adventurous, she says.

Through fellowships, grants and programs, Lor has pursued her research interests in places from UW-L's basement biology laboratory to the largest independent oceanographic research institution in the country. Amid the water tanks and ocean waves, she has learned her love of marine biology.

"When I came to UW-L, I knew I was interested in science and I knew I wanted to do research, but I wasn't sure what kind," she explains.

Lor first landed a summer internship as a UW-L freshman through the National Science Foundation—Research Experience for Undergraduates, which kicked off a chain of connections with researchers in UW-L's Biology Department and beyond.

"One way our students benefit is that most of our faculty came from somewhere else and have connections outside the university," says Tisha King-Heiden, assistant professor of biology. "I helped Yer find applications so she could find research experiences in a new environment. That's something we strive to help students do because it gives them the ability to take different approaches to asking questions and gives them a broader research perspective."

UW-L's commitment to excellence in undergraduate research was recently recognized among an elite group of 39 universities nationally that provide excellence in undergraduate research in U.S. News & World Report's 2014 America's Best Colleges list.



UW-L Senior Yer Lor, left, removes fish from a tank for study with Tisha King-Heiden, assistant professor of biology.

Federal programs at UW-L also supported Lor's goals of engaging in campus research and going to graduate school. The Upward Bound program helped her transition from high school to college through university tours, guidance filling out applications and more. Once she was accepted to UW-L, the McNair Scholars program helped her prepare for graduate school with research exposure and other resume building experiences.

Today her graduate school resume is looking good. Her name will appear first on a multi-student research paper to be published this fall. The paper is about the reproductive toxicity of Vinclozolin. A tongue twister for sure — the research will lend some clarity into how toxic chemicals like Vinclozolin could be contributing to the declining fish population in Great Lakes Region waters.

The results are a culmination of many research projects in King-Heiden's lab. Lor's

research provided specific insight into how Vinclozolin limits a female fish's ability to lay eggs — a contradiction to her hypothesis that the issue was related to reproduction in male fish.

"It's exciting for me when a student learns about the project and can develop their own hypothesis," says King-Heiden. "And it's fun to have new experiments going on that answer one more question."

King-Heiden describes Lor as one of her most motivated students — "She gladly takes on a project and gives it her own spin," she says.

Lor says the McNair program provided answers at the right time — when she was wondering where life would take her after college. Through the program she met King-Heiden who is now her faculty adviser for the Vinclozolin project, as well as another

research project involving toxicity in the La Crosse River marsh. King-Heiden also helped her connect with a summer 2013 research opportunity at Woods Hole Oceanographic Institution in Massachusetts, which ultimately proved to Lor she was on the right track with her marine biology goals. Today she is investigating graduate programs in marine biology with plans to continue school and earn a doctoral degree. She eventually hopes to work in a research facility where she can learn more about what lives deep down in the ocean.

"It's all been an adventure when I talk about it and think about it," says Lor. "My education has given me a lot of experience that I think not a lot of students take advantage of. And I'm excited to continue doing research. I'm a curious person. I always want to know more about how and why."

UW-L'S FIRST DOCTORAL DEGREE WILL MEET HEALTH CARE NEED



From left, PT students Greta Leemkuil, Anna Klusendorf and Brett Krueger practice cervical spine treatment techniques on student Laura Becker. UW-L will award its own clinical doctoral degree for the first time in May 2014.

UW-La Crosse's first doctoral degree provides graduates to meet a national demand for increased expertise among physical therapists.

In spring 2014, UW-L will award its own clinical doctoral degree for the first time. It is anticipated that 45 students will graduate with doctor of physical therapy (DPT) degrees.

Students have graduated with doctor of physical therapy degrees from UW-L since 2008; however, the degrees were all offered through a partnership with UW-Milwaukee. In April 2013, the Commission on Accreditation in Physical Therapy Education formally approved UW-L conferring its own doctor of physical therapy degree, independent of other UW System schools. UW-L is the first comprehensive university in the UW System to offer a doctor of physical therapy degree.

UW-L's transition to offering its own doctoral degree in PT is part of a larger trend nationally as the scope of the profession expands. Today's physical therapists must be more highly trained primary care providers because their scope of practice allows them to offer services without physician's referral in some cases, says Michele Thorman, clinical associate professor and a PT program co-director. For instance, a physical therapist may be the first care provider to see a patient with an undiagnosed pain. These PT professionals would need to have the expertise to know whether the issue is neurological or musculoskeletal in nature and treatable within their scope of practice or a condition requiring a referral to a physician.

UW-L'S PHYSICAL THERAPY PROGRAM TIMELINE

1974

UW-L Physical Therapy Program begins – offering a bachelor of science in physical therapy degree.

1996

UW-L transitions to offering a master of science in physical therapy degree.

2005

UW Systems Board of Regents authorize UW-L and UW-Milwaukee to offer a UW Systems Consortium Doctor of Physical Therapy degree.

WHAT IS A PHYSICAL THERAPIST?

Physical therapists are health care professionals who diagnose and treat people who have medical problems or health-related conditions that limit their abilities to move and perform functional activities in their daily lives. Physical therapists provide care for people in a variety of settings, including hospitals, private practices, outpatient clinics, home health agencies, schools, sports and fitness facilities, work settings, and nursing homes. State licensure is required in each state in which a physical therapist practices.

Source: American Physical Therapy Association and Guide to Physical Therapist Practice, 2nd Edition (2003)

Another factor influencing UW-L's PT program development is the high demand for physical therapists as the baby boomer generation gets older and trends toward people seeking greater health, wellness and fitness continue.

"All of our graduates are fortunate to obtain employment immediately upon graduation if not before," says Thorman.

The program's success reflects its high caliber students, faculty and staff, she adds. UW-L PT program spring graduates had a 100 percent pass rate on the Federation of State Boards of Physical Therapy's National Physical Therapy Exam and one student earned a perfect exam score — with only three other perfect scores recorded in the state.

"This high pass rate is not the norm in most programs around the country and it reflects the very fine programs at UW-L and the dedicated, hard work of the faculty and students," says Peggy Denton, chair of UW-L's Health Professions Department.

Thorman adds that UW-L's program couldn't function without the benefit of partnerships with local healthcare providers and clinical affiliates across the country who offers students hands-on experience in a clinical setting.

UW-L's Doctor of Physical Therapy program is a 34-month program taken after students earn a bachelor's degree. Cohorts typically include 45 students.

Learn more at www.uwlax.edu/pt/



Program faculty members Paul Reuteman and Erin Hussey fit a hip spica brace on PT student Trent Stensrud.



From left, PT students Carissa Melk and Maria Peloquin practice examination skills used to assess patients with neurological conditions.

2008

First Consortial Doctor of Physical Therapy degrees conferred.

2012

UW Systems Board of Regents votes to dissolve the consortial degree.

2013

Higher Learning Commission and the Commission on Accreditation in Physical Therapy Education both approve UW-L to confer its own Doctor of Physical Therapy degree.



Mercury Mecca

UW-L IS AN INTERNATIONAL LEADER IN MERCURY POLLUTION RESEARCH

It affects wallets, the environment, nutrition and the health of people — especially the developing fetus.

Mercury pollution is a serious problem for Wisconsin, the Upper Midwest and the Nation.

That's why UW-La Crosse scientists have been studying it in lakes and rivers of the Upper Midwest for decades, contributing to the weight of evidence that shows what a serious problem the most toxic form of mercury — methylmercury — is for fish, wildlife and humans.

An article published in one of the world's leading environmental science journals "Environmental Toxicology and Chemistry," by UW-L Microbiology Professor Mike Winfrey and his Canadian coauthor John Rudd, demonstrates UW-L's substantial contribution to mercury research. The article, which reviewed years of mercury research as well as new findings, was recently ranked No. 24 on the Top 100 list of the most highly cited environmental impact papers in the journal's 30-year history.

Written in 1990, the article has been heavily cited for more than two decades. Winfrey notes what likely makes the paper popular is the cause and effect relation



Mercury research started at UW-L in the 1980s. UW-L Microbiology Professor Mike Winfrey is pictured here conducting research during the early years.

UW-L student researchers measure the level of mercury and other contaminants in fish in national parks of the Great Lakes region in a science lab in July 2012. Patrick Schulze enters fish measurements into the computer as students from left, Yang Liu, Greg Perrine and Laura Jacobson take measurements.

it demonstrates between acid lakes and high levels of mercury in fish. Especially in the 1980s, people wanted to know about the effect of acid rain and lake acidification on the environment. The article explored how mercury transformed into a more toxic form — methylmercury — as a body of water became more acidic.

"When you have something in the environment that is toxic and there is a lot of concern about it, people are going to research and write a lot about it," Winfrey explains. "It's nice to know people appreciate the research you did."

A HISTORY OF MERCURY RESEARCH AT UW-L

The article Winfrey co-authored, "Environmental factors affecting the formation of methylmercury in low pH lakes" is just one of many mercury studies published by UW-L faculty and students since the mid 1980s. Over the years, a number of UW-L faculty and students have become internationally renowned for their research on mercury.

They've led conferences, spoken on advisory panels, published scientific papers and ultimately influenced policy and management actions taken to reduce mercury emissions and to communicate the health risks and benefits of fish consumption.

Mercury research started at UW-L in the 1980s when Winfrey, Ron Rada, a retired Biology professor, and then adjunct professor Jim Wiener studied mercury in the Wisconsin River. Although the geographic extent

of mercury pollution was not known at that time, with increasing knowledge of the problem, today mercury is frequently cited in news headlines and health advisories. In the United States, mercury is the primary cause of fish-consumption advisories, accounting for 81 percent of all advisories in effect during 2010.

Some members of the human population, including pregnant women and children, are particularly vulnerable if they eat large quantities of mercury-contaminated fish. Pregnant women risk impacting the neurological development of their fetuses because of mercury's effect on the developing brain and intelligence.

As the mercury toxicity problem has become more well known, UW-L mercury research has expanded from nearby rivers to bodies of water from coast to coast and has involved collaborations with experts internationally.

Mercury has been found to have not only an adverse impact on a nutritional resource, but also the economy, explains Wiener.

"People come to this region to fish and then learn, 'by the way, you should limit the consumption of fish that you catch,'" he says.

Mercury was initially thought of as a problem caused mainly by wastewater effluents from industry, but it was later found that mercury emitted to the atmosphere, the kind that can trickle down to the most remote waters, is the primary cause of mercury contamination in areas without industry. UW-L's current mercury research project since 2008 investigates mercury contamination in the National Parks of the Great Lakes Region with funding from the U.S. Environmental Protection Agency and National



Jim Wiener, Wisconsin Distinguished Professor, River Studies Center, is a long-term participant in mercury research at UW-L.

Park Service. Primary researchers include: UW-L Biology Professor Mark Sandheinrich, Chemistry Professor Kristofer Rolfhus, Biology Professor Roger Haro and Wiener.

The interdisciplinary team contributes to the strength of UW-L's research, notes Wiener. But, he adds, it wouldn't be possible without students. For example, nearly 50 UW-L students have been involved in the Great Lakes parks project. While students learn valuable research skills, their contributions in the field and laboratory keep mercury research moving forward.

"A lot of work in the lab and field is done by students," says Wiener. "The students are really the foundation of what we've been able to achieve at this campus."

And when their UW-L student research is done, many have found other ways to continue to mitigate the mercury problem. Rolfhus was a former UW-L student who returned to his alma mater a few years after completing his doctoral degree in oceanography. Today he is internationally renowned for his research on environmental chemistry of mercury and on the bioaccumulation and transfer of methylmercury in the lower levels of aquatic food webs.

UW-L alum Chad Hammerschmidt performed mercury research as an undergrad and graduate student at UW-L and is now an associate professor of Earth & Environmental Sciences at Wright State University in Ohio. His recent studies examine the biogeochemistry of mercury and methylmercury in arctic and temperate watersheds, marine systems (coastal and open ocean) and the atmosphere.

"One of my greatest rewards has been to transfer some of the expertise and knowledge that I brought to the professorship to others," says Wiener. "It's a great feeling to know that we have extraordinary people out there who will be working on this problem for the next few decades."

A UW-L MERCURY RESEARCH WHO'S WHO

ROGER HARO, professor of biology: Haro joined the mercury team in 2003 and is becoming nationally recognized for his research on the accumulation of methylmercury in bottom-dwelling, freshwater invertebrates and the use of larval dragonflies as biological indicators of mercury contamination in freshwater systems.

RONALD RADA, retired professor of biology: An early contributor to UW-L mercury research, Ron investigated mercury contamination of bottom sediments in lakes and rivers in relation to human sources of the metal.

KRISTOFER ROLFHUS, professor of chemistry: A former undergraduate student who returned to campus after earning his doctoral degree in oceanography, Rolfhus is internationally

renowned for his research on the environmental chemistry of mercury and on the accumulation and transfer of methylmercury in the lower levels of aquatic food webs.

MARK SANDHEINRICH, professor of biology: An aquatic toxicologist who is internationally renowned as an authority on the effects of methylmercury on the health and reproduction of freshwater fish.

ROBIN TYSER, professor of biology: The most recent addition to the UW-L mercury team, Rob is leading a study of methylmercury exposure in developing embryos of songbirds in Voyageurs National Park in north-central Minnesota.

JIM WIENER, Wisconsin Distinguished Professor, River Studies Center: A long-term

participant in mercury research. Wiener was an adjunct faculty member active in mercury research projects from 1980 to 2000 while employed as a fishery research biologist with the U.S. Department of Interior. Wiener joined the River Studies Center as a Wisconsin Distinguished Professor in January 2001. He is an internationally recognized authority on the bioaccumulation and ecotoxicology of mercury in aquatic ecosystems.

MICHAEL WINFREY, professor of microbiology: An early contributor to UW-L mercury research, Winfrey investigated microbial transformations of mercury in lakes and rivers, particularly the microbial conversion of inorganic mercury to methylmercury.



NMT students have whale of a time in Vancouver

Thirteen of 18 UW-L nuclear medicine technology students headed north to get an international perspective into the field. They attended the annual meeting of the Society of Nuclear Medicine Technology and Molecular Imaging (SNMMI) in Vancouver, Canada, in June 2013 to present their research.

During their final year in the Nuclear Medicine Technology Program, students choose an internship site that provides clinical patient experience on their way to become competent nuclear medicine technologists. Some of the students also do a clinical research project and present the results at the SNMMI annual meeting.

All students must submit their research findings and have it accepted by the society to present. All of the 13 UW-L students who submitted were accepted and asked to present.

Although they were all a bit nervous to present their research findings, all benefited from the wealth of information offered in preparation for their national board exams. They also were able to take advantage of continuing education presentations and programs the society offers at the annual meeting. The best and brightest presenters in the field attended the internationally renowned event.

"The annual SNMMI meeting was a great experience for us as students to see the many aspects of nuclear medicine including different brands of cameras, new technology and upcoming radiopharmaceuticals," says Kelsey Schilawski, NMT major, class of 2013. "I also enjoyed the NMTCB review sessions. It enables students to prepare for the exam by reviewing course material."

Classmate Eric Phillips, NMT major, class of 2013, agreed about the great experience. "I was impressed with how big the event really was



and all the production that goes in to putting the vendor booths together, especially with Siemens, Philips and GE," says Phillips. "The dinner presentations and guest speakers were informative and exciting. It showed the passion that each company has toward developing nuclear medicine and molecular imaging further."

— Aileen Staffaroni,
Director, Nuclear
Medicine
Technology
Program, Health
Professions
Department



Nobel Prize Winner gives public lecture

A recent Nobel Prize Winner who studies a mysterious world where particles don't behave, according to the classic laws of physics, visited UW-La Crosse in October.

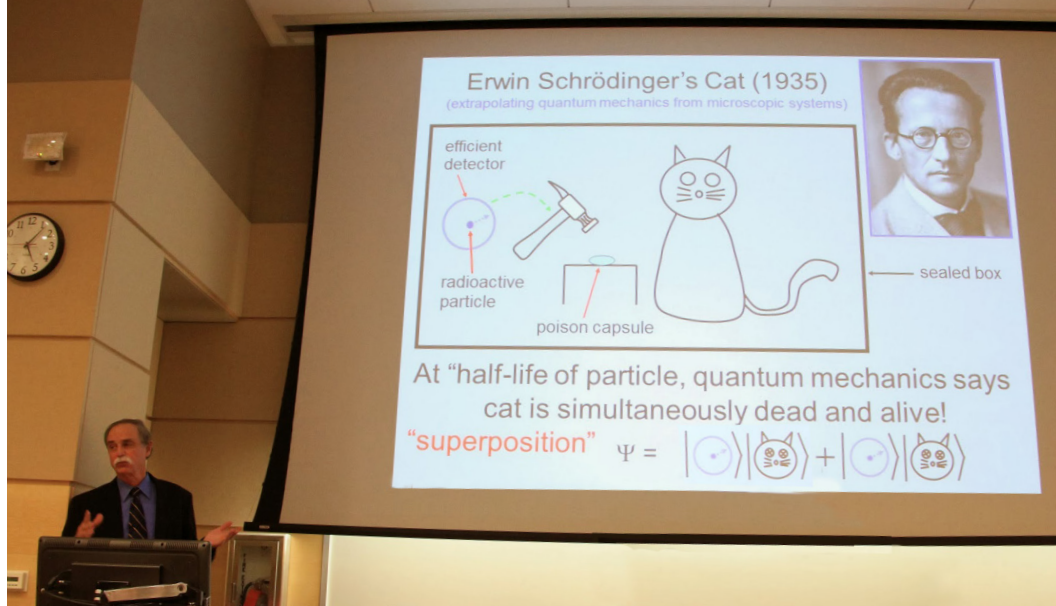
David Wineland, 2012 Nobel Prize Winner in physics, gave a public lecture "Superposition, Entanglement and Raising Schrodinger's Cat" in October. He also presented a physics seminar, for students in physics classes and met with faculty and staff.

Wineland shared his career path in physics, which began in graduate school. "I hope I can convey a bit that this is fun — certainly the physics part has never felt like work for me," he says. Secondly, he tries to show students that he's a lot like them.

"There is not any magic to having won the prize," he says. "I found something I liked and I worked hard at it."

Wineland studies the branch of physics called quantum mechanics where the uncertainty and randomness of tiny particles of light and matter have perpetually puzzled scientists. An example of the mystery is the phenomena of superposition where a quantum particle — such as an electrically charged atom or ion — can be in two different places at once. Such a state is difficult to imagine in the macroscopic world.

A classic example of how it would enter the macroscopic world is Schrodinger's cat — a thought experiment involving a cat in a box with a bottle of deadly cyanide. The cyanide is released only after the decay of a radioactive atom, which is also inside the box. Because the cat, bottle and atom are not observable from outside the box, people outside cannot know



the state of the quantum particle or — on a larger scale — if the cat is dead or alive. If the box is opened, the environment inside the box is destroyed, collapsing the state of the cat to either dead or alive.

Wineland and French Physicist Serge Haroche were awarded the Nobel Prize in Physics in 2012 for developing ground-breaking methods to examine this cat-like state of uncertainty occurring at the quantum level. They've been able to trap quantum particles and measure them without destroying their state of superposition. They've also shown how the act of measuring can cause the quantum state to collapse and lose its superposition character.

While mathematics can explain these ideas about superposition, Wineland notes that applying them to the larger physical world can be unsettling for many.

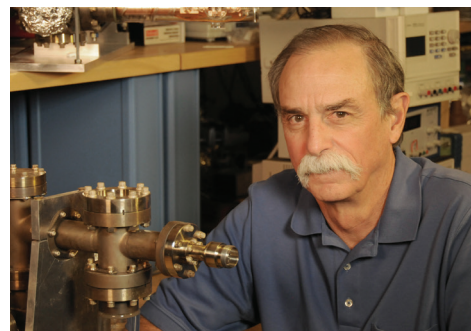
"The idea of superposition — particularly on a larger scale — makes us very uncomfortable," says Wineland. "There are some ideas about why we can't see it on a larger scale. If we can find a mechanism that prevents us from seeing it, that would be a fundamental discovery. Right now we are going to push ahead and try to make larger and larger superpositions."

Such studies have opened the doors to new experiments in quantum physics with applications in technology. This includes the

beginning steps toward building super fast computers where the basic bit of information could be 0 and 1 at the same time. In other words, a perfect quantum computer would realize a macroscopic superposition state, says Wineland. "Right now there is no fundamental reason why we can't make a quantum computer," says Wineland. "That's always the challenge of science. You are on the edge of technology and you have to try."

Another application is the development of clocks that are 100 times more precise than standard atomic clocks.

Wineland is the leader of the Ion-Storage Group in Time and Frequency Division at the National Institute of Standards and Technology (NIST.) He is the 14th Nobel Laureate in Physics to visit UW-L as part of our Distinguished Lecture Series in Physics.



David Wineland, 2012 Nobel Prize Winner in physics

NOBEL PRIZE IN PHYSICS is awarded each year in October to one or more people voted by the Royal Swedish Academy of Sciences to have made the most important discovery or invention within the field of physics. Famous Nobel Prize in Physics winners of the past include: Albert Einstein, Niels Bohr and Marie Curie.

THREE FROM SAH ADDED TO ATHLETIC WALL OF FAME

Four former student-athletes were joined by two major supporters of athletics in the university's Wall of Fame. The three alumni from the College of Science and Health inducted, the sports in which they participated and their years as a UW-L athlete included:

- Greg Barczak, cross country and track, 1981-85
- Phil Ertl, football, 1983-86
- Patti (Franckowiak) Krautscheid, track and field, 1995-99

Greg Barczak

Athlete: 1981-85

Greg Barczak ran to success in both cross country and track. He finished first in the 1983 conference harrier run, leading the team that recorded the lowest possible meet points possible — 15. Barczak also set a record in track during the '85 championships, capturing the two-mile and three-mile indoor titles, along with the 5K and 10K outdoor crowns. Barczak lettered in both sports from 1981-85, graduating in '85 with a major in biology. He is a podiatrist with Froedtert and Medical College Community Physicians. In 2012, he was named to the All WIAC Centennial Cross Country Team. Barczak and his wife, Jan, live in Menomonee Falls, Wis., with their four children: Alyssa (20), Jessica (16), Kristina (15) and Joshua (12).



Phil Ertl

Athlete: 1983-86

Phil Ertl held the line during college. He was a defensive lineman who led the football team to a national championship in 1985 and a conference championship in 1986. During his four years on the team, 1983-86, the squad lost only eight games. Three games lost during his junior and senior years were by a total of three points. The four-year letter winner graduated in 1988, majoring in physical education. Ertl is superintendent of the Wauwatosa (Wis.) School District. He and his wife, Kristen, live in Wauwatosa with their two children, Austin (12) and Logan (10).



Patti (Franckowiak) Krautscheid

Athlete: 1995-99

Patti (Franckowiak) Krautscheid threw herself into the national record book as part of the indoor track and field team. Krautscheid set a national record with her 56 – 6 ½ throw of the 20-pound weight at the 1999 national meet. She was a four-time letter winner on both the indoor and outdoor teams. The three-time national champion was also a 13-time All-American. Krautscheid, who graduated in 1999 with a major in biology, is a genetic counselor for ARVP Laboratories. She lives in Pasco, Wash., with her husband, Donny, and their daughter, Hannah (1).



Find out more about the Wall of Fame at: www.uwlathletics.com/hof.aspx

ROLLO TAYLOR

remembered



Rollo G. Taylor, 78, of La Crosse, died Aug. 23, 2013, after a 13-year struggle with the genetic neurological disease, Cadasil. He graduated from UW-L in 1956, serving his senior year as class president. He was an athlete at La Crosse State, lettering in basketball and cross-country.

Taylor began his 36-year career in education with 10 years of high school teaching and coaching in Horicon and West Bend. During this 10-year period, he continued his education with advanced degrees at UW-Madison and Arizona State University. He returned to campus in 1965 to teach and coach, retiring in 1992 as professor emeritus. He is survived by his wife, Kay, and their three children and their families. Memorials may be given to the Taylor Family Scholarship at the UW-L Foundation, 615 East Ave. N., La Crosse, WI, 54601. This scholarship was established when Rollo and Kay retired to provide financial support to physical education and elementary education majors.

A TRIBUTE TO LONG-TIME COACH AND PROFESSOR ROLLO TAYLOR

The UW-L community and the city of La Crosse lost a great friend, mentor and person. Rollo Taylor, a long-time physical education instructor at UW-L passed away quietly at home with his family at his side after a long battle with a rare genetic condition.

Rollo touched many peoples' lives at UW-L and the greater La Crosse area. As a physical education instructor he taught thousands of students during his long tenure at UW-L. Many people in La Crosse witnessed his involvement in the community in a plethora of activities through his church or his involvement with the La Crosse Boys & Girls Club, as well as his involvement in the yearly Oktoberfest festivities. Still others remember him through stays at the Pow Wow campground north of La Crosse.

All of us have known Rollo in our own special way, but I think all of us can say that we have been blessed because Rollo served as the consummate ambassador for everything he was a part of. How lucky could these institutions be having Rollo Taylor and Kay as their ambassadors?

I first met Rollo in the fall of 1978. As many of you know, Rollo was the long-time freshmen basketball coach at UW-L so when I tried out for the team in October, I first encountered this great coach and better person. I was fortunate to make the team and play for this legendary coach.

It was during this time that our friendship began even though I was not even close to being one of the best players. Rollo had the knack of treating

everyone respectfully regardless of position or status. For the next five years that I was on campus, I stayed connected with the basketball program through Rollo, either serving as a statistician or as Rollo's assistant coach. I was fortunate to attend weddings, birthday parties, and anniversaries in the Taylor family, as well as Oktoberfest coronations and Hall of Fame inductions.

His infectious smile and caring personality are something that we all enjoyed immensely. He was so comfortable around so many different groups of people. What other person in the world could teach a dance class in his famous dance slippers only to quickly change into coaching sneakers?

Rollo will be greatly missed by his wife, Kay, and his three children: Todd, Terri, and Traci, as well as his daughter-in-law, two sons-in-law and all of his grandchildren.

Coach T will also be missed by the hundreds of players who played for him over the years. Many of his students will remember him for his mentorship in helping them choose a major or find a job. There is probably not an instructor who helped more students find a job after graduating from UW-L than Rollo Taylor.

Our close relationship continued until the day he passed away. The imprint of his great smile will remain engrained in my long-term memory. His influence on me as a person and educator will never leave me.

I will miss my friend Rollo probably more than I can ever imagine. Thanks for being a part of our lives. We love you, Rollo!

— Dan Hoffman, '84 UW-L
River Falls



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HALLOWEEN-THEMED TALK COMBINED CALCULUS AND ZOMBIE ATTACKS

Two UW-L math professors presented a Halloween-themed talk that aimed to show math isn't all that scary.

Mathematics faculty members Robert Allen and James Peirce demonstrated how mathematical models can be used to predict how zombies and vampires could take over the human population. The talk was titled, "Zombies, Vampires and Math, Oh My!"

"The monsters are scary, but the mathematical models aren't scary. It's a tool — like anything else," says Allen.

Allen, who has turned the zombie question into a class project in Calculus 1, notes replacing the zombies and vampires with infections such as swine flu or SARS turn the computation into one with much more serious implications.

"We use the fun metaphors of zombies and vampires, but I hope students can see that they can use math as a tool to understand something important and relevant to their lives — in this case, how an infectious disease spreads through a population," says Allen.

Allen and Peirce will use calculus equations and map the results on a computer-generated graph. But they assure one does not need to know calculus to understand their presentation and they encourage all to attend. The more important take away from their lecture is how to use critical thinking to describe what's happening using the language of math.

The two argue that the math they'll teach could just as well be applied to develop a formula for how a rumor spreads or how Romeo

and Juliet's love grows. Peirce uses it in his research to describe the interaction of predator and prey in an environment — in his case how a parasite inside a snail kills birds.

Math is important regardless of the field of study and understanding how to make sense of it can benefit biologists, chemists, political scientists and sociologists alike. From understanding how to balance a checkbook to interpreting a percentage used in a local news article, math is a part of everyone's life, they say.

"Having math background in courses increases your ability to see math everywhere and not be afraid of it," says Peirce.

It also has the potential to set an applicant apart from others whether applying for jobs or graduate school.

"We hope to pique students' interest so they start asking the question of how to use the math they know in applications," says Peirce. "That's usually a slippery slope to undergraduate research projects."



Robert Allen,
associate professor
of mathematics



James Peirce,
associate professor
of mathematics

Q&A with students

Health Education/Health Promotion students earn awards



From left, Assistant Professor Michele Pettit, Community Health Education Program, Gail McCormick, Grant Dvorak, Ellen Lowry and Professor Dan Duquette, Chair, Department of Health Education and Health Promotion.

Two Health Education and Health Promotion Department undergraduate students were honored at the American Association for Health Education Outstanding Majors Award Ceremony in Charlotte, N.C., in April. Grant Dvorak was the award winner for the Community Health Education Program and Ellen Lowry was the recipient representing the School Health Education Program. Dvorak and Lowry attended the award ceremony with their professors and instructors from the Health Education and Health Promotion Department.

Here are some of their thoughts:

WHAT DID YOU ENJOY THE MOST ABOUT THE CONVENTION IN CHARLOTTE?

Ellen Being in one place where so many people had the same common interest as me.

Grant The opportunity to hear many great talks by professionals in the field.

WHAT WORDS OF WISDOM DO YOU HAVE ABOUT YOUR EXPERIENCES AND UW-L?

Ellen Find a group of friends that is going to support you and don't be afraid to get to know your professors either. They are there to support you and do so in many ways, if you let them. Make sure and find time for yourself.

Grant Get involved and get to know your professors. Find a balance between studying and fun. Don't be afraid to try new things.

WHAT WILL YOU ALWAYS REMEMBER ABOUT UW-L?

Ellen My time at UW-L was one of the most challenging, exciting and memorable chapters in my life, and one that I will never forget. It was the relationships that I had built that made my experience so rewarding.

Grant The positive impact studying has had on my personal view of what health means to me. I've learned much more than what my classes have taught me and plan to carry what I've learned for the rest of my life.

WHY HEALTH EDUCATION?

Ellen I have always loved people and wanted a career that would make a difference. I choose health education not only because it interests me, but also to everyone equally.

Grant Because I have a passion for helping others and health education is a great way to merge my interest in health with helping others.

Editor's note: Currently, Ellen is teaching elementary physical education in New Berlin. Grant is in his final semester of classes and will do his preceptorship in spring 2014.

— Gail McCormick,
Associate
Professor, Health
Education/
Health Promotion
Department



SCHOLARSHIPS PAVE THE WAY FOR THIS GEOGRAPHY MAJOR

One thousand miles. That's roughly the distance Gus Johnson traveled to attend UW-L.



Gus Johnson, '16

Hometown: Lawrenceville, Ga.

Major: Geography w/environmental science concentration

Scholarships: Margaret Chew Geography Scholarship (2)

His family moved from Tomah, Wis., to Georgia in 2006, but Johnson never forgot his Wisconsin roots. His parents, Mark, '83, and Debra (Wantock), '84, Johnson, moved south to continue their teaching careers. Yet Gus never pictured going to college anywhere but Wisconsin.

"When I came to La Crosse for my college visit, I knew it was the perfect fit and that I would continue my family's UW-L legacy," he recalls.

However, it also meant Johnson would have to pay non-resident tuition. With his older brother already in college and his younger sister only two years behind him (she has been accepted by UW-L for fall 2014), affordability was definitely a concern for the family.

Because Johnson's parents graduated from UW-L, he receives the Return to Wisconsin Grant that provides a partial discount to non-resident tuition. He also works on campus 20 hours a week with the University Event Support Staff in Cartwright Center and is a member of the UW-L Lacrosse Club. Like most UW-L students, he takes out student loans to pay for tuition, room and board.

"Receiving these scholarships has made a huge difference for me and my family," he notes. "The generosity of these donors has allowed me to come back home and get a great education."

During summer, Johnson stays on the family farm near Mauston and works various jobs to help pay for his education. After graduation, he hopes to work in resource conservation and stay true to his Wisconsin roots.



YOU CAN MAKE A DIFFERENCE:

Interested in helping students like Gus Johnson fulfill their educational dreams? Set up a scholarship or donate with the UW-L Foundation at foundation.uwlax.edu.