



Science & Health NEWS

UNIVERSITY OF WISCONSIN-LA CROSSE COLLEGE OF SCIENCE AND HEALTH NEWSLETTER VOLUME 14, NUMBER 2

SUMMER 2019

Unbeatable ability to twirl

Study helps explain
why T. rex was
a superb predator

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College of Science and Health

EAGLE EXCELLENCE

Scholarship and Awards Program

*Where
education
leads to
discovery*

FRIDAY, APRIL 26, 2019

A time for recognition



ABOVE: Strzelczyk Award in Science and Health recipient Thomas Schultz, left, receives recognition from Provost Betsy Morgan and Dean Mark Sandheinrich during the reception.



RIGHT TOP: The Student Union's The Bluffs ballroom was the setting for this spring's College of Science and Health scholarship reception.



CSH faculty member Bonnie Bratina, associate professor in microbiology, left, UWL Foundation board member Mike McGinley and a student recipient enjoy an opportunity to share stories during the college's scholarship reception in April.



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CLASS NOTES POLICY

Update your address and provide a class note for the Lantern at www.uwlaumni.org.

ON THE COVER: Dinosaur lovers know the T. rex was an amazing predator. But what made it such a marvelous meat eater? In a new study from UWL and the Oklahoma State University Center for Health Sciences, researchers found that Tyrannosaurus rex could turn twice as fast as other carnivorous dinosaurs their size. Here's a model of T. rex used by UWL faculty and students.

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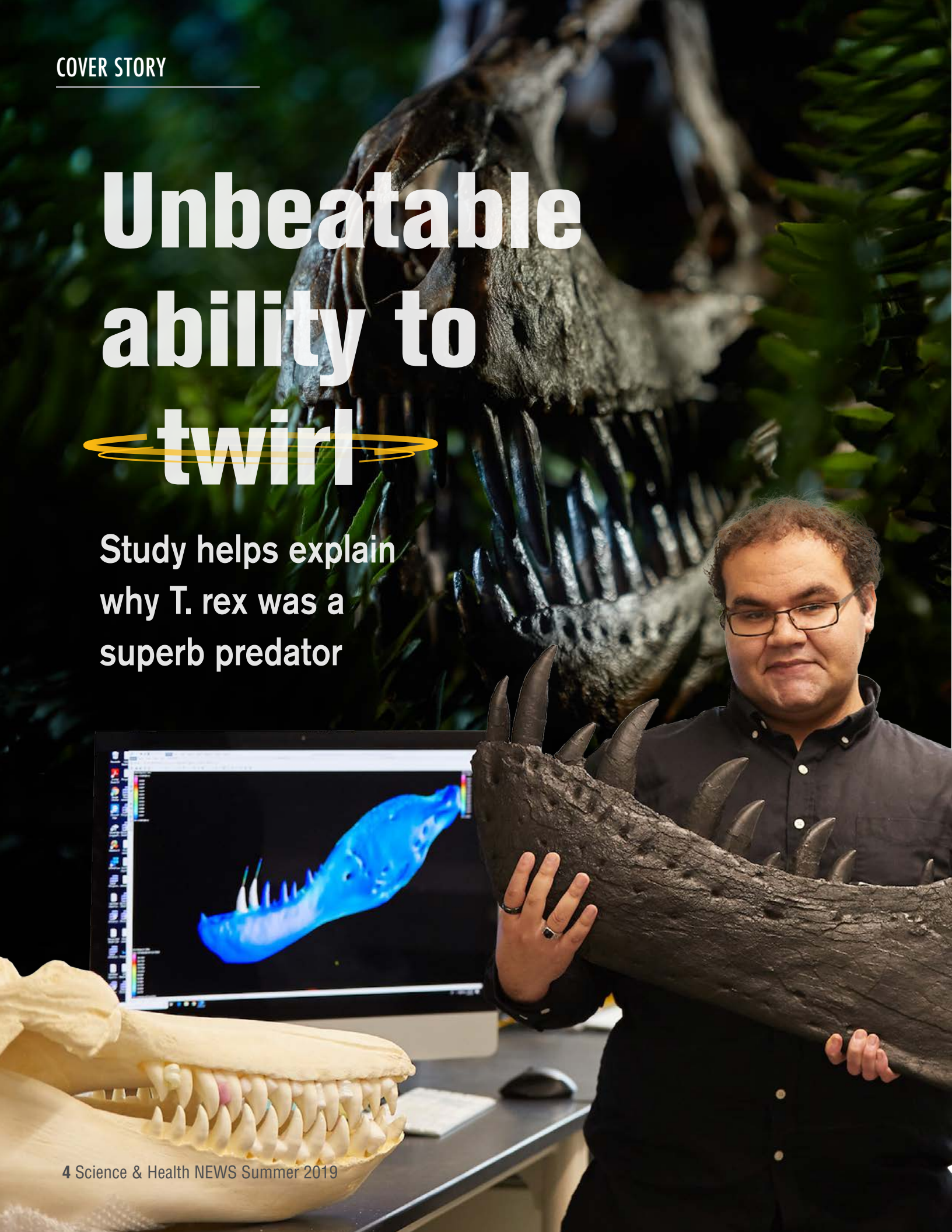
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Unbeatable ability to twirl

Study helps explain
why T. rex was a
superb predator

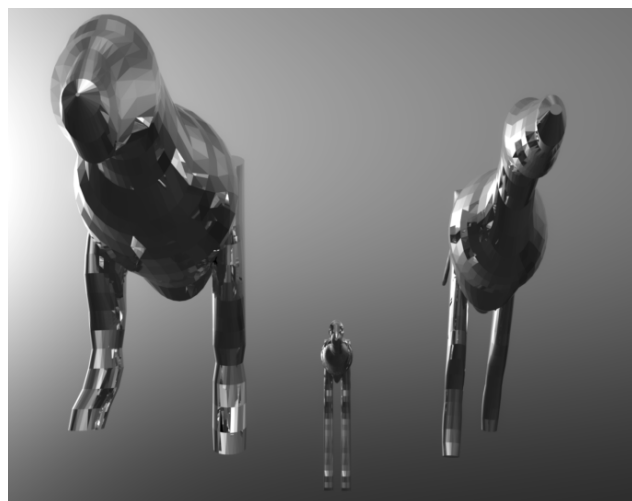


If you're a dinosaur lover you know the T. rex was an amazing predator. But what made it such a marvelous meat eater?

A new study from researchers in CSH and the Oklahoma State University Center for Health Sciences found that *Tyrannosaurus rex* — and other tyrannosaurs like it — could turn twice as fast as other carnivorous dinosaurs their size.

The research, which was recently published in “The Journal of Life and Environmental Sciences,” compares how quickly meat-eating dinosaurs could turn their bodies using physics, anatomy and math. Overall, their work demonstrates that tyrannosaurs could attack smaller, faster and more dangerous prey.

The research adds to the evolutionary picture of the success of these animals. It also enlists students with skills useful for many careers in science, health and engineering.



*Computer models of an adult *Tyrannosaurus rex* and two relatives, a juvenile *Tarbosaurus* and adult *Gorgosaurus*, compared to other dinosaurs in this study.*

Co-authors Eric Snively, associate professor of biology, and Haley O'Brien, assistant professor at Oklahoma State University Center for Health Sciences, determined that whether a tyrannosaur was young and dog-sized or old and huge, it still had this quick maneuvering ability.

Tyrannosaurs were more agile because they had shorter bodies for less turning resistance and giant leg muscles that could create a lot of turning force, according to the authors' work. The difference between a tyrannosaur and other carnivorous dinosaurs would be like a strong person spinning a bowling ball vs. a weak person trying to spin a long barbell, explains Snively.

Continued on next page.

UW-La Crosse graduate student Andre Rowe, left, and UWL Associate Professor Eric Snively hold a cast of the left lower jaw of a T. rex. The image on the computer shows how a killing bite would affect the jaw. Snively's research enlists students with skills useful for many careers in science, health and engineering. UWL students Kaitlyn Nicholls and research associate Gail Gillis were also essential to the analysis.



Biology Associate Professor Eric Snively, a Tyrannosaurus expert, compares how quickly meat-eating dinosaurs could turn their bodies using physics, anatomy and math. He describes the T. rex turn like a “slow-motion 10-tonne [11 tons] figure skater from hell,” in a recent story in Live Science about the research.

Continued from previous page.

In terms of the fastest results from the tyrannosaur family, a horse-sized juvenile T. rex turned the quickest for its size, followed by the giant T. rex “Sue,” a famous fossil now in Griffin Halls of Evolving Planet. (Sue weighed 9.7 tonnes or over 21,000 pounds, more after a big meal.)

Adult T. rex turned a little slowly on a human scale, but quickly as a giant among other giants. Snively describes the T. rex turn like a “slow-motion 10-tonne [11 tons] figure skater from hell,” in a recent story in Live Science about the research.

Researchers used super-accurate anatomy and rigorous statistics to create the dinosaur comparisons. And UWL students made computer models to visualize the results.

Andre Rowe, a second-year biology master’s student at UWL, came to campus after meeting Snively at the national conference of the Society of Vertebrate Paleontology in 2016. Since Snively is a Tyrannosaurus expert, Rowe saw UWL as a good way to get into dinosaur research. Rowe is now working toward his master’s thesis on tyrannosaur bite force with Snively.

Getting involved in developing computer models related to the turning ability of dinosaurs was a great opportunity to branch out, adds Rowe. His primary role was inputting dinosaur data into 3D CAD software that generates the computer models.

The study has given him experience with a new software program, data analytics and biomechanics. He aims to continue on to earn a doctoral degree in paleontology.

The group’s research was also presented at the 78th annual Society of Vertebrate Paleontology meeting in October in Albuquerque, New Mexico.

A new online master's degree

Program serves recreation professionals looking to advance program

Recreation management professionals looking to advance their career can apply for a new, fully-online Master of Science in Recreation Management-Professional Development program at UWL.

The 30-credit program will be offered for the first time in fall 2019, making it the first online Master of Science in Recreation Management in the UW System, says Katherine Evans, program director.

“This new degree serves the needs of recreation professionals who are not in a position to leave their careers to come back to school, but who want or need to advance their education to move forward in their career,” Evans explains. “We’ve created the program so they can continue to work and use their professional experiences while learning.”

The new online offering is different from other programs currently offered in UWL’s Recreation Management & Therapeutic Recreation Department not only in its fully-online format, but also in that it is created specifically for those with professional experiences in the field. While advancing their management skills, the program participants are empowered to build on a base of recreation education and/or experience to advance knowledge, skills and careers.

Applications are being accepted now until seats are filled for the fall 2019 term. Learn more and apply at: www.uwlax.edu/content/rec-management-ms or contact Katherine Evans, academic program director, at kevans@uwlax.edu or 608.785.8210.

The new online degree adds to several programs offered through UWL’s Recreation Management & Therapeutic Recreation Department including undergraduate majors and minors and face-to-face graduate programs in Therapeutic Recreation and Recreation Management.

UWL GRADUATE PROGRAMS

UWL offers more than 30 graduate degrees and certificates in areas from health and wellness to business and management. Offerings include on-campus programs and online and hybrid programs. Learn more about UWL graduate school programs at www.uwlax.edu/graduate-studies.



Caribbean CLASSROOM

Ostracod research connects
K-12 to Caribbean research

Through a National Science Foundation grant, UWL faculty partnered with K-12 teachers and their students in Wisconsin to share UWL research on the cutting edge of marine biology.

CSH faculty hope a virtual connection to the Caribbean Sea in January may have inspired some area students to pursue futures in science — not because of the hot weather but because of the cool research.

Through a National Science Foundation Research Experience for Teachers grant, Biology Department faculty Gretchen Gerrish and Megan Litster took five K-12 teachers to Belize Jan. 18 – 27 to study bioluminescent ostracods. The teachers shared their experiences and data with students back in cold, wintery Wisconsin via Skype.

“If we can expose students (grades 6-12) to authentic research earlier than in undergraduate or graduate school, we can capture their interest and perhaps have them continue on to scientific careers,” explains Litster, assistant professor of biology. “Exposing students to how scientists think gives students the opportunity to continue developing their own critical thinking skills.”

The grant places teachers who may not have already done scientific research into situations that bring science to life, explains Litster.

Gerrish has been traveling to Belize to study shrimp-like crustaceans — marine ostracods — that live in the shallow waters of the Caribbean since she was a doctoral student about 18 years ago. The tiny creatures create amazing light displays in the dark water to attract mates. Gerrish studies how bioluminescent ostracods use lights for both defense and courtship. Since 2014, her research has been funded by NSF.

In addition to bringing her research to the K-12 community, Gerrish has found many ways to share her research on campus.



Gretchen Gerrish



Megan Litster



Want to see the Ostracods in action?

Gretchen Gerrish's ostracod research is featured in the documentary "Light on Earth," which began streaming on Curiosity Stream, a site custom built for streaming documentaries, in spring 2016. It was also featured in the BBC version "Life That Glows."

Maggie Gapinski, a high school teacher from Rufus King, prepares to photograph the super blood wolf moon lunar eclipse to test how light level influences bioluminescent behaviors in the Caribbean.

She has taken 57 UWL undergraduates to Belize to see the light show and conduct research. She has also built numerous interdepartmental collaborations with faculty in the Biology, Chemistry and Geography and Earth Science departments.

Litster says partnering with K-12 educators was natural as she is a School of Education-affiliated faculty member who works with teachers regularly. "Collaborating on the grant was a way to give back to those teachers who have given to UWL's program," she explains.

The K-12 students who participated in the Caribbean research project had a hand in designing the research their teachers performed. The students developed a number of questions for the researchers such as "How do marine ostracods fare in freshwater?" and "How does artificial light, such as light pollution from cities, affect courtship behaviors?"

When the teachers where Skyping with their students, they had even more questions and data to analyze.

"Getting them excited about science and all the creativity and critical thinking that go into getting an answer to a previously unanswered question is really exciting for us," says Litster.

Teachers and students participating were from Rufus King High School in Milwaukee, La Crosse Design Institute and 7 Rivers Community High School. Some teachers had UWL connections. Katy Weber and Maggie McHugh, both teachers from the La Crosse Design Institute, are graduates of UWL's School of Education. Andy Hartman, 7Rivers High School, is also a UWL graduate.

More than medicine

Student's interest in health science research goes into turbo drive, passion for his Native American roots deepens.

Can I hang with the rigors of this program?"

That question was weighing on Ben Ringham in May 2018 as he started the University of Utah School of Medicine Native American Research Internship (NARI). The exercise and sport science major and Ho-Chunk Nation member was excited for the new experience, but also uncertain.

Spoiler alert: not only did Ringham complete the program, he excelled.

"I came back to UWL a lot more confident, well rounded and more passionate about my Native American roots," Ringham says.

Housed within the School of Medicine's Pediatric Research department, NARI is a selective, 10-week, summer internship program for undergraduate Native American students interested in health science research. Interns are paid through funding provided by the National Institutes of Health and work under the supervision of faculty mentors.

The research involves American Indian/Alaska Native health issues. Ringham's

mentor was Dr. Lisa Joss-Moore, University of Utah School of Medicine, Research Associate Professor. Joss-Moore brought Ringham into a project focused on bronchopulmonary dysplasia (BPD), a condition affecting the lungs of pre-term infants. Joss-Moore's lab is currently looking into the possible effects of Docosahexaenoic Acid (DHA) supplementation in preventing this devastating lung disease. DHA is one of several different types of omega-3 fatty acids.

Joss-Moore was impressed with Ringham's eagerness and dedication to learning research fundamentals.

"Ben's ability to hone in on what he needed to do, in conducting research, really took-off," she says. "[He was] very enthusiastic, mature and took it upon himself to continue working in the lab after hours. He showed the desire to go the extra mile."

Beyond research, the program introduced Ringham to Native American students from across the U.S. And it gave him the chance to participate in a tobacco cessation program for Native American youth.

Since its launch in 2011, NARI has awarded 109 internships to students from 43 different Native American tribes, and has achieved impressive results.

According to program coordinator, Scott H. Willie, a former NARI intern himself, "Our outcomes beat the national averages, with 23 of our former interns going on to medical school, with another 24 accepted to a variety of graduate programs."

Diversity defines NARI cohorts, says Willie, "They come from different backgrounds, rural and urban, from reservations and from metropolitan areas. And the students have differences of privilege and bring different notions of what is health."



UWL's Ben Ringham with his research mentor Lisa Joss-Moore, left, and lab manager Haimei Wang at the NARI Research Symposium.



Ringham felt welcomed, supported and challenged. “I didn’t grow up in a Native American community, but I understood there are others who’ve had more difficult upbringings and have had to face many more barriers. It was eye opening,” said Ringham.

The stark contrasts between cohort members, became less pronounced over the 10-week internship experience, and Ringham’s perspective was transformed. “No matter where we were came from, or how tough the circumstances were for some, it’s amazing to see each one finding success,” he says. “I saw this common interest in health, research, and serving our communities, bringing us together.”

NARI’s triad of faculty mentored research, community service, and cultural support, broadened Ringham’s professional goals, instilled him with confidence, and magnified his desire to serve the Native American communities,

“I feel prepared to run my own research project now, research is something interesting to me. It involves asking, ‘Why?

’and my mind runs wild with that,” states Ringham whose passion is personal, “I want to help Native Americans with increased levels of exercise, improved lifestyle, and diet.”

After returning to UWL, Ringham used the momentum from his NARI experience to initiate an undergraduate research project, involving the effect of omega-3 fatty acids on learning and memory. His research mentor Dr. Attila Kovacs, Assistant Professor, Exercise and Sport Science, noted the transformation in Ringham. “Ben came back a changed person, excited about research, eager. He took the initiative in proposing, organizing, and managing the project—he’s at a graduate student level,” notes Kovacs.

Ringham, has been accepted to NARI this summer, with Joss-Moore’s enthusiastic approval. “I have already told the program to place Ben in my lab,” she says.

It appears Ringham has gone from wondering if he could hang with the NARI program, to finding the NARI program wants to hang onto him.

Ben Ringham, right, took part in a selective, 10-week, summer internship program for undergraduate Native American students interested in health science research in 2018.



Article by Guy Herling, CSH Academic Services Director

Mapping out his future

Senior applies GIS research to solve global problems, lands career with software start-up company

Bo Kim likes to turn geographical maps into problem-solving tools.

His geocomputational skills — acquired in UWL Geographic Information Science (GIS) courses and through undergraduate research — have helped him land a career after graduation as a GIS web engineer at a start-up company in Seoul, South Korea.

During his Google Hangouts interview with the company, Kim pointed to his research experience solving global problems. With guidance from UWL faculty mentor Gargi Chaudhuri, Kim used high-resolution satellite images of Mumbai, India, along with GIS analysis, to identify slum areas in the city.

The city of Mumbai has one of the biggest slums in the world. Since slums do not fall within the legal realm of settlements,

it's difficult to keep track of where new slums pop up and how far the slum area is expanding. Satellite images give a bird's eye view of an area, which is useful to provide a holistic view of the city.

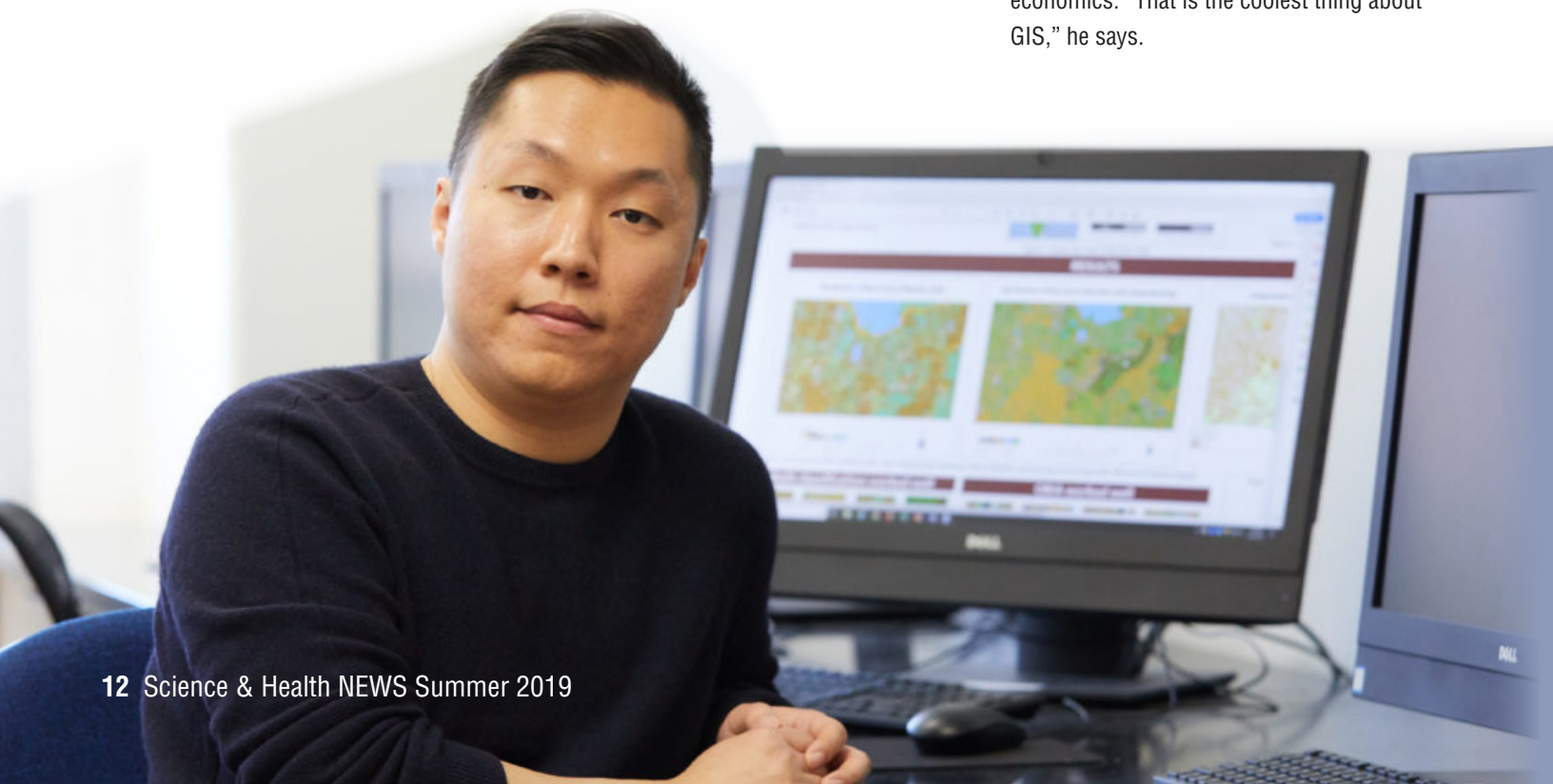
Kim used a deep learning based satellite image classification algorithm to automatically detect informal housing from the high-resolution images. The algorithm used the roof materials and irregular structures to train his algorithm to identify slums within an urban area.

The script is open-source and can be used by the government or non-profit organizations to continually track where the slum areas are moving and expanding. This can be used for efficient planning of resources within the urban area.

Kim wasn't always interested in GIS. When he came to UWL, he planned to major in biology. During general education courses, he took geography and met Chaudhuri. That connection led to more discussions about the applications of GIS, which got Kim excited.

"With GIS, you are not just making a map, you are doing an analysis of a large amount of data and trying to show people how that data can help them understand what is going on in society or the environment," he says.

GIS has broad applications even beyond that, he explains, including fields from biology to economics. "That is the coolest thing about GIS," he says.





Kim shared his enthusiasm for his GIS applications related to Mumbai's slums during the National Conference on Undergraduate Research in Atlanta, Georgia; Research in the Rotunda at the state capitol, and at the Midwest Undergraduate Research Symposium in Madison. He also received an Undergraduate Research and Creativity Grant to support his work in fall 2018.

Those experiences, along with a GIS internship at the Upper Midwest Environment and Science Center, have all been amazing learning experiences, he says.

Kim chose UWL because it was close to the high school he attended in Minnesota. When he came, he found a small campus with big opportunities for students and passionate people, he says. Research-related opportunities have tested skills he learned in classes and given him confidence entering his career.

He feels good about his future, he says. But his departure home to South Korea won't be easy. "I've made a lot of friends here," he says. "I'm going to miss them."

Bo Kim, a geography major with a geographic information science concentration, was hired as a GIS web engineer at Angelswing, a start-up company at Seoul National University in Seoul, South Korea. Kim will be doing GIS analysis and possibly remote sensing analysis for the drone-software company. He gained skills in courses such as Unmanned Aerial System (UAS) course (popularly known as Drone course), Python scripting course, as well as undergraduate research.

Learning by doing

Science education is growing, changing and providing transformational experiences

UWL's science building, Cowley Hall, opened in the mid 1960s. Since then, the campus has grown, technology has boomed and faculty have embraced a more modern hands-on, minds-on teaching approach.

UWL is providing transformational experiences in the sciences in the new laboratory building, the Prairie Springs Science Center.

"There has been a lot of research on the best ways to teach students and the best way students will learn the material," says Scott Cooper, UWL director of Undergraduate Research and Creativity. "The old-fashion lecture where you write notes and take exam ... They'll learn enough to get through an exam, but they won't learn it for very long."



Click here to see how science is transforming at UWL.

ABOVE PHOTO: UWL student Gina Wade says she thinks students learn the most by doing — conducting an experiment and proving a theory to be true instead of listening to someone tell them it is true.



Professor and Chair of the Department of Health Professions, Thomas Kernozek.

MY VIEW

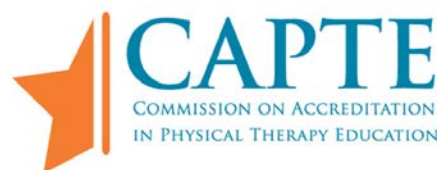
PT program continues to find success

UWL's graduate program in physical therapy received a 10-year accreditation (the most time awarded by the accrediting agency) by the Commission on Accreditation in Physical Therapy Education (CAPTE) following a comprehensively written self-study and onsite visit. This is the second time UWL has received the maximum 10-year accreditation since awarding the first clinical doctorate in 2008.

Program accreditation is required and ensures the high quality of our curriculum, graduates, exceptional faculty, expansive clinical education program, and excellent facilities and laboratory resources used to educate students. Upon graduation, students complete a licensure exam so that they can provide physical therapy services from a CAPTE-accredited program. UWL students have earned a 100 percent pass rate over the last five years.

Currently, our program takes approximately 30 months with 45 graduate students per cohort. Each student's final year is completed off-campus on three, 12-week clinical rotations covering various areas of physical therapy practice.

The program started in 1975 at the bachelor's degree level and is now housed in the Health Science Center. Students typically earn jobs in the physical therapy profession within two months of graduation, but many have offers prior to



their completion. Physical Therapy graduates can obtain licensure anywhere in the U.S., but approximately 80 percent stay in Wisconsin and neighboring states.

Our program embraces many of the student-focused, research-driven and action-oriented high impact practices indicated within the UWL strategic plan, such as expansive service, outreach and research activities that provide unique student engagement opportunities. We accomplish these within the physical therapy profession in many innovative ways.

Program activities like our Exercise Program for Adults with Neurological Disorders (EXPAND), health and wellness and other service programs provide unique experiential learning opportunities for students that also fulfill many client needs for therapeutic exercise within the La Crosse Community.

Our research programs and outreach through the La Crosse Institute for Movement Science (LIMS) utilizes state of the art technology for scholarly endeavors that have earned us national recognition.

Over 100 manuscripts related to clinical biomechanics have been published through our faculty-student research partnerships

embedded within the curriculum. Many research-related publications and presentations have student co-authors and involve campus or community participants.

Finally, our spring employment fair allows physical therapy and occupational therapy students to interact with nationwide employers where they can participate in mock interviews. Proceeds from this event allow students to attend conferences to participate in professional development activities and present their research.

Many of these elements greatly distinguish our students, our program and our university. This makes me extremely proud of what we are accomplishing here at UWL.

Thomas W. Kernozek
Professor and Chair, Department of Health Professions, Director of LIMS

Physical therapy program earns stamp of approval

Over the past few years, many of the Health Profession Departments graduate programs — Physician Assistant, Occupational and Physical Therapy — have received the maximum duration by their respective accreditation agencies. Earlier in 2018, radiation therapy, one of the department's undergraduate programs, received a 10-year duration from its accrediting agency.

Three physical therapy programs are accredited in the UW System — UWL, UW-Madison and UW-Milwaukee. Three state private universities also have accredited programs: Concordia, Carroll College and Marquette.

UWL physical therapy students teach an exercise class at Summit Elementary in La Crosse. Community service and research activities that involve more than 500 people each year are just one of the reasons CAPTE granted the Clinical Doctoral Program in Physical Therapy the maximum 10 years of accreditation.



A Down Under experience

J-Term trip to New Zealand, Australia provides unique look at tourism



The Abel Tasman National Park in New Zealand was the favorite day of the trip for UWL sophomore Brianna Colton. “We spent the day kayaking and hiking inside the park and ended the day with New Zealand fruit ice cream,” she says. The future certified therapeutic recreation specialist says the J-Term trip helped her to envision using sustainable practices in the future, as well as having more of an open mind when approaching situations.

UWL students are giving a trip down under a thumbs up. They were able to experience a new culture while studying sustainable tourism.

UWL Assistant Professor of Recreation Management and Director of the UWL Tourism Research Institute Dan Plunkett helped lead a three-week program, “Sustainability Tourism in New Zealand & Australia” during winter break in January. Assistant Professor of Management Danny Franklin co-led the program of 30 that included recreation management, therapeutic recreation and business management majors.

Plunkett says New Zealand and Australia were a perfect spot to teach sustainable tourism. The two countries offer unique opportunities related to a broader focus on all aspects of travel and tourism.

“This program to New Zealand and Australia provided a great mix of travel to big cities and nature-based areas, which could highlight a diverse set of tourism sustainability practices,” says

Plunkett. “It also included several activities where culture was intertwined with tourism excursions and businesses, something that is not as commonly seen here in the U.S.”

Brianna Colton, a sophomore from Fond du Lac who traveled with the group, says the differences from the U.S. she experienced provided a stark contrast. “Overall, New Zealand and Australia are far more sustainable than the U.S.,” explains the therapeutic recreation major. “The people who live there also seem to be more educated and motivated to preserve their land.”

Colton, who hopes to become a certified therapeutic recreation specialist, says the experience helped her to envision using sustainable practices in the future, as well as having more of an open mind when approaching a situation.

“I can see myself being mindful of the environment by reusing materials and thinking of innovative ideas for client programs,” she says. “Inclusion will be a large part of my work as a recreational therapist. I will work to keep an open mind when working with someone of a different culture. It is beneficial to understand a variety of different cultures in order to effectively serve participants.”



A day of snorkeling the Great Barrier Reef in Australia was among the many activities for a “Sustainable Tourism in New Zealand & Australia” class during winter break in January. The students saw coral, a variety of fish and sharks. “The best part of the day was jumping off the top of the boat into the water,” says sophomore Brianna Colton, therapeutic recreation major.



The 30 UWL students traveling to New Zealand and Australia during J-Term spent a day hiking the rainforest and hearing about the sustainable practices of Hidden Valley Cabins at Paluma Range National Park in Australia. They enjoyed a steak lunch at the cabin and stopped for ice cream at the Frosty Mango.

Recreation management major Jill Toth had a similar experience. She discovered the importance of taking pride in cultures around the world. “Wherever my life takes me I hope to uphold the beauty of new cultures and regard them as equals,” she says.

The Waukesha senior agrees sustainability was exhibited in many of their travels. “Being conscious of what you are doing and what the consequences are reiterates the concept of being sustainably literate,” Toth notes. “This concept is vital in creating a better future, not only for ourselves, but for future generations.”

She also discovered how economics, environmental issues and social sustainability can make or break a country. “Keeping these takeaways in mind will shape me into an advocate for sustainability,” Toth explains. “Hopefully, I will make an impact in my company, if not the world.”

Both students are glad they took the step to take a J-term class overseas. “Coming into college I knew I wanted to study abroad, but I did not want to go for the entire semester,” says Colton. “I liked that this program was faculty led because it allowed me to travel with other students from UWL and be able to hang out with them upon returning from the trip.”

Toth says while a trip like this is more expensive than a regular class, the experience is invaluable. “You are going to be seeing and doing so many incredible things that some people only dream of,” she notes. “The experiences you have, the things you learn, and the friendships you make during this program will be some of the most cherished in your life.”

Professor Plunkett says the experience will have a definite impact in the variety of tourism classes he teaches at UWL. “Being able to share my experiences from New Zealand and Australia allows me to interject different perspectives related to visitor travel behaviors, the importance of local cultural, tourism marketing strategies, and many other strategies and best practices I observed,” he says.

Back to nature

Assistant prof heads up inaugural nature therapy classes in the U.S.



You might say Namyun Kil grew up outside. “I spent a lot of time outdoors when I was a little boy,” says Kil.

Now an assistant professor in UW-La Crosse’s Recreation Management and Therapeutic Recreation Department, he is sharing that outdoors love with his students — and he’s helping them extend that love to others.

Kil has more than 15 years of experience studying belief, attitude and behavior of recreationists in outdoor and natural environments, particularly U.S. national forests and scenic trails. He’s taught in Korea where he met several forest therapy researchers. He discovered growing efforts to improve health and well-being through nature and forest therapy practices, a practice of supporting healing and wellness through immersion in natural environments.

When Kil started at UWL in 2017, he was given the opportunity to develop a nature and forest therapy course. “I was very happy to accept the offer because the La Crosse area has rich natural resources for nature and forest therapy,” he notes.

That offer allowed Kil to develop and teach the first U.S. course in forest therapy. “The course was a great success,” he notes.

Kil says there are many positive health benefits of nature and forest therapy, including cognitive, emotional, social, physical, spiritual, environmental and other beneficial outcomes. And he has the research to prove it. The



Assistant Professor Kil says we can learn from dogs in nature. “If you have a dog, you can train your dog in doing nature and forest therapy,” he says. “Simply, allow your dog to use all senses slowly and mindfully in nature with you.”

findings will be published this fall in the book “International Handbook of Forest Therapy,” edited by well-known forest therapy researchers.

Students who took Kil’s inaugural class learned cultural concepts of nature and forest therapy that originated in Japan and were adapted in Korea. They discovered science-based benefits of the therapy by engaging in various experiential mindful nature connection activities outside of the classroom.

Kil implemented nature and forest therapy walks with students on a Hixon Forest trail following the standard sequence of nature and

Continued on next page.

Opposite page: Recreation Management and Therapeutic Recreation Assistant Professor Namyun Kil shares his love for the outdoors with his students — and he’s helping them extend that love to others.



Bring medicinal, herbal tea on your walk advises Assistant Professor Kil. Be thankful to nature and ancestors while sipping the tea, he says.

Continued from previous page.

forest therapy walks developed and established in the U.S. He discovered similar and additional empirical evidence on positive health and well-being.

Kil says the students felt a stronger sense of connections with nature and felt more peaceful, energetic and focused. "They tend to have a stronger sense of their own identity and feel more dependent on the natural areas for the therapy walks to help them achieve such positive benefits," he explains. "Overall, they tend to feel more satisfied with their life after they engage in nature and forest therapy walks."

By the end of the semester, Kil says the students felt competent in leading and evaluating nature and forest therapy walks appropriate for clients of all ages with special needs, especially those with mental challenges.

This summer and fall, Kil will conduct a faculty research grant project, and work with staff members and at-risk children in Coulee Connections. He hopes to determine the health benefits of nature and forest therapy on individuals with special needs.

10 tips to enjoy nature

1. Leave your cell phone at home. Avoid using it except for emergencies.
2. Leave all worries behind. When canoeing or kayaking, put worries under the boat, so they are sunken under the water.
3. Pleasure in the moment by doing warm-up exercises utilizing all senses (feeling, listening, smelling, tasting, seeing) before experiencing nature to better engage in all senses simultaneously or one at a time.
4. Take slow, mindful movements and/or walk, depending on the type of outdoor therapeutic recreation activity.
5. Walk/move in silence. In groups, leave spaces between individuals and whisper.
6. Periodically, share and/or document observations about natural environments and yourself. Listen to your heart.
7. Do some playful, fun and creative nature connection activities alone or with friends and family.
8. Introduce yourself to nature. Talk with natural elements. Hug a tree. Find a relatable nature treasure.
9. Spend quiet time, at least 20 minutes, in nature twice weekly.
10. Bring medicinal, herbal tea on your walk. Be thankful to nature and ancestors while sipping the tea.

Cooperative conservation

La Crosse County Conservation Alliance to recognize UWL work with BPCA to monitor invasive species using drones

Faculty member Niti Mishra and students were recognized for their work with the Brice Prairie Conservation Association to survey an invasive flowering plant that is degrading regional wetlands and wildlife habitat.

The partnership between Mishra and the BPCA that used drones to survey Purple Loosestrife received The Conservation Project of the Year Award from the La Crosse County Conservation Alliance in April.

Student researcher Zach Woodcock received a summer research grant from the BPCA to use drones to conduct aerial surveys of Purple Loosestrife in summer 2017. Woodcock worked alongside faculty mentor Mishra, an expert in using drones for remote sensing.

Monitoring of Purple Loosestrife continued in summer 2018 when Mishra mentored UWL student Jackson Radenz on the same project. The BPCA will again fund a UWL student this summer to continue monitoring the species. The student will use machine-learning methods to address challenges related to semi-automatically detecting loosestrife in drone imagery.

For more than a decade, members of the BPCA have been releasing beetles to control the spread of Purple Loosestrife across selected areas of Brice Prairie and Lake Onalaska, in cooperation with the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources.

Using drones, Mishra and students have helped track whether BPCA efforts are making a measurable impact. This avoids the need



to monitor on foot — wading across marshland and lakes to physically locate the plant and measure density.

In addition to helping stop the spread of invasive species, Mishra and students have also used drone technology in various other community outreach projects from helping answer questions from measuring climate change in the Himalayas to determining the amount of material in a local rock quarry.

After graduation, Radenz, a geography and earth science major, has started as a hydrographer for J.F. Brennan Co., a marine construction/environmental restoration company that specializes in environmental dredging. He will use drones for wetland remediation. Practice using drones at the local quarry, on mountain tops and more has given him confidence in his abilities, he says.

He is excited about the prospect of using drones to find quicker answers.

“Throughout human history we’ve been trying to solve problems by putting people on the ground,” says Radenz. “Now we are able to see the issue from above. And, as the technology becomes more powerful, we are able to solve larger and larger problems.”



Niti Mishra, UWL faculty member and expert in using drones for remote sensing, left, works with UW-La Crosse student researcher Zach Woodcock in summer 2017 to use drones to conduct aerial surveys of Purple Loosestrife for the Brice Prairie Conservation Association.



River record

Newly digitized library takes Upper Mississippi reports worldwide



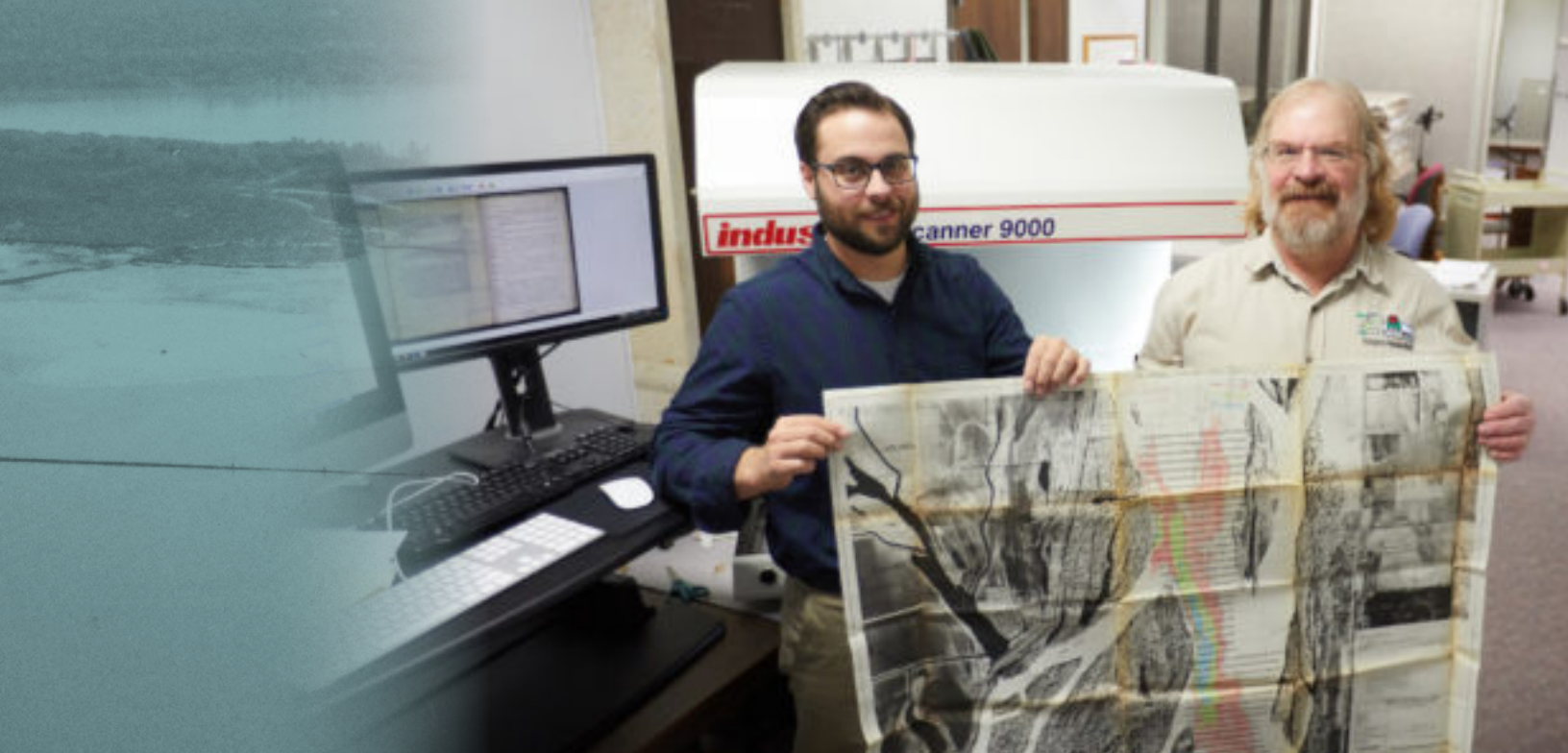
David Mindel, Murphy Library digital collections librarian, left, and Jeff Janvrin, a Mississippi River Habitat Specialist in Fisheries Management with the Wisconsin DNR in La Crosse, stand among the many boxes brought to archive at the library. Mindel has scanned over 1,000 documents, histories, charts and images — more than 26,000 pages — that are now online and being used throughout the world.

For decades, Upper Mississippi River scientists have conducted stimulating research only to see it placed in a room at a laboratory in Onalaska, Wisconsin. Now with help from librarians at Murphy Library that work is going viral.

UWL Murphy Library staff are still scanning materials brought in a truckload last August. So far they've scanned, cataloged and put online more than 26,000 pages of material and over 400 photographs. Those numbers will continue to grow with this multi-year project. Once online, items are full-text searchable and will no doubt get hits from throughout the world.

"These materials were not easily accessible before and are now open and accessible to all who, in many cases, didn't even know the materials existed," says David Mindel. He's the Murphy Library digital collections librarian who specializes in the digitization of cultural heritage materials.

Once the materials are cataloged by William Doering, a systems and meta data librarian, they are then digitized, ingested and stored on UWL servers, a process overseen by Mindel. At that point, the items are freely accessible to anyone with an internet



connection. “It will become a standing, go-to research source,” Mindel predicts. “It’s intellectually valuable material pertinent to the Upper Mississippi River and beyond.”

The materials date back to the mid-1940s, with the formation of the Upper Mississippi River Conservation Committee (UMRCC). Scientists, researchers and Fish and Wildlife staff from five Mississippi River states — Illinois, Iowa, Minnesota, Missouri and Wisconsin — began cooperatively working together to take part in fishery investigations. After success with that early cooperative work, the committee added those from law enforcement, water quality, wildlife, mussels, recreation and education.

Over the years, the UMRCC’s studies and records became a library housed at a variety of locations up and down the river, eventually settling on the lab in Onalaska. Some members utilized the library, but to others it remained unknown. Then in the late ’90s, usage dropped off with heavier reliance on the internet.

UMRCC members quickly realized that for its library to continue documenting the history of Mississippi River management and contribute to future decisions, it needed

UW-La Crosse Murphy Library Digital Collections Librarian David Mindel, left and Wisconsin DNR Mississippi River Habitat Specialist Jeff Janvrin display a 1982 map showing Mississippi River Pool 18 depth near Louisa County in Iowa. Materials like this are being scanned and put online through the library’s website.

to be digitally accessible — permanently. They considered donating the materials to several institutions, focusing on those with a connection to the Mississippi River; with an easily accessible digital collection; and in a community frequently visited by Mississippi River managers, biologists and researchers. Murphy Library met all criteria.

The collection is diverse, with letters, publications, notes, maps and even raw data. Some materials are more than 100 years old. And to the UMRCC, one of the most important sub-collections are the proceedings of its annual meetings, held since 1944.

Jeff Janvrin, a Mississippi River Habitat Specialist in Fisheries Management with the Wisconsin DNR in La Crosse, says the online library will benefit scientists and researchers seeking hard-to-find, older

documents. And the site provides the ability to search for individual words, a benefit because many holdings are “gray literature” — comprised of annual reports and study findings not published in peer-reviewed journals.

“This gray literature often laid the foundation of future studies or initiatives that led to published journals and/or management decisions,” Janvrin notes.

Along with the researchers, the collection is for anyone with an interest in the Mississippi or other large rivers worldwide. “It is not just a collection of scientific publications about water quality, fish, wildlife and freshwater mussels,” explains Janvrin. “It also includes many historical documents related to management of the Mississippi River for recreation, navigation, historic preservation and the vitality of river communities.”

HEALTH CHAMPION

UWL professor recognized for promoting women's health



AUWL professor was among the Wisconsin Women's Health Foundation's five 2019 Champions in Women's Health.

Keely Rees, who has taught in Health Education and Health Promotion since fall 2003, received the award at the Champions in Women's Health Awards Ceremony & Reception in April. The honor raises awareness about the work of health leaders in Wisconsin and recognizes those dedicated to improving the lives of the state's women and their families.

Rees was surprised and honored to be among those recognized. "I feel very grateful to have worked in this state and community with so many strong women and young people working together," she says.

Mental health conditions and chronic illnesses are at the forefront of women's health issues in the Badger state, says Rees. Other pressing issues for women include violence, maternal health and access to reproductive health care.

Among her most recent analysis, Rees says she and a colleague are finishing research on menstrual cycles

Health Education and Health Promotion Professor Keely Rees has been named one of five top women health educators in Wisconsin. She teaches Women's Health; Grant Writing and Resource Management; Health Policy, Advocacy and Community Organization; and Motivational Interviewing.

and young women's attitudes and health practices that support healthy menstruation norms.

"Most women have ingrained norms and attitudes about menstruation as something negative," explains Rees. "Our work really is about a paradigm shift regarding the physiological and psychological aspects in our culture around menstruation."

Rees says, ironically, her other recent work in collaboration with the county and other colleagues has been with men and how they protect themselves and their partners regarding sexual health and using barrier methods. She has also been examining how women are engaged in public health advocacy locally and nationally, along with preparing women to effectively advocate policy work.

Rees is quick to point out that her work is done with a lot of collaboration and support from other health advocates. "I am grateful to my students over the past decade as I learn so much from them, their stories and their energy," she says.

"I feel very grateful to have worked in this state and community with so many strong women and young people working together."

— Professor Keely Rees



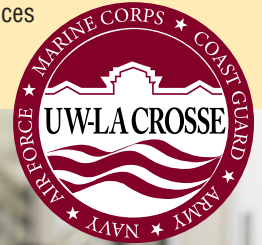
COLLEGE FACTUAL:

Online service names UWL tops in state for vets studying biology

Veterans planning to go to college — especially those wanting to major in biology — should strongly consider UWL.

The college rating service College Factual has ranked UWL No. 1 out of 17 Wisconsin colleges and universities reviewed when it comes to offering a quality education to veterans studying biology. UWL also ranks No. 89 out of 820 nationally, which puts UWL in the top 15 percent of all schools in the nation.

UWL Veteran's Education Benefits Coordinator Jane Brannan believes the university ranked well because of its exceptional reputation. "UW-La Crosse is an excellent university with a proven track record," says Brannan. "It also has the right mix of academic rigor, affordability, and veteran-related services for students to thrive and graduate."

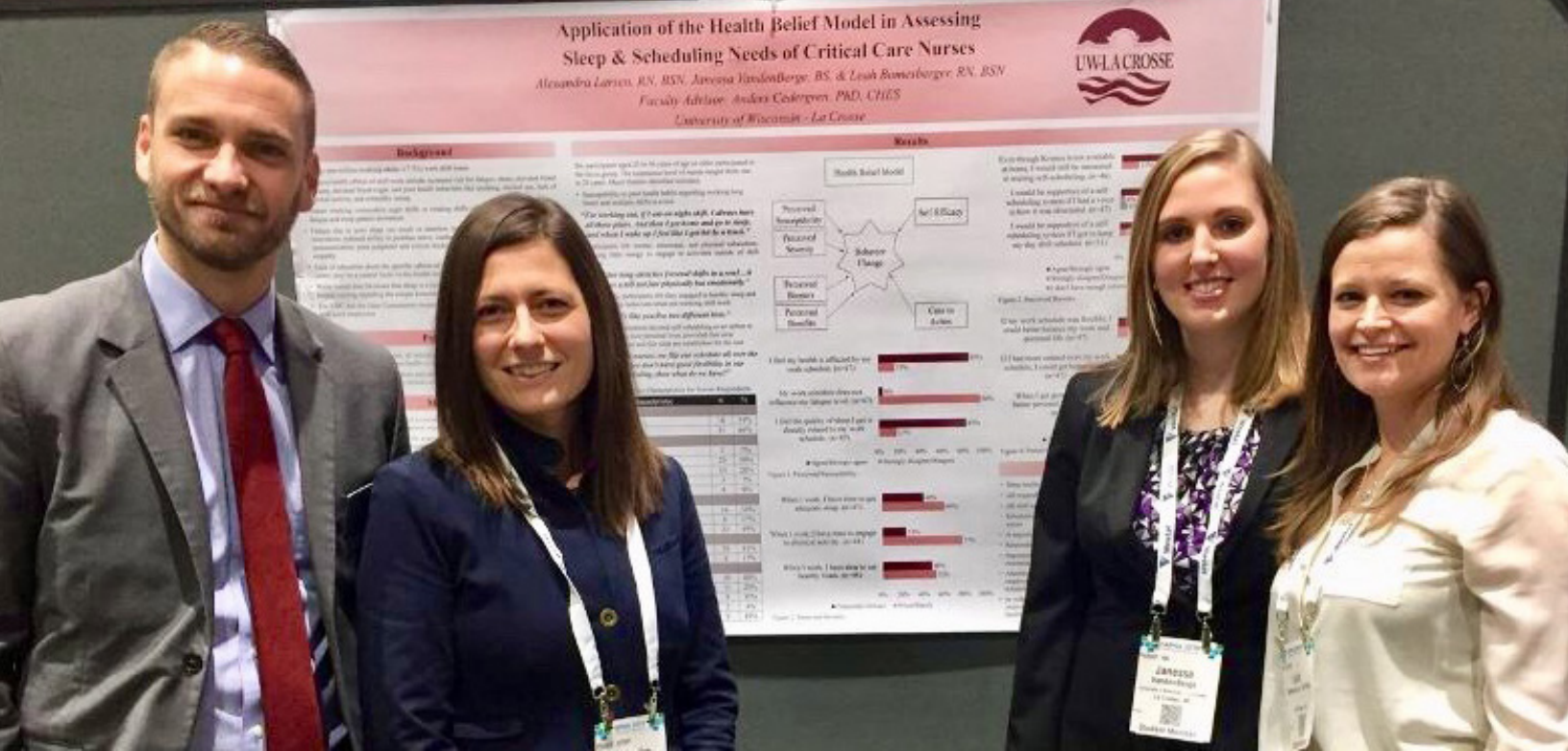


Duquette honored

R. Daniel Duquette, Health Education Health Promotion Department chair, has received national honors from his peers. Duquette was awarded the Robert J. Synovitz Distinguished Service Award by Eta Sigma Gamma at the 70th Annual Society for Public Health Education (SOPHE) National Conference in Salt Lake City in March.



Abby Siakpere, a Blackhawk helicopter pilot, recently moved to La Crosse from the Chicago area after being discharged from the Army. "My main decisions in coming to UWL were the biology department, the new building and the excellent reputation the biology program has," says the biology major. Siakpere says the Veterans Benefits Office was extremely welcoming. "They were the first people to give me a hug when I came to campus," she notes. "I felt included being a non-traditional student. They helped me get involved with the veterans' groups, and opened my eyes to opportunities for older students and made me feel welcome as a veteran."



An impressive professional poster

Three Master's of Public Health students and their assistant professor have received national kudos

Those receiving first place in a national professional poster contest include, from left, Assistant Professor Anders Cedergren, and graduate students Alexandra Larsen, Janessa VandenBerge and Leah Bomesberger.

Assistant Professor Anders Cedergren, and students Alexandra Larsen, Janessa VandenBerge and Leah Bomesberger were recognized as the first place winners of the New Researchers and Practitioners in Occupational Health and Safety (OHS) Poster Competition at the 2019 American Public Health Association Annual Meeting in San Diego in November. Their poster was titled, "Application of the Health Belief Model in assessing sleep and scheduling needs of critical care nurses."

It's an honor to be acknowledged by the APHA Occupational Health and Safety Section, says Professor Gary Gilmore. "As a long-term member of APHA OHS, I can attest to the exacting standards that are used for this award," he says.

The APHA Meeting and Expo is the largest annual gathering of public health professionals in the U.S.



CSH students earn top grad honors

Two students from the College of Science and Health received honors given to the top graduating seniors for the Class of '19.

Laura Kaiser earned the Murphy Award for Academic Excellence, while Thomas Schultz received the The Strzelczyk Award in Science and Health.

LAURA KAISER graduated with a Bachelor of Science in chemistry and mathematics. She made the Dean's List each semester and conducted a variety of undergraduate research in chemistry and biochemistry during college.

Kaiser was named Outstanding Student of the Year in Physical Chemistry and Outstanding Student of the Year in Inorganic Chemistry, along with receiving an Outstanding Work in Mathematics certificate. She was involved in a variety of campus organizations, including Wind Ensemble, Women's Choir, Golden Key International Honour Society and Eta Phi Alpha Honor Society, among others.

Kaiser plans to pursue a doctorate in organic chemistry with an environmental focus. The 2014 valedictorian of Loyal High School is the daughter of John and Beth Kaiser, Unity, Wisconsin.

My favorite UWL professor was: Dr. Heather Schenck because she knows how to provide just the right amount of challenge for students. She makes sure they are still able to succeed and don't become overwhelmed by new ideas. The



LAURA KAISER



THOMAS SCHULTZ

spectroscopy class I took with her opened my eyes to the possibility of a future in spectroscopy and organic chemistry.

The Murphy Awards for Academic Excellence...recognize the university's top two graduating scholars, as chosen by the Scholarship and Awards Committee. A grant from the Murphy Foundation created the awards in 1980 to recognize outstanding and exceptional scholastic ability. Each student will receive \$1,500.

THOMAS SCHULTZ graduated with a Bachelor of Science in biology, with a minor in chemistry. He received a grant for undergraduate research and participated in the American Society for Biochemistry and Molecular Biology Conference.

Schultz served on the Student Senate and was a member of Spanish Club. He ran on the men's cross country and indoor and outdoor track and field teams, receiving the prestigious Elite 90 award, as well as All-American honors five times and numerous conference and regional honors.

Schultz received the A. Vincent and Janet B. Weber Scholarship in Biology and Daron Williams Pre-Med Scholarship. He plans to attend medical school. The 2015 graduate of Darlington High School is the son of Kerry and Joanne Schultz, Darlington, Wisconsin.

My favorite UWL professor was: Dr. Dan Grilley. I first met him during my sophomore-level chemistry class. He taught me to have high expectations early on in my collegiate career, and he expects a lot from all of his students. As my research advisor for the last three years, he has taught me so much and has truly been a great mentor.

The Strzelczyk Award in Science and Health...recognizes an outstanding senior in the College of Science and Health for academic achievement, along with campus and community service. Robert, '54, and Judy Strzelczyk, who funded many physical therapy projects and scholarships, endowed the award in 1996. Recipients receive \$1,000.

A photograph of two young men in a swimming pool. They are standing on a large, cylindrical log that is partially submerged in the water. The log is painted with alternating bands of black, orange, and blue. The man on the left is wearing orange and white patterned swim trunks, and the man on the right is wearing black swim trunks. They are both looking down at the log, appearing to be in the middle of a balancing exercise. The background shows a swimming pool with lane lines and a banner hanging from the ceiling.

Class + Activity Learning Fun

See the complete article and
watch a video about the event

Students in the Department of Recreation Management and Therapeutic Recreation continue to complete classwork by creating fun.

Assistant Professor Brian Kumm-Schaley's classes program events ranging from log rolling to recess for adults. While the topics may seem lighter, it's down-to-work for students as they discover the emotive dimensions of leisure in popular culture and media, along with other creative, expressive arts.

One of the programs students created three years ago — log rolling — continues to garner rave reviews and was even featured

in the Milwaukee Journal-Sentinel in December. From the Journal-Sentinel:

Kumm-Schaley's recreation management class at UW-La Crosse has organized a "learn how to logroll" event for students each December for the past three years before finals. Think "escape stress" in a swimsuit and warm pool while trying something offbeat that could parenthetically be mentioned later in a job interview.

Also last fall, classes planned holiday-themed events in La Crosse and Onalaska. Among them were "Rocking Around the Omni Center," a holiday-themed dance for senior citizens featuring a live band with socializing and free refreshments and prizes. For families with children 6-10 years, students held "Santa's Workshop Extravaganza," with crafts, games and, of course, Santa.

While the events provide fun activities in the community, they, more importantly, help students build leadership skills and knowledge with programming, notes Kumm-Schaley.



While the events are fun and games for participants on and off campus, the Students in the Department of Recreation Management and Therapeutic Recreation organizing the events do all the planning and then evaluate participant outcomes following the event. The hands-on event experience build leadership skills and knowledge about programming.



Assistant Professor of Recreation Management and Therapeutic Recreation Brian Kumm-Schaley, left, leads students during a log-rolling event held on campus just prior to fall semester exams in December. The class was featured statewide in the Milwaukee Journal-Sentinel.



COLLEGE FACTUAL:

Speaker on wolf pack wins timed presentation contest

Theresa Simpson, a biology graduate student, won the 3-Minute Thesis competition on campus in February. In addition to studying at UWL, Simpson is also part of the Timber Wolf Information Network, a non-profit organization that provides public wolf ecology workshops. Because of her passion for educating about wolves, her tendency is to go into too much detail, she says. She was excited at the opportunity to practice being more concise through the competition. The annual competition challenges graduate students to distill the complexities of their academic research into only a three-minute explanation in front of an audience and panel of judges from UWL and the La Crosse community. Logan Keding, Biology, was first runner up. Katelyn De Starkey, Physical Therapy, was second runner up. All winners earned scholarships.



Opening hearts, improving homes

Senior leads spring break service trip to Guatemala

Kitt Drewiske builds a 'Rocket Stove' with Mitchell Jaeger, Claire Lofald, Enrique Haessler, and Carlitos Galvez.

A service trip to Guatemala changed Kitt Drewiske's heart and pumped up her passion for public health.

Drewiske, a public health and community health education major, says her first trip to Guatemala with the Hudson DayBreak Rotary Club in January 2018 taught her about her passion for serving others. The eight-person team built smoke-free stoves in homes and schools as an alternative to open-fire cooking.

The move reduces dangerous smoke that can lead to health issues while also creating a more efficient burn that uses less wood. When Drewiske mentioned her service trip to her advisor, Dan Duquette, Health Education Health Promotion, he helped her transform her service work into an independent study by adding research, journaling and presentation components.

During the trip, Drewiske built relationships with the project founder, Guatemalan entrepreneur and Rotary club member Carlos Galvez and others, which led to plans for the return trip.

Kitt Drewiske first traveled to Guatemala in January 2018 as part of an eight-person team to participate in the Chapina Bonita Smokeless Stove Project, a partnership between Rotary Internationals Hudson Daybreak Rotary and Guatemala Del Este Rotary clubs to install these stoves. Her service work inspired a return trip leading a group of UWL students and faculty this past spring.



"I knew of the intense need for smoke-free stoves, how the project was impacting a number of lives, and that there was still a lot of work to do," she says.

Drewiske worked with pre-medicine student Madeline Brown to plan the second service trip for spring break, March 16-23. The group of UWL students and faculty installed 18 stoves in Antigua, El Paredón, Panajachel (Masagua), and Guatemala City. They also fundraised \$8,200 for Guatemalan families and schools to receive stoves.

Beyond the physical and monetary success, Drewiske says the biggest success was the relationships created among students, faculty, Galvez, families and the stove installers. Students walked away with an invaluable experience that will impact them for the rest of their lives, she says.

"My goal for the trip was to expose students to an experience of seeing what we learned in the classroom being carried out in the real world and to allow them to explore their passions," she says.

A financial boost through Rada Award

Drewiske's commitment to serving others globally was recognized when a UWL alumnus directed a \$2,000 gift her way.

Marc Gall, '03, received the Rada Distinguished Alumnus Award in September 2018, one of the top awards bestowed by the UWL Alumni Association. The award includes \$2,000 to be presented to a current student in a department of the recipient's choosing.

Gall selected Drewiske. He wanted to find a student invested in traveling to different regions and making the world a better place.

Drewiske says the award was a complete surprise. Her advisor Dan Duquette, chair of Health Education Health Promotion, nominated her.

"The scholarship I received from the Radas and Marc Gall was a confirmation to continue to follow my passion for this project," says Drewiske. "It allowed me to have greater flexibility and time to prepare for this trip. It has been an honor to be the recipient of this scholarship, and I am extremely grateful for the generosity that the Rada and Gall families have shown me."

Based on interest expressed by a number of students, Drewiske says the service trip will continue.



Kitt Drewiske worked with pre-medicine student Madeline Brown to plan a return trip for spring break, March 16– 23. Students attending included from left back, Brandan McKandes, Haley Barta, Kitt Drewiske, Kylie Hanrahan, Madeline Brown, Madeline Nelson, Derek Krzykowski and Dr. Dan Duquette. Front left, Mitchell Jaeger, Claire Lofald, Carlos Galvez, Laura Fischer, Enrique Haeussler, Natalie Kozitsky and Carlitos Galvez. Team members not pictured include: Anika Reinsch, Ashley Hahn and Dr. Emily Whitney.

All in the family

Yang brothers succeed in College of Science and Health

Four brothers from Elk Mound, Wisconsin, took the same path — and the same major — when they headed south to UW-La Crosse.

The Yang brothers — Comsee, '14; Peter, '14; Josh, '16; and John, '19 — came to UWL for the Clinical Laboratory Science (CLS) program. The four graduates headed to Mayo Clinic in Rochester, Minnesota, for work.

The main thing getting them interested in the CLS program was job security. By completing the program and taking the ASCP certification exam, they knew they could work anywhere in the country since UWL was well-known for the program.

Their guess about the program held true. Finding a job was easy because UWL partners with many hospitals to provide students a practicum location to have hands-on experience in a clinical setting. All had a job lined up before graduating.

The brothers currently work at Mayo Clinic. They enjoy where they work and there is never a time when they are looking for something to do. They find it rewarding when colleagues and coworkers come to them for their knowledge, experience and assistance.

The brothers thoroughly enjoyed their years on campus. They made many friends and took part in opportunities and organizations to expand their knowledge. They are most appreciative of the training they received.

The four advise prospective students talk to get more information about CLS and career options from Program Director Michael Lazzari. They say the curriculum may be difficult, but it's relevant information they constantly use in their jobs.

For more information on the CLS program, visit: www.uwlax.edu/clinlabsci

TOP 10 REASONS TO BECOME A CLINICAL LABORATORY SCIENTIST

10. Excellent starting salaries and job security.
9. Ability to work anywhere in the U.S.
8. Large range of diverse job responsibilities.
7. Opportunity to perform state-of-the-art diagnostic laboratory procedures with sophisticated instrumentation.
6. Work in a laboratory where you use your mind to solve medical puzzles on a daily basis.
5. Excellent opportunities for advancement.
4. Acquire an excellent background for continuing education in graduate or medical school.
3. Fill a critical national need due to the current demand for Clinical Laboratory Scientists in the U.S.
2. Be a vital member of a modern health care team that provides the majority of information used to diagnose and treat disease.
1. The opportunity to improve patient health and save lives as a result of your laboratory and problem-solving skills.



The Yang brothers include, from left, Comsee, '14; Peter, '14; Josh, '16; and John, '19.