

Science & Health NEWS



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

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COMPUTER SCIENCE PROGRAM HAS NEARLY HALF-CENTURY HISTORY

The UW-L Computer Science Department is the second oldest in the state, second only to Madison. The program was founded in 1968. The department was created as the result of efforts by Jack Storlie, a chemistry professor at the time, who could see that computing would have broad applications in many fields.

It has always been a goal of the department to provide students with a strong foundation in software development and the broadest possible opportunity to study the range of sub-disciplines in computer science. The department believes that this maximizes the employment opportunities for our students and prepares them for a career of innovation in a rapidly evolving discipline.

Currently the department consists of 11 faculty and is experiencing a growth in enrollment with approximately 160 undergraduate majors and 30 graduate students.

UNDERGRADUATE AND GRADUATE PROGRAMS

The undergraduate computer science major requires 44 credits of computer science coursework, with nine additional credits from mathematics. The major has a core sequence in software development, a parallel sequence in computer architecture and organization with a broad array of upper level electives and required courses.

Upper level coursework includes Analysis of Algorithms, Artificial Intelligence, Compiler Construction, Computer Graphics and Visualization, Database Design, Image Processing, Information Security, Mobile Development, Networking, Object Oriented Development, Open Source Development, Operating Systems, Parallel and Distributed Computing, Robotics, Theory of Computation and Web Development.

This last spring the department offered a course on the "Internet of Things." In recent years, this term has been used to describe a range of ideas built upon the presumption of embedding identity, sensors, communication and computation into objects.

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6. At-risk taker

Find out why Kern George traveled halfway around the world to help communities in Trinidad and Tobago.



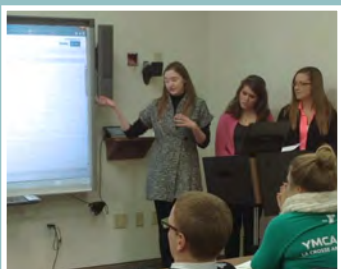
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Learn what UW-L professors are doing to fight antibiotic-resistant infections.



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CLASS NOTES POLICY

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Prof earns state diversity honors; Biologist Roger Haro nurtures, supports students



UW-L Biologist Roger Haro has received the 2014 UW System Board of Regents Diversity Award.

Roger Haro was a first-generation student in college from a historically under-represented group as a Mexican-American.

When the UW-La Crosse biology professor started his career as a scientist, he met few scientists from minority backgrounds. That fueled his ambition to work with under-represented college students.

“Science is a great career path and I wanted to broaden its ranks,” Haro explains. He has — and now his enthusiasm is being recognized.

Haro, who also directs the university’s McNair Scholars Program, received the 2014 UW System Board of Regents Diversity Award in February. The award — one of only two given to individuals statewide — recognizes institutional change agents who have had a significant impact in promoting equity in educational outcomes for historically under-represented student populations.

Haro established the McNair Scholars Program at UW-L in 2007 with Biology Professor Robin Tyser. Since 2009 Haro has been director of the program, which provides low-income, first-generation and under-represented college students with preparation for graduate school. First generation describes students whose parents did not enroll in post-secondary education.

Since the program’s inception, it has served more than 50 students — 20 are undergraduates; 33 have met the program’s objectives of successfully completing research with a faculty mentor and graduating within three years of starting the program. Nearly 80 percent of the program’s graduates have enrolled or graduated from a post-baccalaureate program.

The Regents committee saluted Haro for continuously seeking to nurture and support under-represented students in pursuit of Science, Technology, Engineering and Mathematics (STEM) higher education dreams.

“It was clear from the nomination materials submitted just how deeply and thoroughly you have committed yourself to serving students from historically under-represented populations, particularly those in the STEM disciplines at UW-La Crosse, as an advocate, scholar, and leader,” it stated in a letter from the chair of the Regents Diversity Award committee.

Haro’s teaching honor isn’t the only one earned by faculty in recent months. History Professor Victor Macías-González received the 2013 Wisconsin Professor of the Year Award from The Carnegie Foundation for the Advancement of Teaching in November. And, UW-L’s Biology Department received the 2013 UW System Regents Teaching Excellence Award for academic departments and programs.



COMPUTER SCIENCE PROGRAM HAS NEARLY HALF-CENTURY HISTORY

CONTINUED FROM THE COVER

Interest in this area has seen explosive growth and this course explores the possibilities created when everyday things become connected to the internet and how this can create new ways for humans to interact with computation and for computation to enable human activities. Students work on individual projects that combine the design of small hardware devices and the creation of cloud based software systems to provide communication and control for the devices.

The Master of Software Engineering program, started in 2001, is a logical continuation of the undergraduate program. The program requires 36 credits of computer science of which 12 credits are an intensive capstone project. The program has proven popular with both returning professionals, who pursue the degree on a part-time basis, and undergraduates, who pursue a combined five-year BS/MSE degree track.

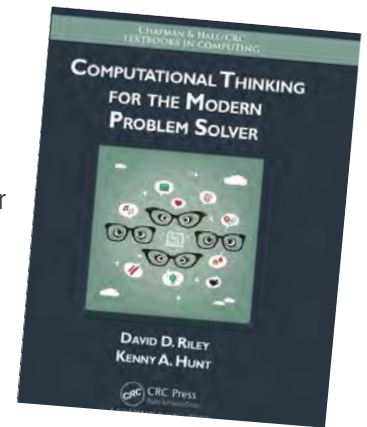
CT 100 - COMPUTATIONAL THINKING

Within less than a generation, society has been transformed from one without computers to one with a ubiquitous need for computer skills. Today, modern discovery often relies upon computational thinking. The phrase, “there is an app for that,” illustrates how those individuals who can contribute to software development have become today’s problem solvers. The Computer Science Department is at the forefront of this change thanks to a new general education course — Computational Thinking 100 (CT100). In its third year of offering, CT100 enrollment has grown steadily.

CT100 is based on the premise that modern liberal education needs to include algorithmic thinking, as much as scientific investigation, creative endeavor, mathematical reasoning and exploration of self and society. The CT100 course is not about how to use particular computer applications. Instead, computational thinking is all about how computer scientists think; what is it the computer scientist knows, that all of us should know? CT100 explores the tools and the techniques used to engineer software, especially as these are applicable outside the realm of computer science.

CT100 students learn the basic elements of algorithms by tracing and writing small programs. Propositional logic and binary numbers provide the building blocks of data representation and organization. Problem solving skills are developed and the theoretical, technological and metaphysical limits of computation are explored.

Faculty members David Riley and Kenny Hunt, who have led the development of this course, have published a textbook — the first major text for such a course (Riley, David D. and Kenny A. Hunt, *Computational Thinking for the Modern Problem Solver*, Chapman and Hall/CRC, 2014).



THE NETLOC PROJECT: ACCELERATING SCIENTIFIC DISCOVERY BY MAPPING SUPERCOMPUTERS

Every day, scientists from a wide range of disciplines use High Performance Computing (HPC) systems (a.k.a. supercomputers) to model complex phenomena and analyze vast amounts of data. The scientific discoveries that result have a broad impact on society and our understanding of the world around us. These scientific applications rely on complex software to harness the thousands of machines and complex networks that form the HPC systems. Recent research has shown that scientific applications can be accelerated by 8 to 30 percent by allowing the applications to develop a map of how their components are connected within the system.

The Portable Network Locality (netloc - www.netloc.org) project, started in 2012, provides scientific applications with a comprehensive map of the topology of an HPC system, spanning from the processor cores in one server to the cores in another – including the complex network(s) in between. The netloc project is lead by faculty member Joshua Hurse in collaboration with Cisco Systems, and Inria (French Institute for Research in Computer Science).

Two undergraduate students, Douglas MacFarland (BS 2012) and Nicholas Buroker (BS 2013), assisted in the research and development of early prototypes of the project. This year the project received a generous equipment donation (est. \$250,000) from Cisco Systems consisting of a new HPC system, named the Flux Cluster.

In November 2013, netloc v0.5 was released to the public as an open-source project at the ACM Supercomputing Conference in Denver. The initial release supports HPC systems using InfiniBand and Ethernet networks, which are two of the most commonly deployed networking technologies.

NEW GROUP, WOMEN IN COMPUTER SCIENCE, FORMED

The department has organized the WiCS group for Women in Computer Science. This group, by organizing professional development and social and outreach activities, supports the undergraduate and graduate women in the department and provides opportunities to network and plan enrichment activities.

In 2010, the national average for female students in computer science programs was less than 20 percent, with UW-L being at about that percent.

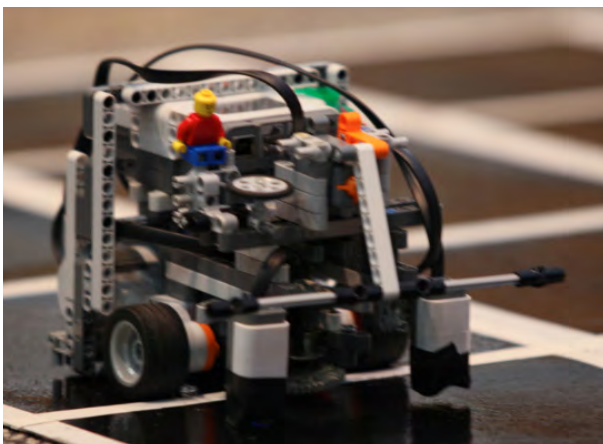


From left, faculty advisers Mao Zheng and Samantha Foley with students Katie Mulera and Amy Higgins attended the Grace Hopper Celebration of Women in Computing.

The department hopes that the existence of this group for women will help attract and retain more female students.

Since its formation last year the group has gained momentum and is now an officially recognized student group with elected officers (Christa Brehm – President, Nicole Kearns – Vice President, Kristin Lippitt – Secretary). The group holds events, such as inviting a panel of local computing professionals to campus, social and fundraising events to recruit new members, as well as outreach activities to local K-12 students.

In October 2013, four members of this group, including faculty advisers Samantha Foley and Mao Zheng, attended the Grace Hopper Celebration of Women in Computing. This international computing conference for women boasted more than 4,750 people from over 53 countries. It was an incredible experience for all who attended. The students especially benefitted from the professional development workshops, technical talks, job fair and networking events.



ROBOTICS INVOLVES SEVERAL DISCIPLINES

Robotic systems have begun to capture our collective imagination. Google is designing a car that can drive itself around downtown San Francisco. Amazon is designing self-flying helicopters that will deliver packages to customers. The U.S. military has robots that can walk across difficult terrain

while carrying thousands of pounds of cargo and we can even purchase robots to vacuum our living room and clean our windows.

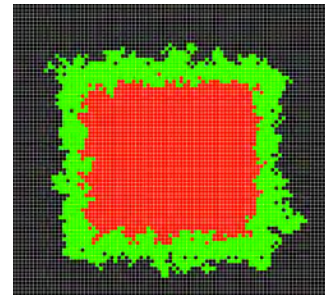
The study of robotics lies at the intersection of several academic disciplines: mechanical engineering, electrical engineering and computer science. Mechanical engineers design a robot's structure to enable efficient movement; electrical engineers design motors and wiring to control the robot's movement; and computer scientists write software that makes a robot do "intelligent" things.

The Introduction to Robotics course is a projects-based course where students learn to build and program small-scale robots that can sense the environment and respond with an appearance of intelligence. The course touches on numerous fields of study involving topics such as kinematics, dynamics, path planning, machine learning, computer vision and distributed computing. Students build robots that can follow paths on the floor, that will never run into anything, and that can find and retrieve small objects. These robots are not controlled remotely by human operators. Rather, they are designed to be autonomous and once started, they control themselves.

COMPUTATIONAL MODELS OF THE NATURAL WORLD

Faculty member Marty Allen's research involves artificial intelligence and machine learning, where the goal is to create computer programs that can adapt to changing conditions without requiring human intervention. In particular, he and several undergraduate students have looked at how teams of individuals can learn to work together when each has only partial information about the problem.

Allen is currently working with an interdisciplinary research group at UW-L that focuses on mathematical biology, and whose goal is to develop formal models of biological processes such as those found in ecology. With Eric Eager of the Mathematics Department and Anita Baines from Biology, Allen is working on ways to model the growth and spread of fungal pathogens on American Chestnut trees. These fungi have caused extensive destruction in the American Chestnut population, and there is much interest in understanding their behavior and how to prevent their spread. Allen is currently working on programs that simulate the growth of the fungi.



One tool allowing this work to proceed more quickly is the Great River Rocks Cluster, a collection of computers assembled by the Computer Science Department to work as a single collection of processors. The cluster allows Allen to run large numbers of simulations of the growth of a fungal culture, splitting the work over 64 different processing nodes and rapidly comparing the results to observations in the lab and field. Ultimately, it is hoped that an accurate model of fungal growth will reveal possible interventions against infection.

At-risk taker

Kern George's passion for helping at-risk youth brings him overseas to UW-L



“My passion is young people, so no matter if they’re at-risk or no risk, I want to develop programs that will make an impact on them.”

— Kern George, ESS Grad Student

To gather the necessary tools to better lead at-risk youth in Trinidad and Tobago, Kern George left the comfortable familiarity of his home, challenging himself to learn and live far away from home — UW-La Crosse.

Compelled by his personal drive and faith, his mother, and mentors, George finds himself a graduate student in the UW-L Exercise and Sport Science-Physical Education Program. Although he only arrived in August 2013, his sights are set on returning home.

“My country’s starving right now for people going back and applying an education in a practical way,” he says.

The decision to seek a graduate education took him away from a promising youth sports organization he founded in June 2013, and came with an interesting twist involving a UW-L alumnus. “My passion is young people, so no matter if they’re at-risk or no risk, I want to develop programs that will make an impact on them,” he explains. “The master’s degree wasn’t a major thing, but due to a couple of positive people in my life, I decided to go for it.”

One of those people is James Gostomski, '93, who is an assistant professor and director of the UW-River Falls Physical Education Program. Gostomski met Kern at the University of Trinidad and Tobago, while teaching and coaching basketball there Gostomski was impressed with George in the classroom and on the court.

“Kern is a very determined and dedicated individual who really cares about youth,” says Gostomski.

The feeling is mutual. George, who worked as an accountant assistant prior to attending university says he decided to pursue physical education because of James Gostomski. “Physical

education was basically sports to us, and he (Gostomski) changed that whole concept in our minds,” explains George. “Physical education is not just about sports, it’s about physical activity and getting everybody involved.”

In 2009, Gostomski realized George’s potential for graduate study and recommended him to a private foundation for funding. But, the money came with a hitch, requiring George to select a college or university in Wisconsin. Searching for a school, given his location, started with the Internet.

“I was checking out Madison — a lot — Whitewater and La Crosse. I was trying to find a program that was a fit for me, and I was actually seeking God’s counsel on this one,” he notes. “I was like, ‘Hey, God, direct me, I want to meet the right people, be in the right place,’ and La Crosse really stood out to me more than anything else.”

After successfully navigating the application and immigration processes, George started his master’s degree at UW-L in September 2013.

George says he’s enjoying the challenge of living in a different country.” I always accept challenges and this has been the biggest challenge of my life to be away from home,” he says.

Adjusting to the rigors of graduate school and daily life in the northern hemisphere was a process. During the early weeks of the first semester, after submitting a paper he received startling feedback from an instructor who, as George recalls, warned, “Don’t ever write like this to me again.”

After receiving this shocking introduction to graduate study, George realized he needed to step up his game. “I liked the challenge to become better, a better person academically,” he explains.

And, he’s taking the adjustment process in stride. “I’m enjoying the experience of being in La Crosse, meeting new people, and embracing the culture — and the weather,” says George.

His mentor, Gostomski, has heard about George’s experience. “Kern appreciates the assistance the UW-L community has provided



Kern George taught a basketball course during the 2014 Spring semester.

him in settling in and supporting him during his studies,” notes Gostomski.

Another key facet for George is the high quality level of organization in both facilities and programming. “In terms of UW-L, what I like most are the facilities,” George says. “Sure, we have sports facilities back home, but it’s not like these facilities.”

George hopes to implement some of the organization he as discover back home. The phrase brain-drain is well known, and George says the phenomenon is familiar to Trinidadians. Many go abroad for their formal education, then settle into careers outside of Trinidad and Tobago. George, however, expresses a strong desire to return home where cherished family and community ties await him. He also wants to continue work with the Stories of Success (SOS) Basketball Academy he founded in June 2013.

“When you need help you put ‘SOS’ in the sand, and our philosophy in this academy is that all young people deserve a chance to succeed,” he explains.

George describes SOS as a basketball camp program designed to reach at-risk youth ages 13-21 — young men who otherwise are prone to becoming victims of crime. George could have benefited himself from such a program,

“Without my mother being there when I was younger, I’m sure I’d be six feet under,” he notes.

During his year’s absence the program is in the hands of a team of co-founders. “We’re planning to add an arts academy and an elite basketball team to help create scholarship opportunities for young men to study and play basketball in the U.S.,” George says.

UW-L has given George a solid idea about the type of facilities and resources necessary to bring his vision to fruition. “We need funding with the goal of giving youth an extra edge physically and mentally,” he explains. “We need someone to buy into the passion I have for seeing young people achieve.”

George will graduate in August, having enhanced his professional network of relationships and furthered his education — while also meeting the challenges of studying abroad. He embarked on this venture with the encouragement of a UW-L alumnus, along with a desire to guide at-risk youth into more promising futures.

“It’s not just about getting my degree. It’s about doing different things, any angle, any way for young people to succeed,” says George. “I want to be there to help them. Hopefully, by God’s grace, something happens.”



*Guy Herling,
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Professor Tom Kernozek

Serves as a scholar, educator and mentor



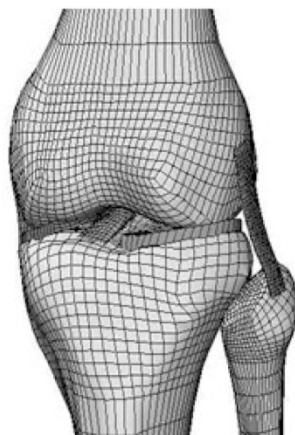
Professor Tom Kernozek often jokes with students that he teaches “spinach courses” – courses that may “taste bad,” but build strong clinicians and scholars. He is right.

The UW-L Physical Therapy Program, Health Professions Department and College of Science and Health are stronger and better because of this selfless colleague’s valuable contributions.

Kernozek joined UW-L in 1996 upon completing his doctorate and post doctorate degrees from the University of Minnesota. Since arriving on campus, he has developed the highly respected La Crosse Institute of Movement Science (LIMS) lab located in the Health Science Center.

Kernozek’s research interests relate to the biomechanics of how musculoskeletal injuries occur, as well as attempts to prevent them. Upon coming to UW-L, he has worked with pressure measurement devices and applications to analyze stresses during walking and in sitting.

In collaboration with Physics Professor Bob Ragan a model was designed to understand the internal stresses on tissue when sitting in a wheelchair. This information has proven vital to



Computerized knee model is generated from movement data depicting loading forces to better understand of how injuries occur.

clinicians concerned with how to prevent pressure ulcers in patients using wheelchairs.

Over time, Kernozek and collaborators have developed a wide variety of projects with more instruments and techniques to collect data. Due to the higher incidence in anterior cruciate ligament (ACL) injuries in female athletes, he began examining unique movement related risk factors. This resulted in the publication of seminal studies describing the movement differences between male and female athletes while landing.

Through more collaboration with Ragan, a computer model was developed which estimated ligament stresses on participants performing various hopping, cutting and landing maneuvers common to athletes. These methodologies have been adopted by other scholars to better understand the complexities associated with ligament forces that contribute to ACL injuries. Similarly, another model was developed to estimate stress under the knee cap during physical activity leading to investigations of the causes of patellofemoral joint stress in runners. Patellofemoral pain is often a precursor to the more debilitating condition of osteoarthritis affecting approximately 27 million adults today.

Currently, Kernozek is collaborating with several private companies to explore cutting-edge technology with the potential to answer other clinically important questions. An exciting project involves Bertram Enzenwa, Ph.D., a bioengineer with Bezenwa Biomedical Engineering LLC. This National Institute of Health funded study is developing and testing a multi-frequency vibration device. These vibration frequencies may help prevent blood clots and stimulate blood flow using a non-pharmacological approach.

Kernozek is also collaborating with John Greany, Physical Therapy, Peggy Denton, Occupational Therapy, and researchers from the Netherlands to use a virtual, game-like environment to examine balance and reaction time in older adults. Their efforts to identify distinct age-related differences in performance will contribute to understanding balance impairments and preventing falls.

“Kernozek’s breadth of projects is a testament to his curiosity and willingness to promote and assist others in their research,” says Denton, Health Professions Department chair. “Tom is incredibly open to projects and ideas. I don’t know if he has ever turned anybody down who had a viable research idea and wanted his help.”

Even more impressive than his vast collection of peer-reviewed publications and other scholarly works is that Kernozek has accomplished this at a comprehensive campus while engaging clinically oriented graduate students in PT and OT and undergraduate students in Biology, Physics and Exercise and Sport Science.

In a different environment, skills such as collecting, processing and analyzing this type of data would be solely reserved for higher-level graduate students or post-doctoral students. The

unique opportunity to be mentored in research methods by Kernozek is not lost on his students.

“He has an amazing ability to incorporate his students into all aspects of the research process and include them on the final product of a published manuscript,” explains Charles (Nate) Vannatta, third year PT student currently being mentored by Kernozek on a final internship. “Standing and observing his esteemed ‘Wall of Fame’ in the laboratory which is a commemoration of the published research that his students have contributed to, is truly a thing to behold.”

Thomas (Gus) Almonroeder, ’13, concurs. “When I told him that I had an interest in continuing to do biomechanics research after PT school he was very supportive and helped me find a position as a Ph.D. student at UW-Milwaukee,” note Almonroeder. “Without his support and direction I don’t think that this opportunity would have been available to me. He continues to provide me with mentorship, support, and advice even though I have moved on from UW-L. It really shows how committed he is to helping his students reach their potential and that this commitment does not end with graduation.”

Other alumni who have gone on to distinguished careers agree that Kernozek’s influence has been invaluable.

“Of all the people I have worked with and worked for, I believe Tom Kernozek has had the greatest impact on my career path,” says John Willson ’98, PT, Ph.D., and recipient of the American Physical Therapy Association Orthopedic Section’s Rose Excellence in Research Award. “Simply put, Tom leads by example in his teaching, scholarship and service.”

The UW-L Physical Therapy Program and Health Professions Department are honored to feature Kernozek and highlight the contributions he has made to our professions, students, alumni and campus.

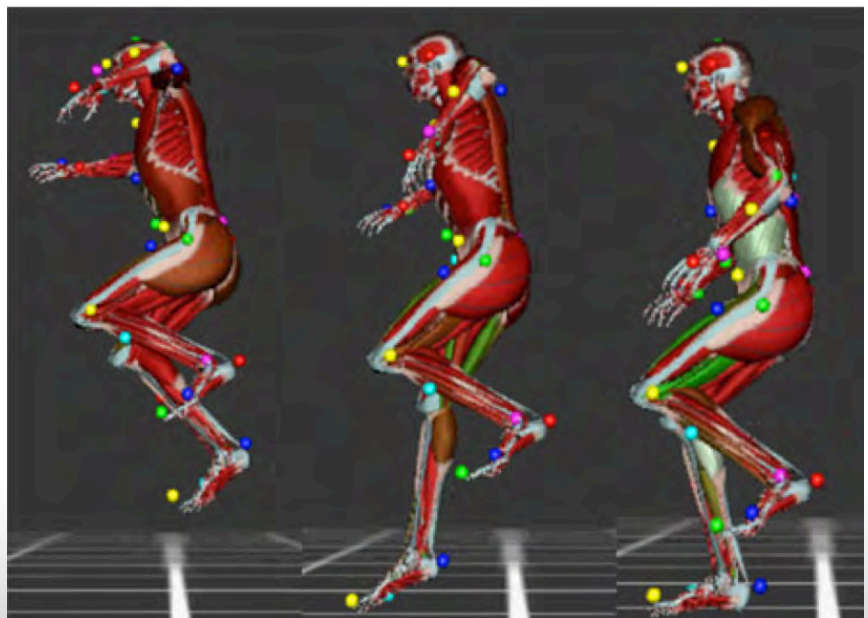
Thanks “Dr. K.” for the difference you make!



*Michele Thorman,
Associate Clinical
Professor, Physical
Therapy Program
Director, Health
Professions Department*



Participant with reflective markers used to capture movement data.



Movement data is used to estimate muscle forces.

FROM STUDENT TO PROFESSOR

Robert Mooney hopes to earn a master's, doctorate thanks to McNair Scholars program

Robert Mooney came to UW-La Crosse in 2009 as a transfer student from the Florida Institute of Technology. Originally from the Badger state's Sauk County, he completed a bachelor's degree in 2011. He expects to earn his master's in August. Both degrees are in biology.

Mooney began conducting ecological research as an undergraduate student and served as a biology teaching assistant for two years before becoming a graduate assistant and undergraduate research mentor in the McNair Scholars program.

"Rob possesses an enviable set of skills and experiences that made him a great addition to the McNair Scholars staff," says Roger Haro, director of the McNair program, which yearly serves 28 students from underrepresented populations. "Rob provided excellent advising and mentoring to students who want to go to graduate school, after finishing their undergraduate degree here at UW-L."

Q How did you first get involved in research at UW-L?

A In the summer of 2010 I talked with my adviser, Eric Strauss, about possibly helping his graduate student with his thesis research. Our conversations eventually led me to the decision to do my own research project. I spent that summer working on a Mississippi River project with funding from the SAH Dean's Distinguished Fellowship.

Q Tell us about your graduate level research.

A I have been researching how the nutrient recycling by a cased caddisfly (*Glossosoma intermedium*) affects different aspects of stream ecosystems, such as invertebrate resource selection, invertebrate diversity, and nutrient remineralization. My actual thesis project stems from the research I began as an undergraduate student.

Q Any advice for students interested in research but not sure where to start?

A Speak up! Let your advisor or professor know you are interested in research and willing to be involved in a project. That's what I did and it provided me with some fantastic opportunities.

Robert Mooney began conducting ecological research as an undergraduate student and served as a biology teaching assistant for two years before becoming a graduate assistant and undergraduate research mentor in the McNair Scholars program.



Graduate Assistant Robert Mooney assists McNair scholar Alexandra Clussman in the lab.

Q What have been some of your proudest accomplishments as a graduate student?

A I really enjoy presenting my research and communicating what I've learned to others. The best moments were winning presentation awards at the Society for Freshwater Science conferences. I won the award for "Best Presentation of Undergraduate Research" for my oral presentation in 2012. Then again, in 2013, I won "Best Poster Presentation in Basic Research," also at the conference.

Q What are your plans after graduation?

A After I graduate in August, I will begin to prepare for entering a Ph.D. program in 2015. My long-term goal is to teach at a college. In the meantime, I will be applying to and visiting universities, travelling, and hopefully starting a little fly-tying business.

Q What have you learned by being a mentor to undergraduate researchers?

A Every researcher experiences a wave of satisfaction when things come together. Whether it's giving a research presentation, completing statistical analyses on a data set, or finishing up an experiment, there are many opportunities to feel accomplished. It's very satisfying to see a young researcher's confidence increase because confidence is one of the best attributes to have in graduate school.



Jessica Thill, Program Coordinator, McNair Scholars Program

Climbing higher, higher

Crates no longer just for milk

Adventure educators work in a field that has elements with names like Pamper Pole, Giant Swing and Catwalk. They convince people to participate in jumping off of a telephone pole, or pulling a rope that releases participants into the air where they can perform their best Peter Pan impersonation.

The UW-L Adventure Program in the Exercise and Sport Science Department has added crate stacking to its activities. It's not quite like cup stacking that took the U.S. by storm several years ago. It generally involves either milk crates, or soda crates, and one to three people.

The activity involves patience, problem solving, communication, great balance, agility and a person willing to toss crates up in the air with great accuracy, knowing they could all fall on him/her at any moment. Operating procedures are in place to prevent injuries from occurring.

All participants including belayers, and the person feeding the crates up, must wear a helmet. Those participating must be on belay and the belayers have a back-up belayer.

Participants stack the crates directly under the anchor (that has the rope running through) to avoid swinging into other participants. The activity is set up in front of the climbing wall and under the anchors on the overhang.

Jeff Steffen, director of the UW-L Adventure Program, began teaching the activity of crate stacking to his graduate students in 2011 when it was gaining interest in the adventure world around the U.S.

The idea of crate stacking was developed by Tanya Bocking at Broadstone Warren, the U.K. Scout Association campsite in Sussex in July 1977. At this camp they stacked without being "on belay" and if they fell it was into mud.

As it stands, no pun intended, the single person record is at 26 crates. That is incredible considering that with each crate stacked the harder it is to keep balance on such a narrow and tall structure.

Adventure education is growing in American physical education classes and is all about putting people in a unique situation and creating a sense of disequilibrium. It also teaches them about responsibility and decision making through movement.

How to crate stack:

Participants attempt to stack the crates while standing on them (see photo #1) as high as they can off the ground without falling.

There is a person on the ground tossing crates up to the climber.

The participants climbing, or stacking, are on belay so when the stack begins to fall, (see photo #2) the participant is secure in the air while crates tumble.

Two stacks side by side (see photo #3) would be a little more comforting.

UW-L class competition for crate stacking only allows a single stack.

That is the challenge of the activity, pushing people beyond their comfort zone.



*T.J. Mickschl, Instructor,
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Disease fighters

More than a decade of drug discovery research

According to a landmark 2013 report from the Centers for Disease Control and Prevention (CDC), more than 2 million illnesses and 23,000 deaths are caused by antibiotic-resistant infections in the U.S. each year. Infectious disease remains the leading cause of death worldwide.

The CDC report summarizes the catastrophic consequences of inaction in addressing emerging antibiotic resistance and encourages immediate action to stem the looming public health threat. Clinicians rely on antibiotics to treat infections. Unfortunately, the pipeline for new anti-infective drugs has virtually dried up, and many “superbugs” resistant to existing antibiotics have emerged.

There is a critical need for new anti-infectives, yet from 2000-10, the U. S. Food and Drug Administration approved only three new classes

of antibiotics. To address this healthcare crisis, Congress passed the Generating Antibiotic Incentives Now (GAIN) Act in 2012 to stimulate major pharmaceutical companies to reinvest in antibiotic discovery.

HISTORY OF FIGHTING ANTIBIOTIC RESISTANCE DATES BACK TO MID-'90S

The efforts of Mycophyte Discovery are rooted in a project Marc Rott (Microbiology) began in 1996 with more than \$450,000 in funding from the National Institutes of Health (NIH), to establish collaborative research and teaching opportunities with the Lac Courte Oreilles-Ojibwa Community College (LCOOCC) near Hayward, Wis.

Under the supervision of UW-L and Gundersen Medical Foundation researchers, students and faculty from the LCOOCC undertook summer research projects investigating the chemistry of plant-based treatments for infections used traditionally by native peoples. Aaron Monte (Chemistry & Biochemistry), Sarah Shillinger (Ethnic and Racial Studies), and

Tom Volk (Biology) joined the efforts, and an interdisciplinary team was formed to identify anti-infectives from both Native American herbal remedies and wild fungi.

In 2000, the WiSys Technology Foundation Inc. was formed as a subsidiary of the Wisconsin Alumni Research Foundation (WARF) to assist UW System campuses in protecting intellectual property and marketing, licensing and commercializing marketable inventions.

Shortly thereafter Maliyakal John, Director of WiSys, urged these researchers to submit an initial patent filing on compounds they discovered in an herbal remedy known as sweet fern. The idea for the creation of the La Crosse area's first biotech startup company soon followed.

William Schwan (Microbiology) joined the team in 2003 to begin testing promising agents against dangerous bacterial pathogens. In 2006, Joseph Toce (Chemistry & Biochemistry)

ABOVE PHOTO: From left, Professors William Schwan, Aaron Monte, and Marc Rott show off some of their intellectual property.

joined the group, bringing decades of expertise in biotechnology research and considerable business acumen to guide the group's highly collaborative efforts.

MYCOPHYTE DISCOVERY, LLC – LA CROSSE'S FIRST BIOTECH COMPANY

Monte, Rott, Schwan, and Volk founded Mycophyte Discovery LLC in 2005 to further their efforts to develop novel anti-infective compounds. Toce joined as a full partner in 2006.

The name "Mycophyte," coined by Volk, merges the Greek terms myco, meaning "fungus," with phyto, meaning "plant," to convey Mycophyte's primary efforts to "fight" infection by identifying new antibiotics derived from these sources.

Since 2003, Mycophyte Discovery's core facility has been housed in the UW-L Health Science Center, whose stated missions are to enhance healthcare and medical science education and to incubate biotechnology business and grow an entrepreneurial culture in Western Wisconsin.

With the help of Catherine Kolkmeier, director of the Health Sciences Center, Monte and Schwan submitted a proposal based on one of Mycophyte's early discoveries and placed as finalists in the Life Sciences category of the 2008 Wisconsin Governor's Business Plan

Competition. With competitive funding from the WiSys/UW-S combined ARG/WiTAG grants program, Xueting Liu, a world-class natural products chemist from Shanghai, China, joined the Mycophyte team for three years to accelerate the group's progress and assist with student mentoring and education.

With the aid of Pat Dillon, director of the regional Wisconsin Entrepreneurs' Network, Mycophyte also received an Early Planning Grant to further develop its business plans. These efforts were enhanced with the guidance of Jan Gallagher, former director of the UW-L Small Business Development Center, who worked to connect the group with funding opportunities from the business sector.

COLLABORATIONS WITH OTHER RESEARCHERS EXTENSIVE

Since those early synergistic efforts, the Mycophyte team has gradually expanded its cooperative, interdisciplinary research to involve additional faculty members from multiple College of Science and Health departments. This research endeavor has also blossomed to include scientists from other UW campuses and researchers at institutions throughout the state and nation.

CSAH faculty members involved in this program at various times have included: Jennifer

Miskowski, Anne Galbraith, Mike Abler, Greg Sandland, Peg Maher, David Howard, Scott Cooper, and Anita Baines (all Biology) and Mike Winfrey and Bernadette Taylor (Microbiology).

Other UW System collaborators include Cheng-Chen Huang (Biology, UW-River Falls), David Lewis (Chemistry, UW-Eau Claire), Michael Ruane and Jeffery Buboltz (Chemistry, UW-Platteville), Ed Elder (UW-Madison School of Pharmacy), Jill Kolesar (UW-School of Medicine Carvone Cancer Center), and Michael Hoffman (UW-Keck Small Molecule Screening Facility). One particularly fruitful and long-term collaboration with the research group of James Cook (Chemistry & Biochemistry, UW-Milwaukee) has yielded a novel library of over 300 drug molecules that possess a range of promising biological activities. Cook's group works with Mycophyte researchers to conduct structure-activity relationship studies on these compounds, with the goal of making them more potent and effective, and increasing their spectrum of activity and bioavailability.

Several Mycophyte collaborations involve researchers from Wisconsin institutions outside the UW-System. These include Ward Jones (Biology, Viterbo University) and Mary Stemper (Marshfield Clinic).

Out-of-state collaborators include Ted Wilson (Biology, Winona State University) and Kurt Reed (Northwestern University Feinberg School of Medicine). Importantly, David Sherman (University of Washington–Seattle Biomedical Research Institute and Department of Global Health) and the NIH-National Institute of Allergy and Infectious Diseases have conducted studies on the suitability of certain Mycophyte compounds to treat tuberculosis (TB).

The Mycophyte group is deeply indebted to all of these generous collaborators who have aided in their mission to create lifesaving drugs. They are particularly grateful to their initial Native American partners from the LCOCC who helped the group to recognize the great potential of medicines in healing plants used by indigenous peoples.



From left, U.S. Rep. Ron Kind, Marc Rott, Leah Defoe, Aaron Monte, William Schwan, and WiSys General Manager Maliyakal John at the Innovation Scholar Award ceremony.

Continued on next page.

ACCOMPLISHMENTS ARE MANY

In addition to bringing so many talented people together to catalyze solutions to pressing healthcare threats, the core Mycophyte group members have been productive and innovative in other ways. From 2007-14, members of the group have submitted five patent applications, including the first-ever submitted from UW-L.

They have published 11 peer-reviewed manuscripts focused on various facets of Mycophyte's investigations. Members of the group have submitted 19 external grant proposals, requesting more than \$4.3 million in times of very low funding rates, with 13 of these being funded to total approximately \$900,000.

The group's valuable efforts were further acknowledged through the enactment of Act 265 by the Wisconsin state legislature in 2010, which pledged \$400,000 to aid in formally establishing the group's "Emerging Technology Center in Pharmaceutical Development at UW-L."

Perhaps the greatest collective accomplishment of the Mycophyte group, however, lies in its training of the next generation of young scientists and biotech entrepreneurs. Under the supervision of faculty members affiliated with Mycophyte, seven master's degree students have undertaken thesis projects since 2007, and many more than 20 undergraduates have contributed to the research. Many undergraduate and graduate students have co-authored publications and have presented at numerous regional and national conferences.

Mycophyte members also have received individual accolades for their anti-infective drug discovery work. In 2006, Monte, Rott, and Schwan, along with Leah Defoe of the Bad River band of the Ojibwa, received the WiSys Innovation Scholar Award for their "discovery and characterization of a novel anti-infective agent." The WiSys Innovation Scholar Award "recognizes faculty, staff and students who make and disclose outstanding discoveries that may benefit society."

THE FUTURE

Given the looming crisis the global community faces as the effectiveness of existing antibiotics is lost, the Mycophyte group remains committed to expanding and intensifying its disease-fighting efforts. Currently, the main focus is on moving one or more drug candidates forward to the clinic for use in treating some of the most difficult infectious diseases on the planet,



The Mycophyte LLC founders include UW-L faculty members, from left, Marc Rott, Aaron Monte, Joseph Toce, William Schwan, and Thomas Volk.

such as those caused by methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin resistant *Enterococci* (VRE).

A separate effort is underway to optimize compounds that may be used to treat TB infections. It is estimated that one-third of the world's population is currently infected with TB, and many of the bacteria causing these infections are now resistant to one or more of the antibiotics commonly used to treat this highly contagious disease, and some are already resistant to every antibiotic used to treat these deadly infections.

The work of Mycophyte Discovery, born of the basic research conducted by CSAH faculty members, has grown over the past decade to become a dynamic, highly collaborative, and cooperative effort that is both multidisciplinary and inter-institutional. With support from UW-L, the UW System, and the guidance of several insightful colleagues at WiSys, the Mycophyte team is well poised to make continued crucial contributions to worldwide efforts to stem the tide of several deadly diseases.



Aaron Monte, Professor and Chair, Department of Chemistry and Biochemistry



Marc A. Rott, Associate Professor, Department of Microbiology

Anatomy Memorial Ceremony celebrates body donors' contribution to education at UW-La Crosse

Most people do not become body donors, say Lecturer Kerrie Hoar and Associate Professor Tom Greiner, UW-L faculty who teach anatomy. Only a special few that make this choice.

However, those who donate their bodies to science are really donating themselves to the education of the next generation of scientists, they say.

To extend their gratitude, students, faculty and staff in Health Professions, Biology and Exercise and Sport Science departments hosted an Anatomy Memorial Ceremony on Tuesday, March 25. They want families of donors to see how much they value their loved ones' donations.

"We are recognizing these individuals for the enormously generous and valuable contribution they have made to our studies and research," says biology student representative Kali Kramolis. "The students and faculty who work with these individuals sometimes become emotionally attached, and the ceremony becomes very sentimental to us."

The memorial included guest speakers from the university, as well as performance pieces by faculty, staff and students.

FURTHERING EDUCATION USING HUMAN CADAVERS AT UW-L

UW-L has one of only a small number of undergraduate programs in the country that uses human cadavers to study anatomy. According to Greiner, who teaches graduate gross anatomy, this gives students an advantage.

"Students find that most bodies do not perfectly conform to the textbook description," he says. "Sometimes muscles are missing. Sometimes nerves split apart or come together in unexpected patterns. These future clinicians need to realize that real bodies bear only a vague resemblance to their textbook presentations."

Three UW-L departments host human cadavers. Students can use two cadavers in their studies in Mitchell Hall in the Exercise and Sport Science Department; students can use four cadavers in Cowley Hall in the Biology Department; and students in clinical graduate programs use 13 to 14 cadavers in the Health Science Center.

Students in the anatomy graduate program have the added benefit of performing a dissection of the entire human body, notes Greiner. "Dissection becomes a process of discovery where the students have an opportunity to really appreciate where anatomical structures are and how they are situated relative to each other."

This spring, three groups of students presented research projects at the Celebration of Student Research and Creativity about previously unknown or under-appreciated anatomical variations and the impact they can have on clinical practice. These projects, according to Greiner and Hoar, have the potential to improve health care treatment and diagnosis.

The people who donate themselves are making a contribution toward the improved health and well-being of everyone, they say.

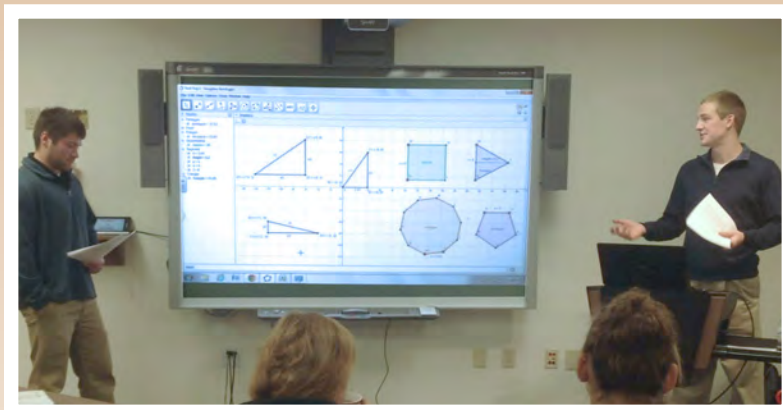
Both Greiner and Hoar have the utmost respect for those who decide to donate their body to science, but Hoar has a personal connection. She has two relatives who donated their bodies for education.

"Every day in the lab, I encourage my students to take full advantage of the unique opportunity that our human cadavers offer," Hoar says. "I hope to ingrain in our students a deep and lasting respect for those individuals who have given so generously of themselves."

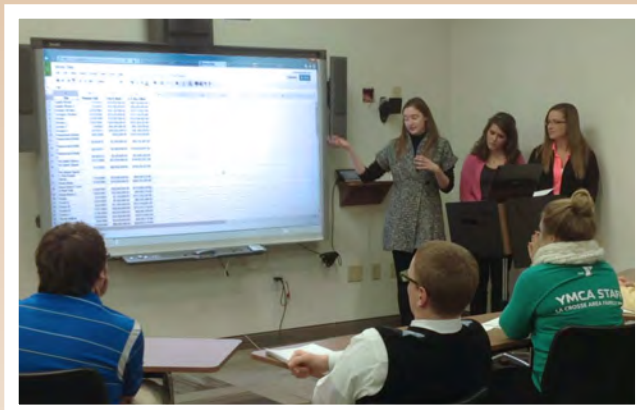
— UW-L Student Breanna Levine

Math Fair

MATHEMATICS ED STUDENTS GET A LOT OF OUT EVENT



Keith Vogt, left, and Andrew Ellenbecker discuss using GeoGebra to teach about the Pythagorean Theorem.



From left, Megan Witt, Carly Shinnors and Nichelle Grange discuss using spreadsheets to collect and analyze data.

The second Mathematics Education Technology Fair took place this past December. Coordinated by Josh Hertel and Jenn Kosiak, the event brought together teacher candidates, faculty and in-service teachers from around the area.

The fair focused on how to effectively integrate technology to support student learning. The UW-L Murphy Library served as the venue with sessions held in the newly finished School of Education Collaborative Learning Studio and the recently remodeled Murphy Learning Center.

Students from the School of Education's Secondary Teacher Education Preparation Program presented a variety of different topics. Technologies discussed included: spreadsheets, Google Earth, i-pad

applications, and the dynamic geometry software, GeoGebra.

Feedback from participants and presenters was positive. Local teachers noted how the event was helpful in keeping them informed on new technologies and providing useful classroom activities. Student presenters noted how the fair provided them with opportunities to share what they have learned with a wider audience that included area teachers, university faculty and other education students.

"I enjoyed that there were so many different levels of mathematicians and educators at the Technology

Fair," says student Keith Vogt. "It was great getting feedback from people with different backgrounds in mathematics and education and to see the kinds of different questions and comments that they had about our presentation."



Luke Wahl, left, and Jason Boll discuss exploring circle inversions using GeoGebra.

Math initiative adding up

The Wisconsin Core Mathematics Initiative is a three-year collaborative project among the UW-L School of Education, the College of Science and Health Mathematics Department, and area school districts. The districts include La Crosse, Holmen and 10 small districts in northeastern Wisconsin from the CESA 8 region.

Funded by a Department of Education Math Science Partnership Grant, the project's goals are to develop teachers' mathematical content knowledge and practices that have been shown to enhance student learning, especially those in need of additional support.

The three-year project, totaling more than \$600,000 funding, began in summer 2013. To achieve its goals, the project involves teachers in grades 4-8 in an ongoing professional development program to improve their pedagogical content knowledge in three middle school domains of the Common Core State Standards for mathematics: ratios and proportional relationships, geometry, and probability and statistics.

Each year, the project team comprised of UW-L math education faculty Jenni McCool and Jennifer Kosiak, UW-L School of Education Director Marcie Wycoff-Horn, and teacher leaders from participating school districts lead two-week summer academies and an academic year follow-up.

Using the School Collaborative Learning Studio in Murphy Library, the project team interacts with teachers and teacher leaders in CESA 8 located in Gillette, Wis. More than 60 teachers from grades 4-8 have participated in the two-week summer professional development opportunity and four academic year Saturdays.



UW-L Alumni and Teacher Leader Randy Ketelhut, standing, from Longfellow Middle School in La Crosse engages teacher participants in using algebra tiles that are used to deepen students' understanding of simplifying and solving equations.



Teachers from the La Crosse and Holmen school districts work collaboratively with teachers from the CESA 8 region in the School of Education Collaboratively Learning Studio.

— Jennifer Kosiak, Associate Professor and S.T.E.P. Co-Coordinator, Mathematics Department

— Jenni McCool, Assistant Professor, Mathematics Education, Mathematics Department

— Marcie Wycoff-Horn, School of Education and Office of Field Experience, Director-School of Education

Student Jason Boll agrees. "It was a fun and engaging experience, allowing us to show off some of the hard work we put in throughout the semester," he says. "I really enjoyed collaborating with professionals in the field of mathematics. They were very interested in all of the new technology and it was very self-fulfilling to see the curiosity and excitement in their facial expressions."

The fair offered a great experience for presenting in front of a crowd of teachers and professors, eventual collaborators for mathematics educators. It was important to have the experience of communicating a lesson plan to practicing teachers who ask the types of questions needed to consider to effectively execute the activity.

"I really liked having those questions asked because often they were ideas I did not think of or possible issues that could have happened that I did not foresee," explains student Carly Shinnars. "The thing that I remember from the fair was leaving thinking about how important collaboration is among teachers. We have to stick together!"

The mathematics education group is looking forward to the fall 2014 fair where it hopes to expand the number of student presentations and increase the number of attendees.

For more information on the fair, contact Josh Hertel (jhertel@uwlax.edu) or Jenn Kosiak (jkosiak@uwlax.edu).

— Jennifer Kosiak, Associate Professor and S.T.E.P. Co-Coordinator, Mathematics Department

— Josh Hertel, Assistant Professor, Mathematics Department



Volunteerism:

A MUTUALLY BENEFICIAL OPPORTUNITY

Professor Gary Gilmore
and Kate C. Noelke

VOLUNTEERING IS A WIN-WIN

Not only is volunteering a great way to build a resume, it is an important way to pursue enriching, practical learning opportunities and to build collaborative professional relationships as a part of a valuable and necessary service to the greater community.

According to the Corporation for National and Community Service (CNCS), more than 64.5 million Americans volunteered nearly 7.9 billion hours, contributing an estimated service value of nearly \$175 billion to the U.S. economy in 2012 (Corporation for National & Community Service, 2012).

In Wisconsin, more than \$3.1 billion of service was contributed by 1.62 million volunteers helping to promote healthy living through community services that included helping the elderly and disabled access healthcare and healthy food; helping provide care in schools, hospitals and clinics; building homes for those in need; performing handyman tasks to improve heating and cooling efficiency, developing important social programs; fundraising; teaching and mentoring youth; and contributing to local events and festivals (CNCS, 2012).

Growing research also suggests that volunteerism is not only good for communities, but also for the health of individuals. By facilitating social integration, distraction from one's troubles, a sense of meaning, self-efficacy, positive mood, physical activity and stress reduction, volunteering contributes to health promotion (Poulin, 2014). A study by researchers at Carnegie Mellon University published in "Psychology and Aging" in June 2013 found that adults who volunteer on a regular basis are less likely to develop high blood pressure than non-volunteers (Sneed & Cohen, 2013). Hypertension is an important predictor of health status, as it leads to heart disease, the number one cause of death in America (Murphy, Xu, Kochanek, 2013), as well as stroke and premature death.

PREPARE FOR THE VOLUNTEER EXPERIENCE

Those planning on volunteering can ensure enriching volunteer experiences by being adequately prepared for the opportunities. When considering volunteerism, think not only about how volunteer time will be spent, but also about who will benefit from volunteer involvement, what skills will be exercised and developed, and with which organizations' mission a person's skills and values truly align.

In order to become prepared and find the right fit, potential volunteers should reflect on their skills, strengths and weaknesses; research the vision, mission, specific needs, and strategic directions of the organization, and thoroughly research the job descriptions of potential volunteer experiences. Ask yourself what is realistic for a time contribution and the degree to which it can be sustained.

LOCAL ORGANIZATIONS NEED HELP AND PROVIDE ENRICHING OPPORTUNITIES

Skilled and trained volunteers are a resource that local organizations depend upon to fulfill their missions and to accomplish the goals they set to better the community. The La Crosse area is home to some unique and valuable volunteer opportunities representing a wide variety of community needs and ways in which volunteers can put their skills to use, thereby gaining an enriching educational experience and also doing something good for the people and the environment of the Coulee region.

For example, the La Crosse Area Medical Reserve Corps (MRC) was established as a part of a national effort to prepare communities for disasters. The corps recruited, trained and organized volunteers to be ready to respond to large or small crises. A volunteer for MRC will receive valuable emergency preparedness training, become vetted as a member of a reputable and important national organization, and have the opportunity to promote public health.

OTHER LA CROSSE OPPORTUNITIES

An example of another unique volunteer organization with a specific need is the La Crosse YWCA. This organization makes a distinct difference with its emphasis on safe and healthful living for adult women and their children, the enhancement of self-esteem and self-worth, and timely community-based collaborations with other organizations.

Volunteers interested in learning about more ideas for valuable volunteering opportunities in the La Crosse area, should go to [THIS LINK]. The included table provides a comprehensive list of worthy volunteer opportunities in the Coulee Region to jump-start brainstorming about potential involvement. It also provides a template for information gathering in the preparation stage of choosing a volunteer opportunity.

TAKE ACTION AND DOCUMENT

Once a volunteer has identified an opportunity that aligns with his or her values and skills, it is important to give a 100 percent best effort during the opportunity and to spend adequate time documenting and reflecting on the experiences. These are important ways to ensure a valuable and purposeful volunteer experience.

Volunteers should use passions and strengths to engage with the work performed, and also to engage with other volunteers and with leadership personnel in the organization selected. Document volunteer hours and also specific experiences. Some communities and neighborhood groups keep a record of these types of contributions so that mutual benefits can be accrued over time (Gilmore, G.D. 2012, pp. 127-131).

Let the sense of curiosity prevail so that learning happens along the way. Keep a journal about activities, skills developed or refined, training received, and relationships built. These important journal reflections or reports can be shared with supervisors, boards and the public through media, to promote the value of the organization and of volunteerism to the community.

Taking the time to document will also add a level of enrichment to the experience. It is very important to take the time to thoroughly consider the opportunities available volunteers within the community. Choose an organization with a mission that aligns with personal skills, goals and values. Then begin, giving a 100 percent effort, and also spend adequate time reflecting on the experience and unique mutual benefits for you and the organization.

REFERENCES

Corporation for National and Community Service. (2012). Volunteering and civic engagement in the United States. Retrieved from www.volunteeringinamerica.gov/

Corporation for National Community Service. (2012). Volunteering and civic engagement in WI. Retrieved from www.volunteeringinamerica.gov/WI

Gilmore, G.D. (2012). Needs and Capacity Assessment Strategies for Health Education and Health Promotion (4th ed.). Burlington, MA: Jones & Bartlett Learning.

WHERE TO GO FROM HERE

There are many ways to begin the process of exploring, preparing for, and diving into volunteerism with an organization that aligns with volunteers' personal skills and values. For information on volunteerism in the La Crosse community, review the summary table by click on volunteer grid tab, browse the HomeTown section of the La Crosse Tribune, check out the websites of the organizations of interest, or do a search through a website like volunteermatch.org.

[Click here for the volunteer grid](#)

Another option is to contact volunteer organizations in the community that have people ready to help align potential volunteers with specific efforts and community needs such as Great Rivers United Way, Great Rivers 211, UW-L University Center's "Get Involved" resource, La Crosse Medical Health Science Consortium, Causeway Interfaith Volunteer Caregivers Inc., or Coulee Region RSVP.

SUMMARY

Volunteerism benefits individuals, organizations, and the greater community by promoting healthy living. Through social integration, distraction from one's troubles, a sense of meaning, self-efficacy, positive mood, physical activity and stress reduction, volunteering contributes to health promotion (Poulin, 2014). It even can contribute to improved health for the individual.

A study by Sneed & Cohen (2013) published in "Psychology and Aging" in June 2013 found that adults who volunteer on a regular basis are less likely to develop high blood pressure than non-volunteers. When the need in a community has been identified, volunteers' skills and values have been matched with compatible organizations. Opportunities are then explored and owned by individuals, giving freely of their time and efforts. The results are then mutually beneficial, to the volunteers, the organization and the community.

—*Kate C. Noelke, MPH-CHE Candidate, Health Education and Health Promotion Department, UW-L College of Science and Health*

Murphy, S., Xu, J., Kochanek, K. (2013). Deaths: Final data for 2010. National Vital Statistics Reports, 61(4). Hyattsville, MD: National Center for Health Statistics.

Poulin, M. (2014). Volunteering predicts health among those who value others: Two national studies. *Health Psychology*, 33(2), 120-129. doi:10.1037/a0031620.

Sneed, R., Cohen, S. (2013). A prospective study of volunteerism and hypertension risk in older adults. *Psychology And Aging*, 28(2), 578-586. doi:10.1037/a0032718.



Michelle Zullo

UW-La Crosse senior earns scholarship

UW-L senior Michelle Zullo is one of five students nationwide to receive a \$2,000 scholarship from the American Proficiency Institute (API).

“It is remarkable to find students that make such sacrifices to pursue their passion for medical laboratory science,” says Daniel C. Edson, president of API. “We are pleased to continue to support the future of the laboratory profession.”

Zullo has always had a goal of improving the well-being of others. “I originally thought the best way to do this was by attending medical and graduate school,” she says. “However, while working in the laboratory I realized that I loved the bench and the hands-on work with research. The results will have a direct impact on the lives of all who pass through the hospital.”

Michael Lazzari, UW-L Clinical Laboratory Science Program Director, says Zullo will be a valuable asset to any laboratory team. “I foresee her having a great impact on this profession,” says Lazzari.

UW-L student receives prestigious internship

UW-L senior and geography major Terri Beal has been accepted to be a paid intern for the National Geographic Society in Washington, D.C., an honor usually reserved for graduate students.

Most people know the National Geographic Society, or NGS, for their publication, National Geographic magazine, but it is also one of the largest non-profit scientific and educational institutions in the world. NGS mainly specializes in geography, archaeology and natural sciences and is an advocate for environmental and historical conservation.

“It will be very exciting to work in Washington, D.C., at the NGS headquarters,” says Beal, who thinks it will be good experience before finding a permanent job.

Beal began her internship in May after she graduated and will continue until the end of August. She will be working in the social media outreach department.

“It will be very exciting to work in Washington, D.C., at the NGS headquarters,”

Beal says she heard about the opportunity from her academic adviser, Geography Professor Ian Muehlenhaus.

“I was extremely excited when I found out Beal got the scholarship,” exclaims Muehlenhaus. “She has a great personality and a ‘can do’ attitude that just screams success.”

Beal’s competition for the scholarship was very competitive. Graduate students from around the country applied, but Beal outshined them all to become NGS’s newest intern, says Muehlenhaus.

“I feel that Beal stands as a testament to the great quality of education our students at this university are receiving,” Muehlenhaus says. “If students put in the work, as Beal has done, the sky is the limit for our students.”



UW-L senior Terri Beal will begin a paid internship with the National Geographic Society — an opportunity usually reserved for graduate students.

Alum advocates for health, PE on Capitol Hill

A UW-L physical education instructor headed to the nation's capital with representatives from 37 other states to help ensure health and physical education are considered as core academic subjects under the federal education law known as Elementary and Secondary Education Act (ESEA).

Lori Petersen, '82, of the Exercise and Sport Science Department, advocated as part of AAHPERD's 6th annual SPEAK Out! Day on Capitol Hill March 12. Petersen, along with more than 100 colleagues from around the country, will seek additional co-sponsors of the PHYSICAL Act.

The PHYSICAL Act — Promoting Health for Youth Skills in Classrooms and Life (S.392, H.R. 2160) — would designate physical education and health education as core subjects, making them eligible for federal funding under Title I and Title II. The monies would help school districts expand physical and health education programs and professional development for teachers, leading to potential opportunities to dedicate weekly physical activity time, enhanced classroom instruction or development of creative health programs.

Those advocating also encouraged continued support for the Carol M. White Physical Education Program (PEP), the only federal funding for physical education. The grant program, available for 13 years, has awarded nearly \$800 million to develop quality programs.

"As a physical education professional at all levels, I have seen day in and day out the impact physical education has on all aspects of a student's life," says Petersen. "It has impacted everything from improved academics and behavior in the classroom to increased confidence to excel in other endeavors, both personal and academic, as well as the obvious proven health benefits of being physically active. I hope to help influence the 'Get Moving' initiative that Michelle Obama is promoting so all children get daily physical education."

Petersen says today's physical education classes look different than classes most parents and grandparents remember. "Our physical education teachers are implementing programs that include lifetime fitness, goal setting, wellness, outdoor

activities, nutrition, and an array of innovative games and activities that students enjoy and continue outside class," she notes.

Currently only six states require physical education in all grades K-12. Many states do not provide the adequate health education instruction time recommended by the Centers for Disease Control and Prevention.

Most schools in southwest Wisconsin require physical education every other day at the elementary level. At the secondary level, a variety of requirements are allowed to meet the state minimum. Middle school physical education must meet weekly, while high schools require 1.5 credits of physical education.

Some schools may allow sports or other activities to count toward the high school requirement, says Petersen. "While those activities are certainly supported, they do not allow for planned lifetime learning for the student, nor should they be "counted" as credit," explains Petersen. "Would a school allow students to waive a high school math class if they could balance a check book? There is so much more that happens in today's physical education classes than the traditional team and individual sports that so many of us remember."

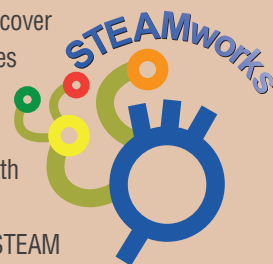
UW-La Crosse ... has been a state and national leader in preparing physical education teachers for decades. UW-L graduates, certifiable to teach K-12, teach in all 50 states and several foreign countries. Study is broad based, with emphasis on motor skills, fitness, scientific principles, teaching strategies and program development. The UW-L program balances traditional, individual and fitness activities with non-traditional physical education activities such as backpacking, ropes courses and rock climbing. The balance provides students with numerous experiences to enhance their professional development. The UW System has identified the program as a Center of Excellence, reserved for high quality undergraduate programs.



Lori Petersen

Local educators converge for science, technology, engineering, math, and art [STEAM] resource day

Local educators can discover award-winning resources in the fields of science, technology, engineering, art and math (STEAM) for their K-12 classrooms. The K-12 STEAM Teacher Resource Day was held in the Alice Hagar Curriculum Center in the UW-La Crosse Murphy Library on March 10.



This is the eighth in the annual series of programs highlighting science, technology, engineering and math resources, which this year also includes art. The programs are hands-on for educators and students. Participants can browse, read and review award-winning, non-fiction books, DVDs, software and similar resources specifically selected to be relevant to K-12 teachers, librarians, school media center administrators and other educators.

Tim Gerber, UW-L biology professor and organizer of the program, says the day is popular among educators. "The comment I get most often from teachers who have attended the resource day is that they feel so much better prepared to select specific materials that will benefit their classes and their curricula without having to guess," Gerber says. "It saves them time and money in the long run."

The books and other materials displayed are purchased by Murphy Library from Science Books & Films' "Best Lists," the National Science Teachers Association's "Outstanding Science Trade Books for Children" and other annual lists. Following the event, the collection is available in the Murphy Library curriculum collection and available year-round for students in the School of Education and others to review.

The program was co-sponsored by UW-L's Murphy Library and School of Education.

Website: www2.uwlax.edu/MurphyLibrary/Find-information/Curriculum-center/STEMSS/

UW-L PROVOST TEACHING EXCELLENCE WINNERS ANNOUNCED

UW-L recognized excellence in teaching this year with the second annual Provost Teaching Excellence Awards. Students submitted about 400 nominations, which were narrowed down to six winners. This year's winners were recognized at spring commencement and will be honored at the Chancellor's All-University Address in the fall.



Jeff C. Bryan,

Chemistry and Biochemistry Departments, teaches nuclear and general chemistry. Bryan came to UW-L 12 years ago after spending 13 years performing research on radioactive materials at Oak Ridge and Los Alamos National Laboratories. "I was a total geek," says Bryan. "I didn't know much about teaching, but I've always felt it was what I really wanted to do with my life."

It meant a significant cut in pay and benefits, but Bryan has never looked back, even after a rough first semester of teaching general chemistry. "I was fortunate to land at a university with so many supportive and enthusiastic colleagues. I was able to learn a lot from them," he says. "Much of what I do in the laboratory and lecture hall I've adapted from others."

He also gives credit to his students. "They are bright, eager and hardworking. It is a joy to see them learn and grow."



Scott J. Doberstein

is in his 16th year of teaching within the Exercise and Sport Science Department. Prior to UW-L, he worked at Millikin University in Decatur, Illinois.

Doberstein has taught more than 25 different classes at UW-L primarily in the Athletic Training Education Program, Anatomy & Physiology and Clinical Pathology.

His favorite part of teaching is taking a complex topic and giving the students the information and tools to learn the material in a way that they understand it better than they ever realized they could. "Using different methodologies, students can comprehend anything if you find the right way to reach them," he says. "When the light bulb goes off, everyone is a winner. The teacher's job is to find the best and supportive ways to get the bulb to light up... the majority of the time!"



Gregory Sandland,

Biology Department, teaches Organismal Biology, Parasitology and a senior-level biology capstone course. He has taught at UW-L for seven years.

Prior to UW-L, he earned his doctoral degree from Purdue University in 2005 and then a post-doctorate at Purdue from 2005-07. In school he studied host-parasite interactions and disease ecology.

He enjoys having the opportunity to broaden student backgrounds, which he hopes changes the way they perceive the world around them.

OTHER FACULTY EXCELLENCE WINNERS:

Samuel Cocks, Philosophy

Sara Docan-Morgan, Communication Studies

Jörg Vianden, Student Affairs Administration



Anthony Brandt

COLLEGE'S OUTSTANDING SENIOR

Each spring, the Strzelczyk Award in Science and Health recognizes an outstanding senior in the College of Science and Health for academic achievement and service to the campus and community. This year's recipient is Anthony Brandt.

The recipient is recognized with other top seniors and alumni at a special reception during commencement weekend.

Robert, '54, and Judy Strzelczyk endowed the award in 1996. Recipients receive \$1,000. Also, the Strzelczyk's provided funding for physical therapy research projects, research equipment, student loans, and four, full-time tuition scholarships.

Brandt graduated with a Bachelor of Science in biochemistry. He has been secretary and president of the Eta Phi Alpha Honor Society, a biochemistry tutor in the Chemistry Department, a mentor for the Physical Activities Mentoring Program, a volunteer for Franciscan Skemp Healthcare and active in intramurals.

Brandt has been an undergraduate researcher in the Biochemistry Department working on a university-funded project, "In vitro determination of the 30 nm Chromatin Fiber." Following graduation, he plans to attend the Medical College of Wisconsin in Milwaukee and pursue an advanced degree in biomedical sciences.

Brandt hopes to use his science background and degrees in healthcare or agricultural industries. He is the son of Charlie Brandt and Donna DeMeo, Baraboo, Wis.

GET TO KNOW ANTHONY BRANDT

- **My favorite UW-L professor was Dan Grilley.** He got me started with undergraduate research and helped me decide that an advanced degree in biomedical sciences was the route I should pursue. He is the most brilliant human being I have ever met. I gained so much useful knowledge over the years from working next to him in the lab, as well as having him as a professor my senior year.
- **My other favorite professor was Todd Weaver.** He was my professor for both of my biochemistry courses, and I also got to work along side of him and his lab group for two years. He is an awesome guy and I would talk to him about anything, whether it was science going on in the lab/classroom, or the most recent sporting events. He also introduced me to the game of croquet at a BBQ he hosted for our lab groups during the summer.
- **My favorite class in college was biochemistry.** I was finally able to sit in a class that truly interested me and was directly related to my career goals in biomedical science.
- **When I arrived on campus, I was:** a little overwhelmed because I knew I had to work hard to create new relationships and have fun in college, while still performing well in all of my intense science courses.
- **When I was 6, I wanted to be:** just like my dad, a farm loan officer.
- **When I'm 40, I want to be:** somewhere in healthcare or agricultural industry as a lead scientist. I would also like to have a few kids by then and be happily married.
- **If I had the chance, I'd take the following class over:** History 102 because it was the only class I didn't get an A in.



A FINANCIAL AIDE

A scholarship can 'pay it forward,' aid students with major college debt

UW-L Physical Therapy Program Director Michele Thorman watches students transform from nervous and inexperienced during their first year to competent and professional clinicians who walk the graduation stage. She's excited about where students are going, but also concerned to hear more are graduating with an enormous amount of debt.

"It took me about 10 minutes after becoming an academic staff member here on campus to realize that our students are in great financial need and they'll incur a lot of financial debt as they go along the process," says Thorman, a member of the PT program scholarship committee and UW-L Foundation scholarship committee.

The realization motivated Thorman to start a scholarship in her family's honor. Thorman is grateful to her parents who helped her graduate without debt.

A scholarship says thank you to mentors who were influential in a person's development. These mentors can never adequately be paid back, but recipients can always attempt to pay it forward, says Thorman. Scholarships also send a message to the recipient that people are invested in their dreams, she says.

Listen to Michele Thorman discuss what scholarships mean to her, and why she has made a commitment to help students: <http://youtu.be/KH7YMcdjaiU>

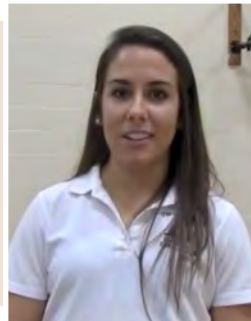


Michele Thorman

SCHOLARSHIPS MAKE AN IMPACT

Michele Thorman shares how one particular scholarship benefits students in a variety of fields of study including: adapted physical education, therapeutic recreation, and occupational and physical therapies.

Find out how the Lillian Neale Campbell Scholarship is impacting physical therapy students: http://youtu.be/VW5_rJ-sOf0



Gena Gadiant

Major: Exercise Sport Science emphasis in Physical Education with a minor in Adapted Physical Education
Scholarship: Lillian Neale Campbell Scholarship



YOU CAN MAKE A DIFFERENCE:

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