



Winter 2024

NEWSLETTER

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A MESSAGE FROM THE DEAN,

JOHN KATERS

I just returned from Panama, where UW-Green Bay co-sponsored an international water seminar and several of our undergraduate students in Natural and Applied Sciences participated in a travel course led by Dr. Mike Draney. This trip reinforced the fact that there are many ongoing global environmental and economic challenges, including extremely low water levels in the Panama Canal Zone that are significantly restricting operations, as well as large protests that took place in the country related to a proposed mining project. As you read this issue of the College of Science, Engineering, and Technology (CSET) newsletter, you will see that the impacts of UW-Green Bay are not only local and regional, but also international, as demonstrated by the research project led by Dr. John Luczaj in China. Education that takes place both inside and outside of the classroom is important in providing opportunities and pathways forward for our undergraduate and graduate students. This brings me to the remarkable story of Adan Cordova, who is majoring in human biology as he continues his quest to become a doctor. The success of students like Adan is critical as CSET provides access and educational opportunities to all who wants to learn. We are excited about our plans in CSET for 2024 to continue growing the college and thanks for your support!

Geoscience Course Takes Students to Western Edge of Wisconsin



Nine students from the Geoscience 421/621 course recently took a three day camping trip to the western edge of Wisconsin and Minnesota (from the St. Croix River Valley to the Mississippi River Valley at La Crosse) with professors Shawn Malone and John Luczaj. The goal of this course is to get students into the field to see larger rock outcrops and landscape features that cannot be observed in the laboratory. Students kept a field journal of the 22 different localities they visited on their 800 mile journey. Two stops in particular were unique on this trip. They included Interstate State Park, to study the ancient giant erosional potholes that were carved into volcanic bedrock along the St. Croix River

from the drainage of Glacial Lake Duluth at the end of the last Ice Age, and a 6-kilometer-wide meteorite impact crater preserved in Ordovician age bedrock from Pierce County, Wisconsin. The group looked at some of the deformed rocks and sediment that filled in the crater. This is a one-credit course that can be taken by both graduate and undergraduate students. This course travels to different parts of the western Great Lakes region each semester so the course can be repeated for credit.

Student Spotlight: Adan Cordova



Adan Cordova's life in Honduras was marked by hard work and a yearning for better prospects. This desire, kindled by his mother's resilience, led him nearly 2,000 miles north to Green Bay. He arrived with little more than a steadfast determination to effect change.

Navigating his roles as a father, partner, and first-generation college student in a foreign land presented colossal challenges—almost as vast as the distance he had travelled. Yet, UW-Green Bay's support for First Generation students, coupled with his unwavering tenacity, helped him withstand the initial hardships. Cordova selected Human Biology as his primary area of interest, and began his rise to become a doctor.

Pursuing a major in human biology would be daunting for anyone, let alone for someone for whom English is a second language. However, the Phoenix community was equal to the task—professors adopted diverse teaching methodologies to enhance his comprehension, and a dedicated staff assisted him through the complex maze of financial aid and scholarships.

Cordova's unflagging pursuit of education, despite his numerous roles, stands as a testament to his resilience and resolve. His journey, illuminating amid adversity, serves as a guiding light for his children and an inspiration for non-traditional students. His story shares how strength, tenacity, and a dedication to learning can surmount challenges and effect transformation.

UW-Green Bay continues to be devoted to nurturing all students and maintains that everyone, given the appropriate support, has the right to succeed. Cordova's narrative is one of potential, flourishing in an environment that nurtures dreams, fosters inclusivity, and paves the way for those bold enough to seize opportunities.

Discover more about Cordova's inspiring journey [here](#).

Geoscience Student Travels to China for Dolomite Research



Over the summer, Eryn Carney, a Junior in Geoscience, had the chance to travel to China to assist Dr. John Luczaj in his research that is funded by the National Science Foundation. Eryn, Dr. Luczaj, and others from Trinity University and Guizhou University were involved in investigating the origin of dolomite, an enigmatic, but very common mineral that is found replacing many limestones worldwide. About half of the world's carbonate rocks are limestone, and the other half are dolomite, but scientists' understanding of precisely how these rocks are chemically changed remains a geochemical mystery because they are not common in modern limestone environments.

Dolomite is important because it not only hosts economically important base metal and petroleum deposits, but it also hosts important aquifers, such as those in parts of Wisconsin. For example, northeastern Wisconsin's Door Peninsula is made entirely of dolomite and does not actually contain any limestone – those rocks were replaced long ago by a new magnesium-rich mineral known as dolomite.

This research was done by collecting samples and making initial observations on how they think the dolomite rocks formed in various locations. Now that they are back, Eryn says “we will make a more in-depth analysis on how the dolomite formed, as well as its connections to the rocks that were surrounding it. Working in the lab will help us see and understand much more about the make-up of the rock than we would be able to in the field, which in turn allows us a better understanding of the dolomite than we would have gotten in the field.”

When asked what she enjoyed the most, Eryn said “While in China, you get to experience a whole new culture. That was very exciting, to see a way of life so different from your own, but also one with many similarities if you look close enough. The food was a close second, the food in China was amazing. Getting to experience the food alone was a culture bomb of its own, there were so many things I had never thought to try before that I got to try in China.”

Eryn would like to become a hard rock geologist, specifically studying volcanoes. She says “The opportunity I was given to work on this project is so valuable to my future goals as well as a great learning experience. Not only did I get to learn a lot more about geology than I would in the classroom, I also got to learn about a way of life and how different and similar people can be even on the opposite sides of the world.”

Images: (Top) Eryn, Madison (a student from Trinity University), and Die Die (pronounced Dia Dia; a student from Guizhou University). Behind them is Swallow Cave, which is over 100 meters tall. (Bottom) Nanjiang Gorge Scenic area



UW-Green Bay Leads USDA NIFA Award for Agricultural Runoff Treatment Research



Lead Principal Investigator (PI) Michael Holly and Co-PIs Karen Stahlheber, Mandeep Bakshi, and Jessica Warwick were recently awarded \$750,000 to build agricultural research capacity at UW-Green Bay through the competitive USDA Capacity Building Grants for Non-Land-Grant Colleges of Agriculture Program.

The objective of the proposal is to enhance and promote constructed wetlands for the treatment of agricultural runoff. Impacts of the project-green include the development of cost effective solutions to remove phosphorus from agricultural runoff necessary to reduce harmful algal blooms in the Great Lakes. The proposal includes collaborators from Outagamie County, USGS, and UW-Platteville who will assist in completion of research objectives.



This work is supported by the Capacity Building Grants for Non-Land Grant Colleges of Agriculture, grant no. 2023-70001-41003, from the U.S. Department of Agriculture, National Institute of Food and Agriculture.

Funding to UW-Green Bay will provide support for three graduate research assistantships, multiple undergraduate research assistants and remote water quality monitoring equipment. Additional information can be found [here](#).

Recent Graduate Whitney Tank Discusses How She Rose Above Adversity in Her Last Year of School

Whitney Tank is a recent graduate of the [Environmental Science](#) program and is currently pursuing her Master's in [Environmental Science & Policy](#). Whitney was completing her degree when she discovered she had a life-threatening birth defect which forced her to stop school and pursue treatment, which resulted in her undergoing several surgeries. Despite these setbacks and needing to use crutches to get around campus, Whitney rose above adversity and finished her classes and graduated with a 4.0 GPA.



Last year, I ended up in the hospital twice, missing two weeks of school total. I had a birth defect we didn't know about, in my back, that caused the main vein for my left leg to clot off because it was scarred shut. And they fixed it, didn't realize how diseased my vein was from clotting my entire life, because my lungs are also scarred from PEs (pulmonary embolism) that we didn't know I had. And I went in for three more surgeries and now I'm still in recovery. I came back like two days after my surgeries to take tests or to be in class. And despite missing so many of my classes and recovering, I still came out with a 4.0. I can't believe I did that. I don't know how I did that. Because my doctors are all like, "you shouldn't be alive right now." And that's what I was being told for two weeks. They were saying, like, offering to let me drop out when we were talking to the dean, and I was like, "I'm not dropping out."

You can hear her story [here](#).

Undergrads Help Develop New Course About Human Impact on Lake Michigan's Coast

Not many undergraduate students can say they've helped to design a university level course. Max Stafford at UW-Green Bay, Antoni Haupt at UW-Milwaukee and Jonathan Cochrane at UW-Parkside had the unique experience of participating in the pilot course "Human Interactions with Lake Michigan Coastal Ecosystems."

They provided feedback and insight to John Janssen and Liz Sutton at UW-Milwaukee, Chris Houghton at UW-Green Bay and Julie Kinzelman at UW-Parkside, who developed the course using funding from the Freshwater Collaborative of Wisconsin.

"Great Lakes ecosystems are unique among freshwater systems due to their large size and depth," Janssen says. "They support diverse industries and often large populations, and they see adverse impacts due to wastewater, including sewage and runoff from urban and agricultural areas."

The highly immersive course will be offered May 28–June 24, 2024, to sophomores and juniors enrolled at any UW System school through an application process. To keep the course affordable, lodging and food costs will be covered by a second Freshwater Collaborative grant.

Haupt, who is originally from Minnetonka, Minn., and is enrolled in the accelerated master's degree program at UW-Milwaukee's School of Freshwater Sciences, says one of the benefits of the course was getting to see new areas of Wisconsin and working with professors from other universities.

"I ideally want to go into habitat remediation, and this course definitely helped me prepare for this," she says.

Students accepted into the summer 2024 course will explore habitats along the coast of Lake Michigan from Green Bay, Peshtigo, Manitowoc and Sheboygan to the more urban areas of Milwaukee, Racine and Kenosha. They will learn basic sampling techniques and technologies to study the human impacts on the coastal ecosystem. Weeks one and four of the course will take place online with pre-reading, discussions, and a final project.

The second and third weeks involve travel along the Lake Michigan coast and nearshore to see firsthand the impacts of human activities, including commercial fishing, industrial pollution, dredging, urbanization as well as harbor management and coastal restoration. Students will explore areas such as the eutrophic Duck Creek Delta, Peshtigo wetlands, the Fox River plume, the Wisconsin Shipwreck Coast National Marine Sanctuary, small coastal streams near Kingfisher Farm, the Milwaukee Estuary Area of Concern, and the Kenosha Dunes.

In addition to being taught by faculty from three universities, students will learn from water professionals from NEW Water, NOAA, and Riveredge Nature Center's sturgeon rearing facility. They will also create a project that educates the community about human-environmental interactions involving Lake Michigan — a key part of the course that will help raise awareness of some of Wisconsin's water challenges.

Originally from Milon, Mich., Stafford has spent many summers boating and was aware of some of the issues affecting Lake Michigan, but he says seeing the effects of erosion and the success or failure of restoration projects was eye-opening.

"I would highly recommend this course," he says. "It will help you understand not just yourself and your major, but also what's going on around you. It was a unique perspective and look at Lake Michigan. And it opens your eyes to possibilities for future careers and gives you tools and experience for down the line."



Sheboygan STEAMfest Helps Expand Kids' Curiosity with VR, Curiosity Cube, CPR Dummies and More

By Sam Bailey, Sheboygan Press/USA TODAY NETWORK

Light projections flying across the wall, paint splattered on a canvas, blood platelets under a microscope, virtual reality welding. These were only a few of the activities hundreds of students participated in during the Sheboygan County Chamber of Commerce STEAMfest Oct. 12.

The science, technology, engineering, art and mathematics event hosted about 50 Sheboygan County businesses and 1,600 fourth- and fifth-graders from every school in the county, said Josh Aschenbach, Chamber director of membership and workforce development.

"Everyone learns in a different way," Aschenbach said. "Some people thrive in the classroom and some people don't. And so (we're) giving our kids an alternate way to learn, to get their hands dirty, to expand their minds in a way that they maybe wouldn't in their own classroom."

The businesses each had a table in the gymnasium at the University of Wisconsin-Green Bay Sheboygan campus and offered kids an activity related to STEAM. Businesses present included Gearbox Labs, Advantage Prototypes, Road America, Orange Cross Ambulance and The RUFF Rage Room.



Mason Wefdern, fourth-grader from Pigeon River Elementary School, said he liked "everything" about STEAMfest but was especially excited about his hammer he designed and built out of cardboard. Resha Vang, also a fourth-grader from Pigeon River, said it was cool to see all the businesses in the community and agreed the event "probably" did make STEAM seem cooler. She said her favorite part of the day was taste testing and deciding which flavors she liked the most.

Aschenbach said he's happy to see the response of businesses coming to the event and the students able to attend. "All you gotta do is look at the kids' faces as they're walking out, right?" he said. "They walk in, it's one thing, but watch them as they walk out, you know, they're excited. They're smiling. And I think the best compliment is the teachers are also smiling."



One of the businesses present, and a sponsor of STEAMfest, was MilliporeSigma, a global life science business with a site in Sheboygan Falls. For STEAMfest, volunteers from MilliporeSigma showed kids the Curiosity Cube, a shipping container-turned mobile science lab that travels across the county to provide kids with a unique science experience. It began in 2017, said Natalie Randolph, Curiosity Cube coordinator who travels with the lab. "We wanted to find a way to take our sciences out of the lab and into the community so that students can experience how fun hands-on science really is," she said.

Every year, the Cube features a different experiment. This year, kids learned and participated in experiments about environmental, surface and beverage contamination while interacting with scientists from the community. "The unique experience with this is that the kids get to interact with real-life STEM experiences," Randolph said. "... The kids get to learn from people who are working in the industry and people who are doing these types of experiments every day. And it's really fun just to kind of see that connection."

Lucas Horn, fifth-grader from Cooper Elementary School, said he likes STEAM more than he did before coming to the event, especially because of the Curiosity Cube's virtual reality headset showing common types of bacteria found in classrooms.



Jeanne Wiesbrock, manager for simulation for the north region of Advocate Health, was part of a team showing kids the medical simulators they use to train medical teams. She said she loves seeing the kids learn about the field and potentially growing the next generation of health care workers.

“I love watching their eyes,” Wiesbrock said. “We were just talking about how you can see when they start listening to the baby's chest with the stethoscope, and they're listening and all of a sudden you see the change in their eyes.”

One child saw a CPR dummy laying on the floor and immediately ran up to it, dropping to his knees to get to work. Saying “another person died,” he got to work pumping the chest, stopping when needed to attentively listen to the professional telling him how to adjust his technique.

Leaving STEAMfest beaming, student Lucas Horn said, “We should go here again.”

Students Pitch at WiSys Innovation On-Ramp Pitch Event

This past fall, 361 students from UW-Green Bay registered and completed Innovation On-Ramp, a five-week learning course that encourages students to grow their innovative thinking skills. As part of the course, students focused on finding problems worth solving, coming up with inventive solutions, and then identifying target markets and sharpening communication skills.

The culmination of this course happened on Wednesday, Dec. 6 with the WiSys Innovation On-Ramp Pitch Event, where six students partook in the final pitch event. UW-Green Bay freshman Jessica Hagberg earned first place with her app Bloc. Bloc is an automated time-blocking app that would sync to Gmail and Outlook calendars and allow users to add additional tasks to the app. The app would then block off time on the calendar based on priorities and deadlines. It aims to help users manage their time and days more efficiently. This win also qualifies Hagberg for the WiSys Big Idea Tournament. There, she will compete against students from across the Universities of Wisconsin. The event will take place on April 19, 2024, hosted at the Idea Fund of La Crosse.

Senior Riley Arneson took second place at the pitch event with the idea of Password Pro, an online tool to help create stronger passwords. Third place went to students Cody Leisgang and James VanderWyst for their project Dispensinator, a hands-free smart method for automatically dispensing food in controlled portions to free up employees to focus on other aspects of work. Two additional students also pitched. Mason Chaltry pitched Relief Ball, a smart golf ball that uses GPS to track balls with the aim to keep golfers from losing their golf balls. Brendon Fitch pitched Mobile Robot Pathing Applications, which is a robot that uses grid technology to help other robots move safely in a warehouse setting.

This event was judged by Tara Carr, director of the Small Business Development Center at UW-Green Bay, Vinith Poduval, SVP & Chief Innovation Officer at Schreiber Foods, and Jennifer Corbett, Chief Marketing Officer at Midwest Games.

WiSys[®] Innovation On-Ramp
@UW-Green Bay
2023 Pitch Event

High Schoolers and Undergrads Present Summer Research to Manitowoc Community Members

The 2023 Lakeshore Water Summit at the UW-Green Bay, Manitowoc Campus provided high school students involved in UW-Green Bay's Freshwater Scholars Summer Research Program with the opportunity to present the results of their work in water-based projects. They also learned about the results of summer water quality monitoring in streams around the county, which UW-Green Bay undergraduates perform in collaboration with community members and citizen groups in Manitowoc County.



The annual event included high school student scholars who completed internships with support from the Freshwater Collaborative of Wisconsin. They presented their work in a poster session and shared their experiences with community members, educators, and water science professionals from the Lakeshore region.

The high school students also learned about one of the opportunities for undergraduate research at UW-Green Bay. The Manitowoc campus "Stream Team," a group of eight undergraduate students and one high school Freshwater Scholar, presented on their work in the lab of UW-Green Bay professors Becky Abler and Rick Hein to monitor and analyze water quality in four Manitowoc County streams throughout the summer. The summit, hosted in partnership with the Lakeshore Natural Resource Partnership, highlighted this work in a one-hour oral presentation following the poster session.

Two of the Freshwater Scholars featured during the summit were Codey Lai and Gail Wery. Lai, a senior at Two Rivers High School, worked with Hein and Abler on watershed monitoring. Wery, a senior at Green Bay Southwest High School, worked on fisheries research with Titus Seilheimer from Wisconsin Sea Grant.

"My favorite thing about the research this summer was the opportunity to make connections with my fellow environmental science and biology majors," Lai says. "Presenting our research to the community was a wonderful experience, as I felt that I was contributing to community change for better environmental practices."

The Freshwater Scholars program is part of UW-Green Bay's ongoing work, supported in part by the Freshwater Collaborative, to recruit and train students to become water professionals.

CSET Wins Campus Cupboard World Food Day Food Drive Trophy

The UW-Green Bay College of Science, Engineering and Technology wins the travelling trophy for Most Items Donated to the UWGB Campus Cupboard during the Cupboard's 2023 World Food Day Food Drive. An estimated 700 items were donated to the food pantry from various departments at UW-Green Bay, Green Bay campus. The winner of the Fall 2023 food drive was UWGB's College of Science, Engineering and Technology (CSET) with an estimated 190 items donated. The college collected donations in two areas to maximize reach and impact the organization can make on the pantry. The college will receive the travelling trophy.

"Everyone's support, especially CSET's and CATL's and SEC's, has been very overwhelming this year," J.D. Kulis, fifth-year student and student vice president & assistant manager for the Campus Cupboard. "We're very thankful for every department's participation and the support of our university's Cupboards, and these contributions will continue to serve students at all four UW-Green Bay campuses. Our Campus Cupboard is a crucial lifeline for keeping so many students from so many backgrounds fueled and fired up, but we know that our campus and community will always be here to support us."

High School Students Monitor

Fox River Watershed

High school students from Notre Dame Academy left their classroom recently for Dutchman Creek in Ashwaubenon. The students represented one of eleven schools participating in the Lower Fox River Watershed Monitoring Program, coordinated by UW-Green Bay, which began in 2003.

Senior Lachlan Chambers enjoyed the experience of gathering scientific data. “It’s pretty interesting, and I’d say it’s a lot easier to learn hands-on than learning it from a textbook or writing down notes,” said Chambers. “It’s good to get hands-on with it.”

Chambers and classmate Leo Dart took water clarity readings. They both belong to the environmental club at Notre Dame Academy and said environmental issues are important to them. “Later today we’re going back to the lab and testing all the water things. I’m excited for that, and we have a report due on this,” said Dart.

Wastewater treatment provider NEW water collects and treats 41 million gallons of water per day for the Green Bay region. Watershed Programs Manager, Erin Houghton, said the data collected by students is valuable for the community. “The work that the high school students are doing today and with the volunteer monitoring program really does help watershed programs like NEW waters to really understand the trends in water quality in our region,” explained Houghton. “We’re very interested in understanding the excess nutrients and sediment that find their way into our waterways and cause water quality issues both in the streams, rivers and downstream in the lower (Green) bay.”

Results gathered from Dutchman Creek, and other parts of the Lower Fox River Watershed, are accessible to the public via a UW-Green Bay website.

“Having this experiment for the community really adds a lot to it. It’s a nice feeling,” said Dart.

Notre Dame Academy teacher Molly Mattke said her students will perform an internal assessment and develop a research question related to water quality. “Even if they don’t live by this creek specifically, they live in this watershed. They have access to different rivers and streams in this area. They can apply their learning from class to what they’re doing today,” said Mattke.

Houghton looked on while students donned waders to collect water samples and helped others read and chart their results. “You can learn about it in the classroom, but once you have that tactile interaction with it, you care a little bit more,” said Houghton. “You can’t un-know something that you’ve seen and learned. Once you have a connection to it, you tend to care a lot more about it. I know that’s definitely driven my passion and driven me in my career. And so, I can only hope for that for the next generation.”



With twenty years of research collected so far, the students gained valuable experience and helped their community further understand the local water supply.

Teaching Press Celebrates Launch of

All-Around Ambitious Book

By Janelle Fisher, City Pages

Teaching Press students and supporters gathered last Wednesday, Oct. 18, to celebrate the launch of the latest book put out by UW-Green Bay's Teaching Press — a book documenting the Lower Fox River PCB cleanup efforts.

The book, authored by Captain Greg Neuschafer, retired US Navy Oceanographer and University Wisconsin-Green Bay Distinguished Alumni, includes a timeline and highlights of one of the nation's most ambitious environmental stability projects to date with QR codes spread throughout linking to an extensive digital collection of supporting documentation compiled by Neuschafer and housed at UW-Green Bay's Cofrin Library.

The book, Neuschafer said, is meant to be a tool to help others understand the significance of this environmental project happening in their own backyards.

"This book is a research tool," he said. "It's a wrench. It's to get you into a database that we've put together. So it's not for reading for excitement or for pleasure. I want to invite you to, from your own perspective, dig into this library and see what you can learn."

While the collection and organization of the content which makes up the book and digital library was an ambitious undertaking for Neushcafer, Professor Rebecca Meacham said the physical construction of the book proved to be quite an ambitious undertaking for her students as well as they navigated the book's many fold-out pages.

"What the students started to figure out was that we could have an entire book filled with what we call 'foldy-outty' pages — it's the technical term," Meacham said. "The fold-out pages have QR codes on them and when you use your phone to scan the QR code, it goes to a resource in the Cofrin Library digital collection that Greg has put together."



The folded pages, though, meant that the book could not be sent out for production, and after some trial and error, Meacham said the Teaching Press students discovered that the best way to produce copies of the book was to hand-fold each page.

"They had it worked out to partnerships — one folded in and the other folded the other side in," Meacham said. "And the fold the way they do so [the book] can be bound. Because if you fold in too far, you bind your book and then can't open the pages. It's an interesting little puzzle."

At the time of the launch, an impressive 104 copies had been made and were ready to be distributed to attendees of the launch party and those who wish to purchase the book.

More information about Teaching Press and where to buy this book and others can be found at uwgb.edu/teaching-press/projects.

Faculty Recognition/Achievements

Congratulations to **Stephan Gunn** for his publication in *Agricultural and Forest Meteorology* entitled “Projecting the effect of climate change on planting date and cultivar choice for South African dryland maize production.”



Congratulations to **Mohammad Upal Mahfuz** on being elevated to the rank of Senior Member of the Institute of Electrical and Electronics Engineers.



Congratulations to **Paul Mueller, Debra Pearson, Georgette Heyrman**

and seven of their undergraduate students for their publication in *Nutrition in Health* entitled “Vitamin D and docosahexaenoic acid inhibit proliferation of the ovarian cancer cell line OVCAR4.”

Congratulations to **Taskia Khan** on being selected as a Wisconsin Teaching and Fellows Scholar for 2024-2025.



Congratulations to **Vanessa Brotske** and Mark Brotske on their recent addition to the family. Orland Lee Brotske was born on September 5, 2023.



Congratulations to **William Jacobson Jr.** for his publication in *Cold Regions Science and Technology* entitled “A magnetic fabric study of origin of englacial debris bands at Fláajökull, Southeast Iceland.”



Congratulations to **Sadie Buboltz -Dubs** and Jason Dubs on welcoming their newest family member. Presley Dubs was born on September 7, 2023



Congratulations to **Erin Giese** for her publication in *Ecological Indicators* entitled “An index of biotic condition (IBC) using birds as indicators of coastal wetland quality in North America’s Laurentian Great Lakes.”



Congratulations to **Heather Masters** and Jordan Masters. They welcomed their baby girl, Reagan Masters, on September 24, 2023.



Congratulations to **Nazim Choudhury** for his publication in the proceedings of the 7th International Conference on High Performance Compilation, Computing, and Communications (HP3C 23) entitled “Matrix multiplication with diagonals: Structured sparse matrices and beyond



Congratulations to **Amy Carrozzino-Lyon** and Scott Lyon on the birth of their son. Brayden Scott Lyon was born on October 25, 2023.



Congratulations to **Brian Merkel** for his publication in *Microbiology and Biology Education* entitled “Community involvement in addressing the antibiotic crisis.”



Congratulations to **Ari Kline** and Amy Kline on their newest addition to the family. Elias Matthew Kline was born on November 16, 2023.

Training the Engineers of the Future

Excerpts from Insight on Business

With “engineer” consistently landing on the list of Northeast Wisconsin’s top 10 hardest jobs to fill and cost estimates as high as \$50,000 to lure an engineer from outside the region, two New North universities are stepping up their games and developing programs aimed directly at addressing manufacturers’ needs in their own backyards.

About a decade ago, following a landmark workforce survey, the University of Wisconsin Oshkosh and University of Wisconsin-Green Bay began building engineering technology programs where none had existed before.

At UWGB, officials have gone on to create a full-fledged engineering college, which debuted in 2018 thanks in large part to a \$5 million donation from former KI CEO Richard Resch. Today Dean John Katers says the Resch School of Engineering has a 100% job placement rate and that almost all its hires are occurring right here in Northeast Wisconsin — a region where manufacturing represents nearly a quarter of the employment base but which houses only the one, young college of engineering.

The growth of engineering at both UW System schools is happening against what is in many ways a dark and stormy backdrop. In June, lawmakers rejected funding for UW-Madison to construct a new engineering facility and cut the overall system budget by \$32 million — a decision that has led to campus closures, layoffs, hiring freezes, furloughs, pay raise freezes and program cuts across the state that UWGB Chancellor Michael Alexander described in an Oct. 17 letter to faculty and staff as feeling like “a personal attack.”

“My heart goes out to our colleagues across the state who have and will be affected,” Alexander wrote. “I struggle daily to make sense of everything happening in the world around us today. However, I refuse to lose my optimism for what education can do for individuals and society.”

UWO Provost Ed Martini says that Kleinheinz’s team has been a model for how education can mutually serve individuals and society. “It’s consistent with the mission and vision of UW Oshkosh to solve the problems of the region,” Martini says. “When we talk about the region, manufacturing’s the ballgame. We need to be able to be the partner of choice to help them solve their talent needs, supply chain needs, whatever it may be.”



Degrees in demand

UWGB’s Resch School, which incorporates both computer science and engineering disciplines, currently offers seven degree programs: computer science, mathematics and statistics, electrical engineering technology, mechanical engineering technology, environmental engineering technology, mechanical engineering (which is also soon to be offered at the university’s Sheboygan campus), and electrical engineering. Katers says the electrical engineering program is the newest and has grown rather quickly to 60 students since 2021. The university dedicated a \$5.7 million facility last December.

When the college was initially founded five years ago, Katers says there was high demand from two-year transfers. Today the university is seeing more traditional four-year engineering students.

Katers says offering both engineering and engineering technology degrees has allowed UWGB to cater to more specific student and industry needs. While one of the primary differentiators is the amount of required math, he says the difference essentially boils down to applied versus theoretical concepts. “In the industries we have in this region, there’s a great need for both of these types of people,” Katers says. “I hear every day when I’m talking to companies that they need techs out in the field, but they also need people doing design.”

Katers says the Resch School wouldn’t exist today without the support of industry, and he looks forward to strengthening those partnerships and opportunities in the future now that some of the front-end work of establishing the college has slowed down. He is also proud to see UWGB engineering grads entering the workforce; he tells students that they’re likely to be the first UWGB engineers at their companies, so doing a good job behooves not only them but also the university as it continues to build and grow.

“This has really been a five-decade goal to have a school of engineering in Northeast Wisconsin,” Katers says. “It took the right group of people and the right mentality to push it over the finish line.”

The softer side

Mark Kaiser, president and CEO of Lindquist Machine Corporation, is among the manufacturers looking to hire engineering graduates in Northeast Wisconsin. He has been working alongside the NEW Manufacturing Alliance to help guide engineering students and educators in an area many agree is even more important than technical training: “soft” skills.

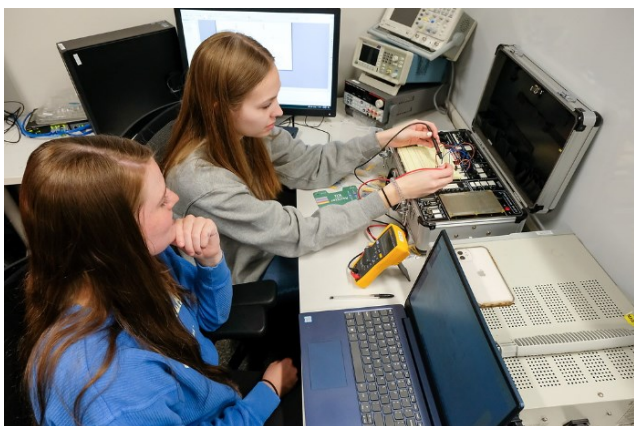
These employability skills, NEWMA Executive Director Ann Franz says, are consistently mentioned by manufacturers as needed not only by engineers, but in all types of manufacturing jobs. In October, NEWMA debuted a series of “How to be Successful in the Workplace” videos that are available to K-12 educators. Franz says it’s an issue the alliance has been asked to work on for 17 years.

Bill Fournet, a leadership consultant who recently delivered the keynote address at the Manufacturing First Expo & Conference, says the pace of technology has only magnified the importance of these skills. “It used to be that we hired for technical expertise and experience. Over time, I need a higher order mindset,” Fournet told conference attendees Oct. 25. He highlighted adaptability, awareness, resiliency and judgment as the four most important things to look for when hiring.

Indeed, extracurricular activities are among the opportunities Kleinheinz and Katers note as important for helping students build soft skills. At both institutions, engineering courses not only require written and oral presentations, but also team projects that are frequently done in coordination with industry. Internships and co-ops are also highly encouraged. Marine Travelift recently hired UWGB’s first-ever engineering co-op student for a seven-month experience.

“Summer internships are great, but in a field as complicated as engineering it is difficult to make a lasting impact in one short summer. As soon as a student finds their footing in the company, they are on their way back to school for the fall,” Matt Chike, chief engineer at Marine Travelift, said in a press release. “With a co-op, they can expand their engineering skills and work on high-level, meaningful projects for the company. An engineering co-op position is also one of the best ways to recruit local college talent to your company.”

Butrymowicz and Kaiser agree that it takes about one year for a new engineer to get technologically up to speed in a manufacturing environment, and that the learning curve is to be expected. Given the staggering pace of technology change, Katers says UWGB prioritizes investment in equipment that meets the core functions of engineering as opposed to trying to keep up with the Joneses. But pay attention to the technical skills new grads bring to the workplace, Butrymowicz says — he credits a new hire at Hart with much of the success of the company’s 3D printing operation.



Ultimately, it’s that old adage about college “teaching how to learn” that proves important in educating the next generation of engineers. “The students that start today are going to be working on things that don’t even exist today,” Kleinheinz says. “In trying to give an 18-year-old a perspective of a 30-year career in something, they need critical thinking and problem solving. And they can be the best engineer in the world, but if they can’t write a memo — I mean, they have to get those skills. I feel like a parent making them eat their vegetables sometimes, but it’s important.”

For Kaiser, industry can and should play a role, whether it’s through participation in advisory boards, opening its doors to universities or participating in organizations like NEWMA.

“We can’t push this off and say it’s the colleges’ problem, that they need to own this,” Kaiser says. “No, we need to own it. We need to be driving to solutions and getting engaged with the colleges to do this.”

More is more

Ask Katers if there are any specific pieces of feedback he’s valued from his conversations with industry and his answer is simple: “Yeah. Produce more engineers.” “I worked in manufacturing,” he says. “I love manufacturing. I love seeing the really cool products we make in Northeast Wisconsin, and we’re doing everything we can to support these industries.”

UWO’s Martini agrees. “We’ve got the demand; we’ve got the jobs,” he says. “If we can continue to be a net talent importer, [that] helps everyone — not just manufacturers.” Read the full story [here](#).

CSET Faculty and Students Attend International Conference in Panama



UW-Green Bay served as a co-sponsor of the 21st Biennial Water Seminar that was held in Panama and attended by nearly 100 individuals, including multiple faculty and staff from UW-Green Bay. The conference brought together representatives from multiple countries to discuss topics including mining and climate change, sustainable river basin and watershed management, analytical and planning tools, and global infrastructure issues. The seminar included 19 technical presentations from representatives of the University of Panama, the Panama Canal Authority, UW-Green Bay, and others science and engineering professionals. Dr. Jack Day,

emeritus Professor at UWGB and co-founders of the International Water Seminar that started in 1984 (along with John Chatterton from the United Kingdom who was also in attendance), gave a keynote presentation. The seminar also included a presentation by 12 undergraduate students from UWGB and St. Norbert College, and a local Panamanian student that were participating in a travel course to Panama under the supervision of Dr. Mike Draney from UWGB and Dr. Anindo Choudhury from St Norbert College. Dr. Jefferson Hall, a researcher from the Smithsonian Tropical Research Institute (STRI) which has been a long-term partner of UWGB for the travel course since it started in 2007, provided an outstanding evening talk on reforestation in the Panama Canal Zone. The seminar also included tours of the Miraflores Locks that are part of the Panama Canal, as well as other important infrastructure and ecological areas in Panama City and the Panama Canal Zone. The seminar was very timely given the recent political unrest in Panama surrounding a large mining project that was proposed in the country, as well as the low water levels in Lake Gatun that are currently limiting the operation of the Panama Canal.



Biodiversity and Conservation Management Master's Degree Takes Root in UW-Green Bay's Legacy as "Eco U"

UW-Green Bay, the home campus for the newly launched Master of Science in Biodiversity Conservation and Management, has a long history of ecological awareness and advocacy. Once dubbed "Eco U," the campus has always embraced a community and environmentally-minded approach to education.

Ed Weidner, UW-Green Bay's first chancellor, coined the term "communiversity" during his tenure in the 1970s. He exemplified the university's original vision to be ecologically focused when it opened its doors on a 600-acre campus on the southern end of Green Bay in 1969.

UW-Green Bay's mission, as articulated in 1968, was parallel to that of other University of Wisconsin campuses, but with an ecology lens: "The academic plan of UW-GB is based upon a specific educational philosophy. In essence, it begins with people—especially students—and the world in which they live."

UW-Green Bay began making history as “Eco U” through its participation in the first Earth Day march on April 22, 1970, alongside St. Norbert College and Green Bay Preble High School. Earth Day was founded by then-Wisconsin Gov. Gaylord Nelson to raise awareness about air and water pollution. It’s now observed worldwide and commemorated as a month of recognition, stewardship and celebration of the environment.

As part of the first Earth Day observation, UW-Green Bay students prepared a petition calling for “an amendment to the state constitution that would preserve a healthy environment for future citizens.” UW-Green Bay mailed the petition to 75 Wisconsin universities, colleges, and technical schools. Once completed, the petition was forwarded to the Wisconsin governor and legislators.

UW-Green Bay also piloted early recycling programs on campus, and launched a Mobile Center for the Study of the Environment (MSCE) eco-van in spring 1973. Funded by the Ford Foundation, the concept was to operate MSCE for five years. It was envisioned as a way to give “mobility to UW-GB’s commiversity concept and environmental mission.” The Eco Van contained a library as well as water, air, and soil testing equipment that could be used for demonstrations and other educational purposes.

The Eco Van project saw a handful of UW-Green Bay students take to the road in a 24-foot Concord motorhome, where they would educate local communities and schools about environmental issues. The MSCE students, mostly environmental sciences majors, traveled to northeastern Wisconsin high schools. The van stayed in those communities for several days (and sometimes an entire week) to interact (“rap”) with the local students and residents about environmental issues and topics.

That same year, UW-Green Bay piloted another sustainability project—planting a garden. Barbara Rosenbaum, a student from Missouri, contacted the Office of Student Life wondering if there was a section of campus land that could be made available for a garden. Other students, faculty, and staff soon joined the efforts. Dick Christie, director of student life, made sure the gardening group received funding. Although the allocation was only \$100, the group accomplished a great deal in the first year.

The 1973 garden quickly became bigger in purpose with the campus fruit trees benefitting from the garden mulching and pruning; planned renovation of the greenhouse; and the creation of a library on organic gardening. Fast forward to 2010, when the current Sustainable Local and Organic (SLO) Food Alliance was established and a new campus garden began on the plaza of the University Union.

“While the days of the ‘Eco Van’ are behind us, the legacy left by those students continues. Through the Master of Science in Biodiversity and Conservation Management, UW-Green Bay is continuing to make history as an ecologically-focused university committed to bettering the communities and the environment around us. Our impact will reach far beyond Wisconsin; we can make a difference on a national scale,” said John Katers, Dean of the College of Science, Engineering and Technology at UW-Green Bay. Katers received his bachelor’s degree in environmental science and master’s degree in environmental science and policy from ‘Eco U.’

Are you interested in making a difference? When you enroll in the [Biodiversity Conservation and Management program](#), you can choose your own learning path by completing individual certificates, or three stackable credentials plus a capstone project to earn the master’s degree. As a graduate of the master’s degree program, you’ll be qualified to pursue leadership and management roles within nonprofit and government conservation organizations and other agencies within the biodiversity conservation field. You’ll learn the skills necessary to manage climate change, threatened and endangered species, restoration and remediation of environmental damages, and balancing multiple recreational uses, while integrating the human perspective through community engagement and culturally responsible conservation practices.

Contact an [enrollment adviser today](#) to learn more about which path is right for you.

This article was written by the University of Wisconsin Extended Campus. You can read the full article [here](#).

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