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Winter/Spring
Issue 3

College of Science, Engineering and Technology Notes

Dean's Message

by John Katers

Dean, College of Science, Engineering and Technology

As we near the end of the spring semester, I would like to take this time to recap some of the major accomplishments from 2018-19 for the College of Science, Engineering and Technology (CSET). First, we are very excited about adding many talented faculty and staff from the Marinette, Manitowoc, and Sheboygan campuses as part of the reorganization of the UW Colleges. We have already seen some of the benefits of "Project Coastal" and look forward to the many new opportunities in the areas of curriculum and program development, research, and community service and outreach. Second, we welcomed the first group of students into the new mechanical engineering program for the fall semester. Work is progressing rapidly on the Brown County STEM Innovation Center that will be located on the UWGB campus and become the home for the Richard J. Resch School of Engineering starting in the fall of 2019. Third, we continue to see great successes from our graduates, while noting that enrollment in CSET continues to increase rapidly. This is due in part to the high quality instruction provided by our faculty and staff, who are also very successful in obtaining grants in support of their research programs. In addition, through the support and generosity of our external partners there has been a significant increase in scholarship funds available to CSET, which is also incredibly important to the success of our students. In summary, 2018-19 was a very good year for CSET, once again highlighting the importance of people, programs, and partnerships. I hope you enjoy this issue of the newsletter, which only scratches the surface of the most recent activities and accomplishments of CSET with many more opportunities on the horizon for 2019-2020.



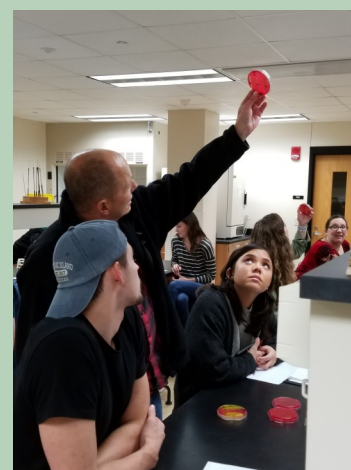
STEM Innovation Center May 1, 2019



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GREEN BAY

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Professor Dr. Brian Merkel teaching
about staph infections during his
Microbiology lab

Welcome New Faculty



Michael Holly
Assistant Professor
Environmental Engineering
PhD: UW-Madison



Heather Masters
Dietetic Internship Director
MS: Northern Illinois University



Golam Mushih Tanimul Ahsan
Assistant Professor
Computer Science
PhD: Marquette University

Smart Cities-Smart Futures

Dr. Md Riaz Ahmed and Dr. Md Maruf Hossain, faculty members in the Richard J. Resch School of Engineering, were selected to move on in the Smart Cities-Smart Futures competition sponsored by Foxconn. Dr. Hossain's project titled, "Integrated Wind Power Generator", which is a system of mechanically integrated vertical axis wind turbines that will connect to a single unit generator and electronic interface to more efficiently and cost-effectively produce electricity. This system has utility for both small and large scale electric power consumers and has potential to provide for a portable system for use in field settings. The applications of the proposed system can also be expanded to include pumping water and grinding grains. Dr. Hossain is currently in the process of developing and testing a prototype. Dr. Ahmed's project was titled, "Smart Traffic and Street Lights Powered by Smart Flag". The proposed smart flag will convert abundant wind energy in nature into electrical energy. The harvested energy will be used to power traffic and street lights. The flags are similar to solar panels, however will be more cost effective because they will generate power 24/7 compared to solar panels. With this technology it will lower the cost per unit of electricity. Click on the link to learn more about Smart Cities—Smart Futures <https://wismartcities-smartfutures.com/>



"Equipped with his five senses, man explores the universe around him and calls the adventure Science." Edwin Hubble

Science Open House

The College of Science, Engineering and Technology along with Admissions welcomed nearly 200 students and their parents to UW-Green Bay for our Science Open House. The attendees were welcomed by faculty and staff in the sciences. Faculty shared research they are currently working on, while also discussing their specific academic programs. Students had the opportunity to attend a number of breakout sessions that included research and internships, preparing for careers with a Human Biology major, and STEM and Industry. Thank you to the science faculty at UW-Green Bay Marinette campus for bringing students from their classes, as well as all the faculty and staff from CSET. Without your help, this day would not have been such a success.



Welcome our new CSET Academic Advisor Nora Kanzenbach



Nora graduated from UW-Green Bay with a major in English, a minor in Social Change and Development, and a teaching certificate. After teaching high school for several years, Nora realized it was not a good fit for her and returned to UW-Green Bay as an Academic Adviser. The role of adviser has taken many forms over the years. Her initial responsibility was to teach students how to use a computer program to track their degree progress (a new concept at the time). Nora next worked on-campus for TRIO Student Support Services where she taught classes, coordinated the mentor program, and advised students. Eventually, Nora returned to Academic Advising as the coordinator for the Phoenix Start program and as a general adviser. During this time, Nora went back to school and earned a Master of Science in Education through UW-La Crosse. This year marks Nora's 24th year at UW-Green Bay as an adviser. There have been many changes over the years, and this year is

no exception. Nora's primary responsibility shifted to working with the College of Science, Engineering and Technology. "I love my job--helping students reach their goals is very satisfying for me. I look forward to the challenge of learning more about CSET and how to best serve the students in this area."

"Somewhere, something incredible is waiting to be known." Carl Sagan

Lake Michigan Champion Award



UW-Manitowoc Associate Professor Rebecca Abler and Professor Richard Hein were awarded the Lake Michigan Champion Award for their passion in education and inspiration to students in environmental awareness. Since 2008, student interns from the University of Wisconsin-Green Bay, Manitowoc Campus have helped the Lakeshore Natural Resource Partnership check water quality along creeks and other waters ways in the area. And each year, the data students gather help to influence the actions of local land holders, as well as the policy of government officials. Their students presented their most recent findings at the Lakeshore Water Summit, on the Manitowoc Campus. The research started in 2008 in Centerville Creek near the village of Cleveland, Wis. In that year, researchers took base-

line data to determine the water quality in the area. From there the group grew into the Friends of Hika Bay, and eventually into the Lakeshore Water Institute in 2012. Now the group has six interns analyzing data from five different Manitowoc County creeks. "What we are seeing is that the restoration area is having an impact on the amount of cleaner water going into the lake and every creek is unique. Our goal is to continue to develop awareness and to develop partnerships so that we can positively impact our water," says Abler and Hein. "Dirty water does more than just look bad, when phosphorous grows, it impacts the amount of rotting algae in the water. Algae blooms can create a foul smell that can decrease property values, negatively impact tourism and even cause problems at power plants through clogged pipes, increasing the end users' utility bills", Abler said. For Russ Tooley, a landowner in the area, the students' work helps him to understand what is going on in the water. When the manure spill happened, Tooley said, students were quick to notice the dramatic change in the water, and to work with the Department of Natural Resources to clean the manure spill up. "I live on the shore of Lake Michigan and the farm was about a mile north of my house along the creek," Tooley said. "It's helpful for us to know that the quality of the water entering the lake is safe for us and those along the lake to swim in. "While students are only in their first and second years, much of their work borders on graduate level research. Students working with Abler and Hein have found that even minor changes can have a major effect on not just creek water, but on water downstream as well, and their findings can have lasting impact on policies for years to come.



Faculty Recognition/Achievements

Ken Metzler \$10,000 Engineering Scholarship

We are excited to announce a new engineering scholarship on behalf of The LaForce Family Foundation, Inc. LaForce has established the Ken Metzler Engineering Scholarship to honor the CEO and Chairman upon his retirement. Ken attended the University of Wisconsin-Madison and received a Bachelor of Science in Construction Management. Ken has served for many years as the CEO and Chairman of the Board at LaForce Inc., one of the largest distributors of commercial door opening products, solutions and services in the United States. The requirement of this scholarship is that you are a declared Engineering major, you must be full-time resident of Wisconsin and maintain a GPA between a 2.5-4.0. Watch for more information this fall on how to apply for this scholarship.



Congratulation to **Patricia Terry Chair of the Richard J. Resch School of Engineering** who won the Founders Award for Excellence in Institutional Development. Terry has worked tirelessly with technical college counterparts to reach articulation agreements and has done extensive training which will help lead to the accreditation of the engineering technology program. At the same time that she was building the program, she was initiating a community-level advisory board that includes participation from more than 50 companies, many of which are now UW-Green Bay contributors and supporters of student internships.

Congratulations to **Ryan Currier** and **Mark Norfleet** on their published article in the journal *Precambrian Research* titled "Textural Analyses of Classical Rapakivi Granites: Texture Formation through Coarsening, Size-selective Replacement, and Stirring". The article provides new insights into granites that have been studied for more that a 100 years.



Congratulations to **Brian Merkel** on all his work with the Tiny Earth in Tiletown event at Lambeau Field. The event was attended by nearly 250 students displaying their research posters, to thirty-five judges. UW-Green Bay students took first and third place at the event.

Congratulations to **Maruf Hossain** on his publication "Open-Loop Approach for Robust Detection of Selective Harmonic in Single-Phase System" in *IEEE Transactions on Industrial Informatics*.

Congratulations to **John Luczaj** on his publication in the journal *Geosciences* titled "Non-Mineralized Fossil Wood."



Congratulations to the "Fish Guy" **Ken Webb** on his cutting edge techniques that have been developed for marine fish-self cleaning systems, automated systems, self-monitoring systems to turn yellow perch into commercial products with his collaboration with the Farmory in Green Bay.

Congratulations to the following faculty on their promotions, **Woo Jeon** Professor of Mathematics, **Megan Olson-Hunt** Associate Professor Mathematics, **Lisa Grubisha** Associate Professor Biology, **Melvin Johnson** Associate Professor Geography-Geology.



"As scientists, we step on the shoulders of science, building on the work that has come before us—aiming to inspire a new generation of young scientists to continue once we are gone." Stephen Hawking

2018-19 Scholarship Awardees

James E. Casperson/Environmental Science Alumni Endowed Scholarship (one \$1,600 award): **Madeline McKeefry**

Alfred O. and Phyllis E. Holz Endowed Scholarship (two \$1,425 awards): **Laura Fehling and Bennett Lippert**

Carol R. DeGroot Endowed Scholarship in Environmental Science (one \$1,050 award): **Patrick Brodhagen**

Morgan/Macaluso Family Endowed Scholarship (one \$1,350 award): **Angela Grimm**

Ganga and Elizabeth Nair Endowed Scholarship (one \$1,300 award): **Rebecca Malcore**

Katie Hemauer Memorial Endowed Scholarship (one \$850 award): **Lexi Prasnicky**

Brad Cook Memorial Endowed Scholarship (one \$450 award): **Ashley Brechlin**

Barbara and Benjamin Cruz-Urbe Family Endowed Scholarship for the Study of Environmental Issues (one \$600 award): **Emma Gilbertson**

Chad Moritz and Beth Meyerand Annual Scholarship (one \$1,000 award): **Becky Berry**

Herbert Fisk Johnson Endowed Scholarship for Excellence (four \$1,250 awards): **Brandon Byrne, Sarah Gundrum, Kenzie Ostien, and Sierra Schug**

Brown County Waste Transformation Team Annual Scholarship (one \$1,150 award): **Rachel Malcore**

Science and Mathematics Endowed Scholarship (one \$550 award): **Lillian Foxcroft**

Nancy J. Sell Memorial Endowed Scholarship (two \$925 awards): **Mackenzie Johnson and Kristin Rauch**

NEW Engineering Endowed Scholarship-First Year (one \$1,850 award): **Denny Christoff**

NEW Engineering Endowed Scholarship-Second Year (one \$2,000 award): **Sarah Klemp**

Susan Finco and Ed Kralovec Endowed Scholarship (one \$1,100 award): **Griffin Magee**

Superior Diesel Endowed Scholarship for Engineering Technology (one \$1,050 award): **Adiar Pech**

Dykema Family Endowed Scholarship (one \$1,100 award): **Aaron Splan**

Lee and Kathy Anderson Endowed Scholarship for Engineering Technology (one \$2,250 award): **Lily Howe**

Beth and Richard Gochnauer Endowed Scholarship for Engineering Technology (two \$1,900 awards): **Mina Anderberg and Billie Komorowski**

Faith Technologies, Inc. Annual Scholarship for Engineering Technology (one \$1,000 award): **Kendrick von Lignau**

Northeast Wisconsin Manufacturing Alliance Future All-Stars Annual Scholarship (two \$2,500 awards): **Zachary Olson (Electrical Engineering Technology) and Bennett Hutson (Mechanical Engineering Technology)**

Northeast Wisconsin Manufacturing Alliance Future All-Stars Annual Scholarship (gifted by Barry Wehmiller and Bob Chapman) (two \$2,500 awards): **Isaiah Stonebraker (Electrical Engineering Technology) and Adam Jensen (Mechanical Engineering Technology)**

Northeast Wisconsin Manufacturing Alliance Future All-Stars Annual Scholarship (gifted by Barry Wehmiller and Bob Chapman) (two \$2,500 awards): **Elizabeth Heinen (Mechanical Engineering) and Elliott Seiler (Mechanical Engineering)**

American Transmission Company Annual Scholarship (two \$2,000 awards): **Tyler Olson and Kyle Stoll**

BPM, Inc., A Specialty Paper Mill, Annual Scholarship for Engineering Technology (one \$1,000 award): **Samuel Holzmann**

FEECO International Engineering Technology Annual Scholarship (one \$1,000 award): **Maria Yang**

HATCO Corporation's David G. Hatch Annual Scholarship in Engineering (two \$2,500 awards): **Matthew Hecht and Charles Warren**

Jeremy Green Family Scholarship (one \$750 award): **Mareah Desotelle**

Donel Sullivan Scholarship (one \$2,500 award): **Ben Gilles**

Herbert and Crystal Sandmire Scholarship (two \$750, six \$1,000 and three \$2,500 awards): **Amber Perez, Ashley Willes, Abigail Heil, Elena Garcia, Grace Neese, Justin Ferkin, Natalie Gawron, Sara Kroneck, Mackenzie Hemauer, Emma Sloat and Kayla Vrieze**

Phoenix Rising Star Scholarship Award (four \$2,000 awards): **Lizzy Blindauer, Michelle Greenfield, Elizabeth Heinen and Abrahm Hill**



Grants at Work



Is there a link between algae and Alzheimer's?

That's what UW-Green Bay Marinette professor Renee Richer 's research is trying to show. Her study investigates how humans are exposed to cyanobacteria and their toxins. Cyanobacteria (also known as blue green algae) are bacteria that use photosynthesis to convert sunlight to carbohydrates, and Renee is focusing her research in the areas of southern Africa and the Middle East to observe the toxins these bacteria produce and how they affect humans. In a recent article for UW-Green Bay,

Renee stated "Cyanobacteria produces some of the most deadly toxins known to man, and it turns out that one of the toxins is a neurotoxin called BMAA –Beta-N-Methylamino-L-Alanine... in the last 15-20 years or so there has been a resurgence in interest in this toxin and how it is linked to ALS, Alzheimer's and Parkinson's disease."

Richer, along with the help of her students, was able to map cyanobacteria in the small country of Qatar, so she could better understand the relationship between cyanobacteria, BMAA and neurodegenerative diseases. She is hoping to take the information that she has acquired from mapping Qatar's algae bloom to the same algae that are found in Wisconsin. The research is looking at the cause of the diseases which will help toward prevention and research possible treatments or cure the diseases.

Julie Noordyk was awarded \$58,833 for the "Increasing the Impact of the Wisconsin Clean Marina Program for Sustainable Water Resources" sponsored by Greater Milwaukee Foundation.

Robert Howe was awarded \$44,798 for the "Great Lakes Coastal Wetland Monitoring" sponsored by Environmental Protection Agency.

Ankur Chattopadhyay was awarded \$15,000 for "Microsoft Digi-Spark Outreach" sponsored by Microsoft.

Mandeep Bakshi was awarded \$10,000 for "Regenerative Biodiesel Micro-emulsions for Cleaning Automobile Engines" sponsored by WiSys Spark Grant.

Brian Merkel was awarded \$3,000 for "Tiny Earth" sponsored by Silicon Valley Community Foundation.

Patrick Forsythe and **Christopher Houghton** were awarded \$74,369 for the "Biological Data Collection" sponsored by Green Bay Metropolitan Sewerage District.

Christopher Houghton and **Patrick Forsythe** were awarded \$159,770 for the "Spatial and Temporal Distribution of the Benthic Macro-invertebrate Community in Lower Green Bay" sponsored by National Oceanic and Atmospheric Administration.

Christopher Houghton and **Patrick Forsythe** were awarded \$18,000 for the Assessing Cyanobacterial Harmful Algal Blooms in the Lower Green Bay Fox River of Concern sponsored by Environmental Protection Agency

"Academic success depends on research and publications." Philip Zimbardo

Alumni Are Serious About STEM

Alumni of the College of Science, Engineering and Technology, Lisa Merkel and Bonnie Walberg, were awarded a four-year, \$96,000 grant, from the Medical College of Wisconsin-Green Bay, with the assistance of Green Bay Public Schools for first-generation females attending Green Bay West High School. The Serious about Stem (SAS) program which began in fall of 2018 is led by Green Bay West High School teachers, Lisa and Bonnie. The mission of SAS is to empower and improve positive outcomes for first generation young women wanting to enter the Math, Science, Engineering, and Technology fields. Relationship building, mentorship, and leadership opportunities highlight the freshman year of the program. Their sophomore, junior and senior year is spent working on ACT Prep, college applications, scholarships, career opportunities and financial aid. Students are required to maintain a minimum GPA of 2.5 and complete 100 hours of community service.

The partnership between CSET of UW-Green Bay and the Green Bay West High School SAS program has been instrumental in facilitating the progress and excitement the SAS women have in the program. Associate Dean of CSET, Amanda Nelson, and Assistant Professor Carly Kibbe, have provided countless opportunities for SAS women to interact with CSET faculty and undergraduates in a variety of settings at UW-Green Bay, including cadaver labs, the Richter Museum, and the Weidner Center. Additionally, CSET interns visit SAS students at Green Bay West High school every month to discuss academic success strategies, careers and leadership.



Master of Athletic Training

Coming Summer 2019

Assistant Professor William (Bill) Gear PhD, LAT, ATC is the Program Director of the New Master of Athletic Training (MAT) Program housed in the Human Biology department. Bill comes to UWGB from New Mexico State University (NMSU), where he served as the Program Director of the professional Athletic Training program. Prior to NMSU, he also served as the Program Director for Athletic Training at Marywood University, the University of Minnesota-Duluth, and California Lutheran University. Bill's main responsibilities at this time are to oversee the start of the program in June 2019 and to ensure the program meets Commission on Accreditation of Athletic Training Education (CAATE) standards.

Assistant Professor Sadie Buboltz-Dubs DAT, LAT, ATC is the Coordinator of Clinical Education for our Master of Athletic Training. Sadie is responsible for overseeing the clinical education portion of the program and is currently focused on developing quality clinical partnerships. Sadie joins us from Prevea Health, where she worked with our very own men's basketball team as their athletic trainer.

The UW-Green Bay Master of Athletic Training program is committed to graduating students that practice athletic training using an evidence-based approach while incorporating patient values in a variety of health care settings. Students will be provided a learning environment that includes classroom, laboratory and clinical education, along with research, and professional growth opportunities that prepare them for The Board of Certification (BOC) examination and entry into the Athletic Training profession. As a legendary sports-rich community, Green Bay offers a wealth of clinical opportunities for graduate students. Potential partnerships include market-leading medical institutions and a range of professional, minor league, collegiate, and high school teams.



Athletic Trainers are health care professionals who specialize in preventing, recognizing, managing, and rehabilitating injuries resulting from physical activity. As part of the complete health care team, the certified athletic trainer works under the direction of a licensed physician, and in cooperation with other health care professionals, athletics administrators, coaches, and parents. Athletic Trainers may be found in a variety of settings such as: high school, collegiate, professional athletics, rehabilitation or industrial clinics, and military installations. The MAT will be submitting a self-study on July 1, 2020 to seek accreditation by CAATE.

Welcome New Athletic Training Faculty



William Gear
Assistant Professor
Program Director
Athletic Training
PhD: University of Pittsburgh



Sadie Buboltz-Dubs
Assistant Professor
Coordinator of Clinical Education
Athletic Training
DAT: University of Idaho

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Meet Dr. Md Maruf Hossain

Dr. Md Maruf Hossain joined our faculty in fall of 2016 from the University of Memphis where he was the Herff Fellow. He currently is an Assistant Professor of Electrical Engineering Technology in the Richard J. Resch School of Engineering. His areas of interest include electrical power system's stability and control, power quality, solar and wind energy systems, renewable energy integration in the power grid, and smart grid system. Dr. Maruf is currently working with a novel wind turbine generator system where a higher capacity single unit wind generator will be driven by multiple wind turbines with less installation and maintenance costs. This work is patented by the United States Patent and Trademark Office (United States Patent # 9,599,092).



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