

URBAN GREENSPACE

July 2018

A compost collaboration tackles food waste and farming

By Sarah Vickery, College of Letters & Science

An ambitious collaboration wants to change the way Milwaukee thinks about its leftovers.

The Compost Project, formally known as a “Systems Approach to Food Waste Composting for Urban Agriculture,” is wrapping up after two years of exploring composting in Wisconsin’s biggest city. Funded by a USDA grant, the project sought to answer the question, can composting be a viable industry in Milwaukee?

The endeavor was overseen by Greg Lawless, a project manager for the University of Wisconsin Cooperative Extension. He was helped along by a strong partnership which included UWM researchers. Donna Genzmer, the Director of UWM’s Cartography and Geographic Information Science Center, served as the grant’s principal investigator in Milwaukee. Biological Sciences professor John Berges lent his support, as did Anthony Ross, Director of UWM’s Supply Chain Management Institute in the Lubar School of Business.



Two students working with UWM Biological Sciences professor John Berges examine plants growing in several compost samples in a field at Cream City Farms in Milwaukee. Photo courtesy of John Berges.

The meat of the problem

Food waste is an enormous part of the trash we throw out each year, and it takes space to bury and energy to burn.

“We’re taking that waste and we’re paying to get rid of it. That’s a problem, because we don’t have good things we can do with it,” Berges explained. “And that food waste is an incredibly valuable resource. When we garden, we buy essentially the same stuff processed further at a premium.”

The Compost Project wants to take the waste product and turn it into compost. It’s great in theory, but tricky in logistics. How should food waste from homes and businesses be collected? How and where will it be processed into compost? And what makes compost effective?

From the justice system to sustainability to creative writing, our faculty, students, and alumni in the College of Letters & Science have an array of fascinating passions.

We are proud to bring you several special editions of In Focus that highlight one area of interest and the many ways the people of the College of Letters & Science approach it.

This July, we shine a spotlight on urban greenspaces.

A special delivery

Geographic Information Systems is a tool that marries technology and cartography. Data points can be collected and attached to any feature on a map, showing statistics, history, and any other information users find important.

GIS can map the most efficient routes for food waste pick-up.

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PUBLISHED THE LAST TUESDAY OF EACH MONTH BY
THE COLLEGE OF LETTERS AND SCIENCE AT THE
UNIVERSITY OF WISCONSIN-MILWAUKEE.

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CES alum's horticulture job isn't all roses - it's education too

By Sarah Vickery, College of Letters & Science

Ben Habanek is the village horticulturalist of Shorewood, Wisconsin. Although his job description includes the natural standbys like planting flowers and shrubs, Habanek is also responsible for making residents think about the importance of sustainability in their own backyard.

He sat down to talk about his job - and how to make people care about the green spaces around them.

How did you become a village horticulturist?

I completed an associate degree in landscape horticulture from Milwaukee Area Technical College and decided that I wanted to continue on to a Bachelor's degree. Initially I went to UWM for education to be a science teacher. As part of that program, I had to take some conservation and environmental science classes, and it just sucked me in. I switched my major and got my BS in CES in 2013. After I finished, I worked at Boerner Botanical Gardens with Milwaukee County Parks, and then had the opportunity to come work for the village of Shorewood. I've been here for six months.

What does a municipal horticulturist do?

The question is, what don't I do? My official title is Horticulturist/Forester. I assist the Forestry crew with street tree work, assist with other Department of Public Works tasks, and in the winter I'm on call for snow removal. Every once in a while, I'm lucky enough to drive a garbage truck for the day. You'll never know quite what you'll be asked to do.

Most of the time, my job duties are related to the green space in the village. We have a couple of parks; they're small but well-loved and get a lot of use. I oversee those, as well as all of the greenspace around our village hall, library, and police station. I also design, install, and maintain about 125 street planters that you'll see out by the bus stops and up and down the main artery roads in the village.

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Mathematical mapping gives a green view of Milwaukee county

By Sarah Vickery, College of Letters & Science

Visit the Google Street View (GSV) website and you'll see panoramic photos showing every tree, shrub, and bush growing along the road. That made it the perfect tool for two UWM students trying to measure the growing things in their city.

Last summer, Mathematics major Jacob Beihoff and Applied Math and Computer Science major Adam Honts teamed up to map the green vegetation visible from the street in Milwaukee County, a so-called "green index." They pulled images from GSV and created their own computer program to measure the amount of fauna in each photo.

"It provides data that could open up a lot of possibilities," Beihoff said. "People have been doing this a long time for urban planning, but we came up with a nice, free way of collecting this data and providing it for others to look at."

And that data has all sorts of practical uses. Scientists are looking at urban greenspaces to see the relationship they have with everything from neighborhood income to mental well-being to home energy costs.

The project grew out of a UWM initiative called Undergraduate Research in Biology and Mathematics. The NSF-funded program encourages biology and math students to conduct research projects focused on integrating their respective disciplines.

The project took three steps.

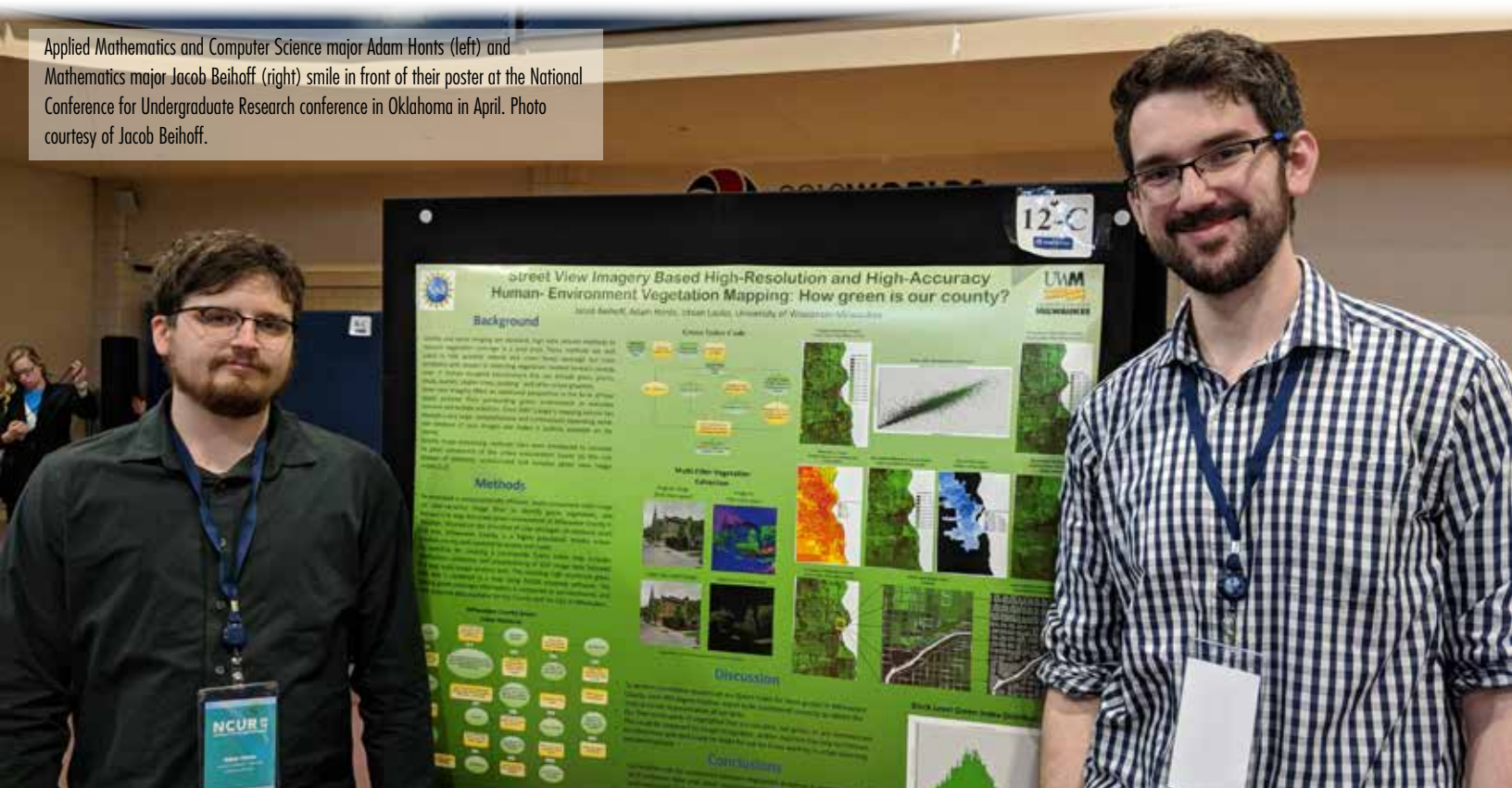
Step One and Two: Getting Locations and Collecting Images

To begin their mapping, they first needed to gather Google Street View photos from locations around the county. Beihoff and Honts took a regular map of Milwaukee County and overlaid a fine grid on top of it, stretching from corner to corner. In real life, the grid lines were about 6 to 10 meters apart. Then they requested GSV images for the coordinates of each intersection on the grid.

They ran into a big problem almost immediately: Honts and Beihoff had almost 1.8 million possible coordinates. GSV panoramic images are stitched together from six photographs, so the students would have had close to 8 million photographs to collect. They would have taken more than two months to download.

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Applied Mathematics and Computer Science major Adam Honts (left) and Mathematics major Jacob Beihoff (right) smile in front of their poster at the National Conference for Undergraduate Research conference in Oklahoma in April. Photo courtesy of Jacob Beihoff.



Green index

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“We noticed from one image to the next image, you’re not really seeing anything new because the locations are so close together,” Honts said. “We developed a method of filtering out locations within close proximity to one another to give us a newer perspective.”

After trial and error, the team pared down their location collection points, and used a filter to select the newest photos from each location and eliminate photos taken during winter. They were still left with 90,000 GSV images from around the county.

Step Three: Processing Images

To measure the amount of vegetation in photographs, Honts and Beihoff wrote a computer program that detects green pixels within each image. The problem was, there are a lot of green things in Milwaukee County.

“Every street sign, every trash can, they’re all green,” said Beihoff. Green houses and cars were also swept up in the filter. “Not only do you have to distinguish green things, but you have to separate what is and isn’t vegetation.”

Beihoff and Honts focused on the trashcans and street signs that appeared in many of the images. They converted each photograph from an RGB-format (Red, Green, Blue) to Hue Saturation Value – an alternative way to look at the color in each image. They noticed that the luminescent greens of street signs and trash cans fell into a different range of hues than leaves.

“So we targeted that and said, if this image falls below this range, we assume that it’s good, and if it falls above this range, then it’s artificial and we can cut it out,” Beihoff said.

To remove objects like houses and vehicles, they looked at pixel color variation. If a color was uniform across several pixels grouped together, that part of the image was likely a uniformly-painted car or house. Pixel clusters with variation in shades of green were more likely to be part of a bush or tree, because, as Beihoff noted, “nature doesn’t paint nicely.”

Presenting their research and next steps

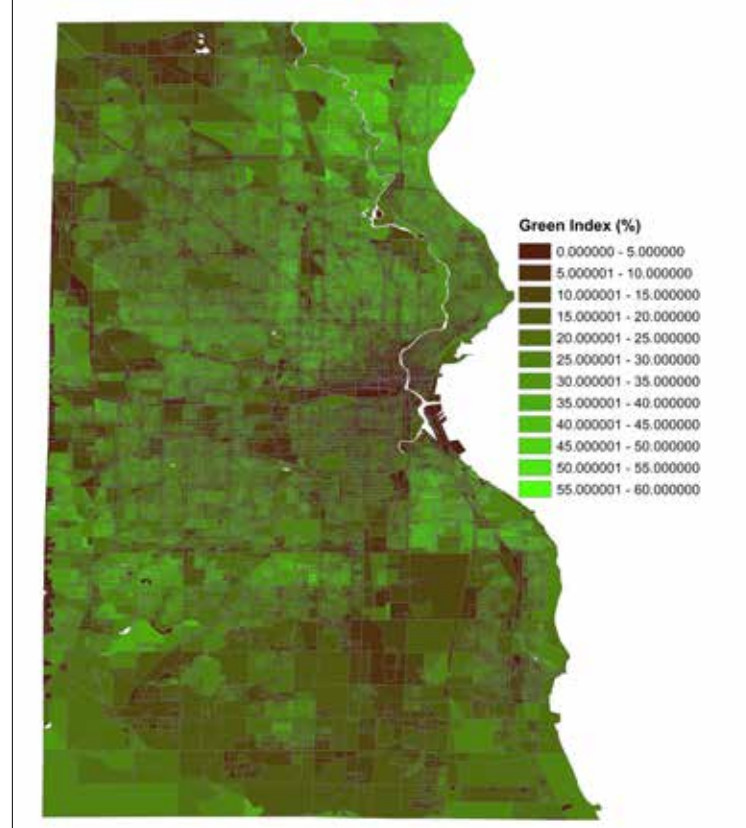
Using their green filter, Honts and Beihoff were able to isolate the vegetation in all 90,000 GSV images and calculate the percentage of vegetation compared to everything else in the photos, arriving at a green index number: about 23.5 percent of Milwaukee County is green vegetation.

“In addition to getting this overall green index, we were able to map how green Milwaukee County is on a very small scale,” said Beihoff. “We have data which can tell you how green your neighborhood is, or how green certain streets in Milwaukee are compared to others. We were able to physically map this, and create Milwaukee County maps that displayed how green individual blocks are around the County.”

They presented their research at several conferences around the U.S. before they gave their final presentation at the UWM Undergraduate Research Symposium in April. At every conference, Honts said, scholars were curious about the project and its possible applications.

They hope other scientists can expand on their work and improve it. For instance, the green index only measured green vegetation, and excluded colored flowers and trees. Other applications could include using pollution sensors on Google Street cars to track air quality.

“I think there’s so many ways you could push this research in new directions,” Honts said.



Beihoff and Honts created several maps from the results of their research. This map shows geographic blocks in Milwaukee County colored to represent its respective average green index. Courtesy of Jacob Beihoff.

Spanish alum grows food, forests, and city with edible landscapes

By Sarah Vickery, College of Letters & Science

A neighbor recently knocked on Annamaria León's door. What, he asked, was she planning to do about the weedy lot on the side of her house in Chicago's North Lawndale neighborhood? León laughed; she's already done quite a bit with the "weedy lot." It's been an urban food forest for the past seven years, filled with fruit trees, berry bushes, and over 150 species of pollinator-attracting perennials.

Edible landscaping and permaculture are concepts gaining popularity in urban centers around the country. Food forests are like miniature ecosystems, containing multiple varieties of fruits and edible perennials planted together in up to seven layers for the most efficient use of space.

"This is a way to fully integrate, at different layers and every angle, food," she explained. "With this model, oftentimes, people don't even know they're in a community garden. It looks like a big weed patch because it's something unrecognizable to them until they get a guided tour of what's happening. All of a sudden, their eyes light up and then they see that there really is a design in the apparent chaos.

"Not only do we produce much more diversity," she added, "but food forests also really positively affect peoples' mental and physical health and nutrition."

She would know; León's been planting and advocating for food forests in Chicago for years. Most recently, she was the Edible Landscapes director at Christy Webber Landscapes Farm & Garden Center, but León left that position this year to co-found Homan Grown, a wholesale perennial and tree nursery that also offers landscape and design services.

It was a roundabout journey from college to owning her own company.

León is the daughter of two Filipino family practice doctors. Born in Manila, her family immigrated to Brown Deer, Wisconsin, when she was a child. León began college at UW-Madison with the intention of becoming a physician like her parents, but she discovered that both the field and the school weren't the right choices for her. She transferred to UWM and graduated in 1988 after majoring in Spanish with minors in French and Comparative Literature.



Spanish alumna Annamaria León takes pruned tree branches to use at the base of a hugelkultur in her North Lawndale neighborhood in Chicago. Photo courtesy of Annamaria León.

She held a series of customer service positions in different industries, but when she was laid off in 2008, León decided to nurture her green thumb. She took a part-time position working at a Christy Webber Farm and Garden retail store while she took classes through the University of Illinois Extension to become a master gardener. After that, she earned her permaculture design certification in Bloomington, Indiana, and then became certified in sustainable horticulture and sustainable agriculture through an apprenticeship program called Windy City Harvest.

As she got further involved in the landscaping industry, León found herself grateful for her Spanish major.

Food forests are typically planted all together and constructed in seven layers:

1. Canopy trees (ex: tall nut trees)
2. Smaller fruit trees (ex: mulberry, apple, pear)
3. Food shrubs (ex: currants or raspberries)
4. Herbaceous shrubs (ex: rhubarb, kale, collard greens)
5. Ground cover (ex: strawberries or creeping thyme)
6. Root vegetables (ex: carrots, potatoes, turnips)
7. Vines/climbing plants (ex: grapes, arctic kiwi)

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Video Stories: Three Minute Thesis

In April, UWM hosted its inaugural Three Minute Thesis (3MT[®]) event. Doctoral students gave three-minute summaries of their thesis research covering an array of fascinating topics. Hear from some Letters & Science students below!



Chemistry doctoral student Anahit Campbell has developed a quick, simple, cost-effective method to detect kidney blockage in pediatric patients. https://youtu.be/nwob9Fh3W_0



Biological Sciences doctoral student Tyler Buddell examined how disordered calcium channels in the brain can be used to diagnose autism. <https://youtu.be/BfURoFRD-oc>

Food forests

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“There are many people in landscaping and corporate agriculture who are Spanish-speakers. I rely a lot on my ability to communicate to other workers,” she said.

León became the Christy Webber Edible Landscapes manager in 2014 where she designed an edible landscape exhibition in Chicago’s Millennium Park and spent four years teaching private businesses, municipalities, and homeowners how to plant food forests. Now, she leads Homan Grown with her business partner, Jeff Levrant. Her husband, internationally-recognized perennial plantsman, author, and landscape designer Roy Diblik, is a consultant and mentor to the company.

Homan Grown is a way that León can not only encourage permaculture, but also have a positive impact on her industry and community. The company aims to add more sustainable greenspace to Chicago and to address a shortage of gardeners who have the proper knowledge to care for sustainable agriculture models and naturalistic landscapes.

One way they will do so is by partnering with READI Chicago, a program that seeks to reduce gun violence by connecting people in high-crime areas with job-training, employment, education, and mental health resources.

“There are only a few industries open to people who may have felonies or other barriers to employment, and one of them is landscaping and the greening industry,” León said. “We’re looking at employing these people after they complete the READI program in 2019. ... Being a steward of the earth can transform peoples’ relationship to who they are for the world and who they are for themselves.”

She hopes that her future employees, and the city of Chicago as a whole, will come to embrace permaculture and food forests, and not just for the sake of her business. Urban greenspace has been shown to have positive impacts on peoples’ mental health and correlates with lower crime rates. Also, León added, urban forests can help combat the effects of climate change by helping to slow down and filter excessive rainwater during harsh downpours.

And, of course, food forests are full of tasty treats.



Food forests are planted to make the most efficient use of space. This planting is located in the One Straw Community Garden in Chicago. Photo courtesy of Annamaria León.

Takahashi wins foreign language teachers award

By Claire Hackett, University Relations

The Wisconsin Association of Foreign Language Teachers has bestowed an award on UWM lecturer Shinji Takahashi for his contributions to teaching Japanese language and culture.

The Recognition of Merit Award is given annually to people who have demonstrated excellence in teaching or who have made significant contributions to the profession of teaching language.

Takahashi says this award is not just for him. “This wouldn’t be possible without the hard work of all the UWM Japanese teachers,” he said.

Takahashi moved to Milwaukee 10 years ago with his family and has been teaching beginner Japanese classes ever since. Before moving to America, he taught English in a Kyoto high school for 25 years.

Takahashi’s involvement extends beyond teaching in a classroom to cultural immersion in Japan and promotion of Japanese culture in Milwaukee events throughout the year. “To promote the Japanese program, we need to get all the communities involved, not just teaching at the university,” Takahashi said.

Every year in June, he leads several students on a study abroad trip to Kyoto for two weeks. He spends a lot of time networking with Japanese business professionals to set up internships in Japan for students majoring in economics or business with knowledge of Japanese. He also coordinates many booths and tables representing the Japanese program at events such as Anime Milwaukee or Wisconsin State Fair.

Outside of UWM, he is chairman of the Milwaukee Japanese Association and president of Wisconsin Association of Teachers of Japanese.



Shinji Takahas

UWM, Concordia partner on dual degree program

The University of Wisconsin-Milwaukee and Concordia University School of Pharmacy have reached an agreement to offer a dual degree program leading to a bachelor’s of science in biological sciences and a doctorate in pharmacy. In the program, students will spend three years in a pre-pharmacy program through UWM’s College of Letters and Science, then four years in Concordia’s doctor of pharmacy (PharmD) program.

The dual degree program, which can be completed in seven years, would be one year shorter than completing a bachelor’s and then entering the pharmacy program. Students in the program will be able to take several first-year courses in the Concordia pharmacy program to fulfill requirements for their bachelor’s degree at UWM.

“We are thrilled to partner with Concordia on this initiative,” said David Clark, Senior Associate Dean of UWM’s College of Letters and Science. “Students are going to leave UWM with a solid foundation in biology and chemistry that will be built upon when they arrive at Concordia’s Pharmacy School through their first-year pharmacy curriculum. It’s a win-win for everyone.”

Students in the UWM program will work closely with advisors at UWM and Concordia School of Pharmacy’s admissions staff to make sure they are completing needed pre-pharmacy coursework and are competitive in the admissions process for the pharmacy program.

“We look forward to developing other partnerships for the benefit of our students,” Clark added, noting the university already has a similar agreement with Rosalind Franklin University in North Chicago that results in both the bachelor of science degree in biology and the doctor of podiatric medicine in a 3+4 structure. “Additional accelerated health care-related degree programs are under discussion,” Clark said.



People in print



Jeffrey Sommers

Jeffrey Sommers (Africology and Global Studies). 2018. Bond Villain in the World Economy: Latvia's Offshore Banking Sector. *CounterPunch*. (online) <https://bit.ly/2uqFJcP>

Jeffrey Sommers (Africology and Global Studies) and Christopher Fons. 2018. Fear and Loathing of a Blue Wave in Wisconsin: Scott Walker Reprises in Class Warfare Against Schools and Teachers. *CounterPunch*. (online) <https://bit.ly/2zQjvXc>

Jeffrey Sommers (Africology and Global Studies) and **Peter Paik (French, Italian, and Comparative Literature)**. 2018. A Blow to Interventionists, as US and North Korea Move Toward Peace. *CounterPunch*. (online) <https://bit.ly/2AgV3hJ>

Uk Heo (Political Science) and Seongyi Yun. 2018. South Korea in 2017: Presidential Impeachment and Security Volatility. *Asian Survey*, 58(1), 65-72. <https://bit.ly/2mlpCcc>

Neil Patrick Griffis, Roland Mundil, Isabel Patricia Montañez, **John Isbell**, **Nicholas Fedorchuk (both Geosciences)**, Fernando Vesely, Roberto Iannuzzi, and Qing-Zhu Yin. 2018. A new stratigraphic framework built on U-Pb single zircon TIMS ages with implications for the timing of the penultimate icehouse (Paraná Basin, Brazil). *Geological Society of America Bulletin*, 130(5-6), 848-858. <https://bit.ly/2lxFC3s>

Robin Pickering-Iazzi (French, Italian, and Comparative Literature). 2018. Book Review of *Women of Honor: Madonnas, Godmothers and Informers in the Italian Mafia*, by Milka Kahn and Anne Veron. *History: Reviews of Books*, 46(4): 105.

Liam Callanan (English). 2018. The Boy, He Will Be Fine. *Read it Forward* (online). <https://bit.ly/2KnyMPS>

Ali I. Altan and Jian Chen (both Chemistry and Biochemistry). 2018. In situ chemical probing of hole defects and cracks in graphene at room temperature. *Nanoscale*, 10(23): 11052-11063. <https://rsc.li/2NRT6ee>

Xinnan Du, Alice E. Shapley, Naveen A. Reddy, Tucker Jones, Daniel P. Stark, Charles C. Steidel, Allison L. Strom, Gwen C. Rudie, **Dawn K. Erb (Physics)**, Richard S. Ellis, and Max Pettini. 2018. The Redshift Evolution of Rest-UV Spectroscopic Properties in Lyman-break Galaxies at $z \sim 2-4$. *The Astrophysical Journal*, 860: 75. <https://bit.ly/2Nm4le4>

Danielle A. Berg, **Dawn K. Erb (Physics)**, Matthew W. Auger, Max Pettini, and Gabriel B. Brammer. 2018. A Window on the Earliest Star Formation: Extreme Photoionization Conditions of a High-ionization, Low-metallicity Lensed Galaxy at $z \sim 2$. *The Astrophysical Journal*, 859: 164. <https://bit.ly/2NhcjFh>

Alaina Henry, Danielle A. Berg, Claudia Scarlata, Anne Verhamme, and **Dawn Erb (Physics)**. 2018. A Close Relationship between Ly-alpha and Mg II in Green Pea Galaxies. *The Astrophysical Journal*, 855(2): 96. <https://bit.ly/2usqHDx>



Dawn Erb

Passings



Karen Dalke ('05, PhD Anthropology) passed away in July. She was a beloved member of the UW-Green Bay staff as a senior lecturer for Public and Environmental Administration.

Karen earned her associate, bachelor's, and master's degrees from UW-Green Bay, but she completed her doctoral work at UWM and earned her PhD in Anthropology in 2005. After graduation, she was hired as an ad hoc instructor at UW-Green Bay and recently received a full-time position at the university.

She was a well-respected instructor as well as a talented researcher.

More information is available at <https://bit.ly/2Lrh5PL>.

Geosciences Spotlight: Students GO FoRWARD to up diversity

By Sarah Vickery, College of Letters & Science

It's no secret that STEM fields - science, technology, engineering, and math - have problems with racial diversity. Of those areas, geosciences are the least diverse of all, with over 77 percent of Bachelor's degrees in earth sciences going to white students, according to the National Science Foundation.

UWM Geosciences professors Dyanna Czeck and Margaret Fraiser are hoping to change those numbers. This year marked the beginning of GO FoRWARD - a UWM program designed to introduce and encourage underrepresented minorities in the geosciences field. The acronym stands for Geosciences Opportunities with Fossils, Rocks, & Water to Attract underRepresented Discoverers.

"Science is better when there are more diverse people involved in the process. The more backgrounds, the more experience people bring to the table, and the better the process is," Czeck said. "There is a projected shortage in the geosciences workforce in the near future, and this problem is exacerbated if we're only recruiting from one group of people."

GO FoRWARD is funded by a three-year National Science Foundation grant meant to foster diversity in geosciences. Czeck and Fraiser applied for the funds with help from Scott Schaefer, a lecturer at UWM and MATC, in order to broaden the participation of UWM and MATC students in geosciences. Current UWM geosciences undergraduate and graduate students act as facilitators and mentors.

The highlight of GO FoRWARD is the four-week summer program. Running from late June into July, this mini-camp hosted 12 minority students from UWM and MATC, chosen from more than 30 applicants. Participants received a stipend to help them afford working fewer hours in order to attend the sessions.

And sessions were busy. On any given day, students were leading discussions about diversity in STEM, doing field work, talking with UWM geosciences alumni about their careers, taking fieldtrips to GZA Geo Environmental Inc. in Waukesha or the Milwaukee office of the Department of Natural Resources, or putting together research presentations.

The field research was especially involved; students could choose from three projects, including measuring fractures in rock quarries, researching fossils unearthed in a quarry in Racine, or gauging output of the Fox River in Waukesha.

"We've been amazed at how enthusiastic the participants have been," said Czeck. "They all jumped in. The students have been great and that's made it fun for all of us."

One of those students is Everett Eaton, a rising junior and a Conservation and Environmental Science major. He's interested in hydrogeology, and so chose the Fox River research project.

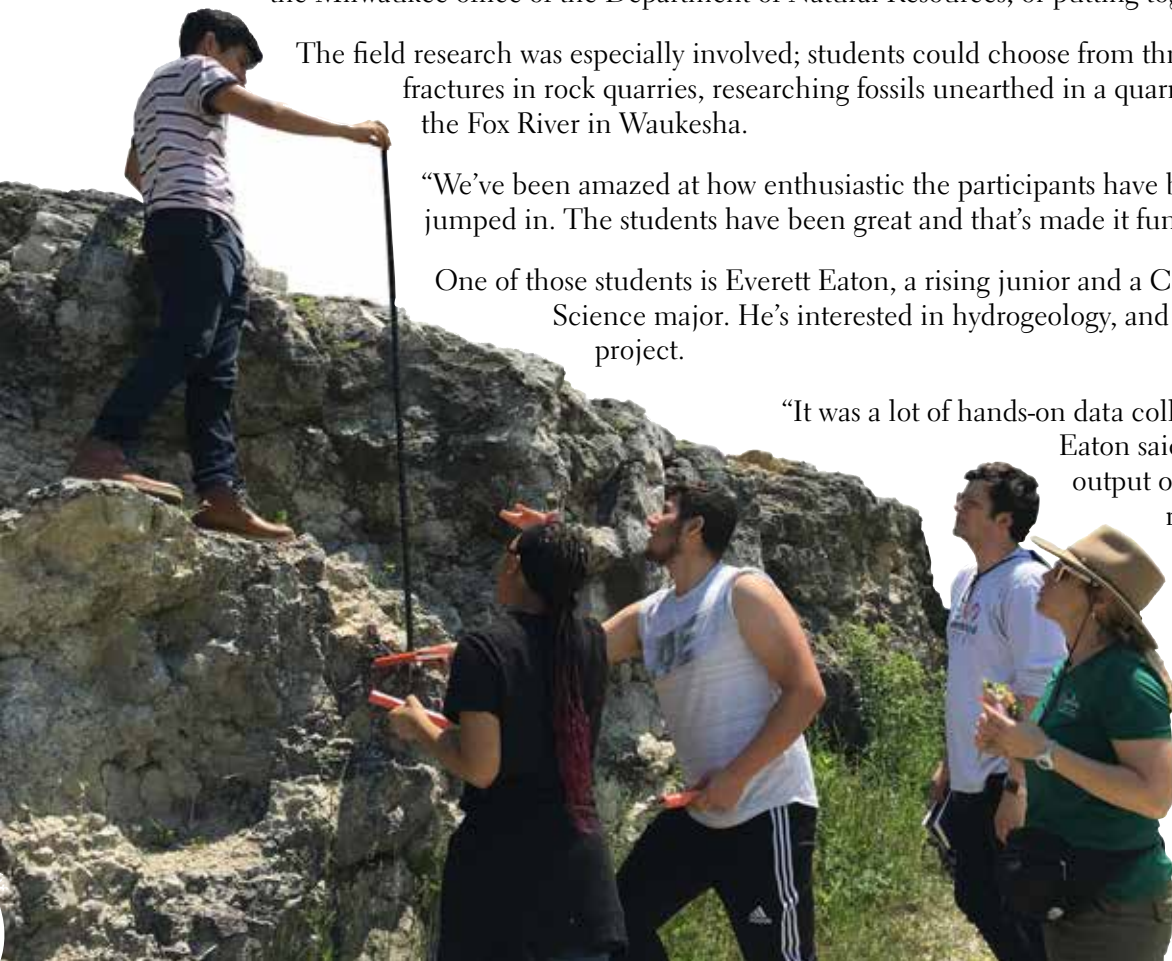
"It was a lot of hands-on data collection, which was really cool," Eaton said. "We were measuring stream output on different days and points in the river - how deep it is, its speed. It's useful because hydrogeologists have to be able to calculate pipe output from dams and water sources to homes."

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Students in UWM's new GO FoRWARD program analyze a rock outcrop where they have been examining fossils at a quarry in Racine, Wisconsin. Photo courtesy of Dyanna Czeck.



Dyanna Czeck



In the Media and Around the Community

David Petering (Chemistry) expressed his concern about the environmental impact the new Foxconn facility will have on southeastern Wisconsin in a Voice of America news article.

<https://bit.ly/2tK5m7s>

News that Harley-Davidson planned to move some of its manufacturing operations overseas overshadowed President Trump's visit to Wisconsin to attend the Foxconn facility groundbreaking, Glen Jeansonne (emeritus History) said on CBS 58 News. <https://bit.ly/2Mx16QH>

Refugees to the U.S. often struggle to acclimate, and gun violence doesn't help matters, Chia Youyee Vang (History) said in the *Milwaukee Journal Sentinel*. <https://bit.ly/2Kpml0I>

With help and input from graduate students in the Anthropology Department's Museum Studies program, the Black Holocaust Museum in Milwaukee is expected to re-open this fall after shuttering its doors during the Recession. <https://bit.ly/2KOAREi>

Despite a shortage of workers to fill job openings, wage increases have lagged behind previous gains in the 2000s in Wisconsin. John Heywood (Economics) speculated why that might be in the *Milwaukee Journal Sentinel*. <https://bit.ly/2lx2zDX>

Milwaukeeans deserve an accounting of their unique history, Amanda Seligman (History) told the Urban History Association in a blog post covering her project, *The Encyclopedia Milwaukee*. <https://bit.ly/2lBsydB>

The College Board "couldn't have picked a more Eurocentric date" when they proposed changing the AP World History test to only cover history from 1450 onwards, Merry Wiesner-Hanks (History) told *The New York Times*. (<https://nyti.ms/2ltqqEF>) After the board revised their proposal to the year 1200, *Inside Higher Ed* referenced her skepticism for the revision in another article. <https://bit.ly/2NJ0iIL>



Patas monkey. Photo by Brocken Inaglory.

Scientists discovered the remains of an extinct species of gibbon in a 2,000-year-old Chinese tomb, and Trudy Turner (Anthropology) confirms the accuracy of their claims about the gibbon skeleton, ViralTrends.co reported. (<https://bit.ly/2lyjztt>) She also agreed that Dr. Suess' famous Lorax could have "absolutely" been inspired by the patas monkey of Kenya in an article for Mashable. <https://bit.ly/2v64D10>

Harley-Davidson announced plans to move some of its production overseas following President Trump's announcement of tariffs on steel and aluminum, but Kundan Kishor (Economics) told WPR he suspects the company was planning to move anyway. <https://bit.ly/2KmyVSh>

The discovery of a three-star system – a pulsar surrounded by two white-dwarves – proved Einstein's theory of gravity with ten times the accuracy of previous tests, David Kaplan (Physics) told Engadget.com. <https://engt.co/2KNKsyH>

The Island quoted Peter Paik (Comparative Literature) and Jeffrey Sommers (Africology and Global Studies) in an article detailing the rocky historical relationship between the U.S. and Korea. <https://bit.ly/2lJhXNR>

Dyanna Czeck and Julie Bowles (both Geosciences) partnered with the Milwaukee Art Museum to give a talk related to their exhibit "Photographing Nature's Cathedrals" on July 10. <https://bit.ly/2Kzt8O5>

Erin Winkler (Africology) went on WUWM to discuss how we should talk to kids about race and racism. <https://bit.ly/2lEXbpy>

The volcanic eruption featured in *Jurassic World: Fallen Kingdom* is remarkably realistic, Barry Cameron (Geosciences) told Inverse.com. <https://bit.ly/2AsRlvV>



Summer brings with it several opportunities to stargaze and see some stunning celestial bodies with the help of the UWM Planetarium and director Jean Creighton, CBS News reported.

<https://bit.ly/2NjPVeo>



David Kaplan

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GO FoRWARD

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The summer program culminated in a poster presentation, just like those at scientific conferences. The students learned how to use Adobe Illustrator to create large posters explaining their research. The groups presented their work in a mini-symposium on July 12. They had an audience of current Department of Geosciences faculty, staff, and students; members of the Office of Undergraduate Research; and Daad Saffarini, Associate Dean of Natural Sciences in the College of Letters & Science.

Eaton found the experience invaluable. “Obviously geoscience is not very diverse, which can be pretty intimidating for minorities, but it doesn’t seem to have deterred anyone here,” he said. “This was a really good opportunity to try something new. It’s a really great environment to learn in too.”

The summer session has ended, but GO FoRWARD is just getting started. The program continues this academic year with meetings and conversations meant to introduce underrepresented students to each other and the field. This year’s summer cohort and any other interested students are welcome to attend these events. Next summer Czeck looks forward to hosting an even bigger cohort of students for the summer program.

“I love geosciences,” she said. “I want these students to see that geosciences is potentially a career, rather than a science class they take to fulfill a college credit.”



The first cohort of the summer GO FoRWARD program smiles together on the steps of Lapham Hall. Photo courtesy of Dyanna Czeck.

In the Media

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There is a hidden cost to society when teens do poorly in school because of homelessness or transient lifestyles, **Marcus Britton (Sociology)** said in a *Journal Times* article exploring how evictions impact high school students. <https://bit.ly/2MYUjz6>

Artifacts spanning multiple historical periods have been recovered from an excavation site in Oshkosh, Wisconsin by **Jennifer Haas** and the **UWM Cultural Resource Management** team, the *Oshkosh Northwestern* reported. The CRM team is run under the umbrella of the **Anthropology Department**. <https://oshko.sh/2LdSxwY>

The unique gaseous “halo” recently discovered by **Dawn Erb (Physics)** and her team of astronomers may provide new clues as to how galaxies form stars and evolve, *ScienceDaily* reported. <https://bit.ly/2LqnEqd>

Liam Callanan (English) explored the extraordinary life of filmmaker Albert Lamorisse in a piece for *Slate*, including Lamorisse’s final film, a documentary made for the last shah of Iran. <https://slate.me/2u6NkNS>

The book *New Poets of Native Nations* by Heid E. Erdrich was released in July. **Meg Noodin (English)** was one of the readers who introduced audiences to the book at the launch party in a Minnesota bookstore. <https://bit.ly/2uxNoqb>



Sara Benesh

Brett Kavanaugh, President Trump’s pick to replace retiring Supreme Court Justice Anthony Kennedy, likely won’t answer questions about specific cases during his hearing, as the practice seems uncouth, **Sara Benesh (Political Science)** said in a *Circa* article that was published around the country. <https://bit.ly/2lYmz9S>

Elana Levine (Journalism, Advertising, and Media Studies) was a guest on WPR in July discussing how soap operas have helped to shape American culture. <https://bit.ly/2LRxNYP>

“Kids from Wisconsin” has been a celebrated musical tradition in the state for the last 50 years. This year’s ensemble includes student **Julia Lewandowski (Journalism, Advertising, and Media Studies)**, the *Milwaukee Journal Sentinel* reported. <https://bit.ly/2LP6DC5>

Eric Lohman (Journalism, Advertising, and Media Studies) was a member of the “On Intersex: Author and Advocate Panel” hosted by Women & Children First of Chicago. Lohman is the parents of four children, including one daughter who is intersex. (<https://bit.ly/2NEZLiz>) He also appeared on TMJ4’s *The Morning Blend* to talk about his experience. <https://bit.ly/2OgMG8I>

★ Alumni Accomplishments

Nicole Heinrich ('03, BS Biology) was featured in the *Kansas Messenger* for her unusual job: Heinrich is an animal dermatologist, responsible for treating dogs, cats, and even horses for skin diseases and allergies. <https://bit.ly/2yPXt6m>

Bertha Manninen (Alvarez) ('01, MA Philosophy) was the featured speaker at the League of Women Voters Greater Verde Valley Philosophy and Politics Program in June. Held in Sedona, Arizona, the subject of the conference and Manninen's talk was "Abortion Ethics: Finding Points of Agreement." <https://bit.ly/2tyyHCF>



Ezekiel Jarvis

Ezekiel Jarvis ('08, PhD English) newest collection of short stories, entitled *Lifelong Learning*, was published in March and was selected for an adaptation for a scripted series by About Media. *Lifelong Learning* marks Jarvis' fifth book. His previous works include *A Family Way*, also a short story collection; *So Anyway...*, a collection of introductions to imaginary poems; and two reference texts, one focusing on American humorists and the other on banned and challenged books. <https://bit.ly/2KAJeYt>

Katie Kassel ('14, BA Art History) was featured as *Urban Milwaukee's* "Newaukee" of the week. Kassel is the Leadership Essentials Manager for Roundy's Supermarkets where she trains future leaders in the organization. (<https://bit.ly/2uxAnge>) Later in the month, **Tom Gabert** ('11, BA Journalism, Advertising, and Media Studies) was the featured Newaukee. Gabert is the founder of Pour Inc., an event beverage service in Milwaukee. (<https://bit.ly/2mHE7aw>)

Daniel Bartlett ('03, MA History and Museum Studies) was named Curator of Exhibits at the Elmhurst History Museum in Elmhurst, Illinois. He is responsible for leading the museum's exhibits program from conception through installation. Previously, he worked as Curator of Exhibits and Education at Beloit College's Logan Museum of Anthropology. <https://trib.in/2N3dU20>



Daniel Bartlett

Elizabeth Pizano ('01, BA Spanish; '09, MA English) was recently hired by the School District of Jefferson in Fort Atkinson, Wisconsin, as the new English Language Learners teacher for two schools within the district. She will be teaching English to primarily Spanish-speaking students. <https://bit.ly/2mJZO9K>

★ Laurels, Accolades, and Grants

Savages and Beasts: The Birth of the Modern Zoo by **Nigel Rothfels**, director of **Undergraduate Research**, was named as one of the five best books on the history of human interactions with animals by Fivebooks.com. <https://bit.ly/2JUO9hv>



Mark Schwartz

Mark Schwartz (Geography) has been awarded the 2019 Outstanding Achievement in Biometeorology Award from the American Meteorological Society for "innovative advancements in phenological modeling and observations, and exceptional achievements in promoting knowledge and applications of phenology for the benefit of research and society." <https://bit.ly/2LCrFH6>

In addition, **Schwartz** is the co-principal investigator on a new \$1.5 million dollar National Science Foundation grant investigating how plants and trees contribute to weather patterns on a local scale. The project is named CHEESEHAD19 and will use a turbo-prop plane, an ultralight aircraft, a Cessna plane, and instruments at ground-level to research local weather patterns. <https://bit.ly/2uOrVt0>

Finally, **Schwartz** was one of the primary sources in writer Mark L. Hine's new book, *Ground Truth: A Guide to Tracking Climate Change at Home* (University of Chicago Press). The book is a guide to measuring that change in tangible ways by keeping records of plants and animals commonly seen in backyards, and it also traces the history and uses of phenology, which is one of Schwartz's research specialties.

The Compost Project

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“You’ve got the home that has the food waste,” Genzmer said. “The hauler that needs to figure out the route to take to pick it up. They need to have a place to take it. And they need to do it cost-efficiently. You want to start from far away so that the heavier your truck is, the closer you are to your final location.”

She’s also looking for locations that could host a compost processing center. Using parameters like lot size, proximity to residential areas, and city land ownership, she’s been able to identify areas that Milwaukee could use to build such a plant in the future. Her research has been supported by work done by UWM’s Supply Chain Management Institute.

Quality compost

Berges, meanwhile, studied what makes compost effective.

“The problem is that no one has really objectively quantified what is ‘good’ compost. We are at the stage where an urban farmer will take a bag of compost, feel it, sniff it, and say, this is good compost,” Berges explained. “What is she looking for when she picks up that compost? We don’t know.”

Working with Cream City Farms, a Milwaukee urban agriculture venture run by David Johnson (BA, ’93 Economics), Berges and his students planted vegetables in three varieties of compost and observed the plants as the 2017 summer progressed. Unfortunately, Berges wasn’t able to get complete results, but there was a marked difference in appearance between the plants grown in the different types of compost.

“Because key parts of the field project were carried out by undergraduate students, who went back to classes before the produce was ready for harvest, we weren’t able to complete carbon, nitrogen and phosphorus analysis of the marketable vegetables,” he said. “[However], some plants did appear to be doing better than others.”

For now, he added, composting remains as much of an art born out of experience as it does a science.

The future for food waste

As the project ends in October, Genzmer is busy preparing models to present to the USDA showcasing how food waste pick-up and composting in Milwaukee might be successful.

Composting has the potential to help more than just the environment, Genzmer added. Food waste collection, composting, and selling the compost could be viable industries in the city that add jobs and benefit urban farms in economically-distressed areas. Several composting or hauling companies already operating in Milwaukee, like Compost Crusaders, Blue Ribbon Organics, and Purple Cow Organics, were community partners in the project.

“There’s a lot of interesting jobs and interesting entrepreneurial opportunities in here,” Berges said. “You can establish community gardens, but you have to have that quality compost in the soil to keep them going.

“You could be growing high-quality produce yourself at a fraction of the cost,” he added. “What’s not to like about that?”



Donna Genzmer and John Berges



John Berges' Biological Sciences students run tests on compost at Cream City Farms in Milwaukee. Photo courtesy of John Berges.

Village horticulturist

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For some people, those planters and parks are the most exposure they'll get to nature.

That's true. Not a lot of people realize this, but Shorewood is the most densely-populated community in the state of Wisconsin. A person's daily interaction with nature may be reduced down to having a butterfly land on a flower in a planter next to the bench they're sitting on while they wait for the bus.

Those opportunities to reach people who don't have nature as a big part of their life and get them to think and care about things like butterflies and birds are the opportunities that I work to seize.

Why is it important that people care about that kind of stuff?

That's a pretty complex issue, but I think it's clear that it does really matter. When you have spaces for people to come out into the community and connect with the natural world, you're making life better for citizens of urban environments. Those small connections that develop when they're in these urban greenspaces get people thinking about things like water quality, pesticide usage, and the garbage they throw away. It doesn't take much for someone to change the way that they think.

It's no secret that having accessible greenspace relates to an improved quality of life, reduced crime, and in general, a better life for inhabitants of urban communities. Humans weren't born to spend their entire life on concrete.



Ben Habanek inspects a common milkweed plant for Monarch butterfly eggs and larvae.

What role do municipalities play in managing the ecosystems of a community?

Moving forward, you're seeing new projects replace crumbling infrastructure, with a modern focus on green infrastructure. You're seeing things like bioswales, native plantings, and a different approach to the management of runoff water and open space in general.

The design style and associated maintenance of these new features can have a big impact on the relative health of the local ecosystem, and municipalities have to treat this differently than they used to. You can't just channel all of your runoff into the river anymore. The quality of the environment going forward for the next generation is dependent on the thought process that we use now.

What's the best part about being a municipal horticulturist?

It's when you see people connect with the work you've done. When I see school children pulling out their cell phones and taking pictures of a butterfly on a flower that I planted, I'm gratified. I've given them something that they're going to take with them for the rest of their day and hopefully it can bloom into something more and affect their decision-making going forward in the rest of their life.

Ben Habanek is responsible for maintaining all of the planters in the Village of Shorewood.

