

UMD Department of Geography, Urban, Environment, and Sustainability Studies Newsletter

April 2016

From the Department Head

This past year has been a significant one. It will be remembered as the International Year of Soils, the Thirtieth Anniversary of the College of Liberal Arts and, most importantly, the Year of the Great Cina Diaspora! During the renovation of Cina Hall, those faculty, staff and classes formerly housed in Cina have been scattered to all corners of the campus. If you come back to visit next year, you will see some significant differences in our departmental space. The Geospatial Analysis Center has been moved to the Swenson College of Science and Engineering, along with its staff of Stacey Stark, Steve Graham and Micaella Penning. The former lab space and corner office/map room space have been remodeled into a suite of seven offices. Our former department head office and work room will be the home of the Alworth Institute for International Studies. The entire building will have air conditioning, eliminating the extreme heat during summer and fall in offices and classrooms on the south-facing side of the building. We are all looking forward to returning home to our new digs and our old dust bunnies.

In other news, we are very pleased to announce that Tongxin Zhu has been promoted to Full Professor and Adam Pine has been promoted to Associate Professor with indefinite tenure. If you know Tongxin or Adam, you know that these are well-deserving faculty who bring exceptional scholarship and teaching to our program. Please congratulate both of them on this significant achievement. We are also very happy to welcome a new tenure-track hire, Ryan Bergstrom, who will be teaching GIS and physical geography courses. We are very delighted to add Ryan to our faculty. Finally, I would like to congratulate Assistant Professor Laure Charleux for winning the CLA Research Award.

In honor of the Thirtieth Anniversary of the College of Liberal Arts, we held a speaker series this semester. Professor Larry Knopp, former UMD Geography faculty member and Department Head, currently at the University of Washington Tacoma, gave a lecture on “Race, Religion, Gender, Sexuality and the Cultural Politics of Place: Legacies of a Radical Farmer Movement in Sheridan County, MT.” Many former students, colleagues and friends of Larry’s attended the lecture and social hour. Our next speaker was also a familiar face to some of us. Professor Amy Trauger graduated from our department in 1997, then went on to receive her Masters and PhD degrees in Geography at Penn State. Amy is now an Associate Professor of Geography at the University of Georgia in Athens. Her talk entitled, “*Manoomin Gives, So We Give*: Gift Economies and Food Sovereignty at White Earth” generated lively interest and discussion. Our third speaker will be coming from Macalaster College in St. Paul on April 20. Professor William Moseley will join us to speak about “The Causes and Consequences of the 2008 Global Food Crisis: Neoliberal Policy Reform and Food Security in West Africa.” The speaker series has been such a great success that we are looking for means to continue such a series each year.

Great news this year is that we are able to give more money than ever before in student scholarship awards due to some new and generous awards. We are very grateful to alumni and other donors who have made these awards available to our students. Looking forward to seeing you in our NEW department space next year!

- Pat Farrell, Head, Department of Geography, Urban, Environment and Sustainability Studies



**Department of Geography,
Urban, Environment
and Sustainability Studies**

UNIVERSITY OF MINNESOTA DULUTH
Driven to Discover®

Congratulations to 2015 Graduates!

Environment & Sustainability Studies

Xueming Ba, Zachary Borich, Andrew Chirpich, Daniel Desorcy, William DonCarlos, Brett Fraham, Jake Gruber, Keenan Hayes, Sean Kelliher, Tanner Koetter, Anna Lee, Lyndsay Leingang, Connor Lundeen, George Lyall, Aaron Main, Brittany Olson, Peter Ravinski, Timothy Struwve, Evan Wagner, Anthony Young

Geography

Shane Bernard, Cody Christensen, Taylor Doherty, Tara Coberly-Hall, Judd Kranz, John Lang Jr., Tami McDonald

Geographic Information Sciences

Shane Bernard, Daniel Braun, Brett Frahm, Jack Hendrix, Jacob Johnson, Tami McDonald, Hitomi Nakamura, Andrea Samuelson, Gregory Smiesvik, Joshua Weaver

Urban & Regional Studies

Brooke Wetmore

GIS Certificate

Jonathan Gall, Jake Gruber, Chelsea Hoplin, Tanner Koetter, Evan Wagner, Brooke Wetmore

2015 Scholarship Winners

Emma Goldman Scholarship: **Britta Hardel**

Catherine Cox Scholarship in Geography: **Riley Hine**

Matti Kaups Scholarship in Geography: **Nicole Nelson**

Fred and Lois Witzig Scholarship in Geography: **Britta Hardel**

GUESS Travel/Conference Award Winners:

NACIS (North American Cartographic Information Society) Annual Meeting: **George Lyall and Hitomi Nakamura**

MOSES (Midwest Organic & Sustainable Education Service) Conference: **Cameron Gustafson, Rachel Obed, and Shane Omersa**

Midwest Soil Health Summit: **Corey Pleutsch**

2016 AAG (Association of American Geographers) Annual Meeting: **Deondre Smiles**

Midwest Soil Health Summit

Cory Pleutsch

This past week I had the opportunity to attend the Midwest Soil Health Summit hosted by the Sustainable Farmer's Association (SFA). The event took place at the Arrowwood Resort Hotel and Conference Center in Alexandria, MN. The SFA's goal is to aid farmers of all scales with improving the health of their soil. Whether I attended the beginner or the expert educational presentations, one underlying theme was consistently repeated: the Five Principles of Soil Health: (1) Keep the soil covered, (2) Minimize soil disturbance, (3) Increase crop diversity, (4) Keep living roots in the soil, and (5) Integrate livestock. Presenters used these principles to help explain the importance of maintaining farmland in a sustainable manner. Soil scientists, large- and small-scale farmers, and other experts shared their success as they adopted these principles. Their prosperity was based on the ability to view the soil as a living entity. This meant allowing natural processes to take over their land. All of the research presented resulted from trusting and understanding your land and the soil system beneath it.



One of the most important aspects of the Midwest Soil Health Summit was for the farmers attending to be able to share and expand ideas with one another. Although I am not a farmer, it was fantastic to hear ideas and criticism from everyone. I conversed with a variety of individuals ranging from large-scale organic farmers from North Dakota, to a married couple hoping to make their home garden and chicken coup more efficient in Mankato, MN. Seeing all of these people together with the goal of sustaining their land and its fertility for future generations made me extremely happy. I hope more people around the world can adopt mindsets like these individuals. Enabling your community, your environment, and your business to be intertwined is a crucial part of creating a sustainable world.

Moses Conference Experience: What Does It Mean To Be Organic?

Rachel Obed, Shane Omersa, and Cameron Gustafson

Many of us will recognize the term “organic” as one of the big buzzwords of the times. A common understanding may be that it is a marker for identifying healthy food, grown without the use of chemicals or pesticides, or that it is better for the environment. But, is that the extent of it? Is organic just a standard, or is there more to it?

The Midwest Organic and Sustainable Education Service (MOSES) conference in La Crosse, WI, is the largest annual organic conference in the US, where over 4,000 academics, extension agents and practitioners meet from places across North America and around the world. As majors in Environment and Sustainability and student-farmers at UMD’s Sustainable Agriculture Project (SAP) farm, we learned that to be organic is to join a growing collective working towards health, community, and a secure future for all people, one plate at a time.

The conference was a wonderful place to get ideas for the future, because there were many people who have been working with sustainable farming systems for years. It is like a big community gathering of friends and family, all coming together to share stories and wisdom from successes, failures, and above all, growth. The friendly and positive atmosphere of the conference made it a very pleasant place to create rich connections. Workshops covered diverse topics ranging from the technical, nitty-gritty of larger scale organic farming, to the personal side of community engagement and building healthy diets and relationships. This conference demonstrated the diversity of aspects that play into what it means to be organic.

A prevalent theme underlying this conference was how crucial it is to understand the importance of pollinators, our insect friends who contribute so many services to our well-being. Numerous pollinator species, including the bumblebee, are in immediate danger of habitat loss from chemical pollution and land mismanagement. Incorporating strips of native vegetation and hedgerows in agricultural and urban areas, and even planting native flowers in your small garden



are ways to help. The takeaway from this was that responsible farming practices mean minimizing the disruption of natural processes, and ultimately thriving pollinator populations.

Overall, it felt like everyone at the conference was there with the same end goal: growing healthy and wholesome

food for people and the planet. This was very inspiring and reinforced a sense of belonging to a community and the importance of organic farming. The conference supported our belief that we can make a huge difference in the world of agriculture as organic farmers.

NACIS Conference: You Better Belize It! By Kate Carlson

Oh, there are many fun plays on the word Belize and you see it all over this small Central American country. It truly is unBelizable, a direct translation to another unbelievable study abroad adventure during the 2015 May term. Once again our travels took us to the depths of southern Belize, from the coastal towns of Punta Gorda Town and Placencia to small Mayan villages, pristine rainforests, and tropical savannas of the interior. We observed biological conservation initiatives that promote forest monitoring to protect biodiversity and educational outreach programs for those who inhabit and visit these forests. We experienced the Mayan way of life through homestays and learned of the current struggles they face while protecting their communal land rights so they may preserve their traditions. Conservation and tradition do not always comply, and great efforts are being made to meet at an agreeable equilibrium to sustain the forests for all.



Food is one of the best ways to experience culture, since so much happens in and around food from field to table. We toured cacao fields and learned about the slash and burn techniques used by the Maya to grow corn, squash and beans. We ate everything, including termites and leaf cutter ants. We made tortillas, tried Gibnut (named the ‘royal rodent’ by Queen Elizabeth II on her visit in 1985), prepared and ate copious amounts of cacao-laden foods, ate Mayan caldo, jippy jappa and cahune hearts, and Creole cuisine that includes coconut rice, cassava, plantains, and fresh fish from the sea. All of this food is grown or harvested in their “backyard,” making the



people of Belize rich in natural resources and sustainable food products, but many are cash poor.



One of the course projects that students completed while abroad was to weave their observations of conservation and sustainability together into a collaborative Story Map. Each student reflected on something of interest to them; they compiled interactive maps to summarize and share

what they have learned. The completed Story Map features information on culture, cuisine, renewable energy, flora/fauna, natural resource utilization, wildfire risks, changing landscapes, agroforestry, and access to health care. Through the simple Esri web application interface, everyone was able to construct this multimedia platform while in Belize.

I presented on this teaching experience at the 2015 North American Cartographic Information Society’s (NACIS) annual conference held in Minneapolis in October 2015. Two students, George Lyall and Hitomi Nakamura, co-presented their contributions to the collaborative Story Map:

"The opportunity to attend the annual NACIS conference was a very rewarding experience. This year's conference had a theme of Mapping Interactions, which tied into our study abroad trip to Belize in several ways. We had the opportunity to present our project we compiled as a class, and show conference attendees how we were able to use the Esri Story Map web applications while abroad. Throughout the weekend conference there were many speakers presenting on a wide variety of topics; I never knew there were so many ways to revere maps. Overall, I learned something interesting from each speaker and was glad that I had the privilege to attend and present." – George Lyall



"I am an international student from Japan, and have since graduated from UMD with degrees in GIS and Geography. I decided to join the study abroad program in Belize since I like visiting new places, and I wanted to expand my views and knowledge (especially geographical aspect) by studying geography and GIS in different countries. While I was in Belize, I saw many wildfires. During our stay with the Ya'axche Conservation Trust, I

learned that typical wildfire causation are lightning strikes and slash and burn agriculture (milpa) started by Maya farmers, which sometimes burn out of control. Wildfires can destroy an entire forest and cause serious environmental pollution, making wildfire a critical issue in Belize. After learning about this, I decided to map the distribution of wildfires that occurred during our stay last May. I obtained the wildfire location data from NASA's Fire Information for Resource Management System (FIRMS) and compared this to a fire risk analysis layer from the Biodiversity & Environment Resource Data System (BERDS) of Belize.

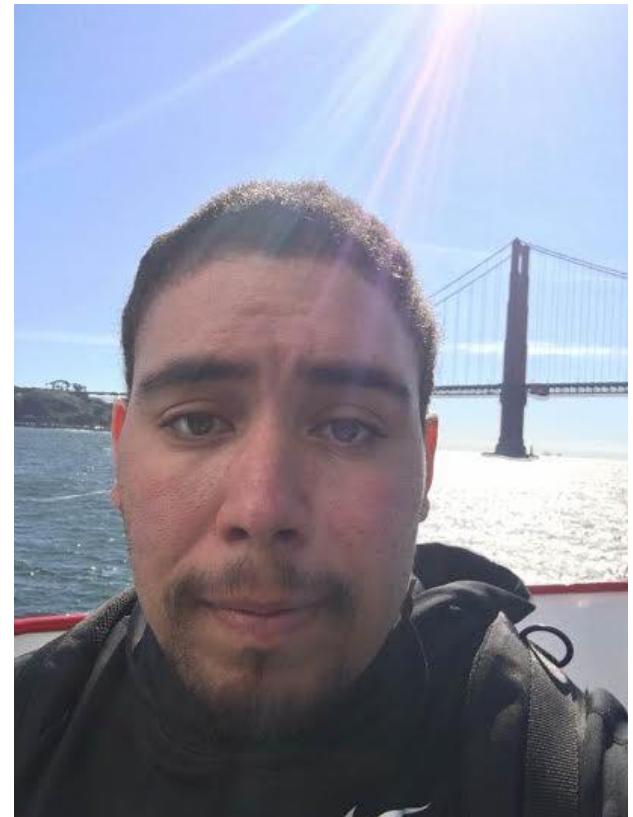
While I was interested in wildfires, I was also interested in the distribution of hospitals in Belize. I had a chance to talk to a woman in Laguna village who had to travel all the way to Belize City to give birth to her baby. She told me that medical facilities and services are limited in small villages and towns, so those who need advanced medical help must travel a long distance. Her story inspired me to map out the distribution of medical facilities in Belize.

During my co-presentation at the NACIS conference, I talked about the online maps I created using ArcGIS Online and Story Maps. It was my first time talking in such a huge room and I was very nervous. I am glad that I was able to attend the conference and had this opportunity to co-present in front of many people who love and appreciate maps. My confidence became a little bit stronger from talking in front of people, and my interest in geography and making maps became more inspired from listening to other presentations and learning about what they are doing with maps." – Hitomi Nakamura



Annual AAG Meeting by Deondre Smiles

After enduring another Duluth winter, a week spent in sunny California with several thousand other geographers was exactly what I needed. My name is Deondre Smiles, and I am a second year student in the Master of Liberal Studies program, pursuing an interdisciplinary degree in both Geography and American Indian Studies. From March 29 to April 2, I attended the Annual Meeting of the American Association of Geographers, in San Francisco, California. This was an extremely exciting event for me, as not only would it be my first time visiting the West Coast, but I also presented my Plan B paper at a session during the conference. The conference itself was held in the Hilton Union Square hotel, as well as several other sites close by in the



Union Square neighborhood of the city. The conference was comprised of a variety of sessions, ranging from panel discussions surrounding various geographic topics and issues, keynote lectures by prominent geographers in the field, exhibitions of posters made by other students and geographers, and presentations of papers written in the discipline, such as mine. Besides the more professional-oriented aspects of the conference, it also provided an opportunity for geographers to mingle and build new connections, or reconnect with old friends from school or previous jobs.

I spent most of my time at the conference attending talks and trying to find old friends of mine who I went to college with. In particular, my favorite set of talks were ones that revolved around the ways that indigenous people resisted attempts to take more land from them, as this fits in with my research interests. However, I also made sure to take time to see San Francisco; I spent a whole day traveling around the city, doing activities such as visiting Fisherman's Wharf (and its resident sea lions), riding a cable car and taking a sightseeing cruise out into the bay and around Alcatraz. As for my presentation, my advisor Nathan Clough (who also was presenting in the same session as me) and I were concerned that we would not get a lot of people in

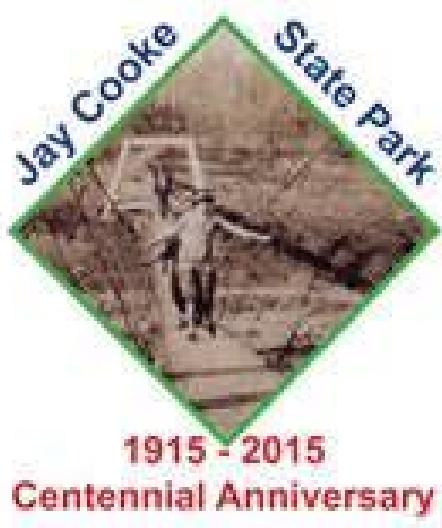
attendance due to the time slot we were at - 4:40 PM on the last day of the conference. However, surprisingly, there was a good turnout, and during my talk the audience seemed to thoroughly enjoy it! AAG 2016 may be over, but I am already excited about the possibilities at the next meeting in Boston, in April 2017!

Alumni Stories

Carly Hawkinson, Park Naturalist, Jay Cooke State Park

My interest in landscape, environment, maps, and nature led me to pursue a degree in Geography with minors in Outdoor Education and French. Near graduation though I wasn't quite sure what I was going to do with that Geography degree. One day I noticed the bulletin board in the department hallway with a simple display showing "*what to do with a Geography degree.*" Of the many different possibilities, Park Ranger was what caught my eye. So, from then on I persistently looked, applied for, and worked at numerous jobs and volunteer opportunities in that "park ranger" field of work. Here is an overview of the rungs on my ladder...

I volunteered at my local Warner Nature Center, which gave me a lot of great networking and experience; helping out with interpretive programs, guided walks, and kids camps as well as caring for the resident, educational raptors. I got a wonderful job working with the National Park Service at the St. Croix National Scenic Riverway, answering questions at the visitor center, presenting interpretive programs, and helping visitors enjoy the riverway via canoe, kayak, riverboat, and train! I also spent a year in Hawai'i working for the National Park Service at the U.S.S. Arizona Memorial and for the U.S. Fish & Wildlife Service at the Kilauea Point National Wildlife Refuge; these are two experiences I won't soon forget – I led tour groups, did presentations, made brochures, banded Laysan Albatross, and oh yes, cleaned restrooms (there's plenty of those tasks out there in this field too). After returning home from Hawai'i, I chose to return to school and get a Masters of Science in Elementary Education. With the teaching certificate I was more skilled at researching, developing, and presenting interpretive programs while working at Wargo Nature Center and at the riverway. A big break came when I was hired at Crex Meadows Wildlife Area in Grantsburg, WI, as the Natural Resource Educator and Office Associate. I loved that job and was able to use my skills in teaching, interpreting, nature, art, and organization. There were plenty of fill-in jobs that kept me focused in



my field of interest working at plant nurseries and tutoring centers, school districts and state parks. With all of these experiences, tricks up my sleeve, and creative ideas I was hired as the lead naturalist at Gooseberry Falls State Park. With over $\frac{1}{2}$ million visitors per year, managing the park's interpretive program, and supervising 4 summer naturalists, there certainly wasn't any grass growing under my feet. I am now currently working as an interpretive park naturalist at Jay Cooke State Park, south of Duluth. I develop and present a wide variety of natural and cultural history programs and events at the park and

off-site, create brochures and signs, and assist our visiting public. Even though my current job position doesn't bring me outside as often as many people think I am with a job like this, I am still blessed to look out my office window and see such a beautiful landscape, a conserved environment, and always amazing nature.

"If I see further than others, it is by standing upon the shoulders of giants" (*attributed to Isaac Newton*)

If I were to give some bit of advice...pursue what you love, what you're passionate about. Volunteer at places that interest you and could give you experience. And it wouldn't hurt to check out some job position descriptions and what they entail and what qualifications you could work at chipping away at, to help you know which direction you'd like to at least start out...it can always change.

Trey Schiefelbein

After graduating from UMD in 2010, I immediately enrolled in an MA program at Miami University in Oxford, Ohio. The transition to an intense graduate program was a definite adjustment, but the workload from upper-division courses with Adam Pine and Larry Knopp did an exceptional job to prepare me for graduate work. At Miami I was able to focus my studies on political and economic geographies of post-industrial cities. Ultimately this led me to Milwaukee, Wisconsin where I conducted fieldwork on noncapitalist economic development in an inner-city neighborhood, and how the

identity of the neighborhood was changing in the face of gentrification. I would highly recommend Miami University to any students considering graduate school (if you can handle living in rural Ohio), as there were more faculty members than graduate students and the financial support offered by the department was extremely generous. Following the completion of my master's degree, I decided to not pursue a PhD (for now, at least). I studied geography to better understand the world around me, and I've tried to see and experience as much of it as possible over the last several years. I've worked with refugees on urban farms in Cleveland, Ohio, organized tours and traveled with punk bands across the United States and Canada, worked random corporate jobs to fund travels around the world, and have ultimately married and settled in Vancouver, British Columbia. Lately I've spent my days pouring over topographic maps and figuring out how to navigate through the mountains near my new home by bicycle. This may not be the conventional route for most graduates from UMD, but I'm thankful that I get to live the life of a geographer.

Tara Coberly-Horrell

After graduating from UMD with a Geography major and American Indian Studies minor, I spent the summer lounging on the North Shore of MN and WI, and hiking in Ireland. After returning I moved home to Madison and secured an AmeriCorps position with the WI Farm to School Program. Educating kids about growing, harvesting and cooking their own food helped to remind me why I chose to pursue studies in Sustainable Agriculture. I coordinated the Chef in the Classroom program at East High, which was super fun, albeit occasionally disastrous. Through this program I worked with several passionate locavore chefs in the Madison area, which landed me a job in a restaurant, Luigi's, which serves artisanal pizza. I also work at Kneaded Relief, a wellness-centered day-spa, where I can indulge my love of essential oils and body products, while helping people reduce the stress that we all carry.



This summer, I've accepted a Chef/Educator position at Community GroundWorks Kids Garden, a community garden initiative that educates children. I'm looking forward to being there the whole season, from seed to table! I am so grateful for my time spent at UMD, and many fond memories of Cina Hall often come to mind!

Heather Thieling

I graduated from UMD in December 2006 with a BA in Environmental Studies and minor in Geography. If I had been asked when I started college in 2002 where I would be in 2016, the answer would have been short and sweet: somewhere out west hopefully employed. To be honest though, I had no idea where my journey would take me. I started working at the Lake Superior Zoo while in college and found my calling: informal education. After 4 years in Louisville, KY working at the Louisville Zoo in the Education Department, my family relocated to Nashville, TN where I am currently the Onsite Programs Manager at Nashville Zoo. I instruct, oversee and manage all non-school education programs at the zoo including summer camp, which brings almost 700 kids to the zoo each summer, scout programs, overnights, camp outs, and toddler programs. I have the best of both worlds: I work with children and adults of all

A photograph of a woman with long, wavy hair smiling. She is holding a small, fluffy clouded leopard cub against her chest. The cub has distinct dark spots on its light-colored fur. They are outdoors, with a building and some trees visible in the background.

ages along with many important, amazing animal ambassadors. Nashville Zoo is involved in conservation projects and programs in our community and around the world and I am fortunate to teach about the affects humans have on our planet, how ecosystems and organisms are directly impacted and what steps can be taken to make a positive change. I am lucky enough to say I am living and working my dream job!

Pictured: Clouded leopard cub named Hope. Clouded Leopards are found in lowland tropical rainforests throughout most of Southeast Asia. Their distribution is declining due to habitat loss from logging and increased agriculture (especially palm oil plantations) and poaching. Nashville Zoo is one of the founding members of the Clouded Leopard Consortium and participates in the Species Survival Plan. Since 2009, over 28 clouded leopard cubs have been born at the zoo.

Josh Sandstrom

After graduating from UMD, I decided I wanted to further my education and study in a different, but closely related field that has always been a dream of mine: meteorology. To do so, I enrolled at Lake Superior College for one year and completed courses in calculus and physics, and then enrolled at St. Cloud State University, where I am currently studying meteorology at the undergraduate level. I have recently been accepted into an Atmospheric Science Master's degree program, which I hope to begin in the fall of 2016. When I complete my graduate level studies, I hope to apply for a position as an Operational Meteorologist at the National Weather Service, or something similar to that. The skills I have gained as a dual Geography and GIS major

will undoubtedly increase my chances of landing that dream job and allow me to succeed in a field where GIS is becoming an increasingly essential, problem-solving tool.

Luke Westerman

I graduated UMD in 2006 and was commissioned as a 2nd Lieutenant in the United States Air Force. I flew as an Air Battle Manager on the E-3 AWACS doing surveillance and command and control missions. I spent 8 1/2 years on active duty accumulating 2300 flight hours and 500 combat flight hours. Some of my longer overseas tours were flying in Afghanistan in support of Operation Enduring Freedom as well as time in the Caribbean and South America flying counter narcotics missions. One of the highlights was when I spent 1 year in Riyadh, Saudi Arabia as an advisor to the Royal Saudi Air Force and I also flew with and instructed the RSAF on their E-3. I met my wife at a party at the U.S. Embassy in Riyadh. She was a Canadian nurse working in Saudi.

While on active duty I also worked on my M.S. in Agronomy through Iowa State and graduated in 2012. In 2014 I left active duty to pursue law school. Currently I'm in my second year at University of Colorado Law School. I'll be working as a summer associate at Bryan Cave LLP in Denver and hope to return there after I graduate. I'm interested in starting my law career with a general interest in commercial litigation but I hope to eventually specialize in representing clients in all levels of agribusiness.

Hitomi Nakamura

I was an international student from Japan and I majored in GIS and minored in Geography at UMD. My hometown is Fukushima, Japan, and I experienced the double punch of a natural disaster and the nuclear power plant explosion. Especially in my city, since we did not have an updated, solid evacuation plan, a lot of people lost their lives from the tsunami. From this experience I learned the importance of preparation for natural disasters, and effective urban planning. When I read the case study of Soma-City using GIS technology to respond to the disaster on the Esri Japan homepage, I immediately got inspired by what GIS can do when a catastrophic disaster occurs. My experience, and inspirational articles (not only the case study of Soma City) naturally made me want to major in GIS.

I transferred from University of Minnesota Twin Cities campus since I wanted to study in an environment where the class sizes are small and relationships with students and GIS/Geography instructors are close. The studying environment at UMD was really nice. One of the environments I liked was studying in a GIS computer lab where GIS students can gather and work on GIS related assignments together, or teach each other. Also, as an international student, I liked the fact that the department had non-English native professors (like Laure). Every professor I met at the department was really thoughtful and supportive to international students, but watching non-native professors teaching GIS/Geography classes in English, and being understood regarding the feeling of being away from one's home country and studying in a second language, encouraged me and supported my emotions even more.

When I was in undergrad I was especially interested in remote sensing and programming. In May term 2015, I attended a study abroad program, Mapping in Belize. During the stay, I had a chance to meet a GIS specialist who uses remote sensing data to protect conservation areas. I learned how to get wildfire data from MODIS, and that sparked my interest in earth imagery and remote sensing. One of my favorite classes in GIS was Python. This class was the toughest but the most interesting class I have taken at UMD. Since I am not computer science major, programming was quite difficult to learn. In order to finish one assignment, I had to spend so many hours and days, which was a headache. However, as I struggled through finishing the assignments, I started to see the fun side of programming and the strength of knowing how to code.

The experience of doing an internship was the crucial point for me to decide to go to graduate school. I worked for the City of Duluth as a summer intern. This experience made me realize my GIS skills at that moment are too basic, but GIS itself is profound and has unlimited possibilities. The experience from the internship made me consider graduate school more seriously than before.

All the experience I gained in the US, especially being a GIS student at UMD, gave me a chance to think about how I grew up in the past, what my short-term goal is, what my possible future career is, and my long-term goals as a Japanese who studied GIS in the US.

Student Experiences

What Can I do with a GIS Degree?

By Lexi Weihe

When it comes to college, figuring out what to major or minor in can be one of the most challenging parts, but crucial. Personally, I was fortunate enough to decide what I wanted to major and minor in early on in my college career. It is important to consider all academic majors to find out what you are really interested in. If you have ever thought about GIS as a degree or if you have never even heard of it, read below! I'll give you some useful information when considering GIS as a degree, from what it is, who uses it, what careers you could pursue, colleges with GIS degrees and other websites to check out! For my minor, GIS is what I chose. GIS can be a major, minor or a certificate program, at UMD at least. Look at the links below to see other colleges that offer this degree as well!

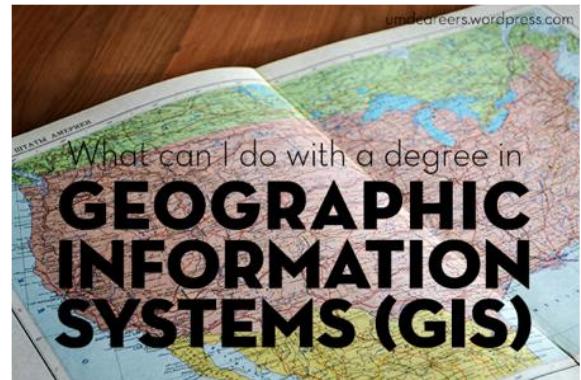
What is GIS?

Geographic information systems or science (GIS) allows us to visualize, analyze, capture, store, manage, and interpret spatial data to understand relationships or trends. GIS needs the hardware, the software, people, and organization to work. It is commonly used to make layers of data showing different variables of a location to inform decision makers and the public. One of the key components it does is help create maps, as well as charts, globes, and reports. Maps help analyze almost anything. Many of these topics can be analyzed through writing also, but showing them through maps can be worth a thousand words, without using any words. Imagine that your company wanted to figure out the best place to locate a new store that would bring in the most buyers, GIS can help with that. Imagine the DNR needs help looking at the land cover and soils beneath it, GIS can help with that. Imagine that one wanted to look at the similarities between low housing areas and crime rates, GIS can help with that. Imagine that one wanted to look at the lack of doctors and areas with high levels of HIV/AIDS, GIS can help with that. Imagine that a disaster strikes and the city needs to figure out how and where to evacuate citizens to, GIS can help with that. GIS is an extremely useful tool for many disciplines and there are a huge array of job paths to take in it. Whatever your interests are, one could pretty

much find a career path in GIS that follows those interests.

Who uses GIS?

GIS is a benefit for many organizations and companies. It helps cut costs, and improves decision-making and communication for anyone who uses it. GIS is implemented in business, natural resources, public safety, transportation, utilities, communication, education, health, human services, economics, real estate, sustainable development, and map/data production. The government is a large user of GIS. Many federal agencies use it, such as the [U.S. Department of Housing and Urban Development](#), the [National Weather Service](#), the [National Geospatial Intelligence Agency](#), the [U.S. Department of Agriculture](#), and many more.



What are career titles in GIS?

Here are some careers that one with a major/minor/certificate in GIS could pursue:

LIDAR Engineer, GIS Coordinator, Software Engineer, Applications Programmer, GIS Software Product Specialist, Cartographer, Industry Marketing Manager, Mapping/Survey Technician, GIS Instructor, Database and System Integrator, Computer Mapping Technician, Planner, GIS Data Manager, GIS Sales Manager and many more.

Many students who graduated with this degree from UMD have become successful in this field. Some career examples that students from UMD have gone to work for are the Minnesota DNR, Regional planning divisions, GIS consulting firms and engineering firms. If you want more information on what UMD has to offer with GIS, visit [their website here](#).

Considering a degree in GIS?

Numerous colleges and universities have this program. Check out these websites for a list of colleges that offer a GIS education:

- <http://www.urisa.org/careers/colleges-and-universities/>
- http://www.cartogis.org/docs/cartogis_careers.pdf (Page 16)

Looking for other resources?

Check out these websites for more information about GIS:

- [ESRI – GIS Mapping Software](#)
- [Minnesota GIS/LIS Consortium](#)
- [Careers in Cartography & GIS](#)
- [What is GIS and How Can It Help Me? \(Video\)](#)

About Lexi:

Major: Urban & Regional Studies

Minor: Geographic Information Science

Year: Sophomore

Favorite Place in Duluth: My favorite place in Duluth is a location named by the locals called Roxbury. It is a little hike off of the Superior Hiking Trail that is an open rock “platform” with amazing views. I go here to study, watch the sunset, have a picnic and relax. I love it because it overlooks all of Duluth and Superior!

Favorite Hobbies: My favorite hobbies are playing sports, especially lacrosse and hockey.

Best career advice I have received: The best advice I have been given is actually a quote from Eleanor Roosevelt, “The future belongs to those who believe in the beauty of their dreams.”

Career advice that I have for others: Pursue what you are passionate about and do not settle for less. In the end, doing what you love will bring you the most happiness.



Student Experiences

Study Abroad in India

By Nicole Nelson

A couple years ago, I couldn't imagine myself travelling to India, or leaving the country for that matter. Once I changed my major to Geography, so many opportunities opened up and the possibilities seemed endless—I wanted to learn about the things I had read in textbooks. I wanted to see real-life examples. Growing up, what little I knew about India was through Gandhi documentaries and geographic trivia. It was only in college when I learned about the British-rule in India and understood the importance and influence of Gandhi.



There was nothing that could have prepared me for three weeks in India. Even though I tried to enter India with an open mind, all of my expectations were challenged. India is a very complex country, and every day was filled with beauty and diversity and questions that I still don't know the answers to. Not only did I learn about India, but I learned so much about myself and my home that I would have never known

otherwise.

Meeting with activism groups and having candid conversations about social justice has taught me more than I could ever imagine. There are so many organizations and activism groups in India who are doing wonderful things and working to make cities like Bangalore a better place to live. Seeing how other people make a difference in their community helped inspire me to become more involved in my own community here in Duluth and I hope to make important differences someday just like the activists in Bangalore.

Student Experiences

By Anna Lee

Last March, while most college students were hitting the beaches somewhere warm or taking it easy from the stresses of academic life, I found myself in a very different situation. At UMD's old root cellar off of Jean Duluth Road, I was cutting up straw bales and pasteurizing them in a 50-gallon drum full of hot water, like a big straw tea. This was one of the first steps in my SDROP project of growing pearl oyster mushrooms. I was inspired to try to find a way to utilize unused space as a way for farm operations to bring in some additional income in the off-season when traditional crop production has long ended. I also hoped it would be another way to supply our region with more local food. But if someone had told me in my early days at UMD that I would be hanging out in a root cellar inoculating straw with pearl oyster sawdust spawn as I prepared for graduation, I definitely would have had a few questions.

With connections at both the SAP farm and Victus Farm, I used the free area in UMD's root cellar as well as an empty fish tank in Victus Farm (Silver Bay) for growing space. Kevin Moris, the SAP farm manager, was my main "mentor" in this process, helping me with the methods of preparing the growing medium for the mushrooms and troubleshooting how to best situate the homemade mushrooms logs (clear tubes packed with straw and mushroom spawn) in order to encourage their production. Fellow SAP farm employees also helped with this process, and together we all learned a lot about a very unique, albeit eyebrow-raising, topic. As the process continued, I worked with Michael Mageau and a few other workers up at Victus Farm to assist in the frequent monitoring of the mushrooms and data collection. Watching them grow in the clear punching bag-like plastic tubes that held them was fascinating! It was a valuable chance to see the mycelia activity that usually occurs beneath the surface, rarely observed. Once the mushroom bags began to produce, all involved got to enjoy the delicious fruits of our labor, which was an added bonus to this very hands-on SDROP project.

Being so close to this whole process gave me a greater appreciation for "fungiculture" and its differences from other forms of usual (photosynthetic) food production. It also validated my optimism for farmers and hobbyists to add to their income and support the local food movement at a convenient time of year. It is something I came to see could be very helpful, especially in our growing region. Also, since my run at mushroom cultivation, different varieties of mushrooms and methods of production have been experimented with out at the SAP farm root cellar. More and more is learned with each try. I know I feel very lucky to have had a chance to explore this idea and what is hopefully just the starting point for an exciting new means of sustainable food production.

Tactical Urbanism: Taking it to the Streets of Duluth and Back – By Russell Habermann

Particularly in the past ten years, a grassroots movement called tactical urbanism (a.k.a. DIY urbanism, guerrilla urbanism, etc.) has written a new chapter in the evolution of modern urban development. In turn, cities like San Francisco and Minneapolis are now known for their role in utilizing low-cost, temporary projects – like parklets and pop-up parks – that test new ideas for city infrastructure without high costs and permanence.

During my time in the Urban and Regional Studies (URS) Program at the University of Minnesota Duluth (UMD), I witnessed the burgeoning application of tactical urbanism projects worldwide. And by the spring semester of 2014, I grew anxious to explore this field. By the summer of 2014, the Healthy Duluth Area Coalition (HDAC), through the URS Program, gave me the opportunity to do so firsthand. HDAC, an organization working to support active living and healthy food access in Duluth, was already embarking on a project to demonstrate how infrastructure supporting health could be integrated into the reconstruction of Superior Street in Downtown Duluth, which is set to commence in 2016. This demonstration took the form of two tactical urbanism installations: walking wayfinding signs (signs posted to help pedestrians explore Downtown Duluth on foot) and a parklet (a parking-space-turned-social-space with seating and native plants).

My role at HDAC was to head the walking wayfinding project, which included designing and installing signs as well as promoting the project through various media channels. Based on a similar initiative launched in Raleigh, North Carolina, in 2012, Walk Duluth – as it came to be called – promoted Downtown Duluth as a walkable neighborhood through the installation of 83 navigational signs. Near intersections in Downtown Duluth, throughout Canal Park and along the Lakewalk, these signs pointed out notable amenities within a 10-minute walk and listed the travel time by foot (and sometimes by bike).

Through working on this project, I had the opportunity to collaborate with the Greater Downtown Council, which co-sponsored the project, and the City of Duluth, which consulted on the initiative. I was also afforded the ability to experience the facets of working with urban change, policy and communications firsthand, which I would have not otherwise had during my undergraduate education.

My work with HDAC also informed a capstone research paper I was writing for my involvement with the UMD University Honors Program. Entitled “Citizen Placemaking in Duluth: An Analysis of Placemaking Efforts by Citizens in Pursuit of Effective Shared Urban Space” and written with the advisement of Dr. Adam Pine, the paper explored how tactical urbanism projects and the like applied in U.S. cities have contributed to a sense of “place” in urban areas.

In the end, experience in my academic field and information for a paper were not the only things I took from my internship with HDAC. I also learned that the path to pursuing passion beyond academic studies is anchored in the support of a quality education, which was provided to me through UMD’s URS Program.

For more information on Walk Duluth, visit www.downtownduluth.com/walk-duluth. To learn more about Duluth's public parklet, visit www.healthyduluth.org/promotion/duluths-first-public-parklet

Welcome to New GIS Faculty Member Ryan Bergstrom

Like many before me, the path to geographic enlightenment was fraught with booms and busts. I first became interested in geography when enrolled in a physical geography course at a local community college in the Twin Cities. Thanks to that one class and its inspiring instructor, I was able to take my newfound excitement for geography and turn it into a career (although I didn't know it at the time). At the time I was in my late twenties and in need of change (physically and culturally), and after a road trip with my Dad to Montana, I realized it was the perfect place to expand my education (and fly fishing skills).

I received my B.S. in Earth Sciences from Montana State University, where my studies focused primarily on physical processes in mountainous environments. This was followed by a Master's degree (also from MSU) with an emphasis in economic and cultural geography. Specifically, my thesis focused on the economic importance of hunting-based tourism in the rural communities of southwestern Montana. I knew I wanted to continue to examine rural communities in mountainous areas after graduation, so naturally I found my way to Kansas State University (where mountains abound!). Despite being one of the least topographically diverse states in the country, the geography program at KSU is home to some of the best mountain geographers around, and I was able to broaden my knowledge of mountainous areas to include aspects of sustainability science. This resulted in a dissertation that focused on how amenity-driven communities in the Greater Yellowstone Ecosystem conceptualize their transition towards a sustainable future, and their long-term impact on natural environment.

After receiving my Ph.D. from Kansas State University, I accepted a position in the Department of Geography at Gustavus Adolphus College in St. Peter, Minnesota, where I taught until arriving at UMD in August of 2014 as a sabbatical replacement for



Pat Farrell. As a native Minnesotan, one of my top priorities has always been to find a permanent position within the state, and I am very happy to report that this became a reality in March when I accepted a tenure-track Assistant Professor position in G.U.E.S.S. My primary teaching responsibilities will be split between geographic information science, and physical geography, however, I feel that with my broad background I will also be able to contribute to curriculum from across the department, and in the process bring new students to all our programs.

As a human-environment geographer, I straddle the worlds of both physical and cultural geography, and use geospatial sciences to better understand the relationship between humans and the natural world. This has resulted in a research perspective that is primarily focused on the complexity of coupled socio-ecological systems and the human dimensions of global change. I am particularly interested in understanding how natural resource-dependent communities impact their local environment and how these impacts facilitate or hinder a transition towards sustainability. A few of my current research projects include exploring how communities in northern Minnesota perceive the impact of precious metal mining on their communities; understanding public access rights to Lake Superior and homeowner perceptions on Park Point here in Duluth; and most recently, myself and Dr. Olaf Kuhlke are about to embark on a long-term research initiative in conjunction with the Resources and Sustainable Development in the Arctic (ReSDA), and the Arctic Frontiers of Sustainability (Arctic Frost) programs that will explore the impacts of resource development on Arctic communities and their natural environments.

My family and I are extremely excited to make Duluth our home, and I am equally excited to make G.U.E.S.S. my career home!

The Anthropocene and the Academy: Exploring Connections

The ‘Anthropocene’ is a proposed addition to the geological time scale signaling the significant global impact on the Earth’s biosphere set in motion by human activities that have ushered us out of the Holocene and into an emergent, unpredictable epoch.

Under the principal leadership of GUESS faculty member Randel Hanson, a team of UMD Liberal Arts faculty including David Gore (Communications), Rochelle Zuck (English) and Kathryn Milun (Anthropology) were awarded \$18,000 of support from the Twin Cities-based Institute for Advanced Study over two years to explore the concept of the Anthropocene for the profound questions it raises for how we research and teach about politics, morality and justice against the backdrop of global ecological change.

The resulting ‘Anthropocene Research Collaborative’ (ARC) aspires to deepen engagement with the Anthropocene concept at UMD across the traditional disciplinary boundaries of science, engineering, social science and the humanities. The diverse group of some 20 faculty participating in ARC have been meeting over the past year, studying the various ways that the Anthropocene concept has been defined and ways that it can be advanced, deepened and challenged by diverse input beyond its geoscience origins.

In addition to reading a variety of published material about the Anthropocene concept, ARC has hosted several outside speakers to deepen our engagement. Peter Annin (author of *The Great Lakes Water Wars*) and Randy Lehr from the newly formed Freshwater Research Institute at Northland College visited to talk about the increasingly important relationship between scientific knowledge, public communication, and political reception of changing climate and global ecology. Geographer Matthew Huber from Syracuse University came to talk about the ways that a strictly ‘market based thinking’ limits the options for addressing climate change. And we will be hosting Erik Conway of the NASA Jet Propulsion Laboratory in late April, 2016, to talk about his central involvement in the acclaimed documentary *Merchants of Doubt* and his co-authored and science-based ‘climate fiction’ work “*The Collapse of Western Civilization*.“ Each of these serve as alternative scholarly attempts to communicate the serious issues of climate change beyond traditional science and social science formats.

The ARC will be continuing our scholarly dialogue throughout 2016-2017 academic year and plan to stage a public symposium in May, 2017 in which UMD members will present their analyses and engagements with the Anthropocene concept. In addition to the scholarship associated with these activities, members of the ARC have had a productive opportunity to integrate these important discussions into their teaching and public outreach. We greatly appreciate the support of the Institute for Advanced Study and the work it has afforded.

Make a Difference

You can make a difference for current students in GUESS! Each year more and more students are pursuing educational experiences outside of the classroom by attending academic conferences. We are actively working to build our GUESS Department Fund to be able to support these valuable pursuits. Just \$250 can help cover the cost of one student to attend a conference.

This year, because of generous support from people like you, we were able to provide travel awards to seven students to attend national conferences. Among them was senior Corey Pletsch, a double major in Environment & Sustainability and Geography, who attended the Midwest Soil Health Summit in Alexandria, MN, hosted by the Sustainable Farmer's Association, where he learned how farmers can improve the health of their soil. Consider a gift of \$50 or \$100 or even \$250 and you will be helping to enrich the educational experience of one of our students.

GUESS Department Support Fund (5968): This is the general support fund for the GUESS department. Funds are used to support student initiatives and travel opportunities related to student studies in GUESS. You can also contribute to one of our scholarship funds and help lower the costs of tuition for students in GUESS.

Emma Goldman Scholarship in Geography (1122): This scholarship, in honor of Emma Goldman, is awarded to geography majors who demonstrated support for women, women's issues, and feminist academic and intellectual principles; and demonstrated commitment to values, ethics, politics and scholarship that match those of Emma Goldman.

Matti E. Kaups Geography Scholarship (4652): Awarded to Geography majors in honor of longtime professor emeritus of UMD, Matti E. Kaups.

Catherine E. Cox Scholarship in Geography (6090): Awarded to a Geography major, this scholarship was established by the estate of Catherine E. Cox, who was one of the first 4 female students in the Chemistry Department at UMD, and who went on to become a Geography professor.

Frederick & Lois Witzig Geography Scholarship (8723): Awarded to a Geography, Environmental Studies, or Urban Studies major in honor of Frederick and Lois Witzig. Frederick was a professor in the Geography Department starting in 1953, and went on to serve as Dean of the College of Liberal Arts. He retired after 37 years of service at UMD.

Special thanks to Kelyn Gress and Micaella Penning for their invaluable work on this newsletter. Linda Klint