

SCOOOP

SCIENTIFIC

DNAS

Greetings Friends,

Science is Awesome! I've been reminded of that fact multiple times in the past semester.

Thanks science for the COVID vaccine that has allowed for our lectures and labs return to a more normal state and has allowed for better health for our students, faculty, staff, and community.

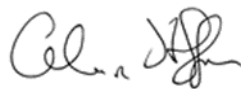
Thanks science for allowing us to hire a new departmental staff member on our campus that will help our community be better stewards of our natural resources.

Thanks science for connecting our department with the University of Iowa's Center for Health Effects of Environmental Contamination which has allowed drinking water sampling and data analysis opportunities for our students.

Thanks science for giving us grant money to support female science majors to do research, to support water sampling throughout the county, and to support the adoption of online educational resources to allow for greater student learning at less cost to our students.

And last, but certainly not least, thanks science for providing us with wonderful students -- past, present, and future!

Yours in science,




Adam R Hoffman

Professor of Environmental
Chemistry
DNAS Department Head
ahoffman@dbq.edu

What's Inside

- Wolter Woods and Prairies
- New DNAS Staff
- From the Vault - Sweden
- In The Field & Lab
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- UD Talks - DNAS
- Women in Science Awards
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Meet the Stewardship & Sustainability Coordinator

eee

Joshua Chamberland



About Me

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I'll be coordinating sustainability initiatives here at University of Dubuque & the larger county! My position was created as part of a collaborative grant application between the University of Dubuque & the Dubuque Metropolitan Area Solid Waste Agency.

I strongly believe that we as humans can accomplish anything we put our minds to - we just need to have the will to do so!

As such, you'll find me building up our community through creative collaborations & intentional relationships

Fun facts

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- Blue is my favorite color!
- My family includes a wonderful fiancée, 2 dogs, 2 cats, & 2 horses!
- I grew the corn in the above photo in my front yard

Goals

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- AASHE STARS & Sustainability Planning
- Dubuque Colleges Sustainability Coalition
- Reduce Waste at End of Semester Move-outs

Stay Up To Date!

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Wolter Woods & Prairies Update!



This past summer, four land management interns through the John and Alice Butler Summer Research Fellowship conducted a formalized bumble bee survey in the four prairies of Wolter Woods and Prairies Environmental Stewardship and Retreat Center. Twenty-one of the 121 acres of land in Sherrill, Iowa, are devoted to those prairies.

Over 20 detections of the endangered rusty patched bumble bee were recorded at Wolter Woods and Prairies. Both Gerald Zuercher, PhD, professor of biology and vertebrate ecology, and Eric Nie (C'15), environmental specialist at Wolter Woods and Prairies, advised the interns. Grace Mayberry, an environmental science major from Morrison, Illinois, was joined by interns Paige Peterson, a senior environmental science and biology double major from Davenport, Iowa, Max Snowden, a senior environmental science major from Round Lake, Illinois, and Dillon Tierney, a junior environmental science major from Nora Springs, Iowa.

The rusty patched bumble bee, which had historically ranged the eastern and upper Midwest, was listed as endangered in 2017 under the Endangered Species Act. At the time, its populations had plummeted about 87 percent in the past two decades, according to a press release by the US Fish and Wildlife Service.

"It feels like a huge responsibility now. We're blessed with this opportunity to steward this landscape and, as part of our mission, we can add that we have these incredibly valued species that need our care. They are under our umbrella now," Zuercher said.

To conduct the survey, one of the land management interns would walk one of the five transects in the prairies each day during the week. The intern would watch and listen for bumble bees.

"We would begin at the start of the transect and we would walk all the way to the end. We would spend maybe five to 10 minutes at each of the 11 transect poles," Mayberry said.

When the interns saw a bumble bee, they would attempt to catch it, place it in an observing glass, and record a variety of data including date, time, location of the transect, species of bumble bee, and species of flower the bee was on. Throughout the fall, the interns will analyze the data they collected.

Mayberry caught the first rusty patched bumble bee on a wild bergamot in Big Prairie. Peterson had seven detections in one day in the Dutch Prairie. Nie saw three one day while brush cutting going down a steep hill on a curve by the Dutch Prairie.

The interns recorded the rusty patched bumble bee as well as other species of bumble bees.

"What we're trying to do is make that association between bumble bees and the plants they're using. And not just at that moment. These surveys will allow us to track these patterns over time," Zuercher said.

Combining land management with a bumble bee survey created invaluable opportunities for interns.

The rusty patched bumble bee isn't the only endangered species on the unglaciated land. UD students and Zuercher recorded the endangered Indiana bat as well as recorded and captured the threatened northern long-eared bat in years past at Wolter Woods and Prairies.

In addition to continuing endangered species research, UD is planning controlled burns, invasive species removal, regenerative agricultural practices, and additional student engagement opportunities at the property in the near future.

--Written by Stacey Ortman, UD's Director of Public Information – Adapted with permission





Summer 2021

WOLTER WOODS' INTERNS

Dillon Tierney

I learned a lot of useful skills including plant & tree identification, woodland management, how to get & maintain



healthy soil, & much more. We also did a lot of gardening - it was so cool too see all of the different plants grow up until we harvested them. My favorite part was our daily bee survey. It was fun to see & document all of the different species of bees we caught, especially the Rusty Patches!

Grace Mayberry

Participating in the Wolter Woods & Prairies internship this summer really gave me some insight into land management. I learned valuable skills & knowledge



about this career field. My favorite part of the internship was the bee research we were participating in. I loved getting to learn about Bee's & their habitat in our prairies.

Max Snowden

I learned a lot in my time at the Wolter property with Eric and the fellow interns. Going into it I knew very little about the local plants and grasses of the area,



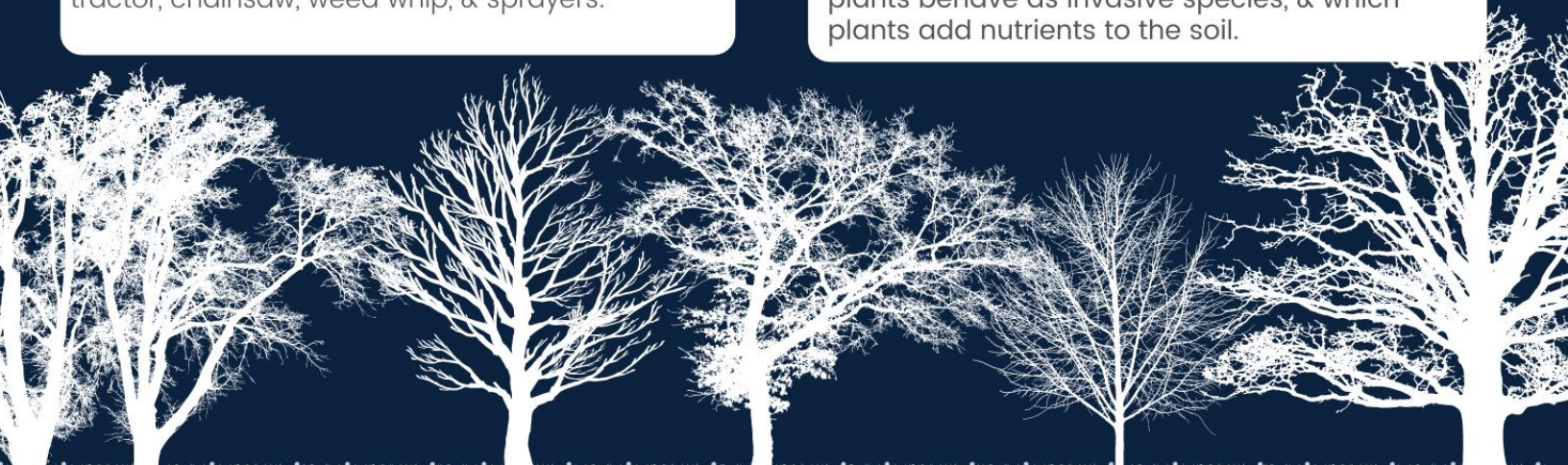
but that quickly changed when we had to pull invasive species. Plant ID was a very important thing I learned as well as how to operate many of the machines used in land management like the tractor, chainsaw, weed whip, & sprayers.

Paige Peterson

My favorite part about the internship was learning how to do controlled burns. The top 3 things we learned about controlled burning were the proper



safety guidelines, the materials needed for the burn, & why it is beneficial to do burns. I also learned how to identify native tree/ prairie plant species, which plants were invasive, how certain plants behave as invasive species, & which plants add nutrients to the soil.



FALL '21 GRADUATING SCIENCE SENIORS



What are your post UD graduation plans? *What will you miss most about UD?* *Your favorite memories from your time at UD?*



Alyssa Sommerfeld

I plan to apply to both Anesthesia Assistance School or Medical School and then ultimately decide which is the best option for my future!

The science faculty, because I was able to build bonds and friendships with my teachers.

Studying until 4 am with Katelyn for our science exams!



Olivia Costley

Following my graduation from UD, I plan to work at UW Health in Clinical Operations and pursue a Master's degree in Healthcare Administration.

I will most miss competing on the track & field and cross country teams, living with my best friends, and enduring 7:45 labs with the best lab partner.

Traveling to North Carolina for indoor & outdoor nationals, earning an All-American title, & breaking the 400m school record (AND making Rich proud) is my favorite memory from UD.



Katelyn Howe

I am applying to Physician Assistant programs this upcoming spring and preparing for entry by gaining patient care experience throughout the next year.

I will miss all my professors who have had a large impact on my education and success in college. The personality of the DNAS faculty has made it easy to enjoy what I am learning and I have eagerly shared my knowledge with others over the years. Coming to UD has been one of the best decisions I have made.

There are lots, but some of my favorite memories are guiding new students through Spartan Start orientation, the Wendt program, athletics/intramural sports, and my time spent doing research as a Chlapaty fellow.



What are your post UD graduation plans?

What will you miss most about UD?

Your favorite memories from your time at UD?



Hayli L. Wolf

After graduation, I plan to take a few months to settle into my newly purchased home. I'm applying for an internship at the Mississippi River Museum to keep myself involved while I continue my quest toward graduate school. Long-term, I want to continue doing research on wildlife and eventually teach.

More than anything, I will miss the wonderful professors! Teachers, mentors, friends... it's difficult to say goodbye to individuals who fit into all three categories. I will also miss daily visits with Toe Bitten and Froggo, UD's resident painted turtle and poison dart frog.

There are too many great memories to list them all, so top three:
1. Dissections.
2. Sri Lanka trip.
3. Any moment doing field research. Turtles, snakes, mice, flying squirrels, birds, bats, or bumblebees - drenched in sweat, caked with dirt, sunburnt and covered in bug bites - I loved every second!



Sierra Hartmann

My post-graduate plans include applying to Physician Assistant graduate programs either this Summer or the following year! Either way... it's in the works!

I will miss seeing all the friendly faces at UD. I am grateful for all the friendships with fellow students and faculty members I created over the years. They are certainly ones I will cherish forever. Also, the Couchman Library, as it was my favorite spot to study.

My favorite memories are my time spent in Cheer and Stunt at UD and participating with on-campus seasonal activities like homecoming week and the annual tree lighting!



Scarlett J. Adams

I'll be continuing my work with self-sustainability and building and growing a homestead. I also work with Isabella Coffee Roasters in Galena, roasting coffee for the community at the Dubuque Winter Farmers Market. I also serve as a personal assistant to Luke Schiltz at Errand Boys and I'll be continuing to grow in that role as well. My true passion is using my knowledge, creativity, and hard work to serve our community that "good food medicine"

I will miss my professors the most. The EVS department has some real gems that help each student ignite their spark and find where they're supposed to be. They encourage us and support us along our path, and I'm forever grateful for the relationships I've formed here.

My favorite memories at UD are the trips out to the field. Working with Dr. Z at Wolter Woods in Conservation Biology and exploring all kinds of interesting geologic places with Dr. Easley stand out to me the most. The hands-on experience helped me gain better understanding within the material, and the world around me.

2021 WORK STUDY STAFF



Kayla Breunig

Majors: Biology and Chemistry

Minor: Spanish

Year: Senior

Plans: I plan on attending graduate school to pursue an M.S. and then a Ph.D.

Jenna Bidlingmaier

Major: Biology

Minor: Chemistry

Year: Sophomore

Plans: I plan to go to medical school after college to become a doctor.



Jayde Henry

Major: Biology

Minor: Chemistry

Year: Sophomore

Plans: My future plans are attending medical school or osteopathic school!

Ryan Kiddle

Major: Chemistry

Minor: Biology

Year: Freshman

Plans: I plan to go to graduate school to study chemistry



Samantha Scodeller

Major: Biology

Year: Sophomore

Plans: I plan to go to medical school after graduating!

Catching Up With

CHEMISTRY CLUB

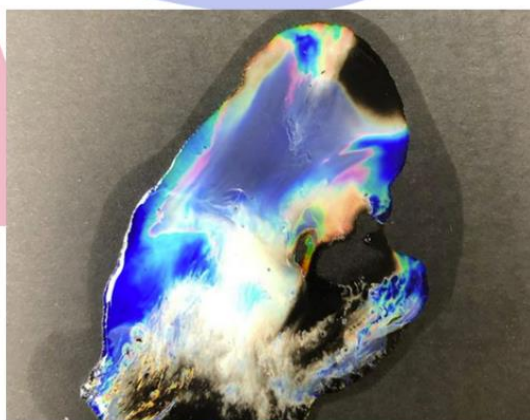


FALL '21 EVENTS & PROJECTS

Chemistry Outreach to 6 area high schools:
River Ridge, Lena-Winslow, Prairie du Chien,
United High School, AGWSR, and Bellevue.

Mug cake experiment

End-of-year chemistry get-together



The Chemistry Club is a student run organization whose main focus is to inspire a passion and appreciation for chemistry within the student body and the community. We meet biweekly to plan events on campus, fun experiments, and community outreach events!

Photographed:

Above: Chemistry Club End-of-Year get-together

Left: Results of color-changing crystal experiment conducted in high school chemistry outreach

CATCHING UP WITH
WOL
Web of Life

FALL '21 EVENTS & PROJECTS

—
Movie Night
Tree Planting with Dubuque Trees Forever
Adopt-A-Highway Clean Up
Sponsored "Zero Waste" Friendsgiving



Highway Cleanup Results!



Skyler Clemen, Allisen Hallahan, & Will Gebhardt prepare decorations ahead of Zero-Waste Friendsgiving



Forrest Martin & Allisen Hallahan planting a tree in Dubuque with Dubuque Trees Forever

Web of Life is UD's environmental awareness club that aims to educate the public on environmental issues & inspire members to be more environmentally conscious through public outreach, cleanups, & outdoor adventures! If you life on Earth, then you are welcome!

Women In Science

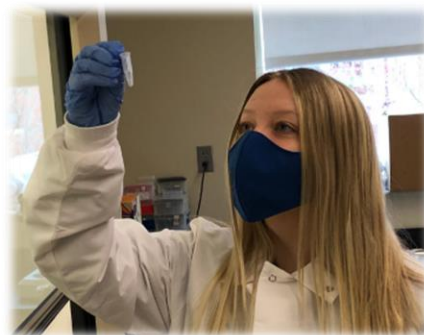


Back Row (Left to Right): Hanna Blumhoff, Kayla Breunig, Emerson Wilson, Sharon Moscoso, Jayde Henry, and Megan Gille

Front Row (Left to Right): Danielle Johnsen, Carlee Benzing, Jenna Bidlingmaier, Emily Gross, and Maryn Winders

Not Pictured: Rebecca Lisanby, Taylor Sperfslage, Morgan Perry, and Kathleen Messino

The Monticello College Foundation Grant provides funding for women in the science majors to be able to carry out independent research projects. The undergraduate students that are supported through this funding are also working to initiate an outreach program within the local Dubuque community to help immerse young females into the scientific field of research in hopes to inspire excitement about science but also decrease the gender science stereotypes that currently exists. Women in Science is a research opportunity that is open to all women in STEM. This program is a great way to begin research in your undergraduate years in order to instill lab techniques that they will be able to use later in their career paths.



"My research is focusing on the effect that Bisphenol S (BPS), a compound found in food packaging like plastic and cans, has on C. elegans. BPS has primarily been the replacement for its chemical cousin, Bisphenol A (BPA) when it comes to plastic food packaging. BPA is known to have many negative effects, and there is much concern regarding if BPS has those similar effects or not. I hope to help answer those questions with my research. I chose this topic for my women in science proposal because as an aspiring Physician Assistant, public health is a concern of mine. The average person has no idea what is in their food, and therefore no idea about the negative effects it can have on their health. I hope to see a switch towards safer food preservation options in the future." – Maryn Winders, Junior

FROM THE VAULT

The Environmental Field Studies – Sustainability in Sweden course has been traveling to Sweden for the past ten years. Växjö, dubbed “The Greenest City in Europe” by the British Broadcasting Company, is the main stop, but other locations vary each trip. The sustainability-minded citizens became the first city in the world to set a fossil fuel free goal when in 1996 they decided to become fossil fuel free by 2030. Students of the course visit the local power plant fueled by wood waste, explore the restored larkes with the town limnologist, learn from sustainability experts at Sustainable Småland, ride the local buses fueled by food waste, and experience the local-sourced food scene.

2011:
Participants gathered under the street sign pointing to the school at which they engaged middle school students in everything from English, to science, to music.



2015:
Members take a break from hiking around Grinda, one of the 24,000 islands and islets that comprise the Stockholm archipelago.



2018: *Members enjoying the IKEA Museum, located in Älmhult*



2013: *Students in a forest glade by the shores of Lake Skärsjön. Hiking and swimming by day the group retired to their forest huts (aka Troll Holes) at night for slumber under sheepskin rugs amidst the warming glow of personal fireplaces.*

IN THE FIELD...



Brady McIntyre (C'23)
holding a mouse



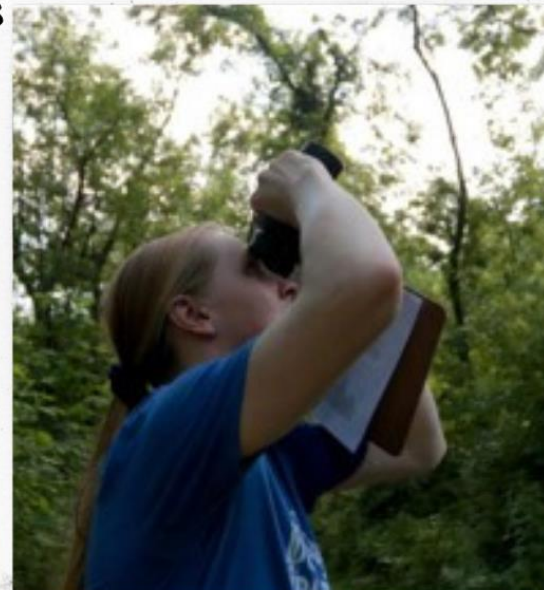
Allisen Hallahan
(C'23) holding a trap
containing a mouse



Brady McIntyre (C'23)
standing next to his
research supplies



Forrest Martin (C'22) & Brady
McIntyre (C'23) removing ticks
from species they collected



Kayla Breunig (C'22)
looking for birds

DNAS Student Spotlight

Past



Amanda Harrop C'17

Tell us a bit About yourself. I am a 5th year Ph.D. candidate at the University of Connecticut (Go Huskies!). My current research focuses on the rare disease, Fibrodysplasia Ossificans Progressiva (FOP), in which injured skeletal muscle turns to bone. I am focusing on identifying the cell type responsible for the new bone growth. When I am not in lab, you can find me walking my dog or golfing a quick 18!

What are your goals? My immediate plans include getting married, joining a research team at a pharmaceutical company, possibly teaching at the collegiate level, or maybe starting my own biotech company. I am not sure at the current moment, but the sky's the limit!

Why UD? UD is a place that celebrates differences and allows for an individualized education. Just because UD is a small school does not mean that the educational experiences are small. In fact, the exact opposite is true. My time at UD has a direct and critical role in all my current endeavors.

How has education shaped the person you are? The education I received from UD was individualized and allowed me to develop the skills that extend outside the classroom and the lab. UD advanced my ability to communicate and ask questions. These skills allow me to constantly learn new things and enjoy life!

What is one book you would recommend that everyone read? Surrounded by Idiots by Thomas Erikson. This book categorizes people into four distinct personality types and teaches the reader how to communicate with all. I truly believe communication is the key to success.

Present



Katelyn Howe C'22

Tell us a bit about yourself. I'm a senior biology major, chemistry minor at UD. I am the President of the chemistry club, Vice President of the pre-health professions club, and I work as an emergency department technician at MercyOne hospital here in Dubuque. I love the outdoors and my two dogs are my children!

What are your future plans? I will be applying to physician assistant programs this spring while gaining patient care experience over the next year!

Why UD? Because of how great the DNAS department is! Every professor I have had is personally invested in not only their students' education, but also their general wellbeing. Science can be intimidating, but our professors make it fun!

How has education shaped the person you are? My education has shaped me into a well-rounded and motivated student and future healthcare provider. I show up to class eager to learn, and afterwards I can't wait to teach that information to my friends and family. I am so grateful for all of the opportunities I have had at UD that have prepared me for PA programs and life after college!

What is one book you would recommend that everyone read? I'm Still Here by Austin Channing Brown is a must read. Coming from a small farm town in Iowa, this book really put me and my privilege into perspective. My worldview has shifted completely, and I think about this book on a daily basis.

Future



Jerimiah Denham C'26

Tell us a little bit about yourself. Growing up in Williamsburg, Iowa, I've always had an interest in fishing. Fishing gives me a chance to get away from everything and be myself. I'm on the bass fishing team and majoring in environmental science. These things have driven me to UD.

What are your future plans? I believe that going to UD is the best option and can provide resources to pursue my dreams. I'm hoping to pursue jobs that have to do with fisheries, such as working for the DNR, or anything to do with environmental conservation.

Why UD? After meeting with Victor Popp about the bass fishing team, I was impressed and felt very welcome at UD. Professor Hoffman and the DNAS was also a big deciding factor for me.

How has education shaped the person you are? Education has taught me that I can overcome adversity and self-doubt. I've learned to never give up and never ever let someone tell you that you can't do something. Another thing that I will always remember being told is "you're too blessed to be stressed".

What is one book you would recommend that everyone read? How To Think Like a Fish by Jeremy Wade. It helped me as an angler and "how to think like a fish". Another book that comes over everything would have to be the bible. Everyone should read it since it gives good life lessons. It's also helped me get through a lot of hard times in life.



TALKS



Department of Natural and Applied Sciences

The department of Natural and Applied Sciences was recently the subject of UD Talks. Feel free to check out the [video](#). Junior Biology major Brady McIntyre and Dr. Kelly Grussendorf were highlighted.



“I’ve been thankful for the opportunity to work in the cadaver lab ... the knowledge that I’ve gained is one-of-a-kind”

“We help guide students on their path ... whether it’s answering their questions, finding opportunities, internships, or travel courses for the students so that they can figure out where their passion really lies.”



SCIENCE IS AWESOME!



Left to Right: A. Hoffman, M. Sinton, R. Smith, K. Grussendorf, D. Koch, G. Zuercher, M. Zuercher, D. Easley, A. Kleinschmit, A. Arora, L. Jayawickrama, Plant version of R. Mudalige- Jayawickrama, K. Turner, J. Chamberland.

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