

Department of Earth and Environmental Sciences Newsletter

Message from the DEO

After five years of leading the department (again), Tom Foster has stepped down from his second stint as Department Chair, and passed the role on to me (David Peate). I would like to thank Tom for his sterling service to the Department and for leaving the department on such a positive trajectory. I hope that I can continue this momentum and move the department forward in a similar manner over the next five years. Tom left me with the tools needed for this position (see photo: the DEO tool kit – the DEO ball & chain, plus the carrot & stick - with extra carrots – and a T-shirt showing who’s in charge). This is also a time of transition in the College and University administration, with the recent appointment of a new CLAS Dean (Steve Goddard) and a new Provost (Montse Fuentes). While we are still waiting to see how these administration changes might impact the Department, Tom and I had a productive meeting with the new Dean at the start of the semester, when he visited Trowbridge Hall to learn more about the Department’s strengths and also the challenges we face. The Dean has already started to implement a new initiative (Driving Excellence and Impact) that aims to devolve more operational and financial decision making to the departments.



As a way of introduction, I have been at Iowa since Jan 2004, following seven years as a senior research geochemist in Denmark. My research primarily focuses on applying chemical methods to understand volcanic systems, with current research interests in Iceland and the South China Sea. I have recently started projects to reinvestigate the age and origin of magmatic rocks from old drill cores into the Precambrian basement of Iowa with students and colleagues in the Iowa Geological Survey. I also assist other faculty and students with projects that involve geochemical data on a wide range of materials (soils, waters, sediments).



In the last few years, faculty have increased efforts to reach out to university and local media outlets to publicize the work being done in the Department and to comment on stories related to earth science and environmental issues, and this all helps to raise the Department profile on campus and further afield. Links to these news articles have now been provided on the Department website. We are also expanding our social media presence (Facebook, Twitter) as a way of engaging with our undergraduate students and our more recent alumni.

I am grateful to all alumni and friends for your continued support for the Department of Earth & Environmental Sciences. The department is more dependent and thankful than ever for the philanthropic support of its alumni and friends. I have deep appreciation for all of you who choose to make gifts to our mission of scientific discovery and top-notch education. (continued on next page)

Message from the DEO (cont.)

Please read on to hear Amy and Joe Sullivan's impact on the department through volunteerism and financial support. We hope there are more of you who wish to join Amy, Joe, and many more who are investing in our success. Expect to hear much more about these important efforts over the next year. If you are in Iowa City, please stop by for a visit. We would be very happy to show you first-hand all of the wonderful things that are going on in the Department.

Earth and Environmental Sciences Department Alumni Advisory Board

Amy Sullivan – EESB Chair

EES had a very full and engaging Home Coming week. The Alumni Fall Home Coming Meeting was Friday, October 18. Besides the full board, David Peate, Richard Baker, Brad Cramer (Faculty liaison), Emily Finzel, Andrew Forbes, Tom Foster, Jessi Meyer, Ben Swanson, Chris Harms and Matt Wortel represented the EES department. Adam Blind represented the Center for Advancement. Alumni are always invited to attend.

Ties to the Environmental Science (ENVS) program with the Board improved due to a great session on October 16th with Andrew Forbes, Emily and Brad. Andrew also attended the entire board meeting and he and Ben provided insights to develop plans for engaging the ENVS Faculty Stewarding Committee, and the environmental sciences seminars. Todd Ririe, Liz Maas, Mike Burkart and Jennifer Wade are Board members with Environmental Science experience.

Board members Leon Aden, Todd Ririe, Mike Burkart and I met with the AAPG Student Chapter at a pizza lunch thanks to an invitation from Matthew Trembath, Chapter VP. The main topics were career experience and job search strategies. The Alumni Board will assist in providing speakers to the Student Chapter going forward.

Many thanks to Judy and Mike Burkart for opening their welcoming home to a casual faculty, staff and Board dinner. About 25 people attended. It was a blast and John Eiler, his wife, Jane, and father, Don attended.

The Board members handed out GSA photo scales to students at the Friday poster session and seminar.

The Distinguished Alumni Award presentation to John Eiler at the Friday Seminar was the pinnacle of Home Coming Week. Special recognition to Kate Tierney Cramer for providing the Moroccan Orthoceras limestone and Matt Wortel for etching the award. John's two talks, "The Body Temperatures of the Dinosaurs" and "Prebiotic chemistry and the search for life's origins on the Earth and beyond" were well received.

Please come to UI for Home Coming 2020. It will be a "triennial meeting" that will include an Alumni Day, Distinguished Alumni Award. We welcome your input to develop these special engagements. Our contact information is at: <https://clas.uiowa.edu/ees/alumni-and-friends/ees-alumni-board>



In Remembrance

It is with great sadness that the family of Jerry Ralph Nunn announces his passing on Saturday, January 26, 2019, in Bozeman, Montana.

Jerry was born in Des Moines, IA on February 4, 1954, and grew up in Newton, IA where he was a graduate of Newton High School. Jerry attended the University of Iowa and graduated with a BS and MS in the field of Geology. He lived most of his adult life in Bozeman.

Jerry lived an adventurous life. He was an excellent (continued on next page) swimmer and was a lifeguard at Maytag Park Pool during high school. He rescued a young boy from drowning one summer. He also fell into the Iowa River during one



Earth and Environmental Sciences Distinguished Alumni Award

Amy Sullivan – EESB Chair

Beginning in 2019 the Earth and Environmental Science Department (EES) has embarked on an annual recognition event to showcase the UI Alumni contributions to our disciplines. Our goal is to recognize individuals who have made significant contributions to earth and environmental sciences throughout their careers. Awardees will have personified service to and passion for the discipline and community. The Alumni Outreach Committee of the Earth and Environmental Science Alumni Advisory Board (EESB) stewards the selection process.



Nominations are accepted from Iowa EES alumni, and individuals with knowledge of the nominees. Eligible nominees will be UI EES alumni who have (1) an established history of distinguished service to the discipline and/or the department; (2) made lasting contributions to understanding geological or environmental questions; and (3) exhibited leadership that has provided inspiration to others in the field. Importantly, all nominations are kept on file and will be reactivated for future consideration. Nominations are due annually by January 15, for the award ceremony during Homecoming in October of the same year. The nomination and selection process may be found at:

<https://clas.uiowa.edu/ees/about/distinguished-alumni-award>



John Eiler (B.S. Geology 1989), Robert P. Sharp Professor of Geology and Geochemistry at the California Institute of Technology Geological and Planetary Sciences, is the winner of the 2019 Distinguished Alumni Award. John is also receiving the College of Liberal Arts (CLAS) Alumni Fellow Award from Steve Goddard, CLAS Dean. John worked with Tom Foster and Mark Reagan on metamorphic petrology and geochemistry.

(From left to right) Matt Wortel, Amy Sullivan, John Eiler, and David Peate at the EES Distinguished Alumni Award presentation

In Remembrance (cont.)

winter in Iowa City and was able to rescue himself due to his swimming skills. He enjoyed going to concerts to see bands like Yes and Jethro Tull with his sister. Due to his 6'5" height, he was always able to navigate through the crowd to find the best spots.

After college, he moved to Montana to pursue his career in geology. He worked for Pegasus Mining Company in the field, and various other positions. After leaving the mining industry, he worked as a rural mail carrier for the USPS.

In his free time, you could find him skiing, hiking and camping. On one of his ski trips, he went alone into a restricted area and fell and shattered his leg. Jerry was lucky that ski patrol happened to be in the area to save him. He was a gentle giant who loved nature and exploring the world around him.

Jerry will be fondly remembered by his siblings, Jim (Rene') Nunn of St. Louis, MO and Nancy Nunn of West Des Moines, IA, and numerous nieces, nephews and extended family and friends. Jerry was predeceased by his parents, Ralph and Margaret Nunn.

AAPG Fall Field Trip

The AAPG Fall Field Trip took place on the weekend of October 12-14, 2019. Ten graduate students and one undergraduate traveled to the Baraboo area of Wisconsin and enjoyed cool temperatures and light snow. Students visited classic outcrops in the area such as Van Hise Rock and the east bluff of Devil's Lake State Park. Dr. Gilotti and Dr. McClelland facilitated commentary and discussion about structural and metamorphic features, as well as sedimentary structures. This trip provided experienced and inexperienced students alike with the opportunity to make numerous observations at the outcrop scale and assemble them into a regional context, as well as to puzzle over some unsolved structural problems. The trip also provided ample opportunity to get to know fellow students and eat a lot of spaghetti around the campfire.

The 2019 Fall Field Trip to Baraboo was largely funded by the student chapter of AAPG at the University of Iowa. The AAPG student chapter works to assist graduate and undergraduate students in building lifelong professional skills and relationships for a future career in geology.

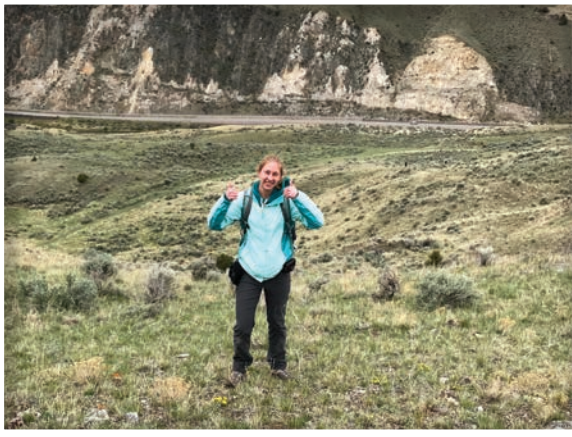
Van Hise Rock Back row, left to right: Emma Kroeger, Dr. Jane Gilotti, Brittany Stolfus, Brooke Byars, Sam Hudziak, Trent Olson, Dustin Northrup, Dr. Bill McClelland; Front Row, left to right: Riley Biel, Megan Heath, Megan Koch, Matt Trembath



A parasitic fold at Devil's Lake State Park.



Crenulations in a phyllite layer of the Baraboo Quartzite at Skillet Creek.



Undergraduate Student Profile

Gwen Barnes

Advisor: Brad Cramer

Research: A Bayesian Age-Depth Model for the Silurian Altajme Core, Gotland, Sweden

Experience I value at UI: Back in June, Brad gave me the amazing opportunity of attending the IsoAstro Geochronology Workshop in Wyoming, and it was at this conference where the topic of my research project originated. I don't think I would say there was any point at the workshop where I was actually in my comfort zone, but being pushed in this way is undoubtedly one of the many experiences I value here at Iowa. Everyone is so

supportive and encouraging! Even when things aren't going right, the faculty here are always willing to help point me in a new direction. They've taught me failure isn't the end of the world, and finally listening to this has helped me realize I don't need to have all the answers to everything. Another experience I value here is the whole concept of looking forward to learning, and I feel like the professors genuinely care about us as students.

Future Plans: I'm not entirely sure what my future plans are yet, but they probably involve graduate school and a lot of stress.



Graduate Student Profile

Matt Braun

Advisor: Brad Cramer

Research: My research is focused on examining the Devonian-Carboniferous (D/C) boundary interval of the US-Midcontinent, where I am studying localities across Iowa, Illinois, Missouri, and South Dakota. The D/C boundary interval is a time of significant change in Earth History, as it contains a mass extinction and two of the largest positive isotopic carbon excursions (the Hangenberg and the Kinderhook-Osage Boundary excursions) recorded in the Phanerozoic. I will be creating a high-resolution stratigraphic framework for this interval by integrating conodont biostratigraphy, carbon isotope chemostratigraphy, and sequence stratigraphy. This framework will help outline the lithology changes and sea level fluctuations across the D/C boundary interval and give new insight into the nature and timing of interactions within the ocean-atmosphere-biosphere Earth system; additionally, targeting the

Hangenberg and the Kinderhook-Osage Boundary excursions will help improve stratigraphic correlations with age equivalent strata locally, regionally, and globally.

Experience I value at UI: I've had the opportunity to travel across the US as both a participant and TA of field trips to Arizona, Texas, Colorado, and Missouri. Not only did I personally learn a lot on these trips, but I've been able to improve my teaching skills as a TA. Secondly, I've been able to present my research at the annual Geological Society of America conference, and at the STRATI 2019 conference in Milan Italy. I feel presenting at these conferences, where I was able to meet leading researchers in my field, has helped improve my critical thinking and communication skills as a scientist. Finally, I've taken many unique and beneficial courses here at UI that I didn't have the opportunity to take during my undergrad or MSc at other universities.

Future Plans: I would like to pursue a career in research either for a government geological survey or in academia.

National Parks Field Trip 2019



T.A.-Matt Braun, and Support Volunteers- Schaffer Finney, Nick Johnson and Megan Heath Monument Rocks National Natural Landmark



(Above) Kate Anderson and Kaia Johanningmeier at Monument Rocks National Natural Landmark
(Below) Liz Flannagan, Kate Tierney, Schaffer Finney, and Nick Johnson at Great Sand Dunes National Park



(Above) Group photo at Black Canyon of the Gunnison

(Left) Hiking the Rim Rock Trail at Black Canyon of the Gunnison

National Parks Field Trip 2019



Sideways snow is character building: Liz Flannagan, Kyle Bartusch, and James Corey



Cailee Jo Sprecher, Liz Flannagan, and Abby Simon



Rafting on the Yampa River at Dinosaur National Monument



Liz Flannagan, Abby Simon, and Kate Teirnrý with river guides on the Yamp River

National Parks Field Trip 2019



Kaia Johannngmeier rafting on the Yampa River



Joe Jennings in an exfoliation surface

Senior Field Trip



Looking up towards the Guadalupe Peak



Dog Canyon, Big Bend National Park, Schaffer Finney for scale

Junior Field Trip



Elephant Rocks State Park



Johnson's Shut-ins State Park

Junior Field Trip



Sophomore Field Trip



Group photo at Badlands National Park

Nmarig Mohammed at the Cadillac Mine, Doe Run Company, Mississippi Valley Type Galena-Sphalerite-Chalcopyrite Mine

Recent and upcoming student presentations

Geological Society of America Annual Meeting

Brittany Stolfus (MS) - A revised conodont biozonation for the Kinderhookian (Lower Mississippian)

Emma Hartke (BS) - High-resolution paired organic and carbonate carbon isotope chemostratigraphy of the Ireviken Excursion (Silurian) from the Altajme core, Gotland Sweden

Matt Braun (PhD) - High-resolution chemostratigraphy of the Silurian succession of Anticosti Island: New global $\delta^{13}\text{C}$ correlations of Llandovery strata

Megan Heath (MS) - High-resolution integrated conodont and carbonate carbon isotope chemostratigraphy of the Hangenberg Excursion from the H-28 and H-32 cores, Burlington, Iowa

Ellie Biebesheimer (BS) - Paired organic and carbonate carbon isotope chemostratigraphy of the Mulde Excursion from the Altajme core, Gotland, Sweden

Gwen Barnes (BS) - A Bayesian age-depth model for the Silurian Altajme core, Gotland, Sweden

Mads Gilbert (BS) - Nutrient analysis of the Caloosahatchee River and Estuary of southwest Florida

Ben Howard (BS) - A detrital zircon provenance study of the Marnoso-arenacea Formation, northern Apennines, Italy

Alethea Kapolas (BS) - Provenance evolution of the Cook Inlet basin in south-central Alaska during late Cenozoic time based on mudstone geochemistry

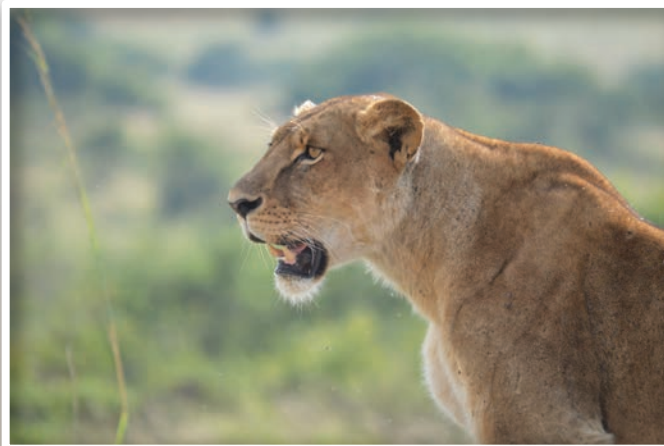
In Search of Crocodiles in the East African Rift

Amanda Adams, Ph.D. candidate

I am interested in the relationships of the gharials (slender-snouted crocodylians), of which there are only two living members, *Gavialis gangeticus* and *Tomistoma schlegelii* (both endangered). For decades systematists have debated over how closely related they are. The traditional view supported by morphology is that they are distantly related and are only superficially similar. However, molecular systematists find they are actually each other's closest living relative. Despite decades of new data and techniques, the two methods have yet to reach the same conclusion. At this point the full genome has been sequenced for the living gharials and the molecular relationship is very robustly supported. The likely reason morphologists have not produced the same result is that we are simply missing the data that would clarify the relationships of animals so prone to convergence. That's the problem with using the fossil record - it is by nature incomplete, and the fossils themselves are rarely perfectly preserved. This is where my research comes in.



Amanda at the Uganda Museum in Kampala holding the holotype of *Tomistoma coppensi*



Africa is well known for fossil mammals, but it also has a rich fossil crocodylian record that is only just starting to be explored in depth. There are several undescribed species in African collections that preserve the unique suite of characteristics that may allow us to finally resolve this problem. I spent part of June and July in the collections of the Kenya National Museum and the Uganda National Museum observing, photographing, and describing fossil specimens. As part of my dissertation I will be describing several new species for publication, as well as including them in a morphology based phylogenetic analysis. These fossils will help us determine the relationships among modern long-snouted crocodylians and assess such things as the paleodiversity of the group, the timing of evolutionary adaptations such as salt tolerance, and historical patterns of geographical response to climate change. These were also among the largest predators our East African ancestors encountered, and crocodylians and early humans had to respond to the same environmental changes.

In addition to the crocodylian fossils, I was also allowed into the hominid vault to see the fossil hominids from Kenya. Seeing the “cradle of humanity” is a unique and emotional experience.

While my work was in museum collections, I was able to spend some time exploring on the weekends. I went on several safaris and saw an incredible range of animals, including my first wild crocodile, a lion napping in a tree, and a Verreaux's Eagle-Owl. Of all my trips the safari to Lake Nakuru National Park was my favorite. The landscape and wildlife were incredible. This was a trip I won't soon forget.



Undergraduate Student Profile

Ben Howard

Advisor: Emily Finzel

Research: Basin Analysis of Marnoso-arenacea Formation in North Central Italy

Experience I value at UI: Since starting my job with Emily Finzel in September of 2018, I have been given many opportunities to go across the country and globe to learn more about geology and the research that I am a part of. The first place I was to do this was at The University of Arizona Laserchron Center. Their excellent staff and facilities taught me about the processes behind geochronology, and the opportunities present beyond my undergraduate degree. I also presented early-stage data at GSA Phoenix; while there I was able to meet with professors from various graduate schools about master's degree prospects. In addition to these trips, I went to Rome, Italy, to attend the annual International Association of Sedimentologists meeting as well as tour the Marnoso-arenacea Formation and adjacent Laga Formation. Now I am in the beginning stages of both heavy mineral analysis and sandstone petrography, while continuing U-Pb-Th analysis of collected

samples. I hope to continue my work with Dr. Finzel and assist in the development of this project for the rest of my time at The University of Iowa.

Future Plans: Future work will involve the continuation of work on the Marnoso-arenacea Formation. I plan on presenting a talk at GSA 2020 in Montreal, Canada. After graduation I hope to go to graduate school to continue my studies in basin analysis.

Student presentations (continued)

Geological Society of America, Phoenix, AZ

Amanda O'Grady (BS) - Morphometric analysis of the conodont genus *Elictognathus* and its relationship to the genus *Siphonodella*

Mohammad Shohel (BS) - X-ray diffraction and nanoindentation on conodont microfossils revealed variation of mechano-structural properties along the length of conical elements

Bailey Bergman (BS) - Phytoplankton analysis of Caloosahatchee River and Estuary, southwest Florida

Allison Kusick (BS) - Geochemistry and petrography of the Osborne Core (Northeast Iowa Intrusive Complex)

American Geophysical Union Annual Meeting

Jennifer Thines (PhD) - The roles of extreme fractional crystallization and magma mixing in the petrogenesis of large-volume silicic magmas from the Oligocene Afro-Arabian Large Igneous Province

Clayton Brengman (PhD) - Spatial and Temporal Detection of Co-Seismic Surface Deformation in InSAR using Artificial Neural Networks

Aline Blasizzo (PhD) - A textural analysis of the 1961 lava flow in Askja, Iceland as an analog for Martian lava flow studies

Goldschmidt Conference, Barcelona, Spain

Jennifer Thines (PhD) - Petrogenesis of large-volume silicic magmas from the Oligocene Afro-Arabian Large Igneous Province

In Remembrance

Samuel J. Tuthill, former State Geologist and Director of the Iowa Geological Survey, died August 28, 2019 at the age of 93 in Wheatland, Iowa. He served as State Geologist from 1969 to 1975, greatly expanding the Survey's research and public service functions, and applying them to the resource, environmental, and energy issues facing Iowa in the early 1970s. He also held Adjunct Professor appointments in the Geology Department at the University of Iowa and at Iowa State University.

Highlights of his tenure as State Geologist included a scientific evaluation of the recently discovered Coldwater Cave in Winneshiek County, ensuring that new landfill sites were based on geologic criteria designed to protect water resources, establishing a Remote Sensing Laboratory to apply newly available aerial and NASA satellite imagery to a broad range of resource-oriented users throughout Iowa, calling early attention to the state's land-use and groundwater contamination issues, beginning a drilling program to study the hydrology of Iowa's carbonate aquifers, continuing to expand the Survey's library of well logs and core samples, and establishing a program to evaluate Iowa's coal resources in the face of existing energy shortages. During this time, Governor Ray appointed him to organize and chair the Midwest Governors' Conference Task Force on Energy Requirements and Environmental Protection.

This background led to federal appointments in 1975 first as Science Advisor and later Energy Policy Advisor to the Secretary of Interior. In 1976 he was appointed by President Ford as Assistant Administrator for Conservation and Environment in the Federal Energy Administration. Returning to Iowa in 1978, he held positions at Iowa Electric Light and Power Co. in Cedar Rapids, including Senior Vice President for Production and Fuels Acquisition and later for Engineering and Technical Services. From 1988 through retirement in the mid-1990's, he managed Tuthill, Inc., a hydrogeologic environmental consulting firm in eastern Iowa with his son John.

Sam was a veteran of World War II, flying combat missions with the U.S. Army Air Corps, 15th Air Force in Europe. He was a graduate of Drew University, Syracuse University, and taught geology at Muskingum College in Ohio. He specialized in the fossil molluscan fauna of glacial deposits in North Dakota, Minnesota, and south-central Alaska. Following the great Alaskan Earthquake of 1964, he returned to Alaska to direct post-earthquake research culminating in his PhD in Geology from the University of North Dakota and in publications by the US Geological Survey and the National Academy of Sciences. He received Drew University's Outstanding Alumnus Award in Science and the University of North Dakota's A. G. Leonard Medal in Geology.

In retirement, he and his wife Connie enjoyed their home north of Grand Marais, Minnesota. He maintained his life-long interests in the study of butterflies and moths, the collection of agates and arrowheads, gardening, fishing for trout, teaching geology to Elderhostel and local classes, and the company of companion black labs.

Jean C. Prior, Iowa Geological Survey, retired



2020 Advisory Board Meetings and Triennial Alumni Day

Greetings fellow EES Alumni! Alumni are always invited to attend the Alumni Board (EESB) Meetings in person or virtually with a ZOOM connection. Our next meeting is Friday April 10th. More importantly, the **Triennial Alumni meeting will be held during homecoming on the morning of Friday October 23rd**. Every three years there will be a special set of events for EES and visiting alumni, the first being held in 2020. The agenda will include a Distinguished Alumni Award presentation, lecture and reception, an alumni welcome event, student poster session and more. Please consider attending and make your plans early to reserve accommodations. We look forward to seeing you in April or October. More information will be posted at <https://clas.uiowa.edu/ees/alumni-and-friends>

Amy Sullivan
Chair - Earth and Environmental Science Advisory Board (EESB)

Focusing the lens on field safety: a workshop for field trip leaders

The Department of Earth & Environmental Sciences hosted an NSF-supported workshop titled **Focusing the lens on field safety: a workshop for field trip leaders** on November 7-8, 2019. Workshop leaders included:

Kurt Burmeister (University of the Pacific) – Director of the NAGT - USGS Cooperative Field Training Program

Kevin Bohacs (ExxonMobil) – co-author of *Field Safety in Uncontrolled Environments: a process-based guidebook*

Greer Barriault (ExxonMobil) – Global Field Safety Coordinator

Emily Finzel (University of Iowa) – Field Camp Coordinator

This 2-day workshop was attended by more than 20 field camp and field trip leaders from geoscience departments all around the country. It included traditional Field Safety Leadership training as well as focused discussions with the goal of developing field safety protocols for dispersed-group field trips.

Separate from but following the workshop, a 2-day National Outdoor Leadership School (NOLS) Wilderness First Aid course was offered on November 9-10, 2019. The 30 course participants included faculty and students from the department, workshop attendees, and local participants from organizations such as the Burr Oak Land Trust. This 2-day course is a hands-on introduction to wilderness medicine, including how to provide effective first aid treatments for injuries and illnesses common in the outdoors, and how to make appropriate evacuation decisions.



Faculty Profile

Jessica Meyer

Research

Characterizing the flow system is essential to nearly every hydrogeological investigation, from determining contaminant impacts at a water supply well to understanding groundwater-surface water interactions. Although the phrase 'flow system characterization' is used frequently it is often not explicitly defined. I define flow system characterization as quantitative descriptions of flow path attributes (e.g., three-dimensional trajectory, associated groundwater residence time, evolution of biogeochemical conditions). Quantification of these attributes is challenging for 3 main reasons, 1) generally, they cannot be directly observed; 2) measurements of hydrogeologic properties and processes are typically sparse compared to the subsurface volume of interest; and 3) the primary data collection instrument, a well or borehole, fundamentally alters the flow system of interest. As a field based, physical hydrogeologist I look for creative ways to collect and interpret field data to overcome these challenges and provide insight into natural flow system conditions. More specifically, my current areas of research include: 1) hydraulic head profiles as a fundamental diagnostic tool for flow system characterization; 2) investigating the relationship between hydraulic conductivity contrasts and stratigraphy; 3) advancing our understanding of shallow bedrock aquitards; and 4) quantifying natural attenuation of organic contaminants in sedimentary rock aquifer systems.



Teaching

One reason I pursued an academic career is that I enjoy teaching. What I find most rewarding is watching students extend out from concepts I have presented in the classroom and realize how these issues are relevant in their own lives and/or research. As an educator, I strive to incorporate both the fundamental concepts and practical skills that geoscience students need to be prepared for the work force into my teaching. As a hydrogeologist, I think it's important that our students get hands on experience with leading edge groundwater instrumentation, methods, and numerical models. For example, engineered multilevel systems are a very underutilized piece of groundwater instrumentation but are critical to effective 3-D monitoring of groundwater systems. So, in the spring of 2019, I worked with all of the major multilevel system vendors in North America (Solinst, FLUTE, and Westbay) to obtain demonstration versions of their multilevel systems that the students got to see and manipulate in one of their labs. In addition, Solinst donated \$5,000 in groundwater monitoring equipment (e.g., water level tape, pressure transducers with direct read cables, double valve pump) that I used to support a field lab focused on slug testing methods and analysis. I plan to continue to incorporate these types of hands on learning experiences into my teaching as I continue to develop my courses here at the University of Iowa.

Field safety (continued)



EES:3030 Conservation Paleobiology

Mary Kosloski

In this course, students learn about how scientists can use the geohistorical record in conservation and restoration planning. This fall, the class visited F.W. Kent County Park to learn about their active prairie restoration projects from Bradley Freidhof, the Conservation Program Manager. Students also learned about watershed improvement and the recently completed Kent Park Lake restoration projects



EES:3030 students learn about prairie plants and succession



A pond by the Conservation Education Center



One of many successful prairie restorations at F.W. Kent Park



A beautiful fall day in Iowa!



Department of Earth & Environmental Sciences
The University of Iowa
115 TROWBRIDGE HALL
IOWA CITY, IA 52242

EARTH & ENVIRONMENTAL SCIENCES

FALL 2019

Share your perspective

Please share the wisdom you've accrued throughout your career with our students by answering one or more of the questions below, or dispensing any other advice you may have. Your responses will be included in the Alumni Perspectives in the next newsletter. Send them to geology@uiowa.edu and indicate whether you would like it to be anonymous or attributed to you. Thanks for sharing!

What made you competitive in your field?

What were your lucky breaks?

What type of preparation would have made your career path easier?