WELCOME

New Online Masters Students for Spring 2014: Diana Alba, FL; Victoria Allard, MI; Ejerzain Aniles, AZ; Jessica Bellizio, NJ; Thomas Biere, IL; Konstantin Brakefield, MN; Danielle Carlock, AZ; Jerad Claytor, OH; Brieanna Coffman, FL; Renee Coudeyras, NE; Peter Cronk, CO; Richard Davis Jr, MN; Stacy Dawsey, MS; Catherine Finke, IA; Katherine Foster, TX; Jason Ghum, KS; David Grant, IL; Paden Grant, MO; Amanda Inman, MN; Benjamin James-Holston, ID; Araina Johnson, OH; Christine Johnson, NC; Sara Kennedy, IN; Elizabeth LaMott, NH; Manda Leftwich, AR; Catherine Miller, TX; Natalie Mix, TX; Amanda Penick, CA; Lauren Prince, NC; Matthew Quinn, NE; Kaylan Richardson, TN; Jerry Ryan Saldajeno, WA; Kristen Shreckhise, VA; Jeffrey Steller, KY; Kenneth Wood Jr, FL

CONGRATULATIONS!

Fall 2013 Graduates:
Micah Bowman, Lindsay Brammen, Matthew Brim, Melodie Briscoe, Dustan Burns, Dustin Casady (Thesis), Maria Chaney, Marie Clark, Katie DiTringo, Jonathan Doelder, Blair Fisher, Carrie Griego, Russell Hendricks, Julie Kilbride, Kristen Knickman, Holly Kus, Kelly Leslie, Robert Murray, Chelsie Sells, Amy Stewart, Jesse Vander Weerdt, Sarah Wessel

Newsfeed

Another Biology Professor has been featured in New Frontiers, the Research and Creative Activity publication at the University of Nebraska Kearney. Below is an excerpt from the article on Dr. Julie Shaffer, Professor in the Department of Biology, entitled “Unlocking Lakes”. For the full article click on the link: [http://unknews.unk.edu/2013/11/07/julie-shaffer-unlocking-lakes/](http://unknews.unk.edu/2013/11/07/julie-shaffer-unlocking-lakes/).

The Old Wives’ Tale is that if you leave a fencepost in a Sandhills soda lake it will be gone by next year.

Many of these small, shallow, alkaline-saline lakes in Garden and Sheridan counties seem something like from a science fiction movie – not molten and bubbling, but nevertheless extreme.
These environments – where no vertebrate species survive – have the attention of microbiologist Julie Shaffer, whose research over the last half-dozen years has worked to solve a mystery that has captivated few other researchers’ full attention.

What is in these lakes – animal, plant, bacteria, nutrient, or a combination of some unknown matter or processes – that yields potassium to such an extreme?

And more, are there clues to climate change that can be discovered in these extreme lake environments?

“Some microorganisms break down wood very quickly,” Shaffer said. “It is known that alkaline-saline, another name is soda lakes, are very productive, so the carbon turns over very fast in those environments. But people don’t know an awful lot about what’s in the lake, what the microbial community is doing.”

Shaffer’s research takes her to these unusual lakes to draw water samples, and using next-generation sequencing, analyzing and identifying tens of thousands of bacteria from a single water sample, to eventually provide important clues about what’s going on.

“Those lakes are unusual around the world. We were going to begin to study the microbial community in those lakes: what’s there, try to understand what makes them so special or so unique.”

**Potash lakes and their role in history**

Known as soda lakes or potash lakes, during World War I potash was harvested from them to use in products such as fertilizer, glass and soap. Most of the potash needed in the U.S. came from Germany prior to the war. Large plants were built for harvesting the potash, and remains from the old plants still stand.

The lakes Shaffer studies are primarily in the Crescent Lake National Wildlife Refuge in Garden County: Crane, Crescent, Blue, Hackberry, Roundup, Island, Goose, Wolf and Black Steer lakes, all southeast of Alliance or northwest of Ogallala.

“They’re very unusual because there are a few places in the U.S. that have alkaline-saline lakes but with high potassium carbonates. They’re sodium or magnesium chlorides.”

The Sandhills, the largest vegetative desert in North America, is basically one big desert but it’s covered in plant material, Shaffer said. It’s a very fragile ecosystem because of the lack of rainfall and the lack of solid material on which plants can grow – easily disturbed.

The potash lakes themselves are very shallow and small, “that’s how the salts can accumulate in them so significantly,” Shaffer said. “They don’t interact with the aquifer, the water doesn’t circulate down. There’s clay at the bottom that kind of seals them off, and so water comes in from the dunes, the runoff from the surface, then it just evaporates once it gets there. Those nutrients or those salts just accumulate more and more every year.”
Shaffer has been researching the potash lakes since about 2006, when she turned her studies in a new direction.

“I guess the research I’m doing now is more cutting edge than anything I’ve done before.” With a small collaborative grant from the university, she and professor Bradley Plantz from UNL began the project that she is now finishing solo, drafting and submitting papers.

She believes the process in these lakes is not caused by any one thing, “It’s the whole community and how they’re working together. Solving a mystery, yes, that’s what the whole goal of the project is.”

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**Publications, Meetings, Grants**

**Grants**


**Meetings**


**Shaffer, J.J.,** White, B., and **Simon, D.M.** May 2013. Comparison of microbial diversity in a potash and freshwater lake in the sandhills region of Nebraska. 113th General Meeting of the American Society of Microbiology, Denver, CO. Poster Presentation.

**Publications**


Continue to send us updates on any meetings, publications, grants, or awards that you have been involved with. Please email details to msbiology@unk.edu.
In the fall Monitor I discussed the comprehensive exam. I'm going to discuss the exam again because, starting with the fall 2014 semester, there will be some significant changes to the exam. Currently the exam focuses on the required classes only: BIOL 802, 820, 827 or 863, 831, and 881. The exam consists of 80 multiple-choice questions and 4 essay questions (5 points each) for a grand total of 100 points. Students must earn at least 70 points to pass the exam. Starting with the fall 2014 term the number of multiple-choice questions over the required classes will be reduced to 50. There will still be 20 points of essay questions over the required courses, but the remaining 30 points will consist of essay questions from elective courses. The exam will be customized for each student based on his or her program of study. Students will be presented with one essay question from each elective course on the program of study and will choose three of those questions to answer. Each essay from an elective course is worth 10 points and will be graded by the instructor of that elective course. The comprehensive exam will still be worth a total of 100 points and students must still earn 70 points to pass the exam. Students are responsible for saving materials from their courses to study for the exam as the Blackboard sites for courses are generally taken down at the end of each term.

A second item I would like to mention this semester is the t-shirt our department sends graduating students following successful completion of the comprehensive exam. There has been some discussion of this t-shirt on the Facebook page for the program, so I would like to clear up a few things. The t-shirt is beige with green print and was designed by Mr. Rick Simonson, who teaches BIOL 811 Scientific Illustration. On the front is a series of drawings depicting a bean seed germinating and producing its first true leaves. The Biology Department graduate program logo is also on the front of the shirt. The back of the shirt reads “Ask me about my online degree.” Apparently some students object to what is written on the back of the shirt because it is “advertising.” The only way we can send students t-shirts is to have the shirts classified as “promotional material.” That is, the university cannot purchase “clothing” for anyone, including faculty. Any shirt I have that says “UNK Biology Department” has been purchased out of my own pocket. It took our department over a year to get permission to send graduating students a free t-shirt, and the only way we can do this is to have the back of the shirt read “Ask me about my online degree.” On-campus graduate students do not receive a free t-shirt of any kind. If you don't want to receive a free t-shirt that is fine, but I felt it was important to explain why the back of the shirt reads the way it does.

Faculty News

Dr. Wyatt Hoback, Professor, has been working on a collaborative project on American burying beetles. UNK and our undergraduate and graduate students are conducting world-class research on this federally endangered insect to learn about overwintering and the effects of construction projects on remaining beetles. The highlighted effort moved beetles from Nebraska to a rearing facility at the Ohio Zoo. For more information see the following link http://www.fws.gov/mountain-prairie/Fall2013_Newsletter.pdf
Dr. Casey Schoenebeck, Associate Professor, and wife Robyn, Distance Education Coordinator, announced the birth of their new bouncing baby boy Aidan Arthur, born July 29th. Aidan weighed in at 9lbs 6oz and 21½ inches long. (pictured left)

Dr. Meghan Sindelar, Adjunct Professor, and her husband welcomed Levi James on November 30th. Levi weighed in at 6lbs 13oz and 20 inches long. (pictured right)

Meet a Distance Graduate
Scott Cunningham

Scott Cunningham, MS, MT(ASCP) SM graduated from the University of Nebraska at Kearney in the summer of 2012 after completing the distance program for a Masters in Biology. The program accelerated his knowledge and abilities in the research setting beyond what his prior clinical training had provided. “The distance program allowed me the flexibility to balance my personal life, work schedule and continuing education that would have been difficult within a conventional program. It also allowed me to focus on areas that I personally knew I needed to improve my knowledge base in so that I could elevate my skill-set and become more successful in my position. What I accomplished in my first year after completing the program can definitely be tied directly back to the outstanding experience I had in the distance program and all of the new skills and knowledge I obtained”.

Cunningham was named a Research Associate in Clinical Microbiology, Department of Laboratory Medicine in the Fall of 2013. More recently, Cunningham was named the Scherago-Rubin Laureate for 2014 by the American Society for Microbiology. This award recognizes an outstanding, non-doctoral clinical microbiologist. The award was established by the late Sally Jo Rubin, an active member of ASM’s Clinical Microbiology Division, in honor of her grandfather, Professor Morris Scherago.

He joined Mayo Clinic in 2001 as a laboratory
technologist in Clinical Bacteriology. In this role, he has developed real-time PCR assays for detection of infectious agents, and is constantly seeking innovative ways to improve these assays and other methods. Recently, he led efforts to implement Matrix-Assisted Laser Desorption Ionization-Time of Flight Mass Spectrometry (MALDI-TOF MS), the latest technology in microbial identification. Using this technology, he has studied thousands of bacterial isolates and created a custom library of bacterial spectra from rare, well-characterized isolates. He has published and presented over 40 abstracts, posters and manuscripts. He has also presented at several national, regional and local meetings on molecular testing and mass spectrometry applications in the clinical laboratory.

He received a B.S. degree in biology from Youngstown State University in 1997, and fulfilled requirements for a B.S. degree in clinical laboratory science from Wright State University in 2000. He is an Instructor in Laboratory Medicine and Pathology, Mayo Clinic College of Medicine.

Scott currently resides in Rochester, Minnesota with his wife, Ginger and two children, Regan and Evan.

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**Student News**

**Robert Fest (Spring 2010 distance graduate)** recently accepted the position of Director of the Tiger Woods STEM Learning Center at Cristo Rey Philadelphia High School.

**Michael Luther (Spring 2010 distance graduate)** was recently promoted to Microbiology Lab Supervisor in the molecular detection section of the Thompson-Bishop-Sparks State Veterinary Diagnostic Laboratory, which is responsible for the surveillance of animal diseases, such as avian influenza, swine influenza, west nile virus, throughout the state of Alabama.

**Holly Trimble (current distance student)** recently published an ebook, entitled “College Success Now!”, that is designed to help new students, and those struggling, succeed in college.

**Curtis Reese (current distance student)** and his wife Emily welcomed Zayne Randal Reese on November 4th. Zayne weighed 6 lbs 2 oz. (pictured right)

**Michael Cavallaro (December 2012 on-campus graduate)** wrote a mini article entitled “Platte River Caddisfly” for the NEBRASKAland Trail Tales magazine which is distributed to 4th graders across the state. The full article can be found here: [http://outdoornebraska.ne.gov/nebland/pdf/Trail_Tales_Fall_2013_for_web.pdf](http://outdoornebraska.ne.gov/nebland/pdf/Trail_Tales_Fall_2013_for_web.pdf)

Please let us know what is going on in your lives; email us your news at [msbiology@unk.edu](mailto:msbiology@unk.edu).
Spring 2014 Deadlines:
January 13th – Spring classes begin
February 1st – Last day to apply for Spring graduation
March 14th – Last day to drop a course (no refund at this time)
March 24th – 30th – Spring Break
April 7th – Early registration for Summer and Fall 2014 begins for all currently enrolled students
April 11th – Comprehensive Exams (for graduating students) must be returned to the Biology Dept
April 28th – General registration begins (for admitted students not enrolled Spring 2014)
May 5th - 8th – Final Exams
May 9th – Graduation
May 12th – Summer classes begin

Students planning to graduate this May 2014 must apply for graduation on MyBlue. Even if you do not plan to attend ceremony you must apply in order to receive your degree. The deadline to apply for May graduation is February 1st. There is a $25 application fee which can be paid on-line during the application process. Commencement ceremony will take place at 10:00 am on May 9th in the Health and Sports Center. Please consider making the trip to Kearney to walk in graduation and if you do, please let the Biology Department know so we can plan some special events for you.