

Spring 2015

Biology News, Spring 2015

University of Northern Iowa. Department of Biology.

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Biology News

Spring Edition - 2015

University of Northern Iowa



Dr. David Saunders

Welcome to the
Department of
Biology



Greetings from the Department of Biology

by Dr. David Saunders

I always enjoy working with the staff and faculty in putting together the annual Biology News. It provides me with a chance to reflect on the amazing work and accomplishments of our alumni, faculty, staff and students. With each passing year, more of our students are taking advantage of opportunities to travel and obtain experiences beyond the classroom. Many of these opportunities are competitive, and our students fare well in these environments. Our faculty continue to work to offer top quality classroom experiences, in addition to providing students with the opportunity to apply their knowledge and to learn new skills through participation in research. The Department

of Biology as a whole continues to be successful in obtaining funds to purchase new and innovative equipment, which provides our students with cutting-edge experiences. We also remain involved in the community and interact with faculty and students at the K-12 level. Teaching remains the stalwart of our Department, and as with previous years, our faculty continue to be recognized for their efforts in educating students. I am very proud to be a part of the Department of Biology at the University of Northern Iowa. Our alumni, faculty, staff, and students continue to provide me with evidence that a University education does make a positive impact on the lives of those who participate in these endeavors.

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Biology Students and Alumni

◆ **Dr. Dan Fick** represented the Department of Biology as the first ever Biology Alumnus in Residence. The University of Northern Iowa has developed the Alumni in Residence program where each department within the University can select an alumnus or alumna to serve as Alumni in Residence. The design of the Alumni in Residence program allows our alumni to bring their experience and expertise “back home” to connect theory to practice for our current students.

Dan is an ‘85 alum and has been at the U of Iowa since graduating from UNI, where he attended medical school, performed a family medicine residency and a sports medicine fellowship and has been a faculty member at the medical school for the past 20 years. Dan was a runner at UNI and wanted to do sports medicine. A few years into that career he started doing administrative duties and now he is a full time physician administrator. On Tuesday mornings he still



President Rudd with Dr. Dan Fick, the representative for the Biology Alumnus in Residence.

puts on the white coat and sees patients in the clinic. Dan’s wife Deb is also an ‘85 alum and was a swimmer for the Panthers. Deb is an elementary education grad and works for the Educa-

tion Department supervising student teachers. Not only did Dan and Deb attend UNI, both of their children have majored in Biology at UNI and both participated on the UNI Cross Country Track teams. Dan has visited campus on several occasions and provided inspiration to our students wanting to pursue medical fields.

As part of the Alumni in Residence Day activities, Dan was able to tour the facilities of the Department of Biology and interact with faculty while on that tour. Later that day, Dan spoke with a number of Biology

majors about the state of health care in America and provided encouragement to students wishing to pursue careers in the medical fields. In addition, Dan participated in a breakfast meeting with Dr. Joel Haack, Dean of the College of Humanities, Arts, and Sciences as well as attending a luncheon hosted by UNI President, Dr. Bill Ruud.

◆ **Brian Ross**

I am a junior Biology major from Johnston, Iowa. Last fall I spent a semester studying at the University of Alaska Southeast in Juneau, Alaska through the National Student Exchange program offered at UNI. The program allowed me to go study in Juneau for a semester, all while paying UNI tuition and having the credits I received in Alaska transfer back to my biology degree at UNI. Most students who take part in this program choose to go to someplace warm to escape a winter in Cedar Falls, but for me there’s just something about Alaska. Juneau is located in Southeast Alaska in the coastal temperate rainforest, with the UAS campus sitting next to Auke Lake. The school and the lake are tucked into a valley formed by the receding Mendenhall glacier, which can be seen from campus on a clear day. Bears and other wildlife frequent campus and town, which led to some memorable (and some rather frightening) situations.

The courses I took at UAS included Conservation Biology, Marine Biology, and Temperate Rainforest Ecology. Field trips to tide pools behind the science building and spontaneous walks during lecture to the patches of old growth rainforest around campus were definitely highlights. I also took a Sea Kayaking course and a Backpacking course; these “Outdoor Studies” courses culminated with a couple of weekend trips into the Alaskan backcountry to test the survival skills that had we had been



learning. Most other weekends were spent doing day hikes in the Coastal Mountain range surrounding Juneau with a group of friends. I met other students like me who were on exchange, along with native Alaskans and international students, resulting in friendships that now span the globe.

Returning to UNI this semester, I’ve brought back with me a new set of skills and a much broader perspective to go along with a desire to go into the conservation biology field. Participating in the National Student Exchange program through UNI has greatly enhanced my college experience and I could not be more grateful for the adventures I had while in Alaska.

Biology Students and Alumni (continued)

◆ **Jeremy Hammon** I graduated from Northern Iowa in December of 2005 with a Bachelor of Science degree in Biology and a minor in chemistry. Northern Iowa provided the



tools, education, and experiences I needed to become successful in my career goals. Through my time at Northern Iowa, I was able to gain research experience with Dr. Tamplin and Dr. Clayton, working on a vast array of projects. These experiences had lasting effects, guiding me down my present career path. After graduation, I worked at Duke University as a lab manager for another fellow Panther, Dr. Rathmell. The itch for research was still in my blood, so in the summer of 2006 I went back to school at the University of Wisconsin – Stevens Point to get a Master's in Science Degree. Following my

graduation at UWSP, I enrolled in the University of Nebraska – Lincoln to pursue a Doctorate of Philosophy degree in Ecology.

The collection of all my experiences over the past ten years has led me to a career as a stream biologist for the Department of Environmental Quality in Nebraska. I am in charge of stream and river monitoring programs across the state of Nebraska. We collect monthly and weekly water quality data as well as sample fish, bug, and habitat assessments in the streams and rivers of Nebraska. I sit on committees that address local and federal water management and regulations for the Midwest region. Additionally, I am involved in research studies and publications for the field of fisheries.

Over the past decade I have been privileged to have many opportunities that allowed me to grow as a biologist. These privileges were in large part due to the education that I gained from Northern Iowa's biology department. The diverse knowledge base I gained at UNI allowed me work in diverse fields of biology including microbiology, genetics, wildlife, and fisheries. Northern Iowa allowed me to pursue several opportunities in the field to find the career path that fit me best. Even though I have been a part of several universities since 2005, I will always remember what university shaped me to become who I am today. Go Panthers!

◆ **Angela Wrage** When most people think about studying abroad, the countries that come to mind are places like Britain, France, and Germany. For myself, though, I wanted something different – that's why I chose to study abroad in Turkey. During the 2013-2014 school year, I spent ten months studying biology and chemistry at Fatih University in Istanbul as a David L. Boren Scholar (sponsored by the government's National Security Education Program). Throughout my time in Istanbul, I lived in a dorm room with two Turkish girls who didn't speak English. This turned out to be a great opportunity. I was able to learn the Turkish language pretty quickly, and got a great introduction to Turkish culture. One of my roommates even invited me to spend a week in her hometown in eastern Anatolia, one of several such offers I received (and took advantage of) during my time abroad.

While at Fatih University, I was able to take advanced courses in both biology and chemistry, and I didn't fall behind in my degree program. With classes on everything from cancer biology to experimental design and data analysis, physical chemistry, and more, I found that my host university provided a very high quality of science education, similar to our programs here at UNI. While I spent a lot of my time on school work (I was studying abroad, after all), I also managed to find time to travel throughout Turkey and get to



know more about the country's history, people, and culture. In fact, I liked it so much that I applied for (and received) another government scholarship, the Critical Language Scholarship, to return to Turkey this summer after graduation and study advanced Turkish in Ankara, the capital city. The time I spent at Fatih University was definitely one of the defining features of my college career, and I know I made the right decision when I chose to study abroad – I just hope that other students, too, will take advantage of all of the great opportunities like this that UNI has to offer!

Biology Students and Alumni (continued)

◆ Ashley Armantrout



Currently in my third year at UNI, I am working on completing a Biology Bachelor of Arts along with minors in Chemistry and Spanish. Throughout my time in college, I have looked for opportunities to explore these subjects beyond the classroom. This desire motivated me to travel to Costa Rica last summer, where I enrolled

in a Spanish and health program at Veritas University. While in the program, I enjoyed being immersed in Latin American culture and I particularly value the chance I had to observe the healthcare practices of Costa Ricans.

This summer, I will be heading south again, this time to Houston, Texas, where I have recently been accepted into a summer program there at the MD Anderson Cancer Center. While there, I will participate in cancer research specifically related to cell movements in epithelial tissues. I am excited to have this opportunity, which will allow me to learn more about the biology of cancer and medicine through my own experiences. I am so thankful to have had these opportunities; I am confident that the lessons I learn from them will make me much more knowledgeable and considerate as I pursue a career in medicine.

◆ Kelsey R. Hampton, (Biology B.S. 2013)



recently received a 2015 Women in Cancer Research Scholar Award given to thirty researchers around the world. She is now a graduate student at the University of Kansas Medical Center, Kansas City, studying metastatic melanoma. Kelsey states “I have developed a passion for skin cancer prevention and early detection. I would like to

someday work in scientific outreach to help increase transparency between the scientific community and the public on prevention, treatment, and general knowledge of cancer.”

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continued from page 1, Greetings from the Department

Lastly, the newsletter continues to be woefully light in news about our alumni. I ask that you help us in this regard by sending us information about yourselves that you would like to share with others. Much of the Department Newsletter should be about keeping those of us who share a common bond (UNI Biology) informed. I hope you enjoy this edition of the Biology News and that it conveys the pride I have in the Department of Biology and the University of Northern Iowa.



Faculty awards

Dr. Carl Thurman, Professor of Biology, recently received the 2014 Lubker Research Award. Dr. Thurman is an outstanding scholar and teacher. He has consistently been productive in research and the importance of his research is reflected by the more than 400 citations of his research publications by other scientists over the past twenty years. Dr. Thurman shares his passion for research with students and works tirelessly to involve students in the process of “doing science”.

Dr. Jim Demastes, Professor of Biology, has received the Dean’s

Award for Excellence in Teaching in the Liberal Arts Core for 2014. In his letter of nomination, it is mentioned that “Jim Demastes has dedicated his career at UNI to educating students and assisting students to dream big, work hard and strive to meet their goals. He has done this not only in the lecture classroom and laboratory, but has also spent much time outside of these venues to interact with students. His research and service are heavily invested in student education and learning.”

Dr. Julie Kang, Assistant Professor of Biology, was recognized as an Outstanding New Faculty Member at UNI by the Office of Research and Sponsored Programs. This recogni-

tion comes in light of Dr. Kang’s pursuit of external funding and the quality of her research program.

Mary McDade, Lecturer in Biology, received the Dean’s Award for Faculty Excellence in Departmental Programs. This award is presented to a faculty member who possesses the ability to guide and inspire students to grow professionally in courses in a way that extends beyond mere popularity with students. This award is unique in that nominations for this award come entirely from students, and it is a panel of students on the Dean’s Student Advisory Committee that makes the final selection for receipt of the award.

Biology students travel to University of Kentucky to attend the NCUR Annual Conference



UNI students pose at Kentucky Wildcat statue where they attended the 2014 NCUR Conference.

On April 3-5, 2014, seven biology majors who have been involved in undergraduate research took their findings to present at the annual meeting of the National Conference on Undergraduate Research (NCUR). This meeting is hosted at a different site each year and provides a collegial and stimulating venue for students from across academic disciplines and across the nation to share their findings. The University of Kentucky in Lexington hosted the 2014 meeting. In all, sixteen UNI students together with five

UNI faculty members traveled together to Lexington with the generous support of the College of Humanities, Arts and Sciences, coordinated by Assistant Dean Dr. John Fritch.

At the meeting they presented talks at oral sessions, performances at performing or visual arts sessions, or posters at poster sessions, all of which were discipline specific. They were also able to attend many talks and posters of interest by other students throughout the three-day conference.

There were NCUR plenary sessions featuring notable speakers. The conference also included departmental open houses, student interest sessions, and a graduate school fair with booths set up by graduate programs from across the nation that provided not only information but also attending representatives to explain their programs and answer questions. The UNI group joined together for a dinner at a restaurant near the campus during the evening of the last day to celebrate all the presentations.

UNI biology students (with their faculty mentors) who attended this edition of NCUR were Maren Finsand (Dr. Darrell Wiens), Mikayla Freese (Dr. Darrell Wiens), Morgan Kosar (Dr. Darrell Wiens), Nicole Miller (Dr. Peter Berendsen), Allie Simpson (Dr. Julie Kang), Katherine Thomas (Dr. Carl Thurman), and Celeste Underriner (Dr. Darrell Wiens). Dr. Thurman and Dr. Wiens also attended. The students felt that attending NCUR was interesting, valuable and inspiring.

Another group will be going to Washington in April.

Tigers Visit UNI Biology Department

This winter, a den of Tiger Cubs from Hansen Elementary visited the Biology Department to learn about what scientists do and participate in some experiments. The 1st graders and their families toured the cell lab of Dr. Kavita Dhanwada, and Dr. Jeff Tamplin's reptile lab to see the diversity of what biologists do. With Dr. Kimberly Cline-Brown, they also learned about how looking at different organisms can help us develop ideas to solve human issues as they put on a "polar bear paw" in ice water and then designed and tested their own gloves to keep arctic explorers warm. Lastly they created suitable habitats for particular zoo and rehab animals. These activities helped the Tiger Cubs earn their Scientist belt loop and work on their Wildlife Conservation requirements. Their den leader commented that weeks later the boys are still talking about how "awesome" Steve, the Biology Department's live alligator, is.



The Tiger Cubs from Hansen Elementary visit the Department of Biology.

Nobel Conference

Science students and faculty at the University of Northern Iowa traveled to Gustavus Adolphus College in Saint Peter, Minnesota to attend the 50th Anniversary of the Nobel Conference on October 7th and 8th. This was a truly interdisciplinary trip that involved two Biology vehicles, an Earth Science van, students from Biology and Physics, and faculty from Biology and Chemistry & Biochemistry and funding from the Department of Biology, Joel Haack, Dean of the College of Humanities, Arts, and Sciences, and Lyn Redington, Director of the Department of Residence.

In all, 37 faculty and students attended the event. Eric Peterson, faculty member in Chemistry & Biochemistry who did his undergraduate work at Gustavus Adolphus writes: "I very much enjoyed returning to my alma mater-I was able to see my old advisor and several other prof's as well as wander the campus between sessions. The conference was also very good. And, of course it was great to spend some time with the other occupants of McCollum Science Hall!" Jason Ratchiff, Biology graduate student stated "Thank you (David Saunders) and the Department of Biology for the opportunity! The presentations were

both engaging and inspiring. I have returned to Cedar Falls with an expanded reading list!" The Nobel Conference is an annual event that showcases past Nobel laureates and researchers who are among the top in their fields. Travel to this year's event was stimulated in part by the desire to provide freshmen students in the Department of Biology Living and Learning Community with a chance to travel and interact with other science students and faculty.

Talks at the Nobel Conference covered a variety of areas that included energy and climate change by Dr. Steven Chu, former U.S. Secretary of Energy under President Obama and 1997 Nobel Prize winner in Physics, evolution at the molecular and planetary scale by Dr. Sean Carroll, evolutionary developmental biologist at the University of Wisconsin-Madison, and solar-driven water splitting by Dr. Harry Gray, Director of the Beckman Institute, California Institute of Technology. Plans are under way to attend next year's Nobel Conference whose overarching theme will be on the science of addiction. It continues to be the goal of the science departments at UNI to provide students with opportunities beyond the classroom to experience science and to have interactions with others in their fields of study.

UNI/Iowa Community Colleges STEM DAY



The Departments of Biology, Chemistry & Biochemistry, Computer Science, Earth Science, Mathematics, and Physics hosted the second annual UNI/Iowa Community College STEM Day on the campus of

the University of Northern Iowa on Friday, October 31st. More than 50 students and faculty from six Iowa Community Colleges (Des Moines Area Community College, Ellsworth Community College, Hawkeye Community College, Indian Hills Community College, Kirkwood Community College, and Marshalltown Community College) attended the event. Each participant chose three different academic departments in which to attend a specific

session. In Biology, student participants assisted in solving a fictitious cold case of murder through the analysis of skeletal material, DNA and blood evidence, hair and fiber examinations and the use of botanical knowledge to determine the cause of death.

Cindi Boyd, faculty member at Hawkeye Community College, emailed as soon as the event was over stating "thanks for another fabulous day! It was much enjoyed by all. All of the UNI faculty exuded hospitality and enthusiasm for their area of research and that was inspiring. Please don't hesitate to ask me if there is any way I can help to promote STEM at UNI and collaboration between UNI and Hawkeye Community College. As an alumni of UNI, I have a special fondness and respect for UNI."

The STEM Day event at UNI continues to grow and plans are again being made to host the event next fall. The STEM Day is supported by UNI Admissions Office and the UNI Community College Relations Office.

Carver Grant Purchases SynDavers



Four SynDavers were purchased for use in Anatomy and Physiology

Biology students in our Anatomy and Physiology I course will soon be living the dream - dissecting cadavers.

Biology alumni who are currently enrolled in medical schools, dental schools, pharmacy schools and other health related programs, it is clear that success-

At least they will be working on synthetic cadavers, the first to be used in the state of Iowa. The Department of Biology has purchased four synthetic cadavers, known as SynDavers, as a result of funding through the generosity of the Roy J. Carver Charitable Trust. In speaking with

ful preparation for such professional schools needs to include hands-on experience with dissection, preferably using humans rather than other animals. The use of SynDavers will give students continued dissection experience, while providing them with the use of human-like models that closely mimic the complexity and size of human muscles, vessels, and organs.

This technology is very close to that of a real cadaver, as stated on the SynDaver website (<http://SynDaver.com/>) “hundreds of replaceable muscles, bones, organs, and vessels which are made from materials that mimic the mechanical, thermal, and physico-chemical properties of live tissue.” Students and faculty alike are eager to begin to use the SynDavers, which will be integrated into the A&P I curriculum this fall.

Steve O’Kane teaches in Korea

Last summer Dr. Steve O’Kane was invited to teach at Kyungpook National University (KNU) in Daegu, South Korea. Dr. O’Kane taught a course entitled Life: The Natural World, which he taught as an introduction to what is and is not science, and that looked at how ecology and evolution are central to understanding the world around us. The fifteen students in the class were from South Korea and Hong Kong. The people of South Korea were extremely hospitable and made the field trips on Fridays both fun and educational. The trip was especially enjoyable for Dr. O’Kane as he was accompanied by his wife Arlene. At the end of the summer session the two of them took a short vacation to Cheju Island off the



Above are the class members from the Natural World class taught in Korea. Left is the marketplace near the school.

southern coast of the country. This is a favorite spot for South Koreans to visit. UNI is working to strengthen ties with South Korea’s universities, and this was the first time that KNU welcomed a visiting professor from UNI.

Biology Living and Learning Community

The Department of Biology in conjunction with the Department of Residence offered, for the first time, a Living and Learning Community (LLC) for freshmen Biology majors. The program had 32 freshmen Biology majors living on the third floor of Noehren Residence Hall. Roxane Kaale, an upper division Biology student, served as the Resident Assistant for the Biology LLC. A number of activities took place including:

1. canoeing at Hartman Reserve
2. a Biology Club Night where the presidents of the various Biology Student Organizations were invited to come and visit with students in the Living and Learning Community about their organization
3. a public lecture titled "How to Design with Biology: Towards a Biosynthetic Design Practice" by Ned Dodington, Founder and Director of AnimalArchitecture.org, sponsored by the Art Department
4. a visit to the UNI Gallery of Art presentation, "Nature's Toolbox: Biodiversity, Art and Invention", a traveling contemporary art exhibition,

a part of which consisted of a mini-exhibition titled "Scientists Collect" which is composed of artwork made by, or collected by, UNI scientists and mathematicians (including material from Biology faculty members Laura Jackson, Nilda Rodriguez, and Jeff Tamplin)

5. the identification of bats found in Iowa through the monitoring of bat ultrasonic echolocations, an activity led by Biology professors Drs. Theresa Spradling and Jim Demastes. Using equipment that can detect bat echolocation and convert these into sonograms, the captured sonograms were matched to existing sonograms to determine the species of bat being monitored. From this activity, students learned more about the natural



LLC biology students attend UNI events together.

history of bats and the process of echolocation.

6. Dr. John Ophus led an activity on the use of black lights to attract nocturnal insects in order to learn more about the species of insects that are present in Iowa fall evenings.

Additionally, Biology faculty members, Steve O'Kane and David Saunders, taught a class called Bioscientific Terminology that met once a week in the private dining room of the Piazza Dining Center. Students attended the class on Fridays from 11-11:50 and were invited to have lunch afterwards with Drs. O'Kane and Saunders to discuss current events or other issues of importance with the students. In addition, the Biology Living and Learning Community was tied to a Departmental course titled "Strategies for Academic Success" taught by Dr. Anthony Smothers. This course worked to introduce students to the Department of Biology and the University as a whole, while also providing skills and advice to assist in the students' academic success at UNI. All-in-all, this was a positive experience for faculty and students and we look forward to continuing this program for the next group of incoming students.

Hallway displays



Dr. Jim Demastes and Dr. Jeff Tamplin created these displays of skulls and models purchased with funds provided by the CHAS Dean's Office and the Roy J. Carver Charitable Trust.

Forensic DNA analysis at Linn-Mar High School

On Friday, February 6, Dr. Jim Jurgenson went to Linn-Mar High School (as he has done every year for the last 5 years) to present a lecture and conduct a laboratory on Forensic DNA fingerprinting. He introduced 65 students in three AP Biology sections to the DNA analysis procedures used in forensic identification. He worked with high school teachers Steve Meeker and Melissa Peckosh.



Three classes from Linn-Mar High School learn about DNA analysis procedures.

Undergraduate Research in Biology

Many undergraduate Biology students at UNI participate in research throughout the academic year and during the summer. These students earn academic credit, fulfill requirements for the honors program (University or Biology Honors), and gain the many other benefits of research by finding a faculty mentor and pursuing a lab-based or a field-based project.

Involving students in research is a priority for Biology Department faculty members and many have chosen to come to UNI because of the well-developed support and recognition for working with students. Research is experiential learning, really “doing science”. It makes science real for students in a way the classroom cannot. Students find that it helps them to deepen their learning and overcome deficiencies. They find that it spurs them to bring together seemingly disparate concepts from their courses by learning how to do things and solve problems. Through that they become more resourceful. They can actually help to create new knowledge in the time-honored practice of scientific investigation. Many have made presentations to describe their work, and some have become co-authors on scientific papers. Numerous UNI Biology majors have gone on to advanced training and careers in research.

Each summer, from among a pool of applicants, six to twelve students are selected and matched with mentors

for Biology’s more formalized, full-time research experience (Summer Undergraduate Research Program, SURP). The SURP provides the student with a total of four hours of academic credit, a summer stipend, and funds for research supplies. It is effective in engaging students in all the major components of scientific research: reading and discussion of published background literature, formulation and planning of research, carrying out the work to gather data and solve problems, analysis and evaluation of data, and the process of making the findings public by way of creating and presenting both a scientific poster and an oral presentation. This experience also cultivates a sense of belonging in a research community with weekly group meetings of mentors with all the students to consider topics such as safety, literature search strategies, scientific ethics, graphics presentations of data, and progress and problems.

There are also weekly get-togethers for lunch on the terrace, and enrichment activities. “Alumni” of this experience consistently speak of the SURP as a highlight in their biology major, not only as strengthening qualifications and training for a chosen career path, but also as the best way to learn what science really is. Faculty mentors find it to be a nearly ideal way to teach science, and they also appreciate the help the students are able to contribute. SURP students’ track record of success as they go on to jobs, graduate schools and professional schools continues to be outstanding.

Department News (continued)

New Faculty

■ Dr. Nathan Bird



Dr. Nathan Bird received his B.S. and M.S. degrees in Biology from the University of South Dakota in Vermillion, South Dakota. After earning his undergraduate degree,

Nathan worked on skeletal development in fishes with Dr. Paula Mabee at USD for his Master's work. During this work, he became fascinated with the axial skeleton, and a strange looking set of bones just behind the skull in some fishes, the Weberian apparatus. Nathan continued to work on the Weberian apparatus for his doctoral work, and received his Ph.D. in Biology from the Department of Biological Sciences at the George Washington University in Washington, D.C., working with Dr. Patricia Hernandez.

After finishing his doctoral work, Nathan began his first post-doctoral research position in the lab of Dr. Stephen Devoto at Wesleyan University in Middletown, Connecticut. While there, his research shifted focus to developmental biology, specifically muscle patterning and development. His second post-doc took him to the the University of Rhode Island, to work in the lab of

Dr. Jacqueline F. Webb on the evolution of sensory systems in African cichlids.

Nathan joined the faculty at UNI in August, and is teaching Vertebrate Anatomy. After 11 years on the East Coast, Nathan is thrilled to be back in the Midwest and closer to family and old friends. He is excited to begin doing research on the structure that stimulated his desire toward an academic path, the Weberian apparatus. Using the tools gained in his many travels, Nathan is taking an integrative approach to investigate the development and evolution of the axial skeleton, via evolutionary, developmental, sensory, and functional viewpoints. In addition, he hopes to take advantage of the strong ecological focus of the Department of Biology to add environmental and ecological aspects to his research.

Reconnect with the Department of Biology

Whether it has been decades since you were last a UNI student or just last year, we invite you to reconnect with the students, faculty and staff in the Department of Biology and make an impact.

- 1) **Employment opportunities** – Does your company hire biology majors? Full-time positions, part-time positions, summer internships, whatever your needs might be, we'd like to make students aware of the career opportunities available to them with your organization.
- 2) **Job shadowing and informational interviewing** – Many biology majors are at UNI as the first step to their goal of professional or graduate school. In order for them to confirm their interest in their major area of study, we encourage them to job shadow and participate in informational interviews. If you are willing to meet with a student for 30 minutes or half day let us know.
- 3) **Host a student organization** – The Department of Biology has 12 active student organizations who invite professionals to campus to speak, as well as travel to local organizations for tours and informational meetings. If you are willing to speak to a student group, or host a group of students, we can connect you with some bright and motivated students hoping to follow your path.
- 4) **Faculty as consultants** – Department of Biology faculty members are actively engaged in research. If their area of interest matches yours, we can connect you to discuss mutual challenges and strategies. You can find information on faculty research at: <http://www.uni.edu/biology/directory>
- 5) **Micro contributions** – You may have heard of micro lending or micro financing. The Department of Biology is building on the concept. Biology Alumni funds can be pooled to-

gether to make a huge impact with a small donation. We have students in need of scholarship funding, or paid research opportunities, which would benefit both the student and faculty members. Now you can contribute to the success of students, faculty and the department by being a part of collective resources. Through the UNI Foundation, biology alums can give small amounts that add up to make a big difference! If 100 alums gave \$50 each we could fund several undergraduate scholarships or research opportunities and the students would feel an immediate impact.

If any of these opportunities are a fit for you, or if you have other ways you'd like to partner with the Department of Biology, please contact Dr. David Saunders at david.saunders@uni.edu, 319-273-2456 or Joan Smothers at joan.smothers@uni.edu, 319-273-2010 as a first step.

YOU CAN MAKE A DIFFERENCE!

We take much pride in the accomplishments of our students and we hope that we have played some role in their success. We take very seriously our responsibility to educate and provide opportunities to our students and we are continually looking for ways to improve. With each passing year this has become increasingly difficult. Our departmental budget has not seen an increase in the past twelve years, yet the costs of equipment, supplies, and travel have continued to rise. Our faculty have attempted to meet these challenges and have found ways to support students and provide students with opportunities by obtaining external funds. However, this too has become more difficult.

The cost to students continues to rise through increased costs coupled with fewer opportunities available to students via Uni-

versity-sponsored programs. It now costs the average in-state student approximately \$20,000 a year to attend UNI. Most of our students work outside of the University to support themselves and to pay for tuition. This in turn can impede their education and reduce their time for experiential learning. Although working while attending school can benefit students in learning time management skills, it may also defeat the purpose of attending a university and taking part in all that it can offer.

The financial support of many of our alumni help to provide what would otherwise be lost opportunities to our students. Many of the student scholarships that are offered via private funds have the caveat that students must work within the Department in order to receive scholarship funds. This is a wonderful idea as it requires the

students to participate in our Department and we hope this, in turn, stimulates the students to think of our Department as their home away from home. It provides faculty the opportunity to better know our students and provides our students the opportunity to interact with faculty, a win-win situation for both. Unfortunately, we have too few of these scholarship opportunities available for our students. Your financial support of existing scholarships or the endowment of new scholarships would ensure that our students today receive the same opportunities that were afforded to you. This is a legacy worth leaving. Your financial support of student scholarships and the Department as a whole would be much appreciated. Listed below are the current scholarship funds available for students as well as the Department's Biology fund which supports student/faculty research.

Scholarships and Funding

◆ **Biology Alumni & Faculty Undergraduate Research Fund**

This fund is to be used for general undergraduate support such as but not limited to a partial student award/stipend, research or presentation related expenses, research conference travel, etc.

◆ **Biology Awards & Honors**

This fund is used to support "hard working" students who do not have any other financial assistance. Biology faculty nominate deserving students.

◆ **Biology Department Fund**

This fund is for general support for the Department of Biology. Monies from this account are used to support faculty/student research, faculty/student travel, and purchase of teaching supplies and equipment.

◆ **Biology Preserves Fund**

This fund is used to support the development and maintenance of the Biological Preserves System at UNI, including such items as purchase of trees, shrubs, and equipment as well as for the development of exhibit areas and support of personnel involved.

◆ **Caroline Czarnecki Biological Sciences Scholarship**

This scholarship provides support for

students who demonstrate merit and financial need, with preference given to students with a declared major in biological sciences, with a grade point average of at least 3.0. The award amount is \$1000.

◆ **Myrna and Gary Floyd Undergraduate Research Assistantship**

This assistantship is to provide support for two undergraduate research students in the Department of Biology.

◆ **Dr. and Mrs. Robert Good Summer Research Fellowship**

This fellowship is intended to support undergraduate student research carried out through the summer. The fellowship provides \$3000 for the support of an undergraduate research project.

◆ **Dr. Timothy Greiner Undergraduate Biology Scholarship**

This scholarship provides support to undergraduate biology majors who are in no less than their second semester of their major. The award amount is \$1000.

◆ **J.S. Latta Biology Scholarship**

This scholarship provides support for a declared biology major, either a freshman or sophomore having either completed or currently enrolled in both Organismal Diversity and Cell Structure and Function. The student must

have GPA of 3.5 or higher. The amount of the award is between \$250 and \$500.

◆ **Dr. Joan and Dan Meyer Biology Scholarship**

This scholarship supports students who demonstrate merit and financial need with preferences given to students with a declared major in Biology, with a grade point average of at least 3.2.

◆ **Dr. Alan R. Orr Research Awards Endowment Fund**

This award supports undergraduate experiential learning through hypothesis-driven research. Applicants must be Biology majors with a grade point average of at least 3.2 and conducting research with a faculty member in the Biology Department.

◆ **Bear and Sandy Stevens Family Endowed Biology Education Scholarship**

This scholarship supports students who demonstrate merit and financial need with preference given to students with a declared major in Biology Teaching, with a grade point average of at least 3.0.

◆ **Dr. Dave Swanson Research Award**

This award supports undergraduate experiential learning through hypothesis-driven research. Applicants must be Biology majors conducting research with a faculty member in the Biology Department.

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Would you like to support a Biology student and/or the Biology Department?
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- \$ _____ Biology Department Fund which includes Dr. David Swanson Research Award (21-221607)
- \$ _____ Biology Awards & Honors (21-210342)
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- \$ _____ Caroline Czarnecki Biological Sciences Scholarship (21-212250)
- \$ _____ Myrna & Gary Floyd Undergraduate Research Assistantship (21-222165)
- \$ _____ Dr. and Mrs. Robert Good Summer Research Fellowship (21-222342)
- \$ _____ Dr. Timothy Greiner Undergraduate Biology Scholarship (21-212261)
- \$ _____ J.S. Latta Quasi-Endowed Biology Scholarship (20-210303)
- \$ _____ Dr. Joan and Dan Meyer Biology Scholarship (21-212516)
- \$ _____ Dr. Alan R. Orr Research Awards Fund (21-211914)
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