

Winter 2017

## Biology News, Winter 2017

University of Northern Iowa. Department of Biology.

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# Biology *News*

Winter Edition - 2017

University of Northern Iowa



**Dr. David Saunders**

**Welcome to the  
Department of  
Biology**











## Greetings from the Department of Biology

*by Dr. David Saunders*

It is once again our pleasure to bring you the 9th edition of the Department of Biology Annual Newsletter. Although much has changed within the Department – new students, new faculty, new staff, new equipment, the quality of instruction and scholarship remains at the highest levels. As we have done in past years, we continue to bring you stories of our alumni, current students, faculty and staff. It is one of the most rewarding aspects of my role as Head of the Department of Biology to work with Bev Schomaker and Sandi Ingles to put together the success stories of those previously and currently associated with our Department. While working on the newsletter, I see the maturity of our current students and marvel at their accomplishments at such a young age. I remain amazed at

the achievements of our alumni and I could not be more pleased with their continuing passion and support for Biology and UNI. I don't know how it is possible that our faculty and staff continue to expand upon their immense commitment to student learning and scientific research, but with each passing year they do. As we move forward in our production of the newsletter, we would be grateful for information regarding our alumni. We want this newsletter to be informative about the current day aspects and accomplishments of the Department of Biology, but desire for this newsletter to be increasingly more about keeping in touch with our alumni. This can only happen with your help and with you taking the time to share your stories with us, so that we can share them with many others. I wish you all the best for 2017.

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# Department of Biology Alumni

## Kelly Bahl Interns at Epcot in Disney World



I got to spend an entire year (two 6-month internships) managing my own hydroponic greenhouse with a huge diversity of tropical crops from all over the globe. Right through the middle of the greenhouses there was a boat ride that guests of the park could ride to see what we were growing. I had to be a quick learner as interns are thrown into the position, not only taking care of plants but also giving tours of the entire greenhouse facility to guests from all over the world. So the position was not only growing and researching new and exciting ways to grow crops, but educating guests on innovative ways to grow or garden more sustainably.

Seeing as there are only 11 greenhouse positions available in the Agricultural Science Department in Epcot, there was a lot of competition to land such a coveted position. Even being smack dab in the middle of Iowa, UNI was a tremendous resource in helping me prepare for my adventures

**W**orking for the Agricultural Science department of Epcot in Disney World was a dream come true for me as I am still trying to figure out what to be when I grow up. Wandering through my time at UNI taking classes I thought were interesting and majoring in Biology (something I'm passionate about) was the first step in my adventure. Being lucky enough to land a job at the UNI Botanical Center is actually how I found the amazing opportunity to work in my field for Disney. My amazing bosses, Billie Hemmer and Stephanie Witte at the Botanical Center, told me about the internship and really pushed me into applying. During my senior year I finally decided to go for it and, as fate would have it, I landed the job!



(whether I knew it or not). Being able to work at the UNI Botanical Center was such an amazing opportunity because of the large diversity of plants to work with and it was a chance to obtain so much hands-on experience. My class work, even though it was not focused on the plant side of biology was still advantageous. Being challenged in all of my classes and having professors so willing for me to use them as a resource, pick their brains, and test my abilities helped me grow in my love of learning and has helped me set goals to strive for. So, thanks to the UNI biology staff - on to the next adventure.....



# Department of Biology Alumni

## Former Student, Susann Ahrabi-Fard, working with the Zika virus

I was catching up with the newsletter as I ate my lunch between Zika virus calls and it occurred to me that after 17 years of talking to students, precepting students and helping train interns for University of Wisconsin-Madison, I have never reached out to my own beloved university.

I graduated with my B.S. in Biology in 1991 and then received my M.S. in 1996 under the newly formed Environmental Science Department headed by Dr. Ed Brown. I was a T.A. for Microbiology while there. After graduation I was selected as one of 16 "Emerging Infectious Disease Laboratory Fellows" nationwide for the Centers for Disease Control and Prevention. I completed an 18 month Fellowship between CDC and the Wisconsin State Laboratory of Hygiene (WSLH) where I trained in STD's, Virology, Tuberculosis and PFGE (which was brand new at the time). I was hired directly from the WSLH by the Wisconsin Department of Health Services (DHS)

in 1998 which works hand-in-hand with the WSLH for state surveillance of 68 nationally reportable infectious diseases, outbreak investigations and disease response. We also develop state



policies and serve as guidance for local health departments, health care practitioners and the public. I returned to UNI twice to give talks to Dr. Brown's summer "camp" for science teachers, speaking on bioterrorism and foodborne outbreak investigations.

In my 17 years working for DHS, I have been the Surveillance Coordinator for invasive bacteria (sepsis and meningitis) and conduct all surveillance, investigations and outbreak response. Most recently I have been involved in

Zika virus response and the monitoring of 250+ returning travelers from ebola affected countries. As part of the state on-call staff, I deal with rabies, botulism, foodborne outbreaks, respiratory diseases such as MERS-CoV and EV D-68 and any other situation that may arise after hours. Historically, I have been on the teams that responded to the national responses to Monkeypox (1st in the western hemisphere), H<sub>1</sub>N<sub>1</sub>, anthrax, ebola, fungal meningitis as well as numerous foodborne-outbreaks.

I have found a fascinating career that I love to talk about and it is truly my dream job! If any student ever would like to have an informational interview, visit for a day, or if there are other things I could help with, please feel free to contact me!

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### ◆ Ashley Armantrout



University of Northern Iowa alumnus, Ashley Armantrout, is currently attending Des Moines University in Des Moines, Iowa. Ashley is in her first year of medical school with the goal of family practice as a Doctor of Osteopathic Medicine. She has received the Dean's Scholarship, the Dorothy Diener Memorial Fund and the Dr. Bernard E. & Pauline I. Herbert Scholarship Trust.

Ashley is a 2016 UNI graduate with a major in Biology and minors in Spanish and Chemistry and Honors Distinction.

### ◆ Nicole Miller



While at UNI Nicole worked with Dr. Pete Berendzen in conservation genetics. After graduation, Nicole Miller enrolled in the Carl Gustav Carus Faculty of Medicine, University of Technology, Dresden, Germany, seeking a Ph.D. She is using genetically modified Natural Killer T-cells to optimize cancer-immunotherapy. In early January, she was selected as a treatment consultant for NantKwest in San Diego to develop optimized photo-inactivation of the T-cells. This is expected to enhance patient safety during clinical trials. Afterwards, she will return to Germany and resume her analysis of the receptors in the T-cells.

# Department of Biology Alumni

## ◆ Steve Medlin and Kristin (Mikkelsen) Medlin



After graduating at UNI both Steve and Kristin completed research at the Eppley Cancer Institute in Omaha, Nebraska prior to completing medical studies. After medical school graduation, Steve finished an internal medicine residency, chief medical resident year, and a hematology fellowship at the University of

Wisconsin, and an oncology fellowship at the University of Missouri, Columbia. Dr. Medlin is the Director of the Hematological Malignancies and Bone Marrow Transplantation Program, in the Division of Hematology/Oncology at the University of Cincinnati Cancer Institute, where he is also an Associate Professor.

Dr. Medlin has done extensive work in leukemia, and also has focused on hematologic conditions requiring transplantation and optimal management of immunologic dysregulation. Current clinical and research focus includes the use of alternative cell sources for transplantation including cord blood and haplo-identical donor cell selected products. Other interests include immunologic dysregulation protocols for the management of acute and chronic graft versus host disease and disorders of humoral immunity.

Since joining the University of Cincinnati, accomplishments include the establishment of an adult stem cell transplant program, an institution of clinical trials in hematologic malignancies such as leukemia, lymphoma and myeloma. He has also established an ACGME one-year fellowship program for bone marrow transplant at the university, as well as a multidisciplinary Mycosis Fungoides program in conjunction with dermatology and radiation oncology.

Kristin graduated with her degree as a physician assistant from the University of Iowa and began working in emergency medicine. She has worked for the past 18 years in emergency medicine, occupational medicine, radiation oncology and, most recently, bone marrow transplant. She also has the privilege of teaching at the elementary level, and volunteering regularly in underserved populations to provide medical and social support services. The couple have five children that reside with them in Cincinnati, Ohio.



## ◆ Michael Maddox



To this day, I greatly appreciate Dr. Jean Gerrath plucking me out of class to be her botanical henchman. The result is she put me on a career path in which I'll be forever thankful. Many of my professional experi-

ences today can be traced back to my work with her and in the greenhouse — research, teaching, arboriculture, horticultural therapy, master gardeners... my first encounter with all of them was at UNI!

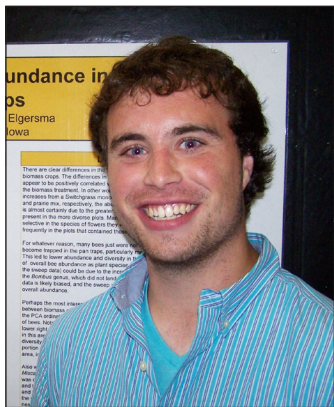
I started off in '93 as an elementary education major, later changing to secondary biology education. I stayed with it long enough to be accepted into the School of Education and do my first field experience at Expo Alternative High School in Waterloo. For the summer of '95 (I think) I was hired by Ron Camarata as part of the preserves management crew, which got me into the greenhouse. About this same time, I had to enroll in at least one plant science class, which for me happened to be Plant Anatomy with Dr. Jean Gerrath. At this point, everything clicked together - I loved the class and got hooked on botany. Dr. G. became my "botanical mother" for the remainder of my undergrad career. She hired me as her lab grunt, where I helped her prepare specimens for her microscopy. I was, also, the labor used to install the original grape vine research project. This experience led to taking part in the summer research program in '96. After that experience in Austin, TX, I came back to UNI and changed my major to Biology BS. For the remainder of my years at UNI, I was a greenhouse groupie working for Dr. G.

Back then, local arborist Arnold Webster was a familiar face at the greenhouse — on his 80th birthday he took me to rural Iowa to do an assessment of an oak tree. That was my first experience to the tree care profession. I later went on to earn my arborist certification and have built my academic credentials on training individuals in arboriculture and tree care.

Master Gardener, (MG) Gene would come to the greenhouse each month for part of his volunteer requirements — he was the first MG I ever met and my introduction to that program. I later went on to train Master Gardeners in Wisconsin, and now serve as the State Director for the program with the University of Wisconsin-Extension.

# Department of Biology Alumni

◆ **Ben Nettleton** - After graduating from UNI, I was accepted to both UNI and Virginia Commonwealth University (VCU) in Richmond, VA. VCU was my top school and I am very excited to be attending their MS program which I started in the Fall 2016. I am researching coastal plant ecology on the barrier island of Hog Island off the Virginia Peninsula. We are studying



the effects and relationships of climate changes on island vegetation structure and the subsequent changes in island geomorphology. My faculty mentors are Dr. Julie Zinnert and Dr. Don Young.

Thanks for all your support through this process and the wonderful UNI Biology undergrad program that has me well prepared for this future!!

◆ **Robin Forster** received a research scholarship at Des Moines University as part of her enrollment in the Physical Therapy program. She states "I ended up receiving DMU's research scholarship and will be continuing to participate in research all three years of my graduate program."

◆ **Andrea Errthum** - I am an environmental health specialist for Maricopa County, specifically the northern Phoenix area. I inspect restaurants, hotels, pet shops and schools to evaluate their compliance with the FDA food code. This is a great job for those who like to talk with people and educate the public. It's also a great career for opening doors to other county departments or government positions. Biology majors are strongly desired for their understanding of microbiology and it is even better to pair that with an environmental health major as you then also have some experience with how environmental regulations work. Aside from the education, employers look for a history of working with people, whether that be conflict management or helping people to follow guidelines. Maricopa County employs new hires as trainees and we took our NEHA Registered Sanitarian exams after two months instead of waiting to have two years of job experience first. I can honestly say that I see something different every day. It's an exciting and engaging job and is good for building connections. This job can be done anywhere in the country as all counties in the nation need inspections. I highly recommend this career.

◆ **Cody Thompson** a 2004 UNI Biology: Ecology & Systematics Emphasis Major has received the President's Special Award from the American Society of Mammalogists at their 2016 annual meeting in recognition of his outstanding service to the society. Thompson is collection manager of mammals in the University of Michigan's Museum of Zoology and assistant research scientist in the Department of Ecology and Evolutionary Biology.

◆ **Kelsey Hampton** - After graduating from UNI in 2012 with a B.S. in Biology, Kelsey went on to a PhD program at the University of Kansas Medical Center (KUMC). Kelsey's dissertation project studies



with a B.S. in Biology, Kelsey went on to a PhD program at the University of Kansas Medical Center (KUMC). Kelsey's dissertation project studies KISS-1, a metastasis suppressor protein, and investigates the metastasis suppression capabilities of its different domains. Her studies have identified a previously uninvestigated domain of KISS-1 which has

the ability to suppress metastasis independent of canonical receptor signaling.

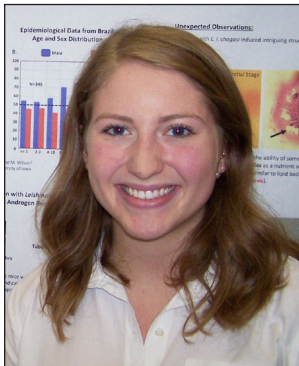
In addition to her research, Kelsey has been an active contributor to the scientific outreach community as a member of two scientific blog communities and is a recently-elected member of the American Association for Cancer Research's Associate Member Council. She plans to graduate in 2017 with a PhD in Molecular and Integrative Physiology and an emphasis in Cancer Biology. Following graduation, Kelsey plans to pursue a career in science policy and outreach.

◆ **Dan Fick**, a 1985 alum from UNI, has accepted the role of interim chair and department executive officer of the UI Department of Family Medicine, effective March 3.

Fick currently serves as vice chair of the UI Department of Family Medicine. He also is director of primary care for both University of Iowa Physicians (UIP) and University of Iowa Health Ventures (UIHV), a UI Health System company. A clinical professor of family medicine since 1993, Fick received his medical degree from the UI. He completed a residency in family practice and a fellowship in sports medicine at UI Hospitals and Clinics.

# Department of Biology Alumni

## ◆ Elizabeth Turcotte



I am currently a Postbaccalaureate research trainee at the National Institutes of Health (NIH). I graduated in May of 2016 from the University of Northern Iowa with a dual degree in Biology (BS) and Biochemistry (BA). During my undergraduate career at UNI, I became intrigued by cellular mechanisms regulating disease outcome. This fascination led

me to join the lab of Dr. Mary Dasso with the National Institute of Child Health and Human Development, investigating mitotic roles of proteins and cell cycle regulation. Better understanding mechanisms of regulation could aid in exposing how they can be evaded in cancer.

Training in state of the art facilities at the NIH, I am gaining experience with new techniques and involved in biomedical research that will be an invaluable experience in my future pursuits. After nearly two years at the NIH, I hope to enter a dual program to obtain my MD and PhD, allowing me to participate in translational research and contribute to strengthening the connection between physicians and scientists.

## ◆ Danny Lewis, Jr. MD.



I was born and raised in Waterloo, Iowa and am now a Resident Physician that has returned to the area. I am a former student of UNI and graduated as a part of the class of 2012 with a B.A. in Biology. From there I went to the University of Minnesota Medical School and graduated in 2016 with my M.D.

Currently I am completing my training to become a Family Medicine Physician at the North East Iowa Family Practice Residency program here in Waterloo. During my training I will continue to build my skills and knowledge base as a physician. I have a particular interest in Preventive Medicine and putting forth an effort to reduce the cost of health care to the system. I am scheduled to graduate as a Board Certified Family Physician in 2019; until then, I will continue to enjoy time with my wife, Lela, and our five children.

## ◆ Chris Lee - BA '14, Biology: Biomedical Emphasis



I am an Oncology Consultant for Cerner Corp., the industry leader in Electronic Health Record (EHR) technology. As an Oncology Consultant, I work with clients ranging from small regional cancer centers to multi-state, nationally recognized health systems. We work with the providers, clinicians, technology officers, and executive leadership to help them transition to our Oncology EHR software.

Having a pre-medicine and biology background from my time at UNI has been huge for me in my career. The wide range of classes offered through the biology program, combined with the world-class professors, has allowed me to excel early in my career. Being able to have the knowledge of how different cancers manifest, how various treatments work, and overall knowledge of the medical field, has been key to gaining the trust of the client and establishing credibility.

Being a recent graduate in a room full of doctors and executives can be rather intimidating. However, when they realize that from my coursework at UNI, I have a robust background knowledge in the field, they are much more accepting of the change. Working with Cerner has been an incredible opportunity that has allowed me to work with top health systems both domestically and internationally, and my biology education at UNI propelled me to where I am at today.

## ◆ Brittany Roberts



Brittany graduated May 2013 with a major in Biology and minor in Chemistry. She is currently in her fourth year of podiatry school at Des Moines University. For the past year, she has been rotating through hospitals all over the United States. In January, she finished her second round of board exams and is actively interviewing for foot and ankle surgical residency positions. She will go through residence matching in March to find out where she will train in foot and ankle surgery over the next three years.

# Department News

## Study abroad course to the Galapagos

In May 2016, Drs. Pete Berendzen and Maureen Clayton led a study abroad course of biology majors to Ecuador and the Galapagos Islands. The group first traveled to Guayaquil, Ecuador. They visited Manglares Churute Ecological Reserve where they canoed through the mangroves observ-



ing the great diversity of birds and hiked in a dry forest where they saw howler monkeys, macaws and strangler fig trees. Following the reserve, they visited a cacao farm where they learned about local farming practices and how chocolate

is processed. The group then traveled to Puerto Ayora on Isla Santa Cruz in the Galapagos Islands and stayed for six days. Each day the group traveled to different islands to experience the biological diversity. The group hiked with giant tortoises in their native habitat, saw blue-footed boobies courting their mates, observed marine iguanas basking on the rocky shores, strolled through a forest of cactus as big as trees and snorkeled with the great diversity of tropical fishes. The group also observed the impacts humans have had on the islands and learned about current efforts to preserve this unique and important ecosystem.

The Galapagos program is a faculty led, study abroad course that will be offered on an annual basis. Students can

earn either biology elective or capstone credits. The goal of the course is to learn about the unique and fantastic natural history of the islands, the importance of these islands in the development of modern evolutionary theory and current conservation efforts to preserve this unique ecosystem. Students who participate in this course will literally have the opportunity to walk in Darwin's footsteps!



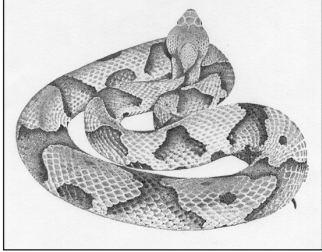
## UNI maintains strength in undergraduate research



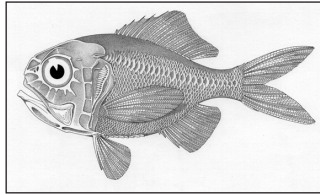
From left to right, front row: Darrell Wiens, Elizabeth Turcotte, Sara Judicas, Alyssa Adamec, Rachael Fix, Rose Peterson, and Ben Fick. From left to right, back row: Lucas Pietan, Alexis McGinley, Bradley Staten, Jordan Koos, Ben Nettleton, Mark Myers, Walter Abrego Barrientos, and Chao Ji.

The thirtieth annual meeting of the National Conference on Undergraduate Research (NCUR) took place April 7-9, 2016 at the University of North Carolina Asheville. Among the thirteen students from UNI who attended this conference, seven were from the Biology Department, accompanied by two Biology Department faculty members: Dr. Mark Myers and Dr. Darrell Wiens. The NCUR conference, which began with 400 participants coming to Asheville in 1986, has grown to about 4,000 this year, with about half of the students giving oral presentations and half taking posters to display and explain. Set in the scenic Appalachian mountains of western North Carolina, UNC Asheville has now hosted the conference for the fifth time. The conference is one of the most creative, multidisciplinary, and innovative venues in existence. It never fails to inspire.

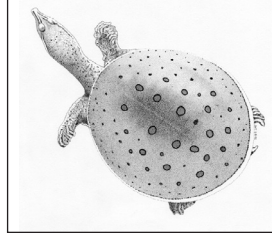
## Biology faculty incorporate their artistic skills into the classroom and publications



Copperhead (*Agkistrodon contortrix*), dorsal view.



*Hoplostethus* sp.

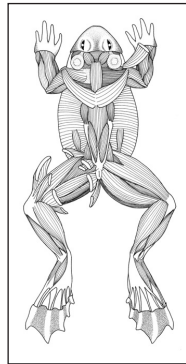


Spiny Softshell turtle (*Apalone spinifera*), dorsal view.

**B**esides teaching classes and conducting research on turtle behavior, Dr. Jeff Tamplin is also a scientific illustrator who works in pen and ink, watercolor, and graphite. Tamplin's illustration work is noted for its realistic interpretation, anatomical accuracy, and detailed stippling affects. Dr. Tamplin began drawing in middle school, and after being encouraged and inspired by his high school biology teacher, he had his first scientific illustration published as a college sophomore. Jeff has since had over 200 illustrations published in textbooks, magazines, and scientific journals, including several on the covers of the *Journal of Herpetology* and *Herpetological Review*. He works with a variety of subject matter, including animals, people, and landscapes, but he has also produced a wide assortment of maps, diagrams, and technical drawings in the past.

When asked to describe his illustration work, Dr. Tamplin replied: "I'm an illustrator who works mainly in pointillism (stippling) a technique that centers around creating texture and value with individual dots. I use technical pens filled with India ink or watercolor paint and combine dif-

ferent densities and different sizes of dots to achieve these effects. I strive to produce work that is anatomically accurate and has areas of dramatic light and shade; I try to simulate the smooth appearance of graphite (pencil) in my work, so that from a distance it appears to be graphite (pencil) but in reality the effect is created by a series of black and white individual points. In a way, this mimics the process of computer printers that assimilate a continuous image and translate it into small individual pixels."

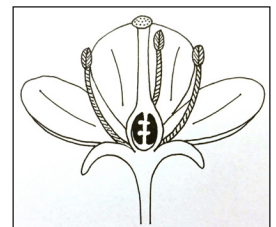


Frog (*Rana* sp.), lateral view.

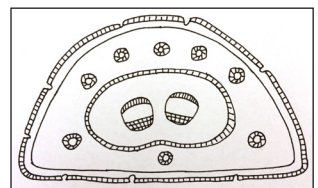
**D**r. Julie Kang started her academic career as a Fine Arts major at McMaster University in Canada. There, she majored in Studio Art with a dual minor in Art History and Biology. Because of her love for both art and science, her art pieces encompassed both fields of study. "I loved drawing the human body. My choice of medium was pencil and charcoal. I incorporated abstract imagery alongside representation of the human form that was superimposed onto anatomical realism. At that time, my plan was to go into scientific illustration after I graduated from McMaster. I went into Fine Arts because it gave me the freedom to express my ideas that was non-conforming. It was a liberating experience."

After graduating from McMaster, Dr. Kang decided to further her education in science and finished a second degree in both Zoology and Biology. It was here that she found her love of research in plant biology. "It was in my Plant Anatomy course that I fell in love with research. Looking at microscope slides of plant histological sections gave me a new perspective on how to view the world. Although my art became secondary to research at that time, I was always able to incorporate illustrations into my teaching and research."

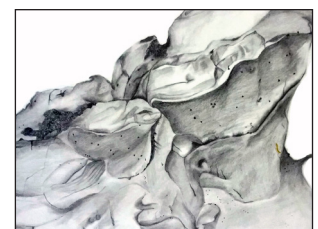
Dr. Kang currently teaches Developmental Plant Anatomy at UNI. "Plant anatomy has a rich history of illustrations. I illustrate everything that I teach so students can visualize the anatomy of plants. The students also create drawings of their own as part of the lab exercises. While my illustrations are limited to line drawings, I think that simplicity is the best way to get information across to students. My hope is that art will always be valued no matter what field of study you are in."



Angiosperm Flower



Gymnosperm leaf cross section



Wood fungus from the mushroom kingdom

## Faculty Retirement

**D**r. Robert Seager will be retiring at the end of the Spring 2017 semester. He first came to UNI in 1981.



"Before I came to UNI I worked at top research universities – my life was research and I was surrounded by others like me. I learned two important things. First, full time research is often exhausting and is just that,

full time. Second, this was not what I wanted. I like but do not love research, and there are many things outside my field which fascinate me – history, anthropology, religion, and having time to be with my family and friends.

And teaching. I started tutoring math when I was in junior high, in high school I helped students with geometry, and in graduate school I held help sessions in evolutionary biology and taught genetics.

Along the way I learned how not to be a bad teacher by noticing that this professor stood in front of their screen when showing slides, that professor could not write legibly on the board, and worst of all, another professor had an ego so weak they had to assert their "superiority" by ignoring or ridiculing students.

Early on I had realized I could be a medical doctor and work with sick people, or be a professor and interact

with students. The choice seems obvious, and I was fortunate to be given a job at a University – UNI – in a department – Biology – in which good teaching is valued and research projects involve students. Not the perfect job – I still have to grade exams and papers – but as close to my ideal job as possible. All this, and I even got paid for it.

My joy over the years has been getting to know students and helping them not only learn, but learn how to learn. Except for winter, which has no discernible purpose (and which we'll leave behind when we move to Eugene, Oregon), I've loved being in one of the top student-centered Biology departments in the country. And I'm not done – retirement is the start of another phase of learning, writing, and, I hope, teaching. And no more winter (keeping my fingers crossed)."

## Alumni in Residence

**D**r. Rochelle Remus and Emily VanLaar served as the Department of Biology Alumni in Residence for the 2016-2017 school year. Rochelle and Emily interacted with faculty, staff and students throughout the day and both had a chance to catch up with faculty with whom they interacted while at UNI. The Department of Biology was extremely pleased to be able to host Emily and Rochelle and our students benefitted tremendously from these interactions.



Dr. Rochelle Remus

University/Cardinal Glennon Children's Medical Center, Pediatrics. She has been with Mercy Pediatric Clinic in Cedar Rapids since 2015.

Dr. Remus (B.A. Biology 2008) is a specialist in pediatric medicine with the Mercy Pediatric Clinic in Cedar Rapids, IA. Dr. Remus received her D.O. degree from Des Moines University College of Osteopathic Medicine, Doctor of Osteopathic Medicine and performed a residency at Saint Louis



Emily VanLaar

in a summer research program hosted by the University of Texas in Houston, performing breast cancer research, which cultivated her interest in a career in oncology.

Ms. VanLaar is currently the Director of Clinical Strategy Oncology at Medscape. She works to identify and develop medical education strategy for hematology, oncology and supportive care. Emily is a 1997 UNI graduate in biology, with a chemistry minor. The summer after her junior year at UNI, Emily participated

## University of Northern Iowa Awarded Grant Through the Roy J. Carver Foundation

**T**he Roy J. Carver Foundation has awarded \$393,924 to the Departments of Biology, Chemistry & Biochemistry, Earth and Environmental Sciences, and Physics as well as the Science Education program at the University of Northern Iowa to update and modernize science teaching laboratories for non-science majors. This award is one of many such grants the Carver Foundation has awarded to UNI, but unlike previous funding, it will primarily impact students in non-science fields. Prior Carver Foundation funding was used to purchase laboratory equipment that provided students majoring in science fields the opportunity to work with cutting-edge technology. The most recent funding from the Roy J. Carver Charitable Trust primarily impacts students who are not majoring in the sciences. Equipment purchases will allow for the design of new laboratory activities and the updating of existing science teaching labs for non-science majors. As such, students taking non-majors science laboratory courses will benefit through increased individual access to laboratory equipment, specimens and supplies as a result of this funding. Ultimately, this award will impact a majority of students who are working to fulfill their liberal art core science electives, which is estimated to be 2,500 students per year.

## Reconnect with the Department of Biology

**W**hether 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 together 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](mailto:david.saunders@uni.edu), 319-273-2456 or Joan Smothers at [joan.smothers@uni.edu](mailto:joan.smothers@uni.edu), 319-273-2010 as a first step.

# YOU CAN MAKE A DIFFERENCE!

**W**e 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.

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

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

### ◆ **Myra and Gary Floyd Summer Research Fellowship**

This fellowship is intended to support undergraduate student research carried out through the summer.

### ◆ **Dr. Robert and Brenda Good Summer Research Fellowship**

This fellowship is intended to support undergraduate student research carried out through the summer.

### ◆ **Floyd Endowed Scholarship in Biology**

Preference is to a Biology Junior or Senior, 3.0 GPA, with an interest in Plant Biology. First preference to students who are most likely to pursue a masters or Ph.D. for continued studies in the same area. Second preference for students who are most likely to go to medical school.

### ◆ **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.

### ◆ **John R. Miller & Mary Lou Mamminga Miller Endowed Biology Scholarship**

Preference to Biology, Senior, 3.0 gpa, given to students planning on a career in field biology or natural history.

### ◆ **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. Alan R. Orr Research Awards**

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.

### ◆ **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.



## Department of Biology

University of Northern Iowa  
Cedar Falls, IA 50614-0421

*Let us hear from you . . .*

Let us know what you have been up to.  
You can email us at [david.saunders@uni.edu](mailto:david.saunders@uni.edu) or  
return this form to:

**Department of Biology  
University of Northern Iowa  
Cedar Falls, IA 50614-0421**

First Name \_\_\_\_\_ Last Name (maiden) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Email: \_\_\_\_\_

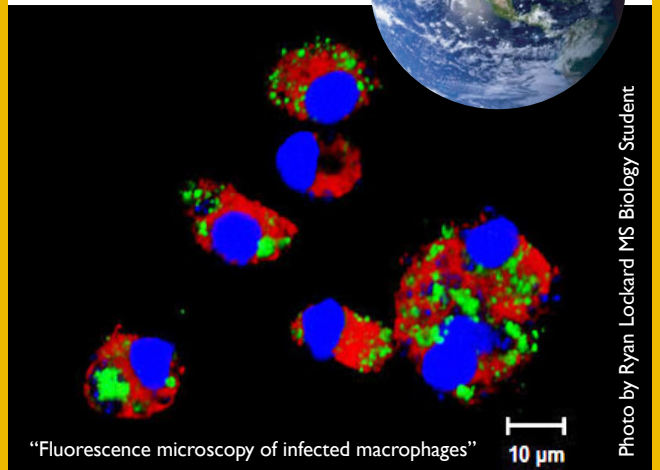
Please share any news about you or your family to be included in the next Biology Newsletter.

*Contact Info:* David Saunders  
Department Head  
319-273-2456  
[david.saunders@uni.edu](mailto:david.saunders@uni.edu)

*Website:* <http://www.biology.uni.edu/>

# Biology

*Where life begins . . .*



"Fluorescence microscopy of infected macrophages"

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Photo by Ryan Lockard MS Biology Student

# Support for Students or Department

Would you like to support a Biology student and/or the Biology Department?  
If so, please fill out the form below and return it to:

## UNI Foundation Financial Services

121 Commons  
Cedar Falls, IA 50614-0239

If you would like to start your own scholarship, contact Cassie Luze  
cassie.luze@uni.edu or Phone: 319-273-6360

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

E-mail: \_\_\_\_\_ Phone \_\_\_\_\_ Is this a cell phone \_\_\_\_\_

☐ Please check if new address, phone or email.

I/we would like to support the following fund(s)

- \$ \_\_\_\_\_ Biology Alumni & Faculty Research Fund (21-222596)  
\$ \_\_\_\_\_ Biology Department Fund which includes Dr. David Swanson Research Award (21-221607)  
\$ \_\_\_\_\_ Biology Awards & Honors (21-210342)  
\$ \_\_\_\_\_ Biological Preserves Fund (21-220162)  
\$ \_\_\_\_\_ Caroline Czarnecki Biological Sciences Scholarship (21-212250)  
\$ \_\_\_\_\_ Myrna & Gary Floyd Undergraduate Research Assistantship and Summer Research Fellowship (21-222165)  
\$ \_\_\_\_\_ Floyd Endowed Scholarship in Biology (30-213166)  
\$ \_\_\_\_\_ Dr. Robert and Brenda Good Summer Research Fellowship (21-222342)  
\$ \_\_\_\_\_ J.S. Latta Quasi-Endowed Biology Scholarship (20-210303)  
\$ \_\_\_\_\_ Matala Preserves and Research Quasi Endowed Fund (20-222861)  
\$ \_\_\_\_\_ John R. Miller & Mary Lou Mamminga Miller Endowed Biology Scholarship (30-213062)  
\$ \_\_\_\_\_ Dr. Alan R. Orr Research Awards Fund (21-211914)  
\$ \_\_\_\_\_ Bear and Sandy Stevens Family Endowed Biology Education Scholarship (30-212241)  
\$ \_\_\_\_\_ Other  
\$ \_\_\_\_\_ Total

*Online* \_\_\_\_\_

Go to the online pledge form at [www.uni-foundation.org/](http://www.uni-foundation.org/) and click on "Make an online gift". You will need to enter the specific name(s) of the Biology projects in the "Other" box near the bottom of the web form.

Matching Gifts: My (or my spouse's) company, \_\_\_\_\_ (name) will match my gift. Please contact your HR office for details and the matching gift form to be submitted with your payment.

*Check* \_\_\_\_\_ ☐ Check enclosed, payable to the UNI Foundation

*Credit Card* \_\_\_\_\_ ☐ Credit Card: Please charge my card \$ \_\_\_\_\_ beginning (mo/yr) \_\_\_\_\_ / \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_  
(required for credit card gifts)

100415

Credit card information will not be kept on file.

Charge my: VISA MasterCard Discover American Express (circle one)

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_