Biology News, Spring 2016

University of Northern Iowa. Department of Biology.
Greetings from the Department of Biology

by Dr. David Saunders

It is our pleasure to share with you the annual Biology Newsletter. Once again you will see that our alumni, students, faculty and staff continue to be active and productive. Our alums continue to take on directorships and supervisory positions at elite institutions and continue to receive awards for their dedication and productivity. Despite the persistent reduced funding the Department of Biology has been experiencing, we have still found ways to provide opportunities for our students both in and out of the classroom. This past year a total of nine Biology students attended the National Conference on Undergraduate Research, and this year we will send nine more students to this highly selective conference. We continue to be successful in finding avenues to provide students in our classrooms and research labs with access to cutting edge technology. Our students remain competitive for professional schools and we have seen an increase in the number entering Ph.D. programs. Our alumni show us the strength and quality of the Biology programs of the past and we are convinced that the strength and quality remains as shown by the accomplishments of our current students. Thank you all for your continued support of our efforts.

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Dr. Suzanne Bartlett represented the Department of Biology as the 2014-2015 Biology Alumnus in Residence. The University of Northern Iowa has developed the Alumni in Residence program such that 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. As part of the Alumni in Residence Day activities, Suzanne was able to tour the facilities of the Department of Biology and interact with faculty. Specifically, Suzanne was able to visit with former mentors Dr. Robert (Bob) Seager and Dr. Darrell Wiens. Later in the day, Suzanne spoke with a number of Biology majors about the changes that she has seen in the health care system. Her presentation to the students provided encouragement for those wishing to pursue careers in the medical fields. In addition, Suzanne was invited to attend a breakfast meeting with Dr. John Fritch, Dean of the College of Humanities, Arts, and Sciences as well as attending a luncheon hosted by UNI Provost, Dr. Mike Licari.

Dr. Bartlett is an Ob-Gyn and Integrative Medicine physician from Cedar Falls, Iowa. She practices integrative medicine at Mercy Medical Center in Cedar Rapids. Dr. Bartlett is the parent of a 14-year-old son, John, with autism, and is the past president and current board member of the Autism Society of Iowa. In addition, she is a member of the Advisory Council for the University of Iowa Autism Center and has worked with the Iowa governor’s Autism Council on insurance reform for autism services. Dr. Bartlett is currently working to improve educational services in the Cedar Valley as a charter member of the Collaborative Autism Team. Dr. Bartlett is the author of an award-winning children’s book about autism called “A Friend Like John, Understanding Autism.” The book is intended for elementary-aged peers of children with autism, and is based on the life and traits of Dr. Bartlett’s son.

Dr. Robert Good gave keynote address at the 2015 UNI SURP Symposium

Dr. Robert Good (’74 Biology) returned to the UNI campus as the plenary speaker for the UNI 2015 Summer Undergraduate Research Symposium. Dr. Good’s keynote address “Influencing the Future Through Research” encouraged students to pursue their passion and spoke about the value of undergraduate research. To that end, Dr. Good told the audience about his own time as an undergraduate at UNI and the role research played in his pursuit of becoming a physician. In addition, Dr. Good gave examples of how his education at UNI stimulated him to continue to pursue research, while a physician. With Dr. Good’s encouragement, former faculty (Dr. Daryl Smith, Dr. Russ Tepaske, and Dr. Bob Simpson) who influenced him during his time at UNI, were invited guests.

The Summer Undergraduate Research Symposium is the culmination of the ten week Summer Undergraduate Research Program. Students participating in this program present their summer research at this symposium. The students’ families and friends as well as their mentors and University officials are invited to attend the event that celebrates the research efforts of these students.

Dr. Good is a native of Keystone, Iowa and is a board-certified internist practicing in Mattoon, Illinois. He is the medical director of Carle Foundation Physician Services, a large multispecialty group in southern Illinois. Robert and Brenda have been generous supporters of undergraduate research, funding the Dr. Robert and Brenda Good Summer Research Fellowship that supports the stipend of a student participating in the Summer Undergraduate Research Program.
Alumnus, Dr. Michael Gray, selected as Honorary Member of Entomological Society of America

Dr. Michael Gray, UNI Biology Alum, 1977, was recently selected as a 2015 Honorary Member of the Entomological Society of America. Dr. Gray is a native Iowan, born in Villisca, Iowa. Both of his parents were raised on farms in southwestern Iowa and his wife Ellen is from Corning, Iowa, where her parents continue to live on the family farm. Mike’s father made a career in the U.S. Army, and consequently, he traveled extensively throughout his childhood, living in the Philippines, Japan, and Germany. He graduated from Yamato High School, Tokyo, Japan (73). When his father retired from the military, his parents settled back in Corning, Iowa.

His first semester at the University of Northern Iowa was the fall of 1975. Mike transferred from Southwestern Community College in Creston, Iowa where he earned an A.A. degree. Mike states “my two years at UNI in the Biology Department were wonderful. I still remember the excellent instruction and encouragement from professors David McCalley and A. C. Haman. My favorite class was taught by A. C. Haman – general entomology. Professor Haman required an insect collection and, as I recall, we were required to collect at least 120 families (correctly identified and pinned/labeled properly) to receive an A. In addition, students striving for an A were required to provide a weekly summary of a journal article they had reviewed. Professor Haman also required students to successfully identify unknown insect specimens using keys. I always looked forward to the lectures and labs – and to this day, I retain the nearly worn out text book from that course. It brings back such fond memories. I owe much to Professor Haman. It was his class that changed my life and inspired me to explore the field of entomology.”

After graduation from UNI (Biology 77) and a short stint as a high school science teacher in Hubbard, Iowa, Mike went on to graduate school at Iowa State University and received M.S. (1982) and Ph.D. (1986) degrees in entomology. Following his graduation at ISU, he accepted a postdoctoral research associate position at South Dakota State University, Brookings, SD. In March of 1988, he accepted a position at the University of Illinois, Champaign-Urbana. Mike loves being a scientist, emphasizing that “it has been my pleasure to conduct research on insect pests of field crops and share my findings with a broad spectrum of the agricultural community. I also have enjoyed serving the Entomological Society of America in a number of leadership roles through the years.”

UNI Biology - Brazil Connection

In 2008, Professor Carl Thurman received a Fulbright Fellowship to collaborate with scientists in Brazil at the University of São Paulo’s Center for Marine Biology (USP-CEBIMar) in São Sebastião. Subsequent research funding came from the University of Northern Iowa, University Iowa, Brazilian National Research Council, and Scientific Foundation of São Paulo. During 2009 and 2010, Dr. Thurman worked with Dr. J. C. McNamara and Samuel Faria from USP-Ribeirão Preto studying fiddler crabs along the 4000 mile shore of the South Atlantic Ocean. After collecting different species from 63 locations, they assembled a biogeographic model for the coast and studied morphology, genetics, and salt/water balance physiology in the decapods. Thus far, several scientific manuscripts have emerged from the investigation.

Due to the success of the research, Dr. Thurman was asked to give a summary keynote seminar entitled “Macrophysiology—a Global Perspective of Evolution in Intertidal Organisms” for the 19th Marine Biology Symposium at CEBIMar, 25-27 Nov 2015. Besides the USA and Brazil, participants were from Argentina, Belgium, Chile, France, Germany, Portugal, Spain and Hong Kong. The scientific connection between UNI and Brazil has been so fruitful the collaborators are planning to extend this work to the Caribbean coast of South America. The trip was sponsored by Office of International Programs.
Two UNI Biology Alumni Assume Directorships at Vanderbilt University

Dr. Jeff Rathmell

Throughout high school my intention was to become a physician. In Iowa, a first thought may be to go to the university with the medical school, but I believed that a smaller, more personal undergraduate setting would provide a bigger benefit. I was pleased to attend the University of Northern Iowa and major in Biology. Quickly after arriving to UNI I became interested in biological research and the possibilities of new career directions in science. UNI offered an outstanding environment for me to learn about science, get to know the professors, and enjoy my college experience. I was able to take advantage of several summer research internship opportunities while at UNI and eventually went on to graduate school to earn a PhD in Immunology at Stanford University. From there, my post-doctoral studies on immunology and cancer biology took me to the University of Chicago then to the University of Pennsylvania. In 2003 I began my first faculty position at Duke University in the Department of Pharmacology and Cancer Biology and I moved in the summer of 2015 to Vanderbilt University, where I direct the Vanderbilt Center for Immunobiology. Our main goals are to understand links between metabolism and immune responses in inflammatory diseases and cancer and I look forward to building the field of immunology at Vanderbilt.

Dr. Kim Rathmell

I also came to UNI with the intent to become a physician. I was honored to be a member of the second class of UNI Presidential Scholars, and was attracted to the chance to be a part of an exciting and diverse group of students who would learn together from across a range of disciplines. Coming from rural Iowa, it was professors at UNI who introduced me to the real opportunities of biomedical research as a career—in particular Darrell Wiens, Virginia Berg, and Ira Simet. I chose to double major in Biology and Chemistry because I loved both the fascinating intricacies of biology, and the precision of chemistry. UNI helped me find summer internships in both fields—one in the Chemistry department at the University of Southern California, where I worked with future Nobel Prize winner Arieh Warshel, and one at St. Louis University studying estrogen receptor activation. My honors thesis at UNI, in Darrell Wiens’ lab, gave me the longer term perspective on research studying early cardiac development. These experiences gave me the foundation to pursue an MD and PhD in Biophysics at Stanford University. I completed my training in Medical Oncology in programs at the University of Chicago and University of Pennsylvania before taking my first faculty position at the University of North Carolina at Chapel Hill. Earlier this year I moved to Vanderbilt University to assume the Directorship of the Division of Hematology and Oncology. My research program focuses on kidney cancer, exploring basic mechanisms, and developing new ways to detect and treat this disease.
Students Appreciate Scholarship Funding

◆ Celeste Underriner - I am a senior Biology major from St. Ansgar, Iowa and I will graduate May 2016. I have been extremely fortunate during my time at UNI to have my education be funded through various scholarships and these scholarships have impacted my future career goals in many ways. One of the most influential scholarships I received was a research scholarship. I began undergraduate research in a developmental biology lab, with Dr. Darrell Wiens, my sophomore year of college; after I made substantial progress in my research project I was awarded a research scholarship for the following year and it was renewed for my final year at UNI. With the time I’ve put into my lab work, courtesy of the scholarship, we were able to finish our manuscript and it’s recently been accepted into a scientific journal; so as my time at UNI is coming to a close, my research project is hitting it’s first steps of completion.

Receiving that research scholarship helped further my research, but more importantly it solidified my career plans. After graduation I plan on attending graduate school to obtain my Ph.D. in Molecular Pharmacology and in the future I plan on becoming a professor. The professors at UNI, as well as the scholarships I have been awarded, have undoubtedly shaped my career goals and aspirations, and I hope in the future to shape young biology majors the way I have been. Scholarships allow students to worry less about paying for an education, which allows more time dedicated to studying and being involved on campus, so I would like to say thank you to all who donate scholarships for students. I guarantee it’s greatly appreciated! Go Panthers!

◆ Austin Voves - I am truly grateful for the scholarships I have received during my undergraduate studies. Financial assistance enabled me to completely focus on school and to explore my extra-circular and research interests, which assuredly resulted in a more comprehensive and quality education. My degree will be in biology with a research emphasis, which was completed in only three years and with honors. I have accepted an offer to attend University of Iowa’s dental school in the fall. My successes here were made possible in no small part due to generous UNI alumni, and I hope to someday be able make the same kind of impacts on future generations of Panthers.

◆ Lauren Janning - Prior to attending my first semester at UNI in Fall 2014, I was notified by the Honors Program Director, Jessica Moon, of my potential to be in the University Honors Program. Without hesitation, I expressed my interest and filled out the scholarship application. Shortly thereafter, I was awarded the Distinguished Scholars Award and was thankful that it would pay for a generous portion of my tuition. As I began taking courses, I was privileged to have taken my first biology lecture with Dr. Jeff Tamplin. His enthusiasm and passion for both teaching and learning inspired me to put forth every ounce of effort in order to grow as a student. Come the end of the semester, Dr. Tamplin acknowledged that I had been one of the top in my class and that he had nominated me for other scholarships within the Department of Biology.

I was overwhelmingly thankful to have had so much support from one of my first professors at the university. His dedication to the students and to my individual success allowed me to receive the Science Symposium Department Scholarship along with the John S. Latta Jr. Biology Scholarship. In total, these funds are paying for a full semester of my tuition at UNI. As a student aspiring to attend medical school, I am so grateful to be awarded these scholarships which prevent me from having to take out loans. It is a privilege to be supported by not only the UNI faculty, but by the scholarship donors and alumni who believe in the success of this generation. I hope that I will one day have the opportunity to fund the education of future Panthers and to share with them the unbelievable impact that the support of alumni and university scholarships had on my success as a student and forever Panther.

◆ Stormie Johanson - I am a first generation college student; as a result, attending college was something I always knew I would do, but it was also a new adventure for my family and me. I have continuously worked hard to maintain a respectable GPA, involved myself in research, and participated in various student organizations throughout my four years at UNI. Receiving scholarships from alumni goes beyond financial support; it has been an encouraging pat on the back from students who came before me, and a reward for my diligent efforts to earn a degree. I personally find comfort in knowing I am supported by generous alumni to pursue my passion in the Department of Biology. The appreciation I have for scholarship donors stems deeper than words can account for; thank you to all who have supported students during their educational journeys.
Debbie (Hinzie) Branigan - I graduated from UNI 14 years ago. Enjoy the newsletters, interesting to see what people have done. I have often wondered what Cherin Lee, would think if she knew what I did now. I graduated ready to teach Biology and Chemistry and I did teach for a year, but found it wasn’t for me. I got into vaccine work there in the midwest for 6 years doing a lot of immunology and bench top work, then moved out to Portland, Oregon to work in neurobiology research. Did that for four years before moving to diabetes research. I am working now for four years with a group of physicians and engineers developing a bi-hormonal closed loop artificial pancreas system at Oregon Health and Science University. Not many groups in U.S., or even internationally, are working in this field. Done quite a bit of inpatient testing and have moved our system to the outpatient world and are incorporating exercise into our closed loop algorithm. We may soon be putting our system on Team Novo Nordisk riders.

Sarah Eikenberry - Biology B.A. and Biochemistry B.S. I am pleased to announce I recently accepted an offer to UI’s Carver College of Medicine starting fall 2016! My countless hours spent in McCollum have finally paid off!! Thank you for your and the department’s support along the way. The training and education I received at UNI will serve me well as I continue on to medical school.

Stormie Johanson - Ever since I can remember, I have always enjoyed being involved in my community. At the end of my sophomore year at UNI, I felt I had not put enough effort into volunteering my service for the Cedar Valley. An idea of selling t-shirts to raise money to purchase science materials for a school in need came to mind. After six months of planning, encouragement, and support, I embarked on a year-long fundraising adventure. Although the project was an intense undertaking, I raised $650 to purchase 50 dissection kits from Tri-Beta, a National Biological Honor Society Chapter at UNI, to donate to George Washington Carver Middle School in Waterloo. I am beyond thankful to attend a university where my dreams became a reality and grateful for the opportunity to support a middle school science program in need. My project would not have been successful without the many kind people of UNI; a special thanks to Dr. Saunders, Dr. Ophus, the College of Humanities, Arts, and Sciences, and Tri-Beta.

Taylor Engle is a senior biology major from Eldridge, Iowa. This past summer, he earned an internship at the Seattle Aquarium. Engle chose this field specifically because he knew he wanted to dedicate his life to the preservation of the marine environment and he wants to inspire, in others, the passion for marine animals that he has.

During his internship Engle learned general animal husbandry, advanced life support system theory, and tank design and maintenance. With these lessons, he is prepared to be an entry-level aquarist in an aquarium, which is something he is considering after graduation. When asked about his most memorable experience during the internship he said, “When one of the aquarists I worked with let me get attacked by a Giant Pacific Octopus and just laughed as I tried in vain to take her off of my arm. I walked around with an arm covered in bruises for a couple days.”

Besides majoring in biology, Engle is a member of the Men’s Glee Club and the president of the Marine Biology Club. Being involved in two organizations helped him to meet other people who have the same interests and also gives him a break from busy classes. During his free time Engle enjoys camping, rock climbing, hiking, mountain biking, spending time with his roommates, and reading research journals about topics that relate to marine biology.

The thing Engle loves most about UNI is the kind and caring atmosphere and the history. When asked about how UNI prepared him for his future, he responded that the biology faculty members were very helpful in guiding him to discover and achieve his goals. “I know that if I had chosen to attend a school where the professors couldn’t get to know me personally, I would still be trying to figure out what I wanted to become,” he said.

Engle offered some advice to other students: If you have an interest in something, it could be possible if you dedicate yourself to it. “Look at me;” he added, “I’m studying animals in the ocean while I’m living in a land-locked state!”

Tracy Bruns - As a former grad student of the Biology Department, Tracy Bruns, now at Iowa State University as a Post-doctoral Research Associate, is currently running the Seed Health lab in the Seed Science Center working with phytosanitary seed regulations. Tracy recently finished writing her dissertation on gene expression in corn when infected with F. graminearum. Tracy transferred from Iowa State as an undergraduate in the Fall of 2005. She enrolled in the Master of Science Degree program in the Fall of 2006 and completed her MS degree in Biology in the Spring of 2009. The Title of her thesis is: “Resistance to and Virulence of Fusarium verticilloides.” In this work she discovered genetic variants of native prairie grass that are resistant to this important corn pathogen. Dr. Jim Jurgenson was her advisor.
Jim Demastes and Theresa Spradling have received funding from the National Science Foundation (NSF) for their research on a unique group of parasites and their hosts that live along the Rio Grande Valley in central New Mexico. Over the years NSF funding has been increasingly difficult to acquire, resulting in what is now only about a five percent approval-rate for funding in this category of research.

Although Jim and Theresa have conducted research ranging from conservation genetics of several endangered Iowa species to their main focus of coevolution between mammals and their parasites, currently, their efforts are being placed towards the subject of their NSF funded proposal, which is titled Testing geographic range-expansion models: Population genetics of a colonizing parasite. “Perhaps the most sweeping, biological effect of global climate change is the resulting shifts in how species are distributed across geography”, Jim explains. “These shifts occurred in the past, and are occurring today,” he said. “When a species colonizes a new area, whether it is a polar bear or a parasite, there are genetic consequences that are hypothesized to reduce the genetic diversity of populations. Lower diversity is generally thought of as being ‘unhealthy’ and leaves populations vulnerable to various dangers such as disease or parasites.” Although there are theoretical models for how diversity is lowered and several studies that examine the effects of past colonization and range shifts, very few studies have explored changes as the populations expand, which is the central strength of this study.

Although Theresa and Jim have only just recently received NSF backing, their research in this area has gone on for nearly 25 years. Beginning in 1991, the two began collecting samples and storing them at negative 80 degrees Celsius for future work. Samples were maintained from the research site in 1991, 1996, 2001, and 2011. Once the researchers return in 2016, there will be a time-series of genetic samples that span 25 years and nearly 275 generations for the lice, the equivalent of a 5,500-year study of humans!

With the new funding, the two scientists will be able to extend more learning opportunities to their students. Currently, five undergraduates are assisting in the lab, with two of them receiving financial support through the grant. During spring break, 2016, two students will travel with a larger research team (representing 4 different universities) to conduct fieldwork in New Mexico.

Theresa and Jim agree that the biology department at UNI offers terrific opportunities for students to work closely with active researchers on meaningful scientific research, allowing students to gain valuable experience and fully appreciate the scientific enterprise. They also cite the small classroom sizes for biology majors as being ideal for more personal instruction and better student learning outcomes.

Both professors anticipate the fruition of their research and its potential impact on the scientific community. “Climate change and other factors are forcing many species to shift in their geographic distribution—losing ground in some areas, but pushing into new territories in some cases,” said Theresa. “Our research helps determine the genetic consequences of the expansion of a species into a new geographic location. I’m always excited to see what the answer will be, which is probably why I was so drawn to science in the first place. When this project is finished, it will undoubtedly raise new questions, which we, and our students, will pursue.”
Bees and “Colony Collapse Disorder”

When we think about bees, most of us think of the European honeybee, *Apis mellifera*, with their classic fuzzy golden body and brown-and-yellow striped abdomen. But did you know that we have bees native to Iowa of all different colors and sizes, from pure black to purplish-blue to bright metallic green? And did you know that many of these incredibly beautiful and interesting creatures are slowly disappearing from the landscape? Many people are familiar with the concerns about “Colony Collapse Disorder” in domestic honeybees, which has received widespread attention from scientists and in the press because it causes losses estimated to be up to 1/3 of bee populations annually. Such widespread concern even led the White House to issue a Presidential Memorandum creating a federal initiative to promote the health of insect pollinators.

While concerns have mostly centered on the domestic honeybee, native bee species also provide indispensable, cost-free pollination services to vegetable and fruit production, and in some cases have even been shown to be more effective pollinators than the domestic honeybees that are trucked in to fruit and vegetable farms at great effort and expense. Perhaps, best of all, most of these native bees don’t sting people. However, despite the value of native bee species, very little is known about native bees in the Midwest region, and recent studies suggest that native bee populations across the US are frequently in decline.

Kenneth Elgersma, Ai Wen, and the graduate and undergraduate students working with them, are working on finding ways to support healthy, growing populations of native bees in the agricultural landscape of Iowa and the Midwest. They have been working with farmers on a dozen vegetable farms scattered throughout northeast Iowa to monitor native bee populations on the farms and discover the factors that influence native bee diversity and density on each farm. These factors are sometimes landscape-scale factors largely out of the farmer’s control (e.g., characteristics of the surrounding landscape), but they have also found that small-scale efforts on the farm to improve the habitat for bees can dramatically increase the diversity and number of native bees.

Graduate and undergraduate students working with Kenneth and Ai have also shown that diverse native perennial plantings, which might be used for hay or biofuels, provide many more resources (flowers and pollen) for bees than simple grass monocultures, and as a result these diverse plantings harbor many more native bee species than the monocultures. Kenneth and Ai are actively building on this work and always on the lookout for more opportunities to get students involved in this research through the Biology Department’s Summer Undergraduate Research Program and other opportunities as well.

In order to reach out to the community and propagate the significant roles of wild bees in agriculture, graduate student Andrew Ridgway presents some preliminary results and displays the collected bee specimens to students at the Scattergood Boarding School and to farmers at the Practical Farmers of Iowa Field Day events.
Many students majoring in biology get involved in undergraduate research during their time at UNI. In April, 2015, nine of these students presented their work at the annual meeting of the National Conference on Undergraduate Research (NCUR). This organization that supports student research organizes a meeting at a different site each year. Students are among their peers nationwide, together with many mentors who also go, and it makes the exchange of research findings forthcoming, collegial and stimulating. Eastern Washington University in Cheney (near Spokane) hosted the 2015 meeting. Twenty two UNI students together with two UNI faculty members traveled to Spokane with the generous support of the College of Humanities, Arts and Sciences (CHAS), coordinated by CHAS Dean, Dr. John Fritch. Students presented talks at oral sessions, gave performances at performing or visual arts sessions, or displayed and explained posters at poster sessions, all of which were discipline specific. They also attended many talks and posters of interest by other students throughout the three-day conference. Each day, NCUR provided plenary sessions as well, featuring inspiring speakers who upheld the long-term value of research.

The conference included departmental open houses, student interest sessions, and a graduate school fair with booths put together by graduate programs from across the nation. Dr. Michael Walter and Dr. Darrell Wiens of the biology faculty also attended. The NCUR was broadly acknowledged as a highlight, an exciting and worthwhile experience.

UNI biology students who attended this edition of NCUR were Kiana Cullinan, Allison Dreyer, Peter Ickes, Stormie Johanson, Hallie Kuchera, Elizabeth McCulloch, Jade Simpson, Jordan Weber, and Celeste Underriner. Dr. Michael Walter and Dr. Darrell Wiens of the biology faculty also attended.

This past fall, ten members of the UNI Marine Biology Club embarked on a day long trip to the Shedd Aquarium in Chicago, IL. There, they observed the 32,000 animals representing 1,500 species of invertebrates, fishes, amphibians, reptiles, birds, and mammals currently on exhibit at the aquarium. Throughout their day, students were able to touch stingrays, watch dolphins, and observe Shedd’s 83-year-old Australian lungfish, which is the oldest living fish in any aquarium in the world.

“We were able to spend a day watching how these animals interact with each other and with humans is truly remarkable.” - Taylor Engle, president of the club.

UNI students at the stingray touch tank in the Shedd Aquarium.
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 with some bright and motivated students hoping to follow your path.

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, 319-273-2456 or Joan Smothers at joan.smothers@uni.edu, 319-273-2010 as a first step.

Department News

Carver Funding

The Department of Biology received $69,515 from the Roy J. Carver Charitable Trust to purchase new microscopes and updated software and hardware packages for the collection of physiological data from the students themselves in our Anatomy and Physiology II laboratory course. Eight software updates for four separate data collection modules (Cadiocomp, Physiogrip, Spirocomp, Flexicomp modules) as well as replacement of much of the associated hardware will allow our students the opportunity to learn physiology, using themselves as the models for the collection of data. The 26 dedicated microscopes for the Anatomy and Physiology II laboratory will give students the chance to see how the microscopic structure of organs and tissues are related to their physiological functions. In addition, an instructor’s microscopy station, that consist of a microscope connected to a LCD camera to allow live images from the microscope to be projected onto a screen, has been purchased. The quality of our Anatomy and Physiology courses have been greatly enhanced as a result of this and previous Carver Trust funding.

Department News
The cost to students continues to rise through increased costs coupled with fewer opportunities available to students via University-sponsored programs. It now costs on 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 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.

- **Myrna 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.

- **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.

- **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.
Let us hear from you . . .

Let us know what you have been up to.
You can email us at 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

Website: http://www.biology.uni.edu/
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Would you like to support a Biology student and/or the Biology Department?
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cassie.luze@uni.edu or Phone: 319-273-6360

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