

BioUCA

Promoting, enhancing and contributing to the science of biology



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JEWEL MOORE NATURE RESERVE

AND MUCH MORE!

Mission Statement

The mission of the UCA Biology Department is to promote, enhance, and contribute to the science of biology by offering undergraduate and graduate degree programs, engaging in biological research and actively assisting the individuals and organizations in our community. The biology program also contributes to the education of all UCA students through its general education biology course and plays a significant role in supporting the curriculum for programs in the College of Health and Behavioral Sciences.

A MESSAGE FROM OUR CHAIR



Welcome to the inaugural edition of the Department of Biology newsletter -- BioUCA. We hope this new tradition will allow us to connect with biology alumni and friends that have crossed the threshold of our classrooms and labs in Lewis Science Center. This spring we celebrated the one year anniversary of the Conway Corporation Center for Sciences, which added over 20,000 square feet of instructional lab space for our department! Our Department is now comprised of 32 full-time faculty, 3 adjunct faculty, and 5 staff members. At the start of this past academic year, we had a record 722 declared undergraduate biology majors, 76 environmental science majors, and 34 graduate students seeking their Master's of Science degree. With all these students, you can imagine that we are all quite busy! We have six distinctive areas that we desire to continue to build upon in the future. They are STEMteach (a minor for students to be licensed to teach science in public schools), outreach, undergraduate research, environmental science, pre-professional programs (pre-veterinary medicine, pre-medicine, pre-dentistry, pre-physician assistant, and pre-optometry), and the Jewel Moore Nature Reserve. Even with all the growth and changes over the years, our Department continues to pride ourselves on educating students to be informed citizens once they leave UCA. Please connect and keep us informed about your lives.

Go Biology Bears!

Student Spotlight



Our students are what creates the vitality and success of the Department. They continually remind us of why we, as faculty, enjoy our profession. Beyond the student success indicated below many students participate in the following supported clubs: Biology Club, Pre-Med Club, Pre-Vet Club, Pre-Optometry Club, Humane Society, UCA Fisheries & Wildlife Club, and Stream Team. Students presented at meetings throughout the region and nation, such as the Society for Integrative and Comparative Biology (San Francisco, CA), and Southern Section of the American Society of Plant Biologists (New Orleans, LA), Arkansas INBRE Research Symposium (Fayetteville, AR), Southeastern Fishes Council (Chattanooga, TN), Joint Arkansas/Tennessee American Fisheries Society Meeting (Memphis, TN), and Arkansas Academy of Sciences (Jonesboro, AR). Some highlights of student success are listed below.

Graduate students

- Jackie Thomas (mentor: Dr. Arijit Mukherjee) awarded a Graduate Research Assistantship in the Department of Genetics & Biochemistry at Clemson University starting Spring 2018.
- Michelle Fleming (mentor: Dr. Sally Entrekin) was offered a position as a Private Lands Biologist with the Arkansas Game and Fish Commission.
- Chelsey Sherwood (mentor: Dr. Sally Entrekin) was offered a position with the Arkansas Department of Environmental Quality.
- Aaron Burgad (mentor: Dr. Ginny Adams) was offered a position at a consulting firm in Arizona.
- Sage Shaddox (mentor: Dr. Brent Hill) was accepted into Tuskegee University College of Veterinary Medicine.
- Ian Clifton (mentor: Dr. Matt Gifford) was awarded the 2017 Paper of the Year in the Journal of Zoology for his work at UCA. He is now a Ph.D. student at the University of Toledo.
- Mason Rostollan (mentor: Dr. Leah Horton) was awarded a Southwestern Energy Research Fellowship.

Undergraduate students

- Last year, 19 students were accepted into medical school.
- Ethan Chernivec (mentor: Dr. Kari Naylor) received 2nd place for her oral presentation at the AR INBRE Research Symposium.
- UCA Advancement of Undergraduate Research in the Sciences (AURS) award for Outstanding Undergraduate Biology Thesis: Hannah Parks (mentor: Dr. Richard Noyes) for a thesis entitled *The Growth of Glyphosate-Resistant Amaranthus Palmeri in Response to Increased Temperature and Water Stress*, and Ha Ram Kim (mentor: Dr. Arijit Mukherjee) for a thesis entitled *Investigating regulation of gene expression during rice-Azospirillum interactions*.
- UCA Advancement of Undergraduate Research in the Sciences (AURS) for 2018 Summer Research Award: Mackenzie Hoogshagen (mentor: Dr. Leah Horton) and Chance Garrett (mentors: Drs: Ginny and Reid Adams)
- Morgan Sweere was named the College of Natural Science and Mathematics Outstanding Student of the Year
- Chance Garrett (mentors: Dr. Ginny Adams and Dr. Reid Adams) received Best Poster Award at the Arkansas American Fisheries Society meeting.
- John Cook was named the Southland Conference Outstanding Offensive Lineman for football and was named to the 2nd team FCS All-American Team. He also graduated with academic honors.

Alumni Spotlight



Meet Alice Heikens!

Alice Heikens is a professor of Biology at Franklin College. Heikens came to UCA in the fall of 1978 and graduated with Bachelor's of Science in 1983 and a Master's of Science in 1986.

When asked what was Heikens passion, she said "I love mentoring students. I had wonderful mentors and I would not be where I am without them."

What were the most useful classes you took in the biology department?

"Botany, Ecology, Plant Taxonomy, Plant Anatomy and Independent studies with Jerry Reynolds, Vertebrate Zoology."

What advice would you give incoming biology majors and minors?

"Be open to new ideas and possibilities," Heikens said. "Dr. Wright had to work hard to get me to accept a graduate assistantship. Listen to your advisors and professors. They see our potential even when we don't."

Meet Dr. Kyle Basham!

Dr. Kyle Basham is an urologist in Fort Smith, Arkansas and is affiliated with Sparks Regional Medical Center. He received his medical degree from the University of Arkansas for Medical Sciences College of Medicine.

Dr. Kyle Basham came to UCA in 2003. He graduated with a Bachelor's of Science in Biology and from the Honor's College in 2007.

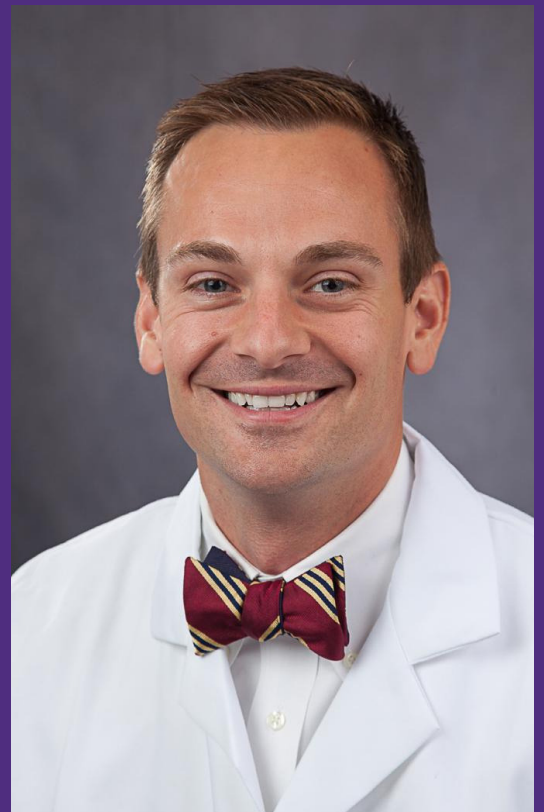
When asked what Basham learned over the course of his time at UCA, he said "you have to decide early that you're going to prepare and be ready in order to be successful."

What do you wish more people understood about your field?

"Medicine and surgery is a practice, just like it's referred to. No one ever has been or ever will be perfect doing it, especially surgery. People don't all respond to the same treatments in the same way nor do they heal the same."

What advice would you give incoming biology majors or minors?

"If looking to go to medical school and pursues a particular field, one has to always look to the next step. This requires balance. Self-motivation and personal responsibility is a must!"



Alumni Spotlight

Meet Nate Weston!

Nate Weston is the Program Coordinator at Beaver Watershed Alliance. Weston came to UCA in 2013 after graduating with an associate's from UACCM. He was a non-traditional student. He graduated in December 2016 as the first of his family to graduate college. Weston said this taught him "the value of dedication, patience and cultivating his professional acumen."

When asked was Weston pleased with his experience at UCA, he said "Absolutely! The biology department is full of wondering people trying to improve the well-being of their students, increase their awareness of the professional society into which they soon enter and collaborate with external partners to broaden the students experiences."

What advice would you give incoming biology majors or minors?

"Take some GIS courses," Weston said. "Using ArcGIS is like riding a bicycle while inebriated. You'll fall off and get back only to fall off again. Everyone uses it to some degree though, and it's a monumental tool for conservation which is only increasing in usage."



Meet Andrey Reed!

Andrey Reed is a physician at the Central Arkansas Veteran's Health Administration as well as Chenal Family Therapy. Reed's specialty is psychiatry and she completed her residency in the summer of 2017. Reed came to UCA in August 2005 and graduated in May 2009.

When asked what Reed learned over the course of her time at UCA, she said "I learned there are so many different people, belief systems and cultures than what was present in my experience prior to beginning my university studies," said Reed. "It was a great adventure developing new relationships with individuals in all different backgrounds and discovering who I was during that journey."

What brought you to your career?

"I loved the interplay between the mind and body. Psychiatry is not only a science but an art. Caring for those with mental illness of difficulty adjusting to life stressors is an honor. "

What advice would you give incoming biology majors or minors?

"Study hard, enjoy the company of your peers and learn from your professors."



STAY CONNECTED!

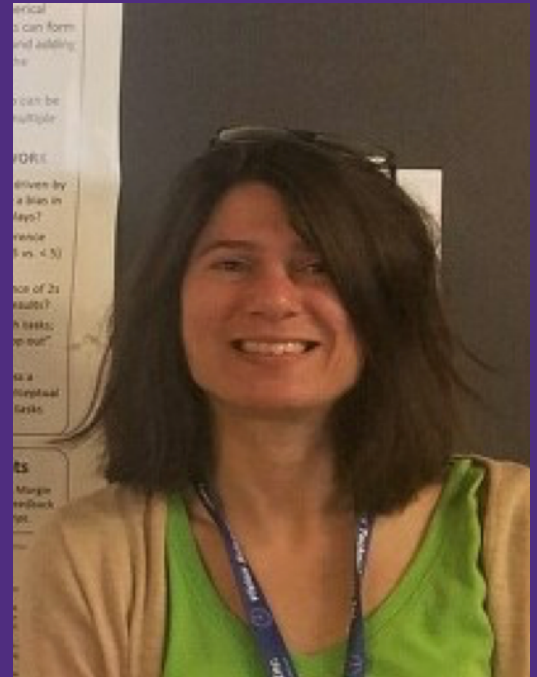
We want all our alumni to continue to stay connected to the Department of Biology. For several years, many of you made Lewis Science Center a second home. In the past, we have done a poor job of keeping track and connecting with you. Please stay connected to us by emailing me (bhill@uca.edu) and providing your name, address, preferred email, phone contact, graduation year, activities while at UCA, current profession (if applicable), and anything else you desire us to know.



New Faculty Spotlight

Dr. Mita Puri

Amrita (Mita) Puri received her Ph.D. in Neuroscience from the University of California, Davis (UC Davis) and did post-doctoral work in the Perception and Action lab at the UC Davis Center for Mind and Brain. After teaching and conducting research at Hendrix College and Illinois State University, Dr. Puri joined the UCA Biology Department as an assistant professor. In addition to teaching biology and neuroscience courses, Dr. Puri directs the Cognitive and Perceptual Neuroscience research lab at UCA. Students in the Cognitive and Perceptual lab use behavioral and electrophysiological methods to investigate cognitive control and perceptual processing, and how these are affected by neurological disorders such as autism and Parkinson's disease. Lab members also organize and participate in science outreach events throughout Central Arkansas. When time allows, Dr. Puri enjoys exploring the many outstanding scenic natural areas in the state.



Dr. Tammy Haselkorn

I have come to UCA and Arkansas via a circuitous route through 9 previous states of residence. When people ask me where I am from I always just say "the Midwest", as I grew up mostly in Ohio and Illinois, and received my B. S. from Iowa State University. There I was a biochemistry major, but fell in love with my ecology course and got an animal ecology minor while doing undergraduate research in an evolutionary herpetology lab (I love Jurassic Park!). Being involved in research as an undergraduate was one of the most important parts of my college experience, making a large university seem much smaller by working in a community of other undergraduate and graduate researchers. My own research career has been driven by a fascination of the various types of partnerships formed between bacteria and eukaryotes. In graduate school (at University of Arizona and UC San Diego) I studied bacterial symbionts that protect fruit flies against a nematode parasite, and in my postdoc I learned about single-celled eukaryotes, amoebas, which prey on bacteria in nature, but also have symbionts of their own. I love genetics because of what was the realm of science fiction when I was an undergraduate is rapidly becoming a reality. I wonder if one my genetics students will one day create a real Jurassic Park. What could possibly go wrong?

Faculty Spotlight

Tenure promotion to associate professor



Dr. Arijit Mukherjee



Dr. Matt Gifford

Dr. Mukherjee

My lab combines genetic, molecular, and physiological approaches to understand the signaling pathways governing beneficial plant-microbe interactions that help in nutrient uptake. The long-term goal of my research program is to improve the efficiency of nitrogen fixation in crops such as rice and corn, and make them less reliant on fertilizers for growth. My research team includes both graduate and undergraduate students. My research program has been supported by the National Science Foundation, National Institutes of Health, the University of Central Arkansas and the Arkansas Department of Higher Education. My primary teaching duties at UCA include Genetics, a sophomore-level core course. I also teach two other upper-division courses, Experimental Molecular Biology and Advanced Genetics.

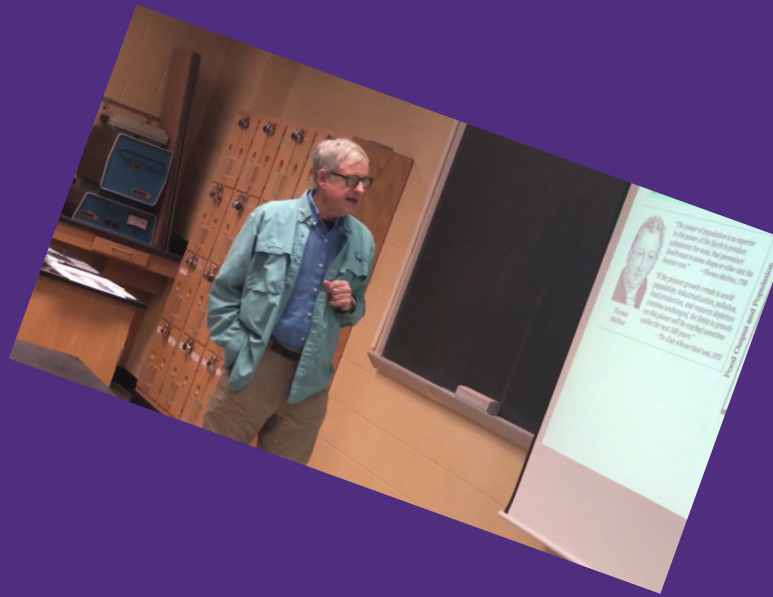
Dr. Gifford

I am a Physiological Ecologist and Evolutionary Biologist. My research interests are quite broad, but it tends to focus-questions aimed at understanding how environmental variation influences how animals function. And, how such variation in function determines nature's winners and losers. Most of the research conducted by students in my lab uses lizards as study animals (although we have worked with a broad range of animals including, fish, crayfish, ants, snakes, and salamanders). Lizards are fascinating animals that are conducive to many types of studies. Much of our recent interests concern how environments experienced by mothers can influence offspring. For example, do females living in stressful environments produce offspring better suited to living in such environments? Such questions have broad implications for understanding how early life experiences (even during embryonic development) can have effects persisting throughout a lifetime, and potentially across generations.

My teaching interests largely mirror my research interests. I teach courses in animal physiology and general biology. It is my goal to foster an understanding and deep appreciation for the natural world. Hopefully in the process, I can cultivate a passion for biology in my students.

Faculty Spotlight

After almost four decades, professor retires



Dr. John Choinski has taught in the UCA's biology department since the fall of 1984. After 39 years of teaching, Choinski says it's been his pleasure to see the department and teaching evolve and transform over time.

Over the course of his career he has taught Cell Biology, Plant Physiology, Economic Botany, Organisms in Extreme Environments and Principles of Biology.

Quotes:

"Dr. John Choinski's retirement is something that is well deserved and something he has earned after many years of service to UCA and higher education," said Dr. Steven Runge, professor in the biology department. "I have known Dr. Choinski for almost 27 years and I can state confidently that he exemplifies everything that one would expect from a senior faculty member. Dr. Choinski will be missed as a daily colleague in our department, but I have no doubt that he will always be active in our discipline."

"In all his courses, he liked to create hands-on learning opportunities for students, so they really interacted with the material," commented Dr. Brent Hill.

Final words to incoming students from Dr. Choinski... "Have goals. The most successful students I've seen had a clear idea of what life they wanted."

Choinski looks forward to retirement and is especially excited about the freedom he'll have to pursue projects without the constraints of the academic calendar.

WE WISH YOU THE BEST! YOU'LL BE TRULY MISSED.

Faculty Spotlight

Neuroscientist retires



Dr. Barbara Clancy

Dr. Barbara Clancy is a neuroscientist who is best known for her research on translating neurodevelopment from laboratory animals to humans. Her publications (over 30) have been cited over 3,000 times which ranks in the top 5 at UCA. Her research has been funded by the National Institutes of Health and the National Science Foundation. She taught Exploring Concepts Human Biology, Principles of Biology, Introduction to Neuroscience, and Neurodevelopment & Pathology. Over the course of her career she has been a champion for diversity and women in STEM. Dr. Clancy has been apart of the biology department since 2001.

WE WISH YOU THE BEST! YOU'LL BE TRULY MISSED.

FUNDRAISING

It is becoming increasingly more difficult to finance learning opportunities for students. We would appreciate if you would consider contributing to the mission of the Biology Department so we can continue to provide unique learning opportunities for students.

As a past student, remember all the hours you spent in Lewis Science Center interacting with faculty, enjoying classmates, dissecting specimens, looking through a microscope, or getting dirty in a stream or at the Jewel Moore Nature Reserve. Many of you engaged in student research and were able to attend local and national meetings. Please consider to "pay it forward" to future generations of students. Any donation amount would be appreciated.

All donations should be made to the UCA Foundation with the name of the fund your donation is intended to support. More information about the UCA Foundation can be found by visiting the Foundation page at www.uca.edu/foundation or by phoning (501) 450-5859. Any inquiries/questions about contributing to the Biology Department may be directed to Dr. Brent Hill, Chair of the Department of Biology (bhill@uca.edu) or Aimee Poynter, Director of Development - College of Natural Sciences & Mathematics (apoynter@uca.edu). We are currently trying to increase donations in the following four funds:

- **Biology Department Development Fund:** This provides for the support of special activities of the Department. For example, this fund has been used to support undergraduate and graduate student travel to meetings, purchase supplies for student research, provide graduate research stipends during the summer, and provide supplies for K-12 outreach activities, and enhance the use of the Jewel Moore Nature Reserve.
- **Biological Sciences Scholarship Fund:** Provides scholarships for students enrolled in a biological sciences degree program.
- **Advancement of Undergraduate Research in the Sciences Fund:** Funds undergraduate student research projects in biology, chemistry, geography, physics, mathematics, and computer science (www.aursfund.org/home).



CCCS Building

Construction of the Conway Corporation of the Science (CCCS) building began in Spring 2015, and was ready for use in January 2017. Hopefully, many of you have read about it in the Fall 2017 issue of the UCA Magazine (<http://uca.edu/magazine/departments/fall-2017/>). The CCCS building is a 50,000 square foot extension to the Lewis Science Center. The Department of Physics & Astronomy is located on the first floor and the Department of Biology is located on the second and third floors. The space is primarily teaching labs, with most faculty offices still located in Lewis Science Center.

Courses taught in CCCS include Principles of Biology I and II, Microbiology, all physiology-related courses, Genetics, Cell Biology, Ecology, and Environmental Science. There is also a dedicated research room for student use, study areas, tissue culture room, common equipment room, autoclave room, and a conference room.

It is such an enjoyable building to be in and you can see the smiles on the faces of both students, faculty, and staff.

K-12 Science Outreach

We have routinely done 3-4 Science Nights each semester at area middle schools. Last year, we started hosting a Science Day for elementary and middle school students during May. So, on May 9, 185 students ranging from 4th through 7th grade flooded the Farris Center and the CCCS Planetarium. There were stations set-up for students to explore and learn about different scientific concepts. The Departments of Biology, Chemistry, Physics, Geography, and Math participated. To represent all the departments in the college, we are going to rename it STEM Day for next year. We desire to grow the event in the future so are seeking donations and/or sponsors for refreshments and "gifts" to give the students for attending. Please contact Dr. Brent Hill if interested in donating.



Jewel Moore Nature Reserve



The Jewel Moore Nature Reserve (JMNR) continues to be a unique outdoor classroom and community green space that receives daily visits by UCA students, faculty, staff, alumni, and Conway residents.

It is not only used by our Department, but by the Honors College, the Geography Department, the Art Department, the ROTC program, Campus Outdoor Pursuits and Activities (COPA), the UCA cross-country teams, and the UCA women's beach volleyball team.

We host school and community groups seeking to learn about the environment. The reserve's walking trails lead through prairie, woodland, stream and vernal (temporary) pool habitats that support diverse life, including over 235 species of plants. During the year, we give tours of the JMNR to K-12 students. Just this past May almost 2,000 school-age kids toured the Reserve! Also, we celebrated Earth Day on April 22 with community and campus activities. Our long-term goals are to promote: education outreach, student-driven environmental management, outdoor recreation, and seek continued financial support of the JMNR. Future projects include a boardwalk and outdoor shelter. Jewel Moore celebrated her 100th birthday on June 5, 2018 at the Faulkner County Senior Wellness and Activity Center in Conway! You can read about it in the Log Cabin Democrat newspaper (<http://www.thecabin.net/news/20180605/family-friends-gather-for-party>).



Departmental Spring Picnic



We celebrate the success of our graduate students at our annual Departmental Spring Picnic the end of April.

This past year we had 23 graduate students in our program. Year-end awards were given for the Graduate Teaching Assistant Excellence Award. These individuals were Angie Lenard, Mason Rostollan, and Brianna Trejo. The runner-up candidates for the award were Nicholas Dial, Pepper Veerhusen, Sage Shaddox, Shelby Ruple, and Jennifer Main.



Brianna Trejo



Angie Lenard



Mason Rostollan

The pictures show our Associate Chair & Graduate Coordinator, Dr. Reid Adams, handing out the awards.