It has been another very productive year for our faculty, staff, and students. As you will see from browsing this issue, our faculty and students have been busy conducting research on topics as diverse as aggression in Australian water dragons, social behavior of collared lizards, use of pigments in photovoltaic cells, genetic diversity of birds, loss of a maternity population of free-tailed bats, age structure of Cross Timbers forests, construction of scaffolds for liver tissue engineering, proliferation and differentiation of myofibroblasts, orientation of prairie dog burrows, the effects of climate change on the distribution of birds, phylogeny of pitvipers, helminth parasites of Sonoran mud turtles, and development of a paper-based biosensor for detection of antibodies. Students co-authored many of the publications listed, as well as many presentations at a variety of local, regional, national, and international meetings. Our taxidermy collection continues to be a favorite place for prospective students to visit on their campus tours, and it is being used in our classes. Our Natural History Museum specimens were used for a “Wunderkammer” exhibit at the Science Museum of Oklahoma. Students participated in a variety of community service activities through Tri-Beta and the Pre-Med Health Professions Club, and Tri-Beta hosted the society’s Regional Convention. And our students formed two new clubs - the Horticulture Club and the Wildlife Society.

Last year we welcomed several new faculty members. They included Dr. Allyson Fenwick, a geneticist and conservation biologist; Dr. Chad King, a dendroecologist; and Dr. Nikki Seagraves, a developmental biologist. In this issue you can read about the paths that led them to their careers in Biology and their teaching positions at UCO.

In the previous issue I mentioned that we were in the midst of writing our five-year self-study and undergoing strategic planning to help ensure that we are preparing our students well for graduate and professional schools, as well as careers in various areas of biology and science education. As a result of that process, and because so many of our students intend to pursue careers in the health sciences, we proposed a new major in our program. Starting in the fall of 2015, students will be able to declare a major in Biology-Biomedical Sciences. We also revised our graduate program to allow students to take more coursework and gain more skills in their particular area of interest. As always, we would love to hear from our alumni! Send us a picture and tell us where you are and what you are doing!
What's Happening

UCO Natural History Museum

Alexander Nick Taxidermy Collection
Following incorporation of the taxidermy collection into the atrium and museum area of Howell Hall last year, we completed a diagram of mounts on view in the atrium as well as a tri-fold handout available for those interested in the names of specimens.
**Student Workers**
In 2013/2014 there were nine students that worked in the natural history collections performing a number of tasks including: processing and cleaning of specimens, accessioning specimens into the collections, data entry, integrated pest management practices, and organization of specimens in the collections. After completion of the wet lab, the new museum space added and completed last year, specimens were integrated into their new location and organized according to phylogenetic groups when possible.

![Steve Smith, graduate student, processing specimens.](image)

![Casey Hartgers, undergraduate senior, organizes specimens in the wet lab.](image)

**Wunderkammer Exhibit at the Oklahoma Science Museum**
In the winter of 2014, UCO was asked to participate in a unique and interesting satellite gallery exhibit at the Science Museum of Oklahoma in Oklahoma City. After viewing specimens in our collections and selecting items, over 60 specimens were transferred to the OSM for the length of the “Wunderkammer: Cabinet of Curiosities” exhibit running March 15 - Sept 15, 2014. This has been an excellent opportunity for community involvement and collaboration with other institutions in Oklahoma, as well as a unique educational experience for all ages.
Natural History Specimens Visit Local Community Groups
In 2014, three visits were made to local elementary school groups as well as six library presentations to display invertebrate and vertebrate diversity for elementary through high school aged students as well as families. The children are always very excited to learn about animals, especially insects, birds, reptiles, or mammals they may encounter while outside in nature, in their own backyard or local parks and lakes.
Meet the Faculty and Staff

In each edition of Bioluminescence, Faculty and Staff Members are selected to provide a story about themselves so you can become more familiar with the UCO Biology Department. To learn about other Faculty and Staff Members, see previous editions of Bioluminescence at http://biology.uco.edu/biopage/newsletter.htm

Dr. Chad King – Assistant Professor of Biology

Greetings! I am entering my second year as an Assistant Professor of Biology at UCO. My life has had many twists and turns to get to this point in my career.

I am a native Cornhusker. I grew up an avid Nebraska football fan and still remember OU breaking my heart as a kid. I graduated from Wayne State College in Nebraska with a B.S. in Biology. My passion for biology flourished as an undergraduate. One of my biology professors enabled this by taking students on weekend field trips to birdwatch or go hiking. These experiences outside in nature led me down the path of becoming a scientist. In order to graduate from Wayne State, all students had to complete and present an undergraduate research project. I loved birds (and still do today), so did my first research project looking at winter feeding behavior of Black-capped chickadees. I spent many hours in the dead of a Nebraska winter following chickadees…and I loved every minute of it!

I had dreamed of being a land manager for a state or federal agency after graduation. I soon realized how limited my options were related to that type of job. This was before the days of looking for jobs on the internet. One of my professors at Wayne State encouraged me to apply to the Master’s program at the University of South Dakota. I decided to work under the direction of the mammalogy professor. For my Master’s thesis I studied competition between two species of pocket gophers.

Following graduation, I moved to Denton, Texas while my wife worked towards her Ph.D. During that time I worked in private industry and also taught high school science for four years. It was also during this time that my wife and I had our son.

We moved to Missouri where I was lucky to obtain an instructor position at the University of Central Missouri. I spent seven years as an instructor of Biology. While an instructor I realized there was more I wanted to do, so I began looking for a Ph.D. program. I decided to pursue a Ph.D. in Forestry at the University of Missouri. My dissertation was on historic disturbance events in forests of Missouri using tree-ring analysis. I was able to determine when fires, windstorms, and logging events occurred in these forests from A.D. 1600 to present day. During that time I was part of research projects that took me to Pennsylvania, Colorado, and California.
That leads to coming to UCO in July 2013. I am currently teaching General Ecology and Plant Ecology. I am developing a new course called Fire and Disturbance Ecology and hope to develop another course entitled Historical Ecology. I have been active with undergraduate research and took a student to Wyoming in July 2014 to conduct tree-ring research with a group of international colleagues. I currently have two graduate students. One is working with the Oklahoma Forestry Service in understanding the effects of prescribed fire in a Cross Timbers forest while the other graduate student is conducting a study of historic forest dynamics at Arcadia Lake. I have a great cohort of six undergraduate researchers. These students are working on research projects ranging from above-ground biomass analysis of trees on the UCO campus to studying the association between climate and growth in blackjack oak.

So, what do I do with my time beyond UCO? I enjoy reading history. History, you say? I am kind of a history buff and enjoy delving into genealogy. History really lends itself to a lot of the research that I do with tree-rings. I also enjoy gardening and developing native plant gardens. Most of my down time is spent with my family as we begin to explore the corners of Oklahoma. I am a huge hockey fan and really love attending the UCO hockey club games.

The first year at UCO has been great and am looking forward to a long career in academia at UCO!

Dr. Allyson Fenwick – Assistant Professor of Biology

I was born in Milwaukee, Wisconsin as the oldest of three girls. My mom stayed at home and spent a few years doing medical transcription (typing out the notes doctors had dictated on cassette tapes). She had gone to medical school for a few years but decided she would rather spend more time with family. My dad worked in sales and customer service. They both always encouraged us to answer our own questions – I know I didn’t appreciate having to look things up in our home encyclopedia.

As long as I can remember I wanted to be a zookeeper. Because we lived in the city in the northern Midwest there weren’t many animals to catch in the backyard, but I went to the Milwaukee County Zoo even in the dead of winter. In high school I interned in the Education department. One day we were working with some of the petting zoo animals. I held a Black Rat Snake – it curled around me for warmth and I fell in love. That’s when I became a herpetologist, someone who studies amphibians and reptiles.

I went to Michigan State University because they had a program in Zoology for Zoo and Aquarium Science. Because of credits from high school I was also able to work on a degree in Theatre. Doing art and science at the same time kept me sane and I now use those presentation skills in class. My Zoology degree required an internship, so I spent a summer
in the (non-air-conditioned) reptile house at the Detroit Zoo. There I discovered that I appreciated the work keepers did but I wanted more variety in my workday.

Now late in my college career I tried to decide between getting a M.S. to manage a reptile house or using my B.S. in an entry-level position with animals. I spent 2003 working in a pet store. I took my GREs that fall and also applied for jobs. It was on the several-hour drive home after an interview with a drug testing company that I decided I wanted to go to graduate school and stick with the zoo track. However, this was February 2004 and almost all of the deadlines were already past. I applied to a position posted on the Texas A&M Wildlife Jobs board to survey herps. I interviewed at the University of Texas at Tyler, and although I wasn’t chosen for that spot I was invited to join the department under Dr. Ronald Gutberlet, Jr. I studied phylogenetic systematics – recovering evolutionary relationships and classifying groups – in part because my undergraduate advisor said it was an important factor in zoo exhibit design. My project was phylogenetics of South American pitvipers. Because I needed hundreds of specimens from many different countries, I couldn’t collect them myself but instead I borrowed them from museums across the U.S.

I have been lucky to go through graduate school with a great group of students, both in my labs and across the departments. We kept each other going through long nights of studying and research. It was through my labmate Jessica that I met my husband Will.

I discovered that I loved teaching and research, and so I changed my goals from the zoo to the university. I wanted to do a Ph.D. that built on my M.S. thesis. I joined Chris Parkinson’s lab at the University of Central Florida in Orlando in the fall of 2006. There I learned how to sequence DNA for my dataset, and I expanded my focus to all 200 species of pitviper. I also used phylogenies to investigate interesting evolutionary patterns such as when egg-laying and livebearing evolved in vipers.

I am extremely grateful that Will was willing to move across the country with me. He proposed the night I graduated from UT-Tyler, we drove to Florida the next day, and he started culinary school. We were married in 2007. We both were working hard in our respective fields, and decided to start a family while I finished my Ph.D. Aidan was born in the winter of 2011 and I defended my dissertation in the summer of 2012.

In 2012 I was fortunate to be hired as a Brown Visiting Teacher-Scholar at Stetson University in DeLand, FL. I really enjoyed teaching my first lectures and collaborating with Alicia Slater on population genetics of stoneflies from the sky islands of Nevada. This position confirmed my goal to join a teaching-focused university. I was elated to join the faculty here at UCO in the fall of 2013 because of the people in the department, the opportunities, and the chance to be closer to family. I’ve been able to research some interesting questions right on campus, tracking the genetics of a recent fire ant invasion and a long-established Mediterranean gecko invasion. Even Aidan has enjoyed catching geckos on the buildings.

This past fall my family welcomed our newest member, Arianna. I am teaching excellent students in class and mentoring others in research, and I look forward to putting down strong roots here in the OKC metro.
Dr. Nikki Seagraves – Assistant Professor of Biology

I was born in Enid, Ok to a long line of Oklahoma “Oily’s.” I grew up working cattle, driving tractors, and stacking hay alongside my parents and brother. I always loved school, especially science and medicine. My dad would let me skip school in seventh grade to go to his physical therapy appointments when he severed two fingers in an oil field accident. I had an extremely active time in high school. I played soccer and softball and I was in an infinite number of clubs. I was the president of Key Club where I volunteered all over town for various community causes. I even volunteered as a candy striper at the Woodward Hospital to see how a physical therapy clinic functioned behind the scenes. Another passion in high school was learning Spanish. I took classes each year and even took a 3 week trip to Costa Rica for a study trip. I haven’t given up the goal to become fluent someday but I’ve been busy with my career in science.

I graduated from Woodward High School in 2002 with plans to eventually go to medical or professional school. I attended Northwestern Oklahoma State University (NWOSU) in the big city of Alva (kidding of course)! I LOVED undergrad because I could take the courses I wanted and be involved in lots of extracurricular activities. I cherished the relationships I fostered with my professors who encouraged me to pursue big things. I still keep in contact with my professors and my favorite prof, Dr. Pfeifer-Hill, is still inspiring bright minds at NWOSU. She and Dr. Venkata Moorthy encouraged me to try a summer undergraduate research program. I got accepted in the SURP program at Oklahoma State University, where I got my first taste of bench research. I worked in the biochemistry department where I used the yeast 3-hybrid system to determine interactions between proteins and mRNA. I was hooked. I was so amazed that I was the only one in the world working on this project! I didn’t know that summer would alter my plans of becoming a medical doctor or physical therapist. I had come into college as a sophomore with lots of credit from AP classes, CLEP tests, and concurrent enrollment. My biggest regret is that I “accidentally” graduated in three years. I always wished I had taken a little more time to slow down and enjoy the one time in life that you can truly wander! I tell all of my students, don’t rush because life will come faster than you think!

In 2005, I packed everything I owned in my car and moved with my two fur-babies to Ohio to pursue a PhD in Biomedical Sciences. I didn’t even know which state was Ohio
until the interview! It was the first time I was alone, in a big city where I didn’t know anyone. I quickly made friends in my graduate program, figured out where to shop for food, and found a nice park to take the dogs for a walk. That summer I learned research techniques and rotated in a lab. It happened to be the lab of Dr. Kim McBride where I would eventually settle to complete my dissertation project. Then life happened. Sometimes things don’t go as planned and you get derailed. I found out my dad was terminally ill with liver disease. He acquired Hepatitis C from a blood transfusion when he was 17. After many sleepless nights, tears, and talks I decided to take a one year leave of absence and move back home with my parents. That year was rough but I married my soul mate (and middle school sweetheart), Kevin and we made plans to move back to Ohio for me to finish what I had started. Graduate school was the hardest time in my life, academically and emotionally tough. Many times I had to abandon experiments to rush back home for my dad’s surgeries. He received a transplant in 2010, but unfortunately the HCV overcame the graft and he passed in 2011. I put one foot in front of the other and kept making progress on my dissertation project. I finally defended my 7 year journey in August of 2012. While in Ohio, I discovered myself and the world of Research 1 institutions. My experiences had changed me, and I knew I wanted to come back to my roots in Oklahoma and give back to the students like me.

After my defense I took a Post-doctoral position working on a lung inflammation model at the Research Institute at Nationwide children’s Hospital in Columbus. I signed up for notifications of job announcements in cell or developmental biology in Oklahoma or any state that touched. To my surprise, in a few months the posting for UCO popped up and I thought it would be perfect! But again, life happened. Unfortunately during my application and interview process my mom had been diagnosed with stage 4 cervical cancer. She had moved in with us in Ohio to receive treatment. I received an offer and accepted the job to become an Assistant Professor of Biology here at UCO. I started my career at UCO in August 2013. My colleagues here in the department of Biology and College of Mathematics and Science have been so supportive. Unfortunately in the first year here at UCO, my focus was diverted to caring for my mother until her passing in April. I currently teach Biology 1 for Majors, Cell Biology, Cell Biology Lab and Embryology Lab and Lecture. I have enjoyed working with students in the classroom and I have just started my research program. We will try to determine how heart development goes awry in the presence of a teratogen. I am looking forward to whatever the future holds here at UCO and hopefully that will be at least 25 more years!


**Student Activities**

**Pre-Med Health Professions Club**

The 2013-2014 year was an amazing success for the Pre-Med/Health Professions Club (PMHPC). Membership involvement and leadership continued to push the club in a positive direction. Our club has fostered growth that has had a meaningful impact on the student body as well as the community at large.

In November 2013, the club held elections to replace the officers, as is custom every year. The old officers left after a year of faithful service and the new officers came in with high hopes of building on the work that had been done before them. The new officers hit the ground running, working hard to hammer out a budget that would help set the club on a solid financial footing. Careful planning and skillful representation paid off, and the club was awarded a budget that was almost double the budget given in the previous year. This was an extremely encouraging start for the PMHPC’s new officers, and it should allow for the club to carry out a lot of solid work for the next year.

As always, the PMHPC hosted their annual Health Career Fair and the event was a huge success. The PMHPC hosts organizations from all over the state including OUHSC, Mercy, Integris, and many other professional health entities. With the help of one of our cosponsors, Dr. Anne Ewing, these groups are able to come to UCO’s campus and meet with students to give them valuable information about professions and internships available. This event is unique in that it reaches out to multiple segments of the student body. Not only did it benefit the students of the PMHPC, but it also enabled students from the biology, chemistry, physics, and nursing programs to find opportunities to be successful in reaching their future goals.

The members of the PMHPC continually strive for success, and summer break certainly does not slow them down! Over the summer, members of the club took part in volunteering, shadowing, summer classes, MCATs, and even prestigious summer
internships! Our members were everywhere. We are proud of the efforts of our members to carry the values of our club into the community. Tulsa, Oklahoma City, Edmond, and even Africa were all visited and served by the skills of our dedicated members!

Throughout the year our club places a high value on serving and giving back to our community. We have strong ties with many volunteer organizations such as Manos Juntas, a free clinic in Oklahoma City, where students are able to practice their medical skills with patients and help them receive the care they so desperately need. In the fall, our students will serve deserving families at the Ronald McDonald House. The members spend time with the families, serving them a home-cooked meal and talking with them as their loved ones receive care at the OU Children’s Hospital.

The PMHPC holds meetings on the first and third Tuesdays of each month. These meetings serve as the lifeblood of our organization. Speakers from around the state representing a wide range of professions are kind enough to come and share their knowledge and experiences with our members. Throughout the year, the club proudly hosts MD’s, DO’s, DPM’s, DDS’s, residents, insurance specialists, and a plethora of other speakers that give members a full view of what it means to work as health care professionals. Students are able to ask questions, they receive advice, and are also able to gain opportunities for shadowing. Another “plus” of being a member is pizza and drinks at every meeting! Our membership is strong and numbers have continued to grow meeting after meeting. We are proud to represent the core values of UCO, and look forward to equipping students to achieve their future goals as leaders in the health career fields. Things are looking up for the UCO Pre-Med/Health Professions Club!
Biology Club and Tri-Beta National Biological Honor Society

The TriBeta Biology Club had a spectacular 2013-2014 Academic Year - proving its excellence in more ways than one. From hosting the Regional Convention and record-breaking fundraisers, to massive inductions, and being named the Student Organization of the Year, it's easy to say this might have been the club’s best year in a long time!

The Fall 2013 Semester boasted many triumphs for the club, including massively successful fundraisers and a great induction ceremony. As always, TriBeta packed half of the Atrium for their biweekly speaker meetings, luring in students with free lunch and keeping them in to learn from excellent speakers. This semester featured several of UCO's own professors, sharing their research, welcoming three new faculty members to the Biology Department and introducing their work to the student body, and a previous graduate demonstrating his application of knowledge obtained from this university and how it is used to improve and preserve water quality for the state.

The partnership with UCO's Chemistry Club brought together many of the STE Scholars on Halloween for a very popular costume party drawing an awesome crowd. The bake sale and costume voting raised plenty of money for both TriBeta and charitable organizations to which it was donated. On top of this, a Thanksgiving bake sale and holiday candle fundraiser also brought in record funds for the club. An Induction Ceremony including 43 new / promoted members rounded out the strong Fall 2013 semester.

TriBeta was also present at Martin Nature Park with a display on how to create solar cells that utilize plant pigments (part of Dr. Bidlack's research), explaining green energy and the cells' function to an audience ranging from small children to PhD biologists.

Another Induction Ceremony saw 36 more members joining the ranks and packed every seat in the atrium with proud families and bright scholars. The Corps of Officers for this past year kept things lively and productive, especially Co-Presidents Jonna Whetsel (Senior Student of the Year) and James Green (head of organizing the Regional Convention). With Vice President Hunter Porter, First Vice President Baylee Tatum, Treasurer Kim Orear, Secretary Tiffany Hall, Senator Joseph Acquaviva, Historian Dixie
Ehlenfeldt, Sergeant-at-Arms Taylor Murray, Special Events Coordinator Michaela Metts, Special Projects Officer Brittany Hall, and the ever-helpful Jack of All Trades Anna Graves, the club had strong leadership and plenty of warm bodies to handle all tasks at hand. Of course the students couldn't do this all on their own. UCO faculty members were highly supportive and contributed greatly to the club's success, especially Co-Advisors Dr. James Bidlack and Professor Linda Luna, providing the right amount of knowledge and guidance tempered with humor and optimism.

Perhaps the most significant event of the year was the hosting of the TriBeta Regional Convention. Programmed and led by our local (UCO) Psi Mu TriBeta Chapter at the Oklahoma University Biological Station near Lake Texoma, the Convention brings numerous chapters from the South Central Region to share research, compete for awards, enjoy nature, and forge friendships. Co-President James Green took the helm of organizing and received due praise for his excellent work. UCO's own Joseph Acquaviva won his section of the paper presentations and went on to present at the National Convention. The convention could not have run without all of the volunteers from our chapter and the University of Louisiana-Monroe, but we pulled it off for a strong finish to the outstanding year.

All of this hard work paid off with the club earning the Student Organization of the Year award. The award recognized all of the hard work the club's officers, faculty sponsors and members put forth. However, all good things must come to an end. A large majority of the officers finished their degrees and graduated, leaving many openings and a large name to live up to. With new officers in rank and schemes for success involving partnerships with the Chemistry Club and the Society for Women Engineers, TriBeta looks forward to another bright year and aspires to continue raising the bar of what an honor society should be.

This year’s plans include more volunteer work, especially in the local community, with prizes and recognition being offered to those who provide the most service. Some special speakers include graduate students from the Oklahoma University Health Sciences Center coming to share their journeys into graduate school, their work, and their advice for the
up-and-coming biologists. As always, the club will continue to raise funds for charitable organizations, including names such as “Save the Manatees,” and to grow and sell plants at the ever-popular Earth Day Sale. With this year’s officers including President Hunter Porter, Vice President Baylee Tatum, Secretary Michaela Metts, Treasurer Kim Orear, Historian Taylor Murray, Sergeant-at-Arms Joshua Faw, and Special Events Coordinators Jane Jarshaw and Rebecca Dimanche, the club is sure to shine as bright as ever. As always, Dr. Jim Bidlack and Professor Linda Luna will be pushing the students to perform their best as both scholars and club members. With a crew like this, TriBeta will surely continue to flourish!

The UCO TriBeta Biology Club officers receiving the Student Organization of the Year Award for 2013-2014

Pictures from the Fall 2013 and Spring 2014 Induction Ceremonies. Hats off to the dedicated members who attended the Fall 2013 Ceremony, which was rescheduled several times due to prevailing weather conditions. Both Induction Ceremonies were celebrated with Roma’s Gelato in the Howell Hall Atrium.
Horticultural Club

The 2013-2014 school year was an exciting start for the UCO Horticultural Club. In the fall we established a student garden outside Howell Hall and planted tulip bulbs in preparation for spring. Once spring arrived the tulips were a beautiful addition to the campus greenery.

Throughout the year, the Horticultural Club grew various plants from seeds in the greenhouses on campus. Coleus, sunflowers, aloe, basil, and cacti were cultivated. At the end of the spring semester, the healthy, young plants were donated to the Tri-Beta Biology Club to make room for new plants in the coming fall. In addition to the nearly eighty plants grown, Horticultural club teamed up with Tri-Beta to host a plant sale during the Earth Day celebration on campus in late April.
The UCO chapter of The Wildlife Society was formed in spring 2013. The goal of this organization is to provide educational and hands-on opportunities that will help students prepare for a career in wildlife stewardship. We have monthly guest speakers, occasional seminars, field trips, and service trips. During fall 2013, we traveled to wilderness of extreme southeastern Oklahoma and participated in the Oklahoma Academy of Sciences fall field meeting. We saw alligators, palm trees, and many species of wildlife that are found nowhere else in Oklahoma. During spring 2014, we engaged in a service trip to the Selman Living Laboratory in northwestern Oklahoma where we set up nestboxes for birds.
Faculty & Student News

Recent Intellectual Contributions


Recent Presentations

Baird, T.A. Live fast and prosper: Early territory acquisition does not decrease male collared lizard body condition and lifespan. Southwestern Association of Naturalists. Oklahoma State University, Stillwater, OK.

*Braun, C.L. and Baird, T.A. Does habitat geometry influence the social behavior of male collared lizards? Southwestern Association of Naturalists. Oklahoma State University, Stillwater, OK.


**Ewing, A. L.,** Summer Premedical Academy, "How to Prepare for the Medical School Application Process," OU Medical School, OUHSC. June 10, 2014.

**Fenwick, A. M.,** and Parkinson, C. L. Combined morphological and multigene analysis allows comprehensive taxon sampling of the subfamily of pitvipers (Serpentes: Crotalinae). Evolution, Raleigh, NC, June 20–24, 2014.


*Cheek, J., **King, C.** and *Ferguson, A. Age structure of a Cross Timbers forest within an urban landscape in central Oklahoma. Oklahoma Research Day, University of Central Oklahoma, Edmond, OK, March 7, 2014.


**Loucks, L. M.**, Piedmont Library, “Bats!” family program, Piedmont, OK, June 2014


**Pace, R.** and **W. Caire.** Opportunities for Research and Education. At the Selman Living Laboratory, Southwestern Association Naturalists. Stillwater, OK, 2014.


*Tinnin, L., * *Anderson, C., Xu, G., **Vaughan, M.B.**, *Tran, K. Probing Mechanical Stresses in Human Fibroblast Collagen Lattices, 2014


**Grants Received**

B. McDonald (Cameron Univ.), S. Virla (Cameron Univ.), Dr. William Caire, and Ms. Lynda Loucks collaborators. National Science Foundation EPSCor Grant ($12,500). The UV vision system of the Kangaroo Rat (*Dipodomys ordii*): Potential Model Indicator of Climatological Variation. (funded 2014)


Dr. Mel Vaughan received an On-campus Interdisciplinary grant ($5000) for “Measuring tension within a skin equivalent: effect of tension on cell phenotypes” (Gang Xu, Dept. of Engineering and Physics, co-PI).

Dr. Mel Vaughan was co-PI on an external grant ($290,720) from INBRE for a project titled “Effect of nanoscale surface treatment on the biomechanical performances of titanium” (Morshed Khandaker, Dept. of Engineering and Physics, PI).

Dr. Allyson Fenwick received a New Faculty Start-Up grant ($500) for Genetic Variation and Genetic Structure of Red Imported Fire Ants, *Solenopsis invicta*, at the University of Central Oklahoma. She also received an On-Campus grant ($2678) for Population Genetic Structure and Gene Flow Patterns of Mediterranean House Geckos, *Hemidactylus turcicus*, at the University of Central Oklahoma.

Dr. Chad King received an on-campus grant for Forest Composition, Disturbance, and Growth Dynamics of an Old-Growth Forest in Central Oklahoma.

Dr. Bob Brennan received an external grant ($15,000.00) from 3M Corporation, Nontenured Faculty Grant, “*Staphylococcus aureus* biofilm secreted products and chronic wound pathogenesis.”

Dr. Chris Butler received an external grant ($5,500) from the USDA Forest Service. Using stable isotope analysis to examine migratory connectivity in the Yellow Rail, Sedge Wren, and Le Conte’s Sparrow.

Dr. Chris Butler received an external grant ($15,139) from the Texas Parks & Wildlife Department. Assessing Black Rail occupancy and vocalizations along the Texas Gulf Coast.

Dr. Chris Butler received an on-campus grant ($7500). Optimizing Black Rail Surveys and Training Students to Conduct Sound Analyses.
Dr. Chris Butler received an external grant ($1000) from UCO Friends of the Library. Acquisition of Ornithology Texts.

Dr. Hari Kotturi received an external grant ($13300) from INBRE ROA. “Resveratrol analogue 3, 4’, 5-Trimethoxybenzophenone against Hepatitis C”.


RCSA Grants Received

Cody Braun: Does territory defense or courtship determine reproductive success in male collared lizards? Dr. Troy Baird, mentor.

Matthew Bryson: Prevalence of Tick-borne Illness in Oklahoma County. Dr. Bob Brennan, mentor.

Justin Cheek: Determining the Effects of Climate on Radial Growth of Quercus marilandica. Dr. Chad King, mentor.

Mai Do: Investigating Different Lysine Biosynthesis Pathways of Porphyra umbilicalis. Dr. Stephen Karpowicz, mentor. Ashley

Durant-Park: The Effect of Brucin Nanoemulsion on Replication of Hepatitis C virus in Hepatoma Cells. Dr. Hari Kotturi, mentor.


Julie Hamilton: Myofibroblast Organization in a 3-D Collagen Lattice. Dr. Melville Vaughn, mentor.

Nathan Hillis: The Effects of Climate Change on Species Abundance Distributions Over Time. Dr. Chris Butler, mentor.

Laura Kimmel: Phylogeography of Sonoran Mud Turtles in a Fragmented Landscape. Dr. Michelle Haynie, mentor.

Pratiksha Kshetri: The effect of bacterial biofilm Staphylococcus aureus on fibroblast tension generation. Dr. Melville Vaughn, mentor.

Sukyoung Kwak: OHP Protein May Red Algal Photosynthesis from High Light Damage. Dr. Stephen Karpowicz, mentor.

Thi Nguyen: Response of Chlamydomonas reinhardtii in Medium Viscosity. Dr. Stephen Karpowicz, mentor.

Hunter Porter: Thin-film Solar Cells – Controlled Aerosol Deposition. Dr. James Bidlack, mentor.

Jeffrey Tibbits: Identifying Peak Vocalization Times of Black Rails. Dr. Chris Butler, mentor.


Faculty Awards


Student Awards

Academic Achievement Award - Kylie Gilcrest, Deanna Lemley, Morgan Myers, Daniel Tinker

Outstanding Biology Senior Student Award - Kylie Gilcrest

Biology Education Senior Award - Morgan Myers, Justin Pruitt

Ethel Derrick Zoology Award - Nathan Wood

Outstanding Biology Graduate Student Award - Josh York

Lothar Hornuff Field Biology Award - Katrina Hucks

Biology Department Scholarship - Michael Tran

Dr. Beverley Cox Endowed Scholarship for Biology - Matthew Bryson

Dr. Ethel Derrick Scholarship - Cody Braun

Dr. Margaret Hamilton Endowed Scholarship - Melissa Knox, Lindsay Guthrie

Marvin Mays Endowed Scholarship - Kinsey Tedford

Joe Ernest Vaughan Scholarship - Kinsey Tedford

Zane and Linda Skinner Charitable Fund Scholarship for Biology - Alain Kameni

Joni L. McClain, M.D. Endowed Scholarship - Taylor Murray

Dr. Lee Beasley Endowed Scholarship for Pre-Dental - Solemanul Haque, Christopher Long

Jonna Whetsel (Biology Major) received the Outstanding Graduating Senior Award from the UCO Office of Student Affairs
Undergraduate Poster and Presentation Awards

Jing Herwig, working with Dr. Mel Vaughan, won the undergraduate poster award at the American Association of Anatomists Regional Meeting in Dallas, TX for her research on “The N-Acetyl Cysteine (NAC) effect on Myofibroblast Proliferation and Phenotype”.

At the 2013 Oklahoma Ornithological Society fall technical meeting, Katrina Hucks received an award for best undergraduate presentation, while Lindsay Jones received runner-up in this category. Tegan Boyd and Zoha Qureshi received the best undergraduate poster award for their joint poster.

Thesis Defended

Josh York successfully defended his MS in Biology Thesis entitled, "Sexual selection, alternative reproductive tactics, and sexual conflict in collared lizards: Interaction of molecular and behavioral ecology." April 4, 2014. His Advisory Committee included Drs. Troy Baird, Michelle Haynie, and Jenna Helliak. This fall Josh began the PhD program in Zoology at OU studying evolutionary and developmental biology in Dr. James McCauley's laboratory.


Alumni Activities

Dr. Joanne Peterson (BS 2003, MS 2009) earned her Ph. D. from OUHSC Department of Cell Biology in 2013. Her dissertation was entitled, "Analysis of Epiderman Growth Factor Receptor (EGFR) Ligands and Their Role in Corneal Epithelial Biology". She became an Assistant Professor of Biology at Southern Nazarene University, Bethany, OK, January 2014

Dr. Amber Howerton recently completed a Ph.D. at the University of Nevada Las Vegas and will begin a faculty position at Nevada State College during the fall 2014 semester.

Other Faculty, Staff and Student Activities

Dr. Chad King and *Justin Cheek attended the 24th annual North American Dendroecology Fieldweek at the A.L. Mickelson Field Station near Cody, Wyoming. During the fieldweek, Dr. King conducted research on a 410-year streamflow reconstruction using tree-rings while Justin conducted research on high-elevation fire history using tree-rings.

Dr. Bob Brennan served as a research and teaching mentor for the Iraqi Fulbright Scholarship program.

Dr. Anne Ewing attended the conference, "Raising Students above the Fog," NAAHP, San Francisco, CA. June 25 - June 29, 2014

*Josh York began the PhD program in Zoology at OU studying Evolutionary and Developmental Biology Fall 2014 in Dr. James McCauley’s laboratory.

*Rory Telemeco, who completed his masters degree in Dr. Troy Baird's laboratory in 2010, successfully defended his PhD thesis in the Department of Evolutionary Ecology at Iowa State University in May. Rory has recently begun a position as a Post-Doctoral Research Associate at the University of Washington in Seattle.
**Dr. David Bass** spent two weeks in the Cayman Islands continuing invertebrate biodiversity studies in freshwater ponds and anarchaline caves during summer 2014. Throughout the year, he works closely with the Cayman Department of Environment to provide scientific data and expertise regarding ecological concerns and environmental issues.

As Biology Editor for MERLOT, Dr. Jim Bidlack received, on behalf of the Biology Editorial Board, the “House Cup” from MERLOT for the 2011-2012 and 2013-2014 Academic Years. This award is presented to one of the 23 Editorial Boards who oversee a collection of 44,000 Internet learning materials and 120,000 members in MERLOT.

**INBRE and STEP@UCO**

INBRE- Summer 2014 Undergraduate Research Opportunity: Max Lyon worked in Dr. Karla Rodgers lab at OUHSC; he won the Outstanding Poster Presentation Award.

The NSF-Funded STEP program is now in its 10th year of sponsoring undergraduate research at UCO. This summer 6 faculty members in the college are participating, including **Dr. Mel Vaughan** of the Biology department. Six incoming UCO freshmen are conducting laboratory research this July with Mel and his student assistant Jessica Webb. The grant provides the potential for the teams to continue their research during the fall 2014 and spring 2015 semesters.

**Pre-Health Professions Program**

The Pre-Health Professions Program at UCO is alive and well. There are nearly 1000 declared Biology majors at UCO, and many of them identify a health profession as their ultimate goal. In recent semesters, two new clubs have been formed by students for students: The Pre-Dental Society and the Pre-Optometry Club. If you are interested in viewing students from the last application cycle who authorized their photos for display after gaining admission to a health professions program, please follow the link provided below:

[http://biology.uco.edu/PersonalPages/AEwingWeb/whosgoingwhere.htm](http://biology.uco.edu/PersonalPages/AEwingWeb/whosgoingwhere.htm)
Laura Powell, student worker in the Microbiology Prep Lab, demonstrating that lab staff can have fun, show school spirit, and learn new information, while providing students with cultures and lab materials.

How to Donate to the UCO Department of Biology

The UCO Biology Department is excited about its future and you can help move the department forward. To find out more about how you can contribute towards UCO, the College of Mathematics & Science, and the Biology Department, go to: https://broncho2.uco.edu/foundation_givenow/index.html