

BIOHawk



FALL NEWSLETTER 2018

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Greetings Fellow BioHawks!

Welcome to the Fall 2018 issue of the BioHawk – the KU Biology Newsletter! We hope you will find it interesting and informative. Our goal is to share updates about the three units that make up KU Biological Sciences – the **Ecology & Evolutionary Biology** and **Molecular Biosciences Departments** and the **Undergraduate Biology Program** – with news of our accomplishments, and progress reports from our faculty colleagues as well as our graduate and undergraduate students.

As you will see, the unit with the most significant change is the Undergraduate Biology Program. The dual departure of **Greg Burg** (Director) and **Jen Weghorst** (Assistant Director) in summer 2018 was a huge loss to the program. Both Greg and Jen possessed enormous institutional memories, and had personal connections to scores of undergraduate students who relied on them as they navigated the complexities of our undergraduate curricula. Clearly, replacing this unique duo was impossible, so we developed a new organizational structure with a team of dedicated professionals led by co-directors **Mark Mort** (Associate Professor, EEB) and **Scott Hefty** (Professor, MB). Joint leadership, a new Associate Director and a new group of professional advisors guarantees that our 1600+ majors will receive the support and guidance that they deserve as they choose their major and progress through their requirements.

The graduate programs in the Ecology & Evolutionary Biology and Molecular Biosciences Departments remain strong, with award winning students forging new research directions and sharing their successes through peer-reviewed publications and presentations at national and international meetings. We take pride in the diversity and remarkable accomplishments of our protégés!

The accomplishments of our fellow faculty members are no less impressive. From discovering the mechanisms of antibiotic resistance in bacteria to modeling synchrony in natural systems as it relates to climate change, our colleagues continue to attract increasingly elusive federal funding for their research programs.

We hope you enjoy the information contained in this newsletter and we would be delighted to hear from and about you! We anticipate continuing to share our news with you through this digital format. Please let us know how you like our newsletter and what we can do to improve it for you.

Rock Chalk!
--Susan and Chris



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Undergraduate Biology

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Co-directors' letter

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Dr. Carol Saunders

Diane Wyatt

It has been an exciting time of change in the Undergraduate Biology Program. We would like to first say farewell to **Drs. Greg Burg & Jen Weghorst**. The Undergraduate Biology Program benefitted for many years from their leadership and vision. This past summer they each moved on from KU and we miss them greatly. Dr. Weghorst joined KU Undergraduate Biology in January 2011. Her excellence in teaching and advising was recognized widely in the KU community. She was awarded the KU Mortar Board Outstanding Educator award in 2013; a national Mortar Board Excellence in advising award in 2016; and the J. Michael Young Academic Advisor award in 2016. The KU Biology community wishes Dr. Weghorst all the best as she pursues other opportunities. Please see the Ecology & Evolutionary Biology faculty updates section for highlights of **Dr. Burg's teaching and research career** at KU. Dr. Burg served Undergraduate Biology for 22 years and is very busy, enjoying his retirement.

As Dr. Burg and Dr. Weghorst moved on, the Undergraduate Biology Program has undergone significant restructuring. We now have two faculty co-directors, one representing each of our two departments: **Dr. Scott Hefty**, Professor in Molecular Biosciences, and **Dr. Mark Mort**, Associate Professor in Ecology & Evolutionary Biology. We were also very fortunate to recruit **Dr. Dyan Morgan** to join the Undergraduate Biology leadership team as Associate Director. Our students are now also benefiting from a newly hired and dedicated Biology advising team as well as three new Assistant Teaching Professors.

Through increased student retention via course transformation efforts and increased recruitment efforts, the number of Biology majors continues to grow significantly. As the largest major in the College of Liberal Arts & Sciences, we now have over 1600 declared Biology majors – almost a 10% increase over last year! This increase in enrollment across our curricula is not without challenges (e.g., large classes, increased demand for staffing our courses, etc.); however, the staff and faculty of Undergraduate Biology and the Departments of Ecology and Evolutionary Biology and Molecular Biosciences remain committed to providing an inclusive, engaging learning environment for all of our students.

*With best wishes,
Drs. Mark Mort and Scott Hefty*



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A Farewell to Greg Burg & Jen Weghorst

<http://kuub.ku.edu>

The Undergraduate Biology Program benefited for many years from the leadership of **Dr. Greg Burg**, Director, and **Dr. Jennifer Weghorst**, Assistant Director. We presented them with a farewell luncheon and plaques to honor their hard work at KU. This past summer they each moved on from KU and *we miss them greatly*.



Changes in Undergraduate Biology Program



Scott Hefty



Mark Mort



Dyan Morgan



Lindsey Deaver

As **Dr. Burg** and **Dr. Weghorst** moved on, the Undergraduate Biology Program was restructured. We now have two faculty co-directors, one representing each of our two departments: **Dr. Scott Hefty**, professor in Molecular Biosciences, and **Dr. Mark Mort**, associate professor in Ecology & Evolutionary Biology. **Dr. Dyan Morgan** also joined the leadership team as associate director. Our students are now benefiting from the addition of our advising team led by **Lindsey Deaver**, assistant director, and including **Lauren Spain**, **Darrell Johnson**, and **Bhargavi Krishnan**. Our students have the assistance of an individually assigned advisor who can provide guidance on enrollment planning and college success overall.

As part of the restructuring of Undergraduate Biology, we had an opportunity to hire three Assistant Teaching Professors, a position category that is new to the KU campus. The Assistant Teaching Professors' to act as local catalysts to develop and facilitate the spread of student-centered, active learning teaching practices and course transformation in our curriculum. **Dr. Eileen Hotze** will be focusing much of her efforts on pedagogical improvements in Principles of Molecular and Cellular Biology (BIOL 150), **Drs. Jenny Archibald** and **Trevor Rivers** will be continuing to integrate active learning in Principles of Organismal Biology (BIOL 152) and non-majors biology (BIOL 100). All three of these individuals are fantastic, innovative teachers and we are happy to welcome them as professors in Undergraduate Biology.



Trevor Rivers



Jenny Archibald



Eileen Hotze



Lauren Spain



Darrell Johnson



Bhargavi Krishnan

Jayhawks doing research on Aristotle's island

<http://kuub.ku.edu>



Connor Chambers and Victor Gonzalez with undergraduates students from various US universities in Lesvos, Greece.

Most people know that Aristotle, a disciple of Plato, is the father of Western Philosophy. What many do not know is that he also wrote the first scientific book on zoology, and that he did it while living on the Island of Lesvos, Greece. He spent at least two years systematically studying and documenting for the first time in human history the biology and morphology of a wide array of animals that ranged from fish to bees. This summer, more than 2,000 years later, KU senior **Connor Chambers** spent eight weeks on the same island following Aristotle's steps.

Connor was one of six students selected from numerous universities across the US to participate in a National Science Foundation (NSF) program targeted to engage undergraduate students in research. Students in this program gain first-hand experience on all aspects of the scientific process while living in an international setting and interacting with a multinational team of scientists and students. "After participating in this program I feel more prepared going into my senior year and graduation, and eventually graduate school", said Connor.

Dr. Victor H. Gonzalez, KU Undergraduate Biology faculty who has been a research mentor for this program since 2013, said the University of Central Oklahoma sponsors it and it focuses on the behavior, ecology, and physiology of pollinators, particularly solitary bees and honey bees.

This is not Connor's first experience in the process of doing real science. Earlier this year, Connor presented at the National Conference for Undergraduate Research and the Undergraduate Research Symposium at KU. The Undergraduate Biology Program and the Center for Undergraduate Research supported his participation to both events. Connor plans to present the results of his research on Aristotle's island in Tampa, FL, at the Society for Integrative and Comparative Biology meeting in January 2019.

"After these experiences I have a greater appreciation for my decision to go to KU and the opportunities available to me as an undergraduate student. They have showed me how valuable it is to spend time getting to know your professors and to learn from them. I would encourage future students to participate in research and to make the most of their undergraduate education"; Connor said.

Career Night

Each year we host Career Night – an event that connects undergraduate students with representatives from companies, government organizations, and graduate programs. The purpose of this event is to provide an opportunity for biology students to interact with professionals and explore career opportunities that are available. The 2018 University of Kansas Biological Sciences Career Night was on Thursday, October 25th in the Ballroom of the Kansas Union. The event was attended by nearly **100 biology students**, ranging from freshmen who were just starting to explore to seniors looking for their next career step. Twenty-eight employers or programs were present to answer questions and pique students' interests in careers in science. The event is sponsored by KU's Biological Sciences Advisory Board and the Undergraduate Biology Program.



Artnatomy

<http://kuub.ku.edu>



Kate Thatcher's project

College students often experience high levels of stress related to changes in environment, lifestyle, and responsibilities. Some classes might be particularly challenging, as in the case of Fundamentals of Human Anatomy (Biol 240), a large enrollment, heavy content, and foundational course that serves diverse pre-professional health care majors. Thus, to reduce stress while reinforcing the class material, students have the opportunity to develop creative and scholarly projects either individually or in small groups (2–3 students per project). As part of their assignment, students create paintings, sculptures, scrapbooks, 3-D models, songs, video clips, or even baked goods related to any of the topics covered in the course. Each semester, between 250 and 300 students are involved in this assignment. The levels of engagement, creativity, and professionalism developed by the students in this simple exercise are outstanding. Nearly all projects are anatomically accurate and the various projects depict most body systems.

Every spring, students display their projects in an annual event, “ARTnatomy”, which is led by Anatomy Undergraduate Teaching Assistants (UTAs) and supported by the **Undergraduate Biology Program** and **BioGraphics**. This event not only engages students but also the UTAs of the course, who participate in its organization and have developed a rubric to evaluate the projects in terms of the information, aesthetics, and creativity. This has been a great experience for all of us, and it continues to evolve. Each semester, we try to add a new challenge to the assignment. For example, this fall semester students are required to use only recyclable materials in their art projects. We are all excited to see what projects students can create. Examples of students’ artwork from previous semesters are on permanent display on the first floor of Haworth.

Biology Honors Recognition Ceremony

Graduates receiving Departmental Honors in Biology go above and beyond what is required for their degree. They complete additional coursework, conduct research with a faculty mentor, write a thesis, and present this thesis to a panel of faculty for review. *The following students earned departmental honors in May 2018:*



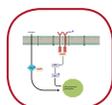
Cecilia Villanueva (mentor Wendy Picking)
Automatic enumeration of bacterial colonies in serum bactericidal assays using ELISpot analyzer



Chloe Adams (mentor Brian Ackley)
syg-2 regulates GABAergic motor neuron development in *Caenorhabditis elegans*



Haley Flickinger (mentor Benjamin Sikes)
The role of novel symbioses in the success of the invasive species *Verbascum thapsus*



Virangika Wimalasena (mentors Joanna Slusky, Brian Blagg) Evaluating the efficacy of EGCG analogs as anticancer C-terminal Hsp90 inhibitors



Marilyn Barragan (mentor Justin Blumenstiel)
The potential for piRNA-mediated silencing of genes residing near a transposable-element-rich telomere in *Drosophila*



Maureen Dowell (mentor Robert Unckless)
Genetic factors determining *Drosophila melanogaster* resistance to infection with *Enterococcus faecalis*



Paige Hansen (mentor Benjamin Sikes)
Quantifying fire’s effects on fungal mortality



Megan Hansen (mentor James Walters)
Combining transcriptomics and proteomics reveals a major contribution of accessory glands to the sperm proteome in Lepidoptera



Alex Gabrielli (mentor Merlin Butler)
Profiling obesity: A gene set analysis approach

Undergraduate Biology Graduation Recognition Ceremony

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Every May, we recognize the accomplishments of our graduating seniors. This year 146 of the graduating seniors and their families joined the faculty and staff of Undergraduate Biology, Ecology & Evolutionary Biology, and Molecular Biosciences on Saturday May 12, 2018 to celebrate their hard work and send them off to their next endeavors. The 2018 graduating class selected two "Favorite Professors:" **Dr. Eileen Hotze**, Assistant Teaching Professor in Undergraduate Biology and **Dr. Kristi Neufeld**, Professor in Molecular Biosciences. *Best wishes to the Class of 2018! And please keep in touch!*



Dr. Kristi Neufeld, receives Favorite Professor



Dr. Susan Egan, chair, Molecular Biosciences



Dr. Chris Haufler, chair, Ecology and Evolutionary

This year's ceremony was well-attended by graduating seniors, their families, and KU faculty.



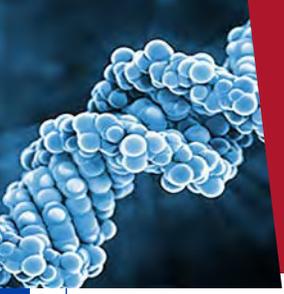
Study Abroad for Summer 2019

Microbiology in Western Europe

This program will take students to some of the leading infectious disease research institutes and companies in France, Switzerland, Germany and the Netherlands. Students will be exposed to public health approaches and aspects of western European countries and will gain an understanding of how they compare and contrast to those found within the United States. Lastly, visits to historical sites related to infectious disease impacts on human development will be included in the experience. The general outcomes are a broad appreciation of international microbiology research and infectious disease public health aspects, both current and historical.

Contact: [Scott Hefty pshefty@ku.edu](mailto:Scott.Hefty@ku.edu) for more information





Faculty News



Dr. Dean Stetler (Associate Professor) has retired from the University of Kansas after 42 total years of association with the university. Dean is a KU alumnus, earning a BA (1976) and a PhD (1980) in Microbiology, working in the laboratory of George Boguslavski where he studied *Histoplasma capsulatum*. Dean completed postdoctoral training in the lab of Sam Jacob in the Department of Pharmacology at Pennsylvania State University where he began his long term study of autoimmune diseases, cancer and RNA polymerases. Dean was recruited to the Department of Pharmacology and Specialized Cancer Research Center at Penn State in 1982 as an Assistant Professor. In 1985, Dean was recruited back to KU to the department of Biochemistry as an Assistant Professor, and was promoted to Associate Professor in 1989. Throughout his career Dean contributed strong and creative research. He was first to describe that antibodies against RNA polymerase are part of the anti-nuclear antibody array associated with Systemic Lupus Erythematosus (SLE), an observation that continues to provide diagnostic information in the clinic. Dean generated three US patents on diagnosing and monitoring severity of autoimmune diseases, and he developed the first model to induce SLE in mice without genetic alteration. More recently, he turned his attention to human genetics with research that links gene expression with violent crime. His research was supported by the National Institutes of Health, National Science Foundation, American Cancer Society, and the Arthritis Foundation. Dean's teaching scope at KU was extensive, contributing to 17 undergraduate and graduate courses and he demonstrated a strong commitment to training undergraduate students in his lab to conduct research. During his career, Dean trained over a dozen pre-doctoral and postdoctoral investigators who went on to successful careers. As DNA analysis was becoming important for the legal system and experts were needed to explain the process and probabilities to attorneys, judges and juries, Dean established himself as such an expert and contributed to over 275 legal cases in 11 states and Canada. During this time, he was frequently invited to conduct workshops to legal professionals on the topics associated with DNA analysis. Dean's service to the University was extensive. Most notable, he served as director of Graduate Studies for the Department of Molecular Biosciences and Director of the Genetics Program. Dean also served as the Director of Undergraduate Biology, during which time he founded the Undergraduate Biology Graduate Recognition Ceremony. Dean has had a varied and successful career, and the University of Kansas is better for his many contributions. He has been a respected member of the KU faculty and he will be missed by his colleagues who wish him well as he enters the next stage of his life.



Stuart Macdonald (Professor) has been promoted to full professor. Dr. Macdonald earned his D. Phil at the University of Oxford, and was a postdoctoral fellow at the University of California at Irvine before starting his lab at KU in 2006. The Macdonald group seeks to understand the genetic basis of complex traits in the *Drosophila* model system using a combination of genetic mapping, genomics, computational analysis, and functional genetics.

Faculty News

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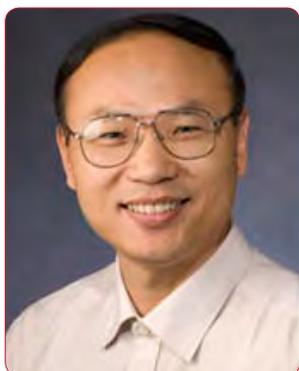
Erik Lundquist (Professor) has been appointed **Interim Associate Vice Chancellor for Research** effective June 11. He works alongside the Vice Chancellor for Research and two other Associate Vice Chancellors for Research to oversee the operations of the Office of Research, and to facilitate the research enterprise at KU. His oversight responsibilities include the Animal Care and Use program, university core laboratories and facilities, and the **Higuchi Biosciences Center**. In this position, he also serves as Vice President of the KU Center for Research. As this is a 50% appointment, Dr. Lundquist will continue research and teaching activities as a faculty member in Molecular Biosciences.



Anthony Fehr (Assistant Professor) joins the Department of Molecular Biosciences faculty. Dr. Fehr received his Ph.D. at Washington University-St. Louis in the lab of Dong Yu where he studied the molecular biology of **Human Cytomegalovirus (HCMV)**. He subsequently completed his postdoctoral research with Stanley Perlman at the University of Iowa, where he studied the role and mechanisms by which coronavirus genes impact virus replication and pathogenesis. The Fehr lab at KU will continue to study the mechanisms that these genes use to overcome host anti-viral defenses, and identify novel compounds that can target these genes and act as anti-viral therapeutics. *Welcome Dr. Fehr!*



Rob Unckless (Assistant Professor) is the recipient of a **National Institutes of Health (National Institute for Allergy and Infectious Disease)** R01 grant entitled "**The causes of balancing selection on immunity genes: from populations to molecular interactions**". The funding will be used to determine the forces that act to maintain allelic variation in antimicrobial peptides (small peptides that directly inhibit microbes) at the molecular, genetic and population levels.



Liang Xu (Professor) is co-investigator and PI of a sub award on a National Institutes of Health Research Grant entitled "**Robust rational design of chemical tools to inhibit RNA-binding proteins**." The PI is John Karanicolas (Fox Chase Cancer Center), and the goal of the project is to identify novel inhibitors of protein-RNA interaction with a new computational modeling.

Faculty News

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Kristi Neufeld (Professor, left) in collaboration with **Yoshi Azuma (Professor, right)** are recipients of a **J.R. And Inez Jay Award** from KU Higuchi Biosciences for work entitled, **"Novel function of APC tumor suppressor in DNA Topoisomerase II-mediated cell cycle checkpoint."** The funding will be used to assess interactions between APC and Topoisomerase II that control cell proliferation.



Krzysztof Kuczera (Professor) was awarded an **NSF** grant from the **Chemistry of Life Processes Program in the Division of Chemistry** along with co-investigator **Carey Johnson** (Chemistry) and **Gouri Jas** (Pharmacy) for work entitled, **"Dynamic Elements: effects of co-solvents on peptide folding pathways."** The goal is to combine ultra-fast spectroscopy and molecular modeling to elucidate the folding pathways of structured peptides in the presence of stabilizing and destabilizing co-solvents, such as urea, guanidinium chloride and proline.



Audrey Lamb (Professor) is the recipient of a **National Institutes of Health (National Institutes of General Medical Sciences)** Research Project Grant (R01) for her project entitled **"Novel and essential metallophores from multidrug resistant bacterial pathogens."** The goal of this work is to provide a fundamental understanding of the enzymes that generate a recently discovered metal acquisition system used by bacterial pathogens that are becoming increasingly antibiotic resistant. Indeed, the enzymes to be studied have only very recently been documented in bacterial pathogens, and their structures and mechanisms are not well-studied, or are missing from the literature across all kingdoms of life. This crucial basic science knowledge can then be exploited in the generation of new antimicrobial therapeutics.



Erik A. Lundquist (Professor) will serve as chair of the **National Institutes of Health** grant review study section Neurodifferentiation, Plasticity, Regeneration, and Rhythmicity. Dr. Lundquist will lead the thrice-yearly meetings at which researchers from across the country review ~70 applications for funding related to neuronal development, function, circuitry, and physiology.

Faculty News

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Audrey Lamb (Professor) is the recipient of a Kansas IDEa Network of Biomedical Research Excellence Bridging Award for her proposal entitled “Opine Metallophores from Bacterial Pathogens.” The goal of this work is to provide fundamental understanding of the enzymes that generate a recently discovered metal acquisition system, one used by bacterial pathogens that are becoming increasingly antibiotic resistant.



Yoshi Azuma (Professor, left) and **Steve Benedict (Professor, right)** are each recipients of University of Kansas Cancer Pilot Project Grants from the Cancer Biology Research Program. Azuma’s proposal is entitled “Impact of SUMOylation on cancer cell’s chromatin structure and fitness.” Benedict’s proposal is entitled, “Choice of co-stimulation of naïve T cells controls differentiation to anti-tumor Th1 cells.”



Josie Chandler (Assistant Professor, left) in collaboration with **Berl Oakley (Irving S. Johnson Distinguished Professor, right)** are recipients of a J.R. And Inez Jay Award from KU Higuichi Biosciences for work entitled, “Blocking quorum sensing to potentiate antibiotics in *Pseudomonas aeruginosa*.” The funding will be used to identify and study novel inhibitors of quorum sensing, a type of cell-cell communication that is critical for many bacterial pathogens to cause disease. **Ajai Dandekar** (University of Washington) will collaborate on the study.



Favorite Professors

Kristi Neufeld (MB Professor, left) and **Eileen Hotze (Assistant Teaching Professor, right)** were recognized as “Favorite Professors” by the *Biology Class of 2018* at the University of Kansas Undergraduate Biology Recognition Ceremony on May 12, 2018.

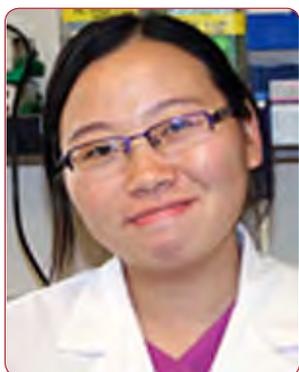


Faculty News

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Joanna Slusky (Assistant Professor) published a paper in the September issue of *Structure* titled "Efflux Pumps Represent Possible Evolutionary Convergence onto the β -Barrel Fold". The paper has also been chosen as the cover article for *Structure* and was recommended by F1000Prime.



Xiaoqing (Sarah) Wu (Assistant Research Professor, Xu lab, left) and mentor **Dr. Liang Xu, (right)** were awarded \$450,000 by the Susan G. Komen Breast Cancer Foundation for the project entitled: "Chemo-sensitization of triple negative breast cancer by targeting HuR." The major goals are to explore HuR as a potential target for overcoming TNBC chemo-resistance, and to validate the potent and specific HuR inhibitor KH-3 as a new class of chemotherapy that sensitizes TNBC via HuR overexpression.



Post Doc News



Elizabeth Everman (post doc, Macdonald lab) is the recipient of a **Kansas IDeA Network of Biomedical Research Excellence (K-INBRE)** Postdoctoral Fellowship entitled "Genetic dissection of variation in copper resistance across multiple life stages in *Drosophila melanogaster*". Dr. Everman will use funds to continue her work to determine the genes and gene networks responsible for variable metal response.



Catie Shelton (former post doc, Lamb lab) began an assistant professor position in the department of Chemistry and Biochemistry at the **Northern Kentucky University** on August 15. Catie will be teaching biochemistry at this Primarily Undergraduate Institution, and will continue the research goals she started during her time here at KU, including structural biology and mechanistic enzymology of proteins from human pathogens.



Ranjan Preet (postdoc, Dixon lab) received a **Digestive Disease Week 2018 Basic Science Travel Award** to give a talk in the Gastrointestinal Oncology Distinguished Abstract Plenary session entitled "RNA binding protein HuR regulates extracellular vesicle secretion in colorectal cancer" at the **Digestive Disease Week 2018 American Gastroenterological Association Annual Meeting** in Washington, DC on June 4.

IN MEMORY OF ...

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The Microbiology group and the Department of Molecular Biosciences lost Professor **Delbert Shankel** in July, 2018. He was 90. Dr. Shankel joined the Department of Microbiology at KU in 1959 just after completing his PhD at the University of Texas. Over the decades, he taught many students, conducted

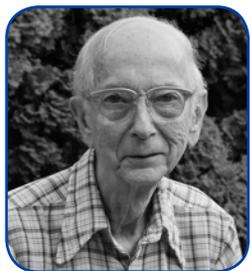
world class research with major impact and held an amazing number of positions at the university. He also became very well known around his adopted state and in many ways became the ultimate Kansan. Having served as interim athletic director, Del was an avid fan of KU athletics and could be found at all KU men's and women's basketball games, and football and volleyball as well.

His teaching responsibilities began with microbial genetics, and extended to several other courses. He took particular joy in teaching undergraduate students and was exceptionally touched when previous students or their children sought him out to thank him or to learn from him in the classroom or the laboratory. He was equally interested in teaching the excellent or the struggling student as he saw the value in everyone. Dr. Shankel believed that undergraduate students also should learn science in the research laboratory so he and his wife established the "**Del and Carol Shankel Biomedical Research Award**" to support such students. They also combined Del's respect for his teaching colleagues at Kansas with his interest in athletics by founding the "**Del Shankel Teaching Excellence Award**"

so that student athletes could nominate and select a favorite professor each year.

Professor Shankel's doctoral research studies in the 1950s covered environmentally induced gene mutations, and it became his life's work to define how organisms resist mutations, an activity called anti-mutagenesis. Throughout his career, he was a Member of the American Society for Microbiology. At the height of his career, Del and some international colleagues founded the **Environmental Mutagen Society**. At a recent conference of his Society in Japan, Dr. Shankel was honored as a founder and gave the opening address to the society. Over the decades his work contributed to the use of antioxidants to prevent mutations and to several other approaches to avoid the mutations that cause cancer. His final projects involved effects of some natural products on anti-mutagenesis. Del trained many students in research and graduated more than 30 graduate students with MS or Ph.D. degrees.

While carrying out his duties in teaching and research, Dr. Shankel held many higher level administrative positions **serving as athletic director** and **twice as Chancellor of the University**. In these positions, he had significant impact across the state. Dr. Shankel was honored many times for his diverse accomplishments and in 2010, a new building was named the **Shankel Structural Biology Center** as a lasting tribute. Professor Shankel is remembered in his home department as a gentleman, a scientist, a teacher, a mentor, an administrator, a friend and a Kansan; and he is always remembered with a smile.



Molecular Biosciences mourns the passing of Professor Emeritus **Charles Wyttenbach** on June 11, 2018. Charles earned Bachelors and Master's degrees in Zoology at Indiana University. During that time he became a research assistant to Sears Crowell at the Marine Biological Laboratory (MBL) at Woods Hole in

Massachusetts, an affiliation he would continue throughout his career. Charles earned a doctorate from Johns Hopkins University in three years, supported by a National Science Foundation fellowship. After earning his doctorate, Charles became an Instructor and then Assistant Professor at the University of Chicago. In 1966, Charles accepted a position at KU as a member of the (former) Department of Zoology. He was promoted to Associate Professor in 1970 and to Professor in 1975. He served as chairman of the Department of Physiology and Cell Biology (a direct predecessor of Molecular Biosciences) from 1976-1983. Charles' research interests included

nervous system development in chick embryos (carried out at KU) and stolon growth in colonial hydroids (carried out during summers at Woods Hole). In collaboration with KU Professor Paul Kitos, Charles was funded by the National Institutes of Health to study the effects of organophosphate insecticides on embryonic development in chick embryos. His major teaching interests were focused on Embryology. He taught **Principles of Biology**, which grew from 60 to 300 students under his care. He was recognized as a Hillteacher in 1968 and nominated for "**Best Advisor in the College**" in 1991. Charles retired in 1997 and continued to spend summers at Woods Hole and winters in Lawrence. Charles was married to Ellen Garnett (Ph.D., Botany, Indiana University), and they raised three children. In addition to science, Charles had an avid interest in classical music. He was a talented photographer, which began while recording marine organisms as an undergraduate assistant at Woods Hole. Charles was a fine colleague and truly interesting individual, and we will miss his many contributions to KU.



MB Emeritus Faculty

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Dr. Robert Weaver: Since 2015, Betsy and I have been traveling with five other couples we became friends with in College. This year, we did a tour of the Colorado Plateau, including six National Parks in Arizona and Utah. One of the men in the group is a retired geologist from the University of Arizona, and he made sure we learned a lot about the geology of the region. We can now recognize such things as the Navajo Sandstone and the Kaibab Upward (which might not be a bad name for a rock band). I'm attaching a couple of pictures of Betsy and me at the Grand Canyon and in Kodachrome Valley near Bryce Canyon. My hat is the result of our leader's admonition: "No tour of the Colorado Plateau is complete without a cowboy hat." We all had fun "going western" on the tour,

including my brother-in-law and me singing "Ragtime Cowboy Joe" and the Smothers Brothers version of "Streets of Laredo." There may or may not be a recording of our performance.

Recently, the Molecular Biosciences department gathered together to celebrate the scientific career of **Peter Gegenheimer** (associate professor) and his more than thirty years as a faculty colleague at KU. Peter was presented with a painting of RNase P - a molecule Peter worked on extensively - decorated with comments from his friends and colleagues. Peter joined the Biochemistry Department (now Molecular Biosciences) in 1985 after very productive doctoral work in the laboratory of Dr. David Apirion at Washington University School of Medicine in St. Louis, and postdoctoral work with Dr. John Abelson at UC San Diego. Peter's research, then and since, has mainly focused on the mechanism and evolution of transfer RNA processing enzymes. Among his many scientific contributions, his 2000 paper published in the journal RNA especially stands out in providing the first direct confirmation that the chloroplast RNase P enzyme is a protein enzyme rather than an all RNA enzyme. This is considered by many to be a landmark piece of work and it has been heavily cited. Peter trained numerous undergraduate and graduate students in his laboratory who have gone on to very productive careers around the country. *We all wish Peter the very best.*



MB Graduate Students



Front Row: Ayotunde Ikujuni, Sahida Afroz, Jennifer Amrein, Kelsey Ferguson, Catherine Kerr
Middle Row: Qi Zhang, Wendy Aquino Nunez, Kent Mulkey
Back Row: Nicholas Wagner, Sutton Stegman, Parker Sperstad

The Department of Molecular Biosciences is pleased to welcome the new graduate student class for fall 2018. They are a diverse group of eleven, hailing from near and far: KU, Washburn University, and Kansas State University, in Kansas. From out of state we have new students from Ferris State University in Michigan, the University of Southern Mississippi, Kennesaw State University in Georgia (via the University of Puerto Rico Rio Piedras), the University of Nebraska-Lincoln, and the University of Wyoming. Internationally, new students graduated from the University of Dhaka in Bangladesh, the University of Lagos in Nigeria, and the Chinese Academy of Sciences.

We are also very pleased to recognize two of our new graduate students as fellowship recipients. **Wendy Aquino-Nunez** received a **First-year University Graduate Fellowship** from the Office of Graduate Studies, and **Kelsey Ferguson** is recipient of a **5-year Chancellor's Doctoral Fellowship** from the College Office of Graduate Affairs.

Graduating Students

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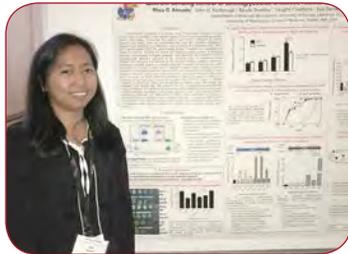


Molecular Biosciences is very proud of our recent graduates! Participants in the University of Kansas Doctoral Hooding Ceremony on May 12 were (left to right): **Hikmat Al Hashimi** and his mentor **Matthew Buechner**, **Berl Oakley**, mentor to **Tori Paolillo**, **Kara Evans** (her mentor, **Josie Chandler**, is not shown), **Mahekta Gujar** and her mentor **Erik Lundquist**, **Lingfei Liang**, **Trey Ronnebaum** and his mentor **Audrey Lamb**, and **Susan Egan** (mentor to Lingfei).

Molecular Biosciences also participated in the Master's Hooding and Undergraduate Distinction/Highest Distinction Ceremony on May 12. From (left to right): **Susan Egan** (mentor to Nicole), **Nicole Massa**, **Reshma Bhattacharya**, **Berl Oakley** (mentor to Reshma).



Symposiums



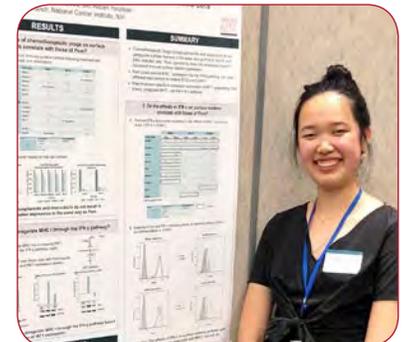
Rhea Abisado
– 25th Annual
Midwest Microbi-
al Pathogenesis
Conference, Iowa
City, IA



Megan McKinney –
ASM Microbe 2018
Meeting, Atlanta,
GA

The Department of Molecular Biosciences would like to thank our Graduate Student Organization for organizing this year's **SEARCH** symposium. We are very proud of our students' hard work and dedication to put on such a successful event. The **SEARCH** symposium (**Scientists Exploring non-Academic caReer CHOICES**) was held on April 21, 2018 at the University of Kansas' new Burge Union. The symposium, co-organized by the **Molecular Biosciences** (MB) and **Ecology & Evolutionary Biology** (EEB) Graduate Student Organizations, brought in 16 professionals from a wide variety of non-academic career paths to speak to symposium attendees. The **SEARCH** symposium welcomed over 100 graduate students and post-doctoral researchers from KU-Lawrence, KU Medical Center, Stowers Institute for Medical Research, and Kansas State University. Attendees had the opportunity to listen to, ask questions, and network with industry professionals through spotlight talks, topic-based panels, and a networking/"meet the professionals" event at the conclusion of the day. To learn more about the symposium, the speakers, or the goals of the symposium, please visit www.searchsymposium.ku.edu.

Helen Peng (De Guzman lab) received the **NIH Summer Internship Program** in Biomedical Research. She spent the summer 2018 in Bethesda, Maryland as an undergraduate researcher at the National Institutes of Health where she worked in the laboratory of **Dr. Robert Yarchoan** of the **National Cancer Institute**. She participated in research investigating the effect of Pomalidomide, an immunomodulatory drug known to increase virus-infected tumor cell sensitivity to cells. She had an incredibly enriching experience thanks to her research mentors and their eagerness to show her the impact of their research in terms of its relationship to clinical trials and patients. Helen presented the results of her research at a poster conference at the NIH Summer Poster Day, on August 9.



Symposiums continued from page 14

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Jennifer Klaus (Chandler lab) presented a poster entitled, “*Malleilactone is a Burkholderia pseudomallei* virulence factor regulated by antibiotics and quorum sensing” at the 2018 international ISME meeting in Leipzig, Germany from Aug. 12-17.

GRADUATE STUDENT RECOGNITION



Jeff McFarlane (Lamb lab) is the recipient of a prestigious [American Heart Association \(AHA\) Pre-doctoral Fellowship](#) for his project entitled, “*Staphylopine biosynthesis as an antimicrobial target in Staphylococcus aureus* infective endocarditis.” The AHA states the purpose of this program is “to enhance the integrated research and clinical training of promising students who are matriculated in pre-doctoral or clinical health professional degree training programs and who intend careers as scientists, physician-scientists or other clinician-scientists, or related careers aimed at improving global cardiovascular health.” Jeff plans to determine the structures and functional mechanisms of the proteins required to generate staphylopine, a metallophore linked to pathogenesis.



Nikola Kenjic (Lamb lab) was named the **Weaver Graduate Fellow** for the 2018-2019 academic year. This fellowship is awarded annually to an outstanding international student in the department.

From Nikola: “I am an international student, born and raised in Bosnia and Herzegovina. I have two projects as part of my dissertation research. My first project involves the investigation of enzymes responsible for iron scavenging by the opportunistic pathogen *Pseudomonas aeruginosa*, a necessary process for establishing infection. My second project is to determine the enzymatic mechanism of a pivotal enzyme in the biosynthesis of riboflavin (vitamin B2). There are limited opportunities for international students to practice our proposal writing skills to attain independent funding. The Weaver Fellowship provided me with that opportunity. Most importantly, this fellowship gives me the chance to extensively focus on my research projects. I have been working on preparing a manuscript for publication on my first project. For my second project, I have exciting new evidence that contradicts the current mechanistic hypothesis in the literature. This fellowship will provide concentrated time to write my dissertation. I am very grateful to the donors for establishing this award in honor of Dr. Robert Weaver, and to the award committee for choosing me to be a Weaver Fellowship awardee.”



Haeyoung Kim (M. Azuma lab) was awarded a **Hirata Summer Fellowship** this past summer.

From Haeyoung: “My main project is studying the function of EWS in mitosis. Over the summer, I moved on to investigating newly established cell lines which express either EWS-mCh or EWSR565A-mCh in DLD-1 (Colon cancer line) and optimizing the condition for Aurora B localization and complex formation. Because cells need to be synchronized by treating chemicals and it requires long incubation times, I needed to adjust to this experimental schedule. By having the Hirata Fellowship, I was able to fully dedicate my effort to ongoing projects without affecting my schedule. In addition, it helped me have more time to analyze samples using a microscope which typically takes lots of time. Finally, it allowed me to study more on my project (reading scientific papers, having discussions with PI and lab members) while working in the lab. I’d like to thank you again for supporting me during this summer!”

This year three Molecular Biosciences graduate students have been appointed to the **National Institutes of Health Graduate Training Program** in the **Dynamic Aspects of Chemical Biology**: **Latavia Hill** (Egan lab), **David Ingham** (Gamblin lab), and **Cindy Ly** (Davido lab). They will also be pursuing a KU Graduate Certificate in Chemical Biology along with their doctorate in our department.

Graduate Student Travel Awards

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Zoe Dimond (Hefty lab) was recipient of the William King Candlin Memorial Award.

From Zoe: "As a graduate student, I treasure being able to attend scientific conferences and presenting my work there. This year, I was selected to present my work on *Chlamydia trachomatis* at the American Society for Microbiology in Atlanta, Georgia. I was nervous to present my work in front of such a large and expert audience, but I was excited for the opportunity to learn from the many other speakers and events who were presenting as well. Not only was I able to engage and network with researchers from my own field, but I was exposed to many other research areas, both clinical and academic which inspired me and led to a breakthrough in several new experiments that I am currently working on. The Candlin Award has helped lighten the financial burden of attending this conference, which has made me a more confident speaker and scientist. I know that I will be able to take the connections, skills, and resources that I have obtained throughout my career, hopefully to become a professor myself one day."



Matthew Ochs (Lundquist lab) was recipient of the Carr Research Award.

From Matthew: "I received the Carr Research Award to travel to the 2018 *C. elegans* Topic Meeting in Neuronal Development, Synaptic Function and Behavior. The meeting was at the University of Wisconsin in Madison. I presented a poster on my work studying the directional migration of neuroblasts in the developing nervous system of the nematode *C. elegans*. This is a topic of interest because neurological disorders can be the result of migration defects. By understanding the mechanisms controlling migration in *C. elegans* we can infer the mechanisms in a vertebrate system. My research is focused on how the RNA-binding protein ETR-1 controls genetic mechanisms in the migration of the Q neuroblasts. The award helped defray costs of attending this important conference."



Megan McKinney (Hefty lab) was recipient of the Cassandra Ritter Award.

From Megan: "Thanks to this award, I was able to attend the American Society of Microbiology (ASM) Microbe 2018 meeting in Atlanta, Georgia early this year. Originally, I was selected to present my data on *Chlamydia trachomatis* hypothetical proteins at one of the many poster sessions; however, I was later notified that I had also been chosen to give an oral presentation of my poster. With this travel award, I was able to attend one of the largest Microbiology conferences, give an oral presentation on my data, and also collaborate with a large group of scientists. The conference was an excellent place to network, hear about interesting research in the Microbiology community, and also learn about potential careers in the field. The experience was fantastic, and, had it not been for the travel award, I may have been unable to attend the full length of the conference."



Rhea Abisado (Chandler lab) was recipient of the William Arnold Award. Rhea presented her poster paper entitled "**Quorum sensing control of aminoglycoside antibiotic resistance in *Pseudomonas aeruginosa***" at the 25th Annual Midwest Microbial Pathogenesis Conference (MMPC). The conference was held at the University of Iowa, Iowa City, IA on September 28-30, 2018. It was a great opportunity to share her research and make important new connections.



Cindy Ly (Davido lab) received the Kathleen McCluskey-Fawcett Woman Mentoring Women Award at the Emily Taylor Center Recognition Program. This award is given to a "woman-identified student, staff, or faculty who has demonstrated outstanding commitment to supporting and mentoring women at the University of Kansas."



Haifa Alhadyian (Ward lab) won the Outstanding International Woman Student Award as part of the Emily Taylor Center Recognition Program. This award recognizes an international student who has demonstrated academic achievement and has made a contribution to the campus and/or community through involvement.



Lingfei Liang (Egan/Tang lab) was recipient of the 2018 Philip and Marjorie Newmark Award, given annually to a graduate student who has demonstrated excellence in biochemical research. Lingfei determined the crystal structures of bacteriophage proteins that are important in understanding virion assembly and viral DNA delivery into their hosts.

Ecology and Evolutionary Biology

University of Kansas

eeb.ku.edu

Faculty News



Kirsten Jensen (Professor) in Ecology and Evolutionary Biology and **Curator** in the Biodiversity Institute has spent nearly a decade collecting the contents of the digestive tracts of vertebrate species in 54 nations around the planet, on a scholarly mission to discover and describe cestodes, commonly called tapeworms. Over that time, more than 200 new species have been described. Jensen's work was summarized recently in a nearly 500-page book entitled, "Planetary Biodiversity Inventory (2008-2017): Tapeworms from the Vertebrate Bowels of the Earth." In that major publication, Jensen and co-author **Janine Caira**, "addressed most aspects for each tapeworm order that a reader might want to know — such as in what species are they found, where are they found throughout the world, what do these organisms look like, and how many are there. . . to date, we know of almost 5,000 species of tapeworms and estimate there to be as many as 20,000 species."



Andrew Short (Associate Professor) of Ecology & Evolutionary Biology and **Associate Curator** in the Biodiversity Institute, was one of six KU faculty awarded Fulbright Scholarships. Dr. Short used this fellowship to study this past summer at the National Research Institute for Amazonia in Manaus, Brazil, where he is working on a project titled "Aquatic Biodiversity of the Brazilian Amazon: Modeling Aquatic Beetle Distributions and Capacity Building in Aquatic Bioassessment."



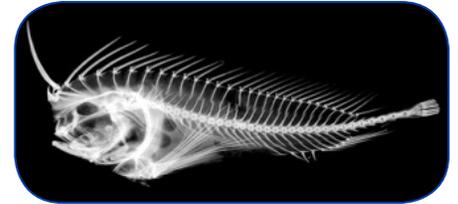
Edith Taylor (Professor Emerita), and **Rudolf Serbet, (Associate Curator for the Biodiversity Institute)**, put together a team of KU researchers to explore plant fossils in the Antarctic this past summer. Their team also included postdoctoral researcher **Brian Atkinson** and Park University Professor, **Patricia Ryberg**. Atkinson, who had never been to Antarctica indicated, "Going to Antarctica is like going to another planet. When you're searching for plant fossils, it's like traveling through time. This is as exotic as it gets." On the expedition, the team discovered five new fossil forests that would have lived into and beyond the Permian extinction interval, one of the major extinction events in Earth history during which about 90% of all species on the planet were lost. Before this expedition, science wasn't sure if the Permian interval was preserved in sedimentary rocks in Antarctica. Their discoveries demonstrated that these forests would have lived into and beyond the extinction event, representing three distinct ecologic niches from 251 million years ago.

EEB Faculty News

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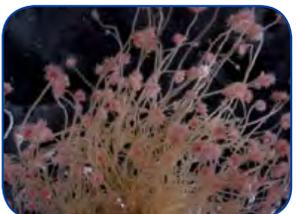
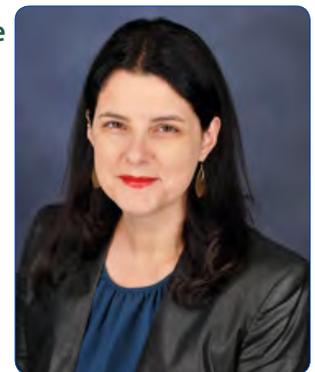
Leo Smith (Associate Professor) in EEB and associate curator in the Biodiversity Institute, discovered an unusual locking mechanism associated with the eye socket of deep sea velvet fish. It turned out to be a locking eye spike, which he and his colleagues dubbed the “lachrymal saber.” In the publication describing this unusual feature, they also noted that it glowed fluorescent green – a tiny light saber! The authors can’t yet say exactly what the appendage is for, but they do note that it has the potential to profoundly rearrange the evolutionary tree of these curious and highly venomous fishes.



Daniel Reuman (Professor) in EEB and Senior Scientist at the Kansas Biological Survey was awarded a three-year National Science Foundation grant that will enable a new investigation of how populations in different places react to changes in environmental factors (such as temperature and rainfall) over time and space, which researchers dub “synchrony.” Reuman notes, “Synchrony is when multiple populations in different places all fluctuate in the same way. When rainfall in different areas is correlated through time, like a drought that’s spread across a large area, that will affect all populations across that area in similar ways.” Reuman’s investigation could help inform fisheries management, conservation, and agriculture. He explained the importance of spatial synchrony using the example of outbreaks and shortages that could impact Kansas crops. Reuman’s work on synchrony combines biology and mathematics to develop mathematical models that shed light on species populations and could also predict factors that increase the risks of extinction for a species.



Paulyn Cartwright (Professor, left) and **Maria Orive (Associate Professor, right)** EEB faculty members, and doctoral candidate **Sally Chang** published research in the journal of Evolution Letters on plankton-eating polyps of the marine hydrozoan *Ectopleura larynx* that enable nonrelated individuals to fuse their bodies and share what is essentially their skin and a stomach. “We just got our minds wrapped around the idea that moms and offspring are fusing and sharing resources and that they’re related, but this was very surprising,” said Cartwright. Living in shallow waters, each individual polyp is about a centimeter long and bright pink. A colony fits in two cupped hands. Chang noted, “This is super unusual given that in a colony they end up sharing everything from a continuous outer epithelia to an entire digestive system.” “All of evolution is kind of like that,” Orive said. “You don’t see the perfect solution. You see the solution that the organism had available to it.”



EEB Faculty News

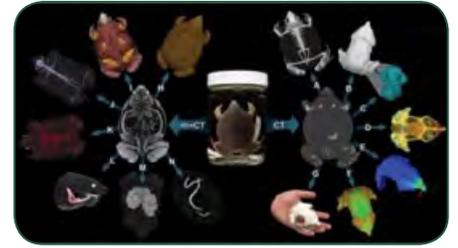
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Jerry deNoyelles, (Professor, left), in EEB and Senior Scientist at the Kansas Biological Survey (KBS), **Amy Burgin** (Associate Professor, right) in EEB and Associate Scientist at the KBS, and **Ted Harris**, KBS affiliate Research Associate, probe causes of harmful algal blooms in Kansas reservoirs. Harmful algal blooms, or HABs, produce potent toxins and render water bodies unsafe for any use. "If you look at 10 reservoirs (from across Kansas) that have had blooms since 2010, you have a hard time finding a correlation in conditions," said deNoyelles. To better understand what factors lead to a bloom, Harris, deNoyelles, and Burgin, are conducting a controlled study at the KU Field Station. Samples were injected into large-scale tanks and environmental ponds at the Field Station and allowed to grow under a variety of conditions. The KU Field Station's aquatic research facility includes more than 100 experimental ponds and tanks as well as a model reservoir. It is one of the largest such facilities in North America and is ideal for studying HABs and conducting other research on water quality.



Richard Glor (Associate Professor) in EEB and Associate Curator at the Biodiversity Institute, and **Luke Welton** Collections Manager at the Biodiversity Institute collaborated on an NSF grant to take part in oVert project, a Thematic Collections Network that will create high-resolution, digital three-dimensional images of the internal anatomy across a host of vertebrate biodiversity, making the data open to the public.



Bruce Lieberman (Professor) in EEB and Curator at the Biodiversity Institute (BI), **Luke Strotz**, postdoctoral researcher, and **Julien Kimmig**, collection manager in the BI published a large-data study in the Proceedings of the Royal Society of fossil and extant bivalves and gastropods in the Atlantic Ocean that suggests laziness might be a fruitful strategy for survival. Studying mollusk species that have gone extinct over the past 5 million years and those that are still around today, Strotz noted that, "Those that have gone extinct tend to have higher metabolic rates than those that are still living." Lieberman noted, "Instead of 'survival of the fittest,' maybe a better metaphor for the history of life is 'survival of the laziest' or at least 'survival of the sluggish.'" The researchers said their work could have important implications for forecasting which species may be likely to vanish in the near term in the face of impending climate change.



Mark Mort (Associate Professor) in EEB was awarded one of ten University of Kansas distinguished teaching awards. Mort received the **Ned N. Fleming Trust Award**. This award was established in 1990 by a bequest from the late Mr. Fleming of Topeka and it recognizes outstanding teaching. The award was presented in August at the KU Teaching Summit.

Faculty News

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Jorge Soberón (Distinguished Professor) in EEB has been presented a Distinguished Mexican Award by the *Federal Government of Mexico*. This award, in its first edition, aims to recognize the professional careers of Mexican nationals residing abroad who “have made outstanding contributions in their respective fields ... and promote a positive image of Mexico internationally.” Soberón, who was born in Mexico, has been a professor and researcher in EEB since 2005. In 2014, he was appointed distinguished professor. He found out he had been selected as the recipient of the award through a text from his son. “I knew I was nominated by the Consulate of Mexico, but I forgot about it, so when my son told me I was surprised,” he said. “Afterwards, the consulate sent me an official notice with the news.” Soberón is honored to receive such an award. “The fact that the Mexican government is recognizing the work of Mexicans abroad is important, and the fact that those of us who work outside Mexico and who have a double responsibility, both to the country we live in and the country we come from, it helps to receive such a recognition,” he said. “It’s a way to reassure me that I am still Mexican.” Soberón joins 30 other outstanding Mexican nationals residing in 31 cities in 16 countries.



Michael Engel was promoted to **University Distinguished Professor** in EEB in July 2018. He joins four other distinguished professors in the department. His research focuses on systematics, paleontology, and evolution of insects, with a particular focus on the diversity of bees. During his tenure with KU, his work has revealed the earliest fossil evidence of insects, unraveled the origin of wings and flight, documented the extinction and diversification of major bee lineages, and explored the fossil record of insect behavior, camouflage and pollination. His discovery of giant fleas that likely fed on feathered dinosaurs was listed by *Discover Magazine* as one of the top 100 stories of 2012. In 2006 he was honored as a Guggenheim Fellow by the John Simon Guggenheim Memorial Foundation, received a William T. Kemper Fellowship for Teaching Excellence from KU, and his book “*Evolution of the Insects*” received honors from the American Library Association. Engel is a highly prolific author with more than 625 journal contributions and eight books and edited volumes to his credit.



Greg Burg retired as **Director of Undergraduate Biology** in June 2018. Greg joined KU in 1996 as Assistant Director of Undergraduate Biology. While helping to administer that program, he also taught several courses and pursued research on field populations of the lone star ticks and the American dog tick to address questions on temporal and spatial distribution of host-seeking populations and the impact of environmental conditions on the intensity of seasonal tick activity. In 2001, he took on the challenge of reorganizing advising in undergraduate biology, and he earned the program the College Advising Award for his efforts. Further, the advising mechanisms he put in place became the model deployed across the College. In 2009, he was chosen as Director of the Undergraduate Biology Program, a position he held for the next decade. Under Greg’s leadership, the program grew and continued to serve the diverse needs of thousands of undergraduate majors as well as the many students from other disciplines who took our courses. We greatly appreciate the dedication and consistent attention to the many complexities of the largest undergraduate program in the College that Greg brought to the position!



EEB Graduate Students

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The new cohort of EEB graduate students: The new students who joined the EEB graduate program in the fall 2018 come from all over the US and represent countries as far away as France, Mexico, and Nigeria. We invite you to visit our graduate student page <https://eeb.ku.edu/grad-students> on the EEB website <https://eeb.ku.edu/> to become better acquainted with **Kyle Atkins-Weltman, Naomi Betson, Haley Burrill, Amanda Carmichael, Devon DeRaad, Taryn Dunivant, Paige Hansen, Benjamin Kerbs, Claudia Nuñez Penichet, Mayowa Ojo, Emily Ostrow, Julie Taylor, and Rebekah Wagner.**

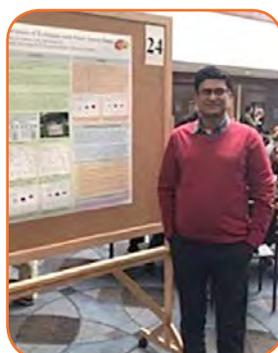


Camille Delavaux, EEB doctoral candidate, has been in Ecuador since early September. She is a 2018-2019 Fulbright U.S. Student Program grantee and will complete a project as part of her PhD work titled "Microbially-mediated Plant Invasion in the Galapagos." Camille has travelled to Ecuador several times previously, and she is excited to live there for an extended period. While in Ecuador, Camille is working at the Universidad de las Fuerzas Armadas (ESPE) outside of Quito, capital city of Ecuador. Together with ESPE faculty and students, Camille is working to understand how invasive plant-microbe interactions impact native plant communities on Santa Cruz Island, Galapagos. She will assist two ESPE undergraduate students with the design and completion of a related project that will serve as the subject for their theses. Camille's adviser is **Jim Bever**, Foundation Distinguished Professor of Ecology & Evolutionary Biology and a senior scientist at the Kansas Biological Survey.



Aniket Sengupta, PhD student in EEB advised by professor **Lena Hileman**, is studying flowers and fruits that can come in many forms of symmetry. Although the control of flower symmetry is widely studied, Aniket is asking what genes control the symmetry of fruits. Using the common garden plant snapdragon as a model system, he found that the genes defining flower symmetry also control fruit symmetry. Surprising early evidence suggests that elements of the gene-interactions that came to define the bilateral symmetry of snapdragon flowers was already present in fruits and was actually recruited to flower symmetry later. In 2018, supported by EEB Botany Endowment funds, Aniket presented his findings at the annual Botany Conference held in Rochester, Minnesota.

April 2018: Three EEB graduate students presented their work at the annual meeting of the Kansas Academy of Science (KAS) and Kansas Entomological Society (KES), held April 7th on the campus of Washburn University. **Chet Bhatta**, (left) received the KAS first place award for best poster by a graduate student, **Paula Roy**, (middle) received the KES award for best poster by a graduate student and **Daphne Mayes**, (right) received the KES third place award for graduate student oral presentation. Bhatta and Mayes are mentored by Professor **Deborah Smith**; Roy is mentored by Associate Professor **Jennifer Gleason**.

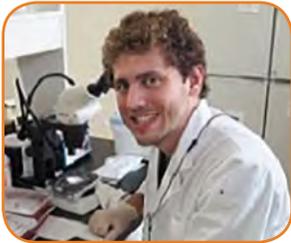


EEB Graduate Students

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In May 2018, **Chet Bhatta**, whose mentor is EEB professor **Deborah Smith** received the “best dissertation chapter on an international topic” award from Phi Beta Delta Honor Society of International Scholars, Alpha Pi Chapter, University of Kansas. His chapter entitled “**Nesting biology, niche modelling, and traditional uses of stingless bees in Nepal (Hymenoptera: Apidae, Meliponini)**” is based on fieldwork he completed in Nepal during 2015 and 2016. He studied the nesting biology, local indigenous nomenclature, uses, traditional management practices, and knowledge of its behavior and the relative cultural importance of this species on Nepalese ethnic communities. Chet’s study also discussed the conservation status and future directions for the sustainable use of this bee species in Nepal.



Andrew Mongue, (mentored by **Jamie Walters**, Assistant Professor in EEB) received the 2018 Undergraduate Research Mentor Award. He was one of three people honored at the 21st Annual Undergraduate Research Symposium for their extraordinary commitment to mentoring undergraduate researchers at the University of Kansas. In addition to being honored for his excellent mentoring Andrew was presented with a \$1,000 monetary award.

Four EEB graduate students were selected for KU Field Station Awards



Emma Hauser, Athens, Ohio, doctoral student in EEB, received a \$1,000 award. The award will provide support for her project titled “The economics of plant nutrition: Variation in carbon allocation with depth and land use.” Her adviser is Sharon **Billings**, EEB professor and a senior scientist at the Kansas Biological Survey.



Ligia Souza, doctoral student in EEB, from Belo Horizonte, Brazil, was awarded \$700 for her project titled “Phosphatase activity in soils as a biogeochemical indicator of past land use.” She is mentored by **Sharon Billings**, professor of EEB and a senior scientist at the Kansas Biological Survey.



Soudeh Ghasemian, doctoral student in EEB from Mashhad, Iran, was awarded \$500 for her research of tree-rings to determine how trees have responded to different environmental and anthropogenic changes across centuries. She is advised by **Sharon Billings**, professor of EEB and a senior scientist at the Kansas Biological Survey.



Theo Michaels, Santa Rosa, California, doctoral student in EEB, was awarded \$500 for her project titled “Living on the edge: Soil ecosystem edge interactions between prairie patches and land use matrices.” Her advisers are **Jim Bever**, Foundation Distinguished Professor in EEB and a senior scientist at the Kansas Biological Survey, and **Ben Sikes**, assistant professor in EEB and an assistant scientist at the survey.

Self fellowships

eeb.ku.edu



Paige Hansen: master's student in EEB was awarded a 2018-2019 Self Graduating Senior Fellowship. The Self Graduating Senior Fellowship recognizes outstanding undergraduates who will enter a graduate degree program at KU immediately after completing their bachelor's degree at KU. Fellows are selected based on their "individual achievement in leadership and scholarship," "potential to make significant contributions to society" and "ability to envision and attain goals that require exceptional energy and tenacity. Students receive \$10,000 in funding for one academic year and the opportunity to participate in professional development programming. Paige is mentored by [Ben Sikes](#), assistant professor in EEB and assistant scientist at the Kansas Biological Survey.



Devon DeRaad: Devon is the latest in a string of EEB graduate students to be awarded a Self Graduate Fellowship. Students are selected based on their career goals and achievements and their ability to set and attain goals, leadership potential, and strong work ethic. Student receive monetary support of more than \$175,000 spread over a period of 4 years. Devon is mentored by [Rob Moyle](#), Professor in EEB and Curator at the Biodiversity Institute.

Awards and Grants



Emily Arsenault, mentored by [James Thorp](#) has been involved in a five-year, \$4.2 million National Science Foundation grant to study to compare the vast river macrosystems in areas of North America and Asia. Since the grant began in 2015, there have been three month-long expeditions, and Emily is the only researcher from KU to have gone on all of them. Emily said she "felt very lucky to be part of such a collaborative project." "I've had many opportunities to learn about different scientific fields and listen to different perspectives. Because of this, I've developed great mentorships and friendships that will be important for me as I work through the PhD program."



Kate Ingenloff, PhD candidate in EEB is the first US national to be awarded the GBIF Young Researcher Award. GBIF—the Global Biodiversity Information Facility—is an international network funded by the world's governments and aimed at providing anyone, anywhere, open access to data about all types of life on Earth. Kate's research combines occurrence records from the GBIF network with time-specific environmental and behavioral data in ways that could improve the biological and predictive accuracy of models for migratory and other highly mobile species used in research, conservation and policy. Kate is mentored by [Town Peterson](#), University Distinguished Professor in EEB.

Students in the Departments of Ecology and Evolutionary Biology and Molecular Biosciences (pictured here) have a longstanding record of being involved in outreach activities. In October, the 2018 EEB Graduate Student Outreach Committee was honored with a special award for their contributions to Girl Scouts of NE Kansas and NW Missouri at the Central Region's Volunteer Appreciation Event. The EEB Graduate Student Organization (GSO), a group of graduate students who are committed to community engagement through STEM outreach, which was formed in the fall 2014 and later named as a Community Partner of Girl Scouts of NE Kansas & NW Missouri in fall 2015. Since becoming a Community Partner, the EEB GSO Outreach Committee has served over 600 girls with over 10 STEM modules.





Contributors to the Biological Sciences

Jan. 1, 2018 - Dec. 31, 2018

* = Deceased

Samda B. Aaron
 James K. Adams, PhD and
 Katherine Parker-Adams
 Constance A. Adkisson, MD and
 Wayne O. Adkisson, MD
 Patricia Agazzi
 Thomas Agazzi
 D. J. Agnew
 Folashade Agosto
 James M. Akagi
 Janiece Aldinger
 Helen Miller Alexander and
 David E. Alexander
 Joseph W. Algaier, PhD
 Stephanie Allard
 Jessica Allewalt
 Linda J. Allewalt
 American Association of University
 Women, Inc.
 Elizabeth Anderson
 Sharon Anderson
 Billie Angell
 Katie Hart Armitage and Kenneth B. Armitage
 Emily R. Arsenault
 Altus B. Aschen
 Harlen E. Aschen
 Jean M. Baliga
 Susan L. Baxter
 Michael C. Beckloff and
 Kathleen A. Beckloff
 Charlotte Bell, MD
 Patrick A. Bell
 Bernita M. Berntsen, MD
 Carol Billingsley
 Sue Bissell
 Janna Blanchard
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