

Biology@Memphis

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Department of Biological Sciences

creating leaders in research, education and service

College of Arts & Sciences

THE UNIVERSITY OF
MEMPHIS
Dreamers. Thinkers. Doers.



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From the Communications Committee

As the spring semester fades into memory, we take a minute to review all that's happened since our last news letter. We survived an ice storm in February that cancelled classes and a spring couldn't decide when to arrive. We also welcomed a new faculty member – Dr. Jennifer Mandel (See Faculty Focus) and celebrated the establishment of the Bill Simco Graduate Scholarship. The faculty have been busy writing and receiving grants, giving talks, and publishing papers while our graduate students' research wins awards, earns fellowships, and garners grant support. The Biology Graduate Student Associate continues their good work encouraging and supporting the graduate student body. Remember, you can let us know what you're doing by emailing your news to us at bionews@memphis.edu and can keep up with the Department by following us on [Facebook](#) and the [Department web site](#)



The Bill Simco Graduate Student Scholarship is established



In March of 2014, the Department of Biological Sciences presented the first Bill A. Simco Graduate Research Scholarship, established to honor the many years of service provided to the Department by Dr. Bill Simco. Dr. Simco began his career at the University of Memphis (then Memphis State University) four

decades ago, when the Department only offered Master's degrees and research took a back seat to teaching. In a recent interview with the Daily Helmsman, Dr. Simco indicated that when he arrived at the U of M, his teaching load was about 20 hours a week—it's substantially less than that now. In addition to teaching, Dr. Simco found time to assist in the founding of the U of M's [Ecological Research Center](#), where he still serving as a co-director and he was instrumental in developing the department's doctoral program.

Simco's research interests lie in aquaculture, a result of his work as a graduate student at the University of Kansas. He uses channel catfish as an experimental model because, as he said in the Helmsman article "You can get them in any number and any size. They are quite tolerant of experimental conditions, sort of like an aquatic white rat." Although Dr. Simco enjoys both teaching and research, it's his interactions with students that are most satisfying. Dr. Simco concluded his

interview by saying "I'm very honored to have a scholarship in my name," Simco said. "I hope that every graduate student applies and that it will help support students and research for years to come."

The scholarship will go to one graduate student per year. Students studying biological sciences will send their proposals to the department's Graduate Studies Committee in order to be considered. The committee will consider students within any field of biology. Graduate students wishing to apply must send in a research proposal listing what they want to research, why it is important and how it impacts the scientific community.



Pictured (left to right): Dr. Bill Simco, Dr. David Freeman (advisor to this year's winner), Sara Carter, inaugural recipient, Dr. Matthew Parris, Coordinator of Graduate Studies, Dr. Randall Bayer, Chair of the Department of Biological Sciences, and Dr. Thomas Nenon, Dean of the College of Arts and Sciences.

The Department held a reception on March 21st to celebrate the establishment of the scholarship. What follows are a few shared thoughts from students, colleagues and friends.

Bill is a dedicated teacher who has taught at all levels, is one of those faculty who will quickly volunteer to help out whenever a need arises, and is one of the wise elders of the Biological Sciences department. He has been described by some of his students as "a tough grader" and another student, when asked about him, just smiled and said "Dr. Simco is something else!" Bill has been known to play a little racquetball, sail around Arkabutla lake and drive around in an antique Triumph British sports car (pictured), and recently, we've been trying to encourage him not to do them all at once, after all this is his 48th year at the University. *Dr. Charles Lessman, Professor, Department of Biological Sciences, U of M*



courtesy of C. Lessman

Thanks for being there, even in the tough times at the University when we seemed nearly always on the edge of trouble. Sometimes by challenging its policies, we helped build a better University. I know you have always inspired your students, both as scholar and as human being. Just for old time's sake, let's continue to get into trouble occasionally. *Mike Osborn, Professor Emeritus, College of Communication and Fine Arts*

During my undergraduate time at The University of Memphis, I was on the Student Ambassador Board. We had an event where we invited a professor we looked up to. My decision was a simple one. There is no better professor to look up to than Dr. Simco. He will do whatever he can to help anyone who needs it (including a niece who could never quite master general biology). What an honor it is to help celebrate a man who has given so much to this University!
Ashley James Barbee, UofM alumna

Dr. Simco taught me so many things, from Vertebrate Embryology to Ichthyology to Aquaculture... but some of the most important things he taught me were out of the "classroom" altogether. He taught me to become more independent, responsible and confident in myself as a human being, a teacher, and a learner. He



courtesy of M Martell

taught me that even when things go horribly wrong, like power outages and generators crashing right in the middle of my comps and my disease challenge, that lessons and outcomes can come from it that you never would have expected. *Mariah Martell, MS in Biology, 2012*



courtesy M Fitzgerald

To this day I still hear myself saying things like "nothing simple is ever easy" -Simco wisdom that sank in over the years. Bill has been a great mentor and friend, and has provided a strong role model for my interactions with my own students. A scholarship in his name is fitting indeed. *Dr. Terrence Tiersch, Professor, Aquaculture Research Station, LSU Agricultural Center*

Dr. Simco served as a role model in the department, having a smile on his face every day I saw him, and he never skipped Seminar. He has been a mentor for many, including those I worked with after graduating (e.g. Joe Tomasso, Bob Sikes, Pat Mazik), and of course, my husband, Dr. Tiersch, whom he recruited... Thank you for that, too, Dr. Simco! *Dr. Jill Jenkins, Research Microbiologist, USGS*

If you wish to contribute to the Bill A. Simco Graduate Research Scholarship, tax deductible contributions can be mailed to Ms. Carolyn Dickens, Director of Development, College of Arts and Sciences, The University of Memphis, Memphis, TN 38152; you can call her at (901) 678-3523; or for a secure online contribution you can go to [the University's Gift website](#),

FACULTY FOCUS: The Department welcomes Dr. Jennifer Mandel

Using sunflowers and carrots, Dr. Mandel is studying the basis for the genetic diversity seen in natural populations and crop species



Are these botanical specimens related? If you said “No” you would be wrong. All three are members of the Asteraceae, commonly referred to as the daisy or sunflower family. We learned all manner of things when we visited with the Department’s newest faculty member, Dr. Jennifer Mandel, who arrived in January. In the few short months that she’s been in the Department, she has gotten her lab up and running, recruited two graduate students, established a collaboration with a colleague at Christian Brothers University, and convinced four undergraduates to work in the lab.

Dr. Mandel’s laboratory career began with a work study job setting up gross anatomy labs as an undergraduate at Carson Newman College in Jefferson City, TN. While her work in the gross anatomy lab helped

pay the bills, her real interest was in conservation and plants. Dr. Mandel went on to do her Ph.D. work in Biological Sciences at Vanderbilt University where her initial research project addressed ecological speciation in beetles. However, a rotation in the lab of Dr. David McCauley turned her interests to plants. Dr. McCauley was studying mitochondrial genetics in



Dr. Jennifer Mandel

a non-native plant species, but encouraged her to find her own organism to study. The organism she chose was the endangered wild sunflower *Helianthus verticillatus*, where she used tools developed for crop sunflowers to ask questions concerning genetic variation and fitness. In particular she used microsatellite analysis to ask questions about population genetics. Microsatellites, also termed Simple Sequence Repeats or Short Tandem Repeats are repeating sequences of 2-5 base pairs (e.g. ATTG, CAG, CT, etc.) used for kinship and evolutionary studies as well as DNA fingerprinting and forensics. Her 2007 paper using expressed sequence tags (EST) and SSR entitled *EST-SSRs as a*

resource for population genetic analyses published in *Heredity* has been cited over two hundred times.

After completing her doctoral work, Dr. Mandel went on to a post-doctoral position with Dr. John Burke in Plant Biology at the University of Georgia. In her post-doctoral work, she wanted to do something more genomic, so she began an association mapping project in cultivated sunflowers. Association mapping is centered on the premise that new genetic traits that appear in a population are still linked to the surrounding genetic sequence of the evolutionary ancestor. This work is examining the genetics and genomics of agronomically-important traits in sunflower as well as the evolution of the cultivated sunflower germplasm. In 2013, Dr. Mandel received funding for her USDA BRAG (Biotechnology Risk Assessment Grant) proposal to study pollen flow from genetically modified carrots to wild carrots. This grant entitled *Assessing the risk of transgene escape via pollen flow in carrot* will provide insights not only into the specific risks associated with crop-wild gene flow in carrot, it will also provide the means for assessing the risks of gene flow in other crop systems. If you would like to read more about her research, visit her [website](#) at or drop by her office in Ellington Hall 339.

Read samples of Dr. Mandel’s work

Mandel, J. R., R. B. Dikow, V. A. Funk, R. R. Masalia, S. E. Staton, A. Kozik, R. W. Michelmore, L. H. Rieseberg, J. M. Burke, 2014. A target enrichment method for gathering phylogenetic information from hundreds of loci: an example from the Compositae. [Applications in Plant Sciences, 2 \(2\):1300085](#)

Chapman, M. A., J. R. Mandel, J. M. Burke. Sequence validation of candidates for selectively important genes in sunflower. [PLoS ONE, 8\(8\): e71941](#)

Mandel, J. R., E. A. McAssey, D. E. McCauley, 2012. Mitochondrial gene diversity associated with the *atp9* stop codon in natural populations of wild carrot (*Daucus carota* ssp. *carota*). [Journal of Heredity, 103\(3\): 418-425.](#)



THE WILLIAM H.N. GUTZKE MEMORIAL SEMINAR

Dr. Daniel Janes presented Frequency and mechanism of evolutionary turnover in reptilian sex determination



The William H. N. Gutzke Seminar 2014
Dr. Daniel Janes
Speaker

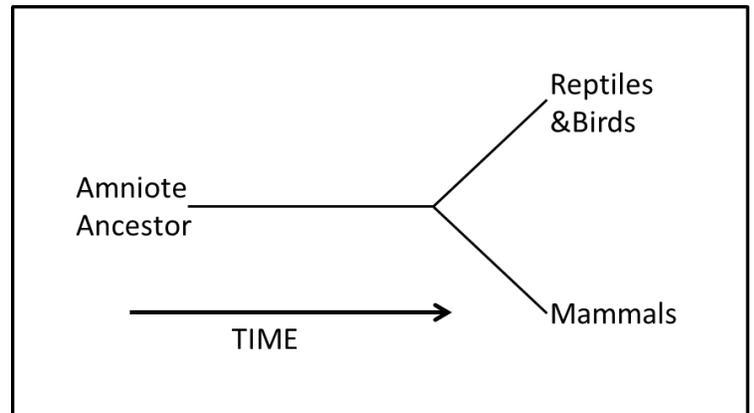
Dr. Daniel Janes, program director in the Division of Genetics and Developmental Biology at the National Institute of General Medical Sciences, presented the *William H.N. Gutzke Memorial Seminar* on February 6, 2014. The Gutzke Memorial Seminar was established by the Ecological Research Center in 2005 to honor the late Bill Gutzke, a well-known herpetologist and a long-term faculty member in the Department of Biology. Dr. Gutzke joined the Biology Department at Memphis State University in 1986. He was a member of the American Society of Zoologists, the Society for the Study of Evolution, the American Society of Ichthyologists and Herpetologists, the Herpetologists League and the Society for the Study of Amphibians and Reptiles. In his tenure at the University of Memphis, he mentored four Ph.D. students, 2 Master's students, and at least 60 undergraduates.



[Dr. Daniel Janes](#)

Dr. Janes is an evolutionary geneticist and program director in the Division of Genetics and Developmental Biology in the National Institute of General Medical Sciences (NIGMS). He oversees research grants in the areas of DNA recombination and repair as well as postdoctoral fellowship grants in the areas of genetics and developmental biology. Before arriving at NIGMS, Dr. Janes earned a B.A. in biology from Boston University and a Ph.D. in zoology from the University of Florida. He then did postdoctoral research at Iowa State University and served as a research faculty member at Harvard University before assuming his position at the NIH. In 2002, Dr. Janes and Dr. Gutzke published "Factors affecting retention time of turtle scutes in the stomachs of American Alligators, *Alligator mississippiensis*" in [American Midland Naturalist 148\(1\): 115-](#)

[116](#). Dr. Janes and Dr. Gutzke also published "Evolutionary turnover in reptilian sex determination" in [Evolution 64\(12\): 3500-3510](#). Dr. Janes and Dr. Gutzke also published "Evolutionary turnover in reptilian sex determination" in [Evolution 64\(12\): 3500-3510](#).



[119.](#)

In his talk entitled *Frequency and mechanism of evolutionary turnover in reptilian sex determination*, Dr. Janes discussed how long conserved non-coding sequences (LCNS) in the genomes of divergent organisms are likely to be functionally important and are thus useful in comparative genomics (where whole or large portions of genomes are analyzed for similarities, differences, and evolutionary relationships). Dr. Janes has been using LCNS to compare the evolution of sex determination in birds, reptiles, and mammals. During the course of his talk, Dr. Janes indicated that LCNS comprise a greater percentage of the bird genome than other amniotes (amniotes are tetrapods that have developed eggs that can be laid on land rather than in water), that reptiles have lost LCNS more rapidly than mammals, and that many LCNS are related to sex determination (the biological programming leading to production of males and females). He has used these LCNS to determine that (1) Sex determination mechanisms and reproductive mode have evolved in a correlated manner, (2) Sex determining mechanisms have changed several times in reptiles, and (3) genotypic sex determination increases genomic complexity by introducing sex chromosomes into the genetic landscape.

To read more of Dr. Janes' work see

DE Janes, CL Organ, MK Fujita, AM Shedlock, and SV Edwards [Genome Evolution in Reptilia, the Sister Group of Mammals](#) *Ann Rev Genomics Human Genetics* 11:239-264, Vol. 11: 239-264, 2010.

Küpper C, Augustin J, Edwards S, Székely T, Kosztolányi A, Burke T and Janes DE. [Triploid plover female provides support for a role of the W chromosome in avian sex determination](#) *Biology Letters* 23:787-789, 2012

FACULTY AND POST-DOCTORAL NEWS: *Grants, Awards, Presentations*

Grants

In December 2013, **Dr. Stephan Schoech** received a grant from the National Science Foundation to support travel to attend the 26th International Ornithological Congress in Tokyo, Japan in 2014. He also received grants from the American Ornithologists' Union and the Cooper Ornithological Society to support students, post-doctoral fellows, junior faculty, and scientists from developing countries.

On February 28, 2014, The Tennessee Board of Regents (TBR) announced that the University of Memphis has been awarded six **TBR Course Revitalization Grants**, including two grants to redesign Biology 1110-General Biology I (**Drs. Barbara Taller** (Team Lead), **Judy Cole**, and **Alka Sharma**) and Biology 1120-General Biology II (**Drs. Mel Beck** (Team Lead), **David Freeman** and **Anna Bess Sorin**). The purpose of the grant program is to support course redesign in courses with high enrollments and relatively low success rates. Fifty-six awards were made in the statewide competition. By focusing on key courses, these course redesign initiatives will bolster the University's ongoing efforts to emphasize learning outcomes, improve retention, and boost graduation rates.

Dr. Duane McKenna received a grant from the National Science Foundation for his project entitled *Phylogeny and diversification in the uniquely diverse beetle family Curculionidae (true weevils)*.

Dr. Andrew Liu and **Dr. Michael Ferkin** each received a 2014 **Faculty Research Grant**. Dr. Liu for his grant entitled *Molecular Evolution of Circadian Transcription Factors* and Dr. Ferkin for *Mate Choice for Cognitive Ability*.

Awards

Dr. Thomas Sutter received the 2014 College of Arts & Sciences **Distinguished Research Award (CASDRA)** in the Natural Sciences & Mathematical Sciences. Each year the candidates for the College of Arts and Sciences Distinguished Research Award (CASDRA) are faculty members who are nominated by the Alumni Association for Distinguished Research or Creative Achievement and who are not selected for an AADRACA that year. The College Council for Graduate Studies and Research Subcommittee selects the CASDRA recipients each year.

Drs. Chidambaram Ramanathan, Yang Shen and Dr. Andrew Liu had their PloS Genetics paper entitled *Cell Type-Specific Functions of Period Genes Revealed by Novel Adipocyte and Hepatocyte Circadian Clock Models* highlighted on [Science Daily](#), [Technobahn](#), [Science News Line](#) and [Eureka Alert](#).

Dr. Duane McKenna was honored by the College of Arts and Sciences by being selected as the recipient of this year's Early Career Research Award (ERCA) in the Natural Sciences.

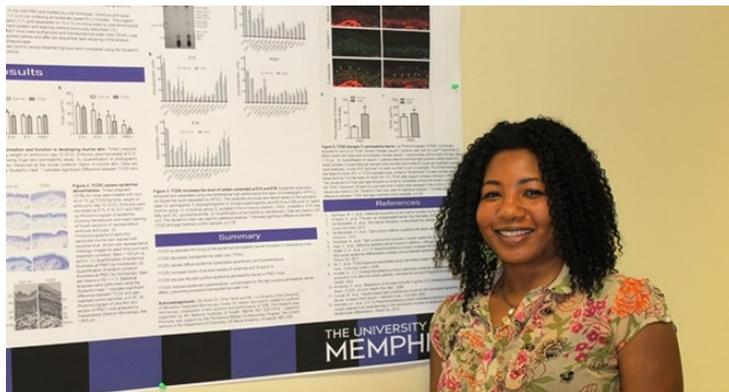
Presentations

In December, 2013, **Dr. Stephan Schoech** participated in a joint NSF/NASA workshop titled *Stress in the Healthy Organism* in Arlington, VA. Workshop were co-convened by Michael Romero, Tufts University, and Steven Platts, NASA and jointly funded by NSF and NASA. In January of 2014, Dr. Schoech attended the Annual Meeting of the Society for Integrative and Comparative Biology in Austin, Texas where he was co-author on four oral presentations given by his students.



POST-DOCTORAL FELLOWS

Dr. Clarisse Muenyi, (pictured right), a postdoctoral fellow working with **Dr. Thomas Sutter**, was awarded second place in the post-doctoral category of the Reproductive and Developmental Toxicology Specialty Section of the Society of Toxicology at the annual meeting in March, 2014. Her work was entitled *In utero exposure of C57BL/6J mice to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) disrupts epidermal tight junctions*.



GRADUATE STUDENT NEWS: Degrees and Defenses, Grants, Fellowships, Awards, and Presentations

Degrees and Defenses

On March 26, 2014 **Jordan Leumas** successfully defended his Master's thesis entitled *Characterization of Bone Abnormalities in Townes Sickle Cell Mice*. Mr. Leumas performed his Master's work in the laboratory of **Dr. T. Kent Gartner**.



Pictured (left to right), Mr. Jordan Leumas, Dr. Christopher Eden and Dr. Ramona Saban.

Christopher Eden successfully defended his dissertation entitled *Orthotopic models of pediatric brain tumors in zebrafish* on March 28, 2013. Dr. Eden did his dissertation work in Dr. Richard Gilbertson's laboratory (St. Jude Children's Research Hospital) and under the academic guidance of **Dr. Charles Lessman**.

On April 8, 2014, **Ramona Saban** successfully defended her dissertation entitled *The effect of nutritional stress on the reproductive behaviors of females and their offspring in meadow voles, *Microtus Pennsylvanicus**. Dr. Saban did her dissertation research in the laboratory of **Dr. Michael Ferkin**.

Grants and Awards

Sara Carter (Ph.D. candidate with Dr. David Freeman) was named the inaugural recipient of *The Bill A. Simco*

Graduate Research Scholarship at the reception to honor the establishment of the scholarship. She also received a Student Research Grant from the Animal Behavior Society for her project entitled *Regulation of the expression of sexual behavior in female *Damaraland mole-rats**.



pictured: (left to right): Dr. Bill Simco, Dr. David Freeman, Sara Carter, Dr. Matthew Parris and Dr. Randall Bayer

On April 1, 2014, **Denita Weeks** received notice that she was selected as a *University of Memphis Society Doctoral Fellow*. To receive this award, students must be currently enrolled in a doctoral degree program and must demonstrate exceptional academic achievement. A committee composed of members of The University Council for Graduate Studies and Research then reviews applications and makes a recommendation to the Vice Provost for Graduate Programs. Denita also received a *Sigma Xi Grants-in-Aid of Research* and a *Gaige Award* from the American Society of Ichthyologists and Herpetologists. Denita is a Ph.D. student in Dr. Matthew Parris' lab.



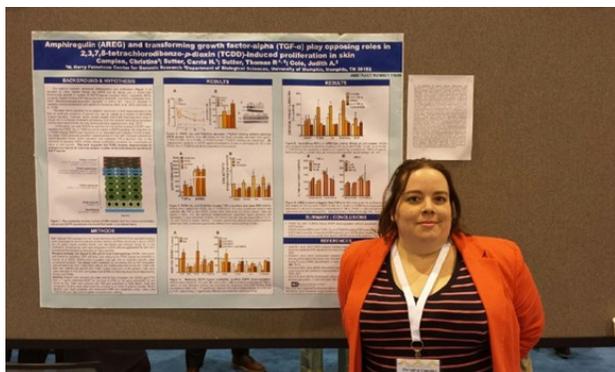
Presentations

Bebus SE, Jones BC, and Schoech SJ. Stress-response, experience, and neophobia in free-living Florida scrub-jays (*Aphelocoma coerulescens*). Annual Meeting of the Society for Integrative and Comparative Biology in Austin, Texas, January 2014

Elderbrock EK, Small TW, and Schoech SJ. Nestling begging rate predicts adult physiological stress response in Florida scrub-jays (*Aphelocoma coerulescens*). Annual Meeting of the Society for Integrative and Comparative Biology in Austin, Texas, January 2014.

Ferguson, SM, Small TW, and Schoech SJ. We gotta get out of this place: Relationships between corticosterone and dispersal distance in the Florida scrub-jays (*Aphelocoma coerulescens*). Annual Meeting of the Society for Integrative and Comparative Biology in Austin, Texas, January 2014.

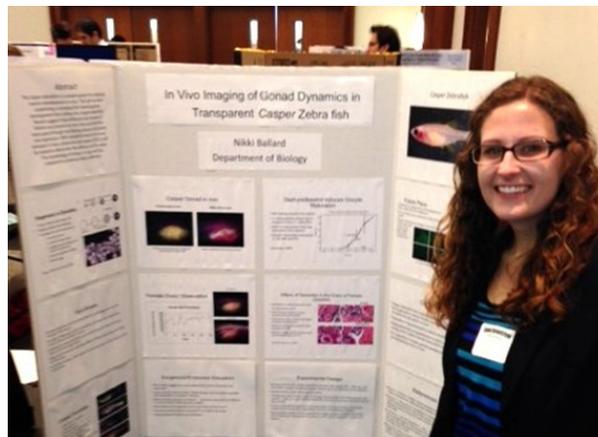
Jones, BC, Bebus S, and Schoech SJ. Learned anti-predator behavior is impaired by exogenous corticosterone in free-living Florida scrub-jays (*Aphelocoma coerulescens*). Annual Meeting of the Society for Integrative and Comparative Biology in Austin, Texas, January 2014.



pictured: Christie Campion

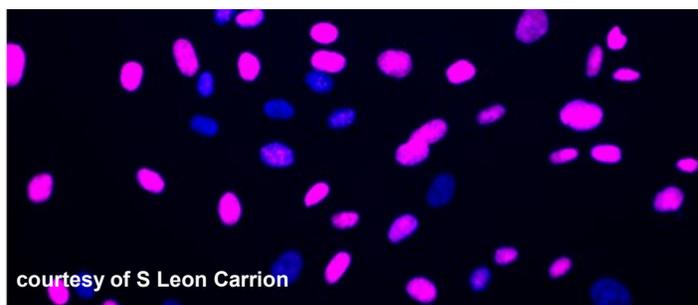
Campion CM, Sutter CH, Sutter TR, and Cole JA. Amphiregulin (AREG) and transforming growth factor-alpha (TGF- α) play opposing roles in 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)-induced proliferation

and EGFR signaling in skin. 53rd Annual Meeting of the Society of Toxicology, Phoenix, AZ March 2014



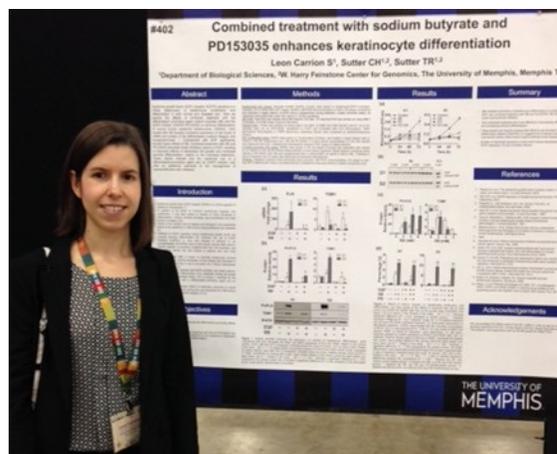
pictured: Nikki Ballard (courtesy of C Lessman)

Ballard N In vivo imaging of gonad development in transparent *Casper* zebrafish. University of Memphis 2014 Research Forum., March 2014.

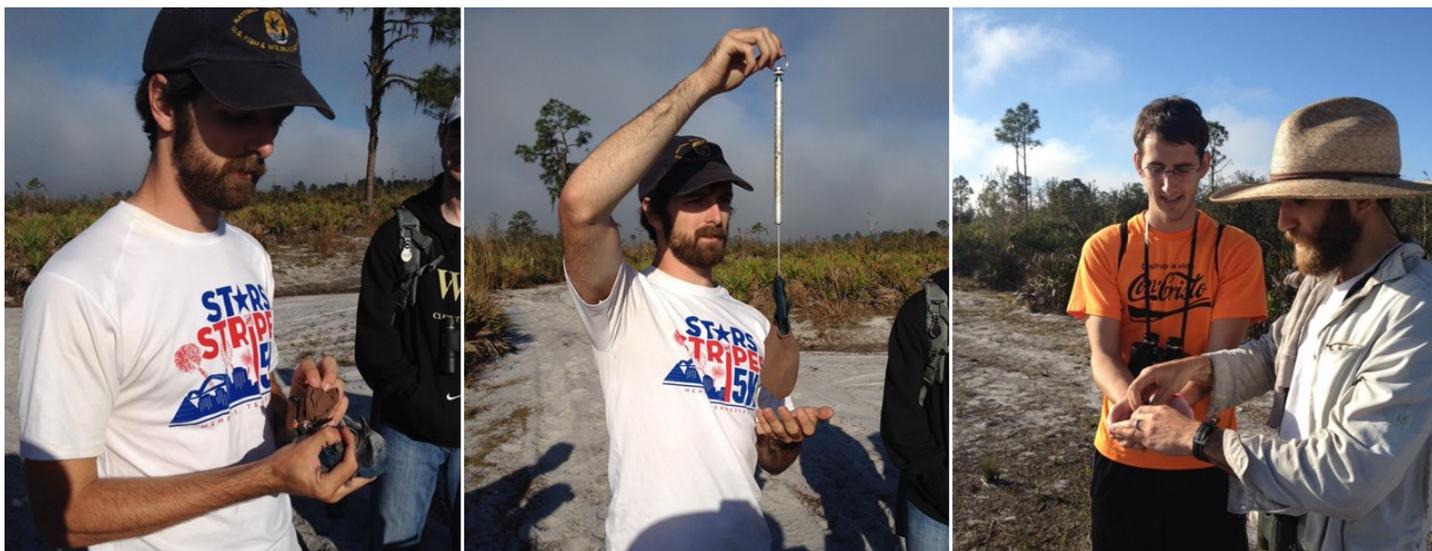


courtesy of S Leon Carrion

Leon Carrion S, Sutter CH, and Sutter TR. Combined treatment with sodium butyrate and PD153035 enhances keratinocyte differentiation. Annual Meeting for the Society of Investigative Dermatology, Albuquerque, NM April 2014.



pictured: Sandra Leon Carrion



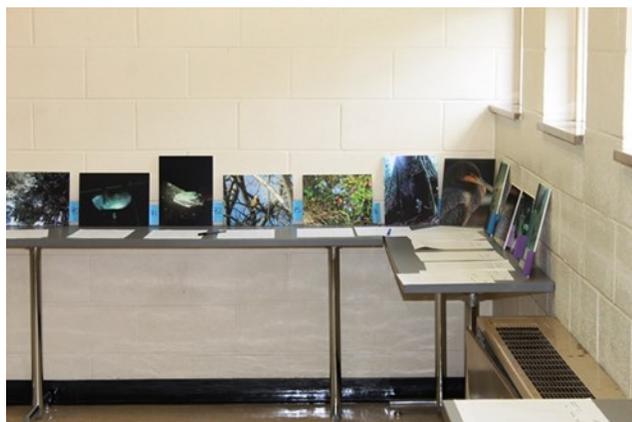
Stephen Ferguson (left, center) and Blake Jones (right), Ph.D. candidates in the lab of Dr. Stephan Schoech, demonstrate banding techniques to Wake Forest students visiting The Archbold Biological Station.

Biology Graduate Student Association

The Biology Graduate Student Association held their 2nd Annual Silent Auction of Biological Images at the University of Memphis Research Forum



Left: the BioSGA officers (from left to right): Lyndsay Saunders, Secretary; Lauren Madeira, Treasurer; Stephanie Haddad, Vice President; Jerad Henson, President; Alex Aitken, Graduate Student Representative; Dr. Duane McKenna, Faculty Advisor. Right: Alex Aitken models the Official BioSGA T-shirt



Left: Images on display. Right: Nikki Ballard enters her bid for a photograph.

UNDERGRADUATE NEWS: Research and field work

Research



Kathryn Jones, an undergraduate researcher in the lab of Dr. Charles Lessman, presented a poster entitled *Using transparent zebrafish to determine what age gonadal maturation will occur* at the 2014 University of Memphis Research Forum. Kathryn won first place in her category Undergraduate Life and Health Sciences. *pictured: Kathryn Jones .*



Pictures (clockwise from upper left) the Bird Sanctuary, an osprey guarding the nest, Dr. Schoech and students, and a snowy egret. Pictures courtesy of S Schoech and J Henson

Field Trips

Dr. Stephan Schoech took his Ornithology class on a field trip to the [Audubon Bird Sanctuary](#) on Dauphin Island, a barrier Island off the Alabama Gulf Coast. Dauphin Island is considered one of the 4 best locations for

watching spring migrations in North America. and is the first landfall for Neotropical birds migrating north from Central and South America.

STAFF NEWS: Cassandra Carthon receives the CAS Dean's Outstanding Employee Award



Each year the Dean of the College of Arts and Sciences recognizes outstanding staff in the College. All categories of full-time, non-faculty employees are eligible. The recipient of this award must be a full-time employee in the College of Arts and Sciences and possess the following characteristics; proficient knowledge of university policies and procedures; leadership; always professional in dealing with faculty, students and staff; a pleasant, caring, and helpful attitude; dependability; willingness to "go the extra mile"; excellent communication skills; embraces the diversity at the university and good self-esteem and confidence. All of those characteristics are present in this year's recipient, our own Cassandra Carthon. Her official job title is Financial Services Associate, but we know that she is and does more than her job title indicates. Thanks to Cassandra and all of the staff members that help to keep the department running smoothly. *Pictured: Ms Cassandra Carthon and Dr. Randall Bayer.*



SELECTED PUBLICATIONS

Abell AN and Johnson GL. Implications of mesenchymal cells in cancer stem cell populations: relevance to EMT. *Current Pathobiology Reports* 2(1), 21-26, 2014.

Aldredge R, Boughton RK, Rensel MA, **Schoech SJ**, Bowman R. Hatching asynchrony occurs as a by-product of maintaining egg viability in a subtropical bird. *Oecologia* 174:77-85, 2014.

Anafi RC, Lee Y, Sato TK, Venkataraman A, **Ramanathan C**, Kavakli IH, Hughes ME, Baggs JE, Growe JP, **Liu AC**, Kim J and Hogenesch JB. 2014. Machine learning helps identify CHRONO as a circadian clock component. *PLoS Biol* 12(4): e1001840

Cao R, Robinson B, Xu H, Gkogkas C, Khoutorsky A, Alain T, Yanagiya A, Nevarko T, **Liu AC**, Amir S, and Sonenberg N (2013) Translational control of entrainment and synchrony of the suprachiasmatic circadian clock by mTOR/4E-BP1 signaling. *Neuron* 79(4):712-24

Leon Carrion S, **Sutter CH** and **Sutter TR**. Combined treatment with sodium butyrate and PD153035 enhances keratinocyte differentiation. *Exp Dermatol*. 23:211-214, 2014.

Mandel JR, Dikow RB, Funk VA, Masalia RR, Staton SE, Kozik A, Michelmore RW, Rieseberg LH, and Burke JM. A target enrichment method for gathering phylogenetic information from hundreds of loci: an example from the Compositae. *Applications Plant Sciences* 2(2):1300085. 2014.

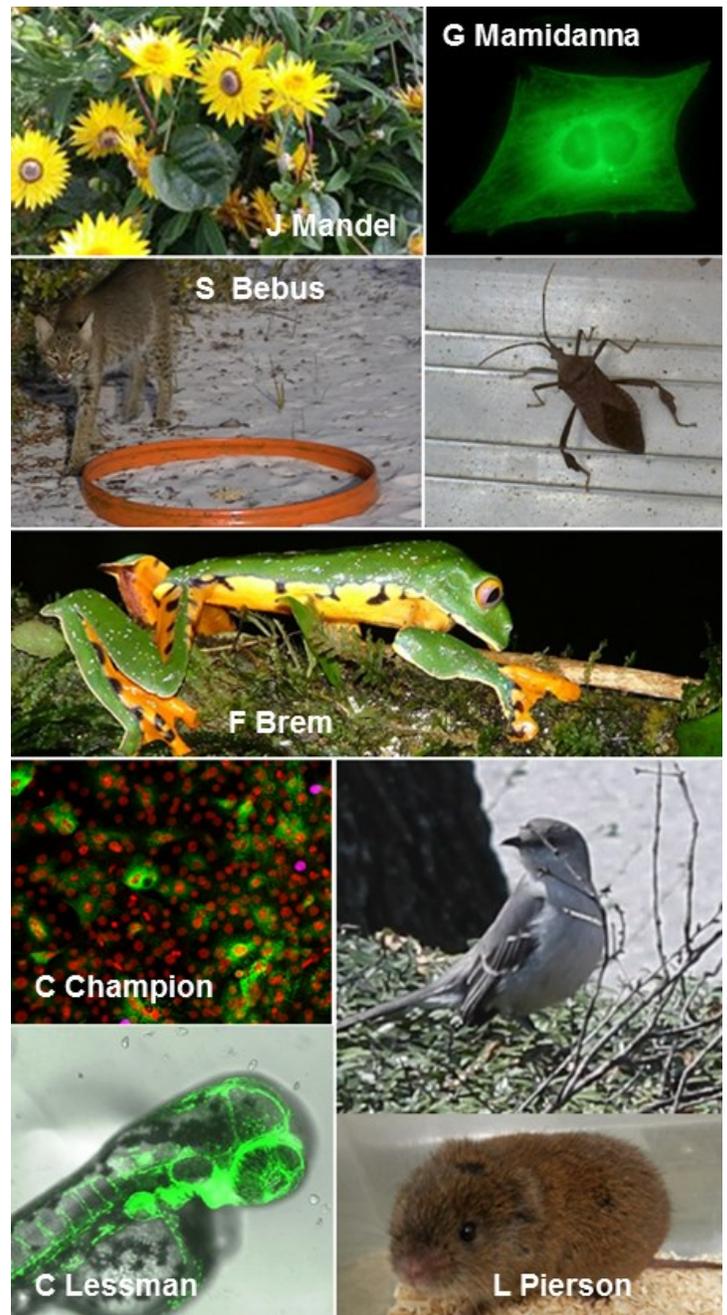
McKenna DD. Molecular Phylogenetics and Evolution of Coleoptera. In Beutel, R.G. & R.A.B. Leschen (Eds.) *Handbook of Zoology. Volume IV. Arthropoda: Insecta. Part 38. Coleoptera, Beetles.* pp. 1-10, 2014

Pekny T, Faiz M, Wilhelmsson U, Curtis MA, Matej R, **Skalli O**, Pekny M. Synemin is expressed in reactive astrocytes and Rosenthal fibers in Alexander disease. *Acta Pathol Microbiol Immunol Scand* 122:76-80, 2014.

Ramanathan C, **Xu H**, Khan SK, **Shen Y**, Gitis PJ, Welsh DK, Hogenesch JB, **Liu AC**. Cell type-specific functions of period genes revealed by novel adipocyte and hepatocyte circadian clock models. *PLoS Genet* 10(4): e1004244, 2014.

Skalli O, Wilhelmsson U, Orndahl C, Fekete B, Malmgren K, Rydenhag B, Pekny M. Astrocytoma grade IV (glioblastoma multiforme) displays 3 subtypes with unique expression profiles of intermediate filament proteins. *Hum Pathol*. 44:2081-2088, 2013.

Wang B, Ma JY, **McKenna DD**, Yan EV, Zhang HC, and Jarzembowski EA. The earliest known longhorn beetle (Cerambycidae: Prioninae) and implications for the early evolution of Chrysomeloidea. *J Systematic Palaeontology* 12:565-574, 2014.



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umwa.memphis.edu/new_giving/index.php/donation

Dr. Jennifer Mandel

<http://mandel-lab.org/>

Information for the Newsletter

bionews@memphis.edu

The Department of Biological Sciences Webpage

www.memphis.edu/biology



Follow us on **Facebook**

The Department of Biological Sciences

239 Ellington Hall

The University of Memphis

Memphis, TN 38152

901.678.2581

Except where noted, photos were taken by JA Cole

