

Department of Biological Sciences

creating leaders in research, education and service

College of Arts & Sciences



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What a busy year! So busy that we never managed to get out a fall edition of the newsletter! Dr. Shawn Brown joined our department in August, Dr. David Freeman assumed the Chair when Dr. Randall Bayer stepped down in October, and we've had another successful faculty search, as Dr. Emily Puckett will be joining us in August. We have faculty garnering new grant funding, publishing papers, winning awards for teaching and research, and presenting their work nationally and internationally. Our graduate students are travelling, presenting, publishing, and moving on to the next challenges of their careers. And let's not forget our award-winning undergraduates! We also recognize new staff members and those who have been with us for a number of years. Finally, this is the last Department Newsletter to be presented in this format. Starting in August, we will be doing **"This Month in Biological Sciences"**, a blog for more rapid and timely delivery of all the special things happening in the Department. Watch the Department web page (www.memphis.edu/biology) for the blog's URL.



Faculty News

The Department Welcomes Dr. Shawn Brown

Dr. Shawn Brown joined the Department in Fall of 2017, after finishing a post-doctoral fellowship at Oregon State University. Dr. Brown received his B.S. in Biology from the University of Oregon and his Ph.D. in Biology at Kansas State University. Dr. Brown's

research focuses on cross-domain microbial ecology which includes the integration of all microbes (fungal,



Pictured (left) Dr. Shawn Brown in the field in Lapland, Sweden. Algal bloom in the snow (right) in Glacier Peaks Wilderness Area, Washington State.

bacterial, archaeal, algal, and other micro-organisms) into ecological studies.

Microbes are incredibly important drivers of ecosystem processes and play very influential roles in driving macroecological patterns and interactions. Dr. Brown examines cross-domain microbial ecology at the forefront of receding glaciers, where virgin substrates with few organic legacies are exposed and available for primary colonization of plants, animals, and microbes! Recent work suggests that the rules and patterns controlling microbial assembly differ from established macro-ecological expectations. Dr. Brown's lab investigates the controls of microbial assembly and function in these primary successional forefronts. He is also asking how snow algae, which form large and visually stunning algal blooms in late season snow packs, survive, persist, and establish new colonies as well as the nature of algae-microbial interactions and community functionality. Finally, Dr. Brown is investigating the endophytes (organisms living between plant cells) of the Black Cottonwood (*Populus trichocarpa*) to dissect the underlying controls (environmental) and mechanisms (gene and pathways of *Populus*) that facilitate endophyte establishment and impact of their presence *Populus* growth and infection by pathogens. Dr. Brown's research combines traditional ecological measures with Next-Generation sequencing (NGS) and Genome-wide association studies (GWAS) to elucidate host-microbe and microbe-microbe interactions.

To read more about Dr. Brown's work, visit his lab [webpage](#) and see the next page for links to some of his recent papers.

- Veach, A.M., Stegen, J., **Brown, S.P.**, Dodds, W.K., and A. Jumpponen (2016) [Spatial and successional](#)

[dynamics of microbial biofilm communities in a grassland stream ecosystem](#). *Molecular Ecology* 25: 4674-4688.

- **Brown, S.P.**, Ungerer, M.C. and A. Jumpponen. (2016) [A community of clones: snow algae are diverse communities of spatially structured clones](#). *International Journal of Plant Sciences* 177: 432-439.
- **Brown, S.P.**, A. Ferrer, J. Dalling, and K.D. Heath. (2016) [Don't put all your eggs in one basket: a cost-effective and powerful method to optimize primer choice for rRNA environmental community analyses using the Fluidigm Access Array](#). *Molecular Ecology Resources* 16: 946-956.

Grants

Dr. Bernie Daigle, Jr., received a U.S. Army Research Office grant for his work entitled "Identifying Prognostic Biomarkers for Posttraumatic Stress Disorder." FY18 High School Apprenticeship Program (HSAP) and Undergraduate Research Apprenticeship Program (URAP)

Dr. Duane McKenna received two grants; one from the National Science Foundation for "RUI: Jewels of the visual world: The phylogeny of Buprestidae (Coleoptera) and evolution of color and color visual systems" and one from the the USDA for "A biosystematic identification and threat assessment tool for wood-boring longhorned beetles (family Cerambycidae)".



Dr. Jaime Sabel received a Faculty Research Grant from the University of Memphis for her project entitled "A Mixed-Methods Evaluation of Plant Blindness and Botanical Literacy."

Awards

Dr. Judy Cole received the 2017 Dean's Award for Teaching Excellence.

Dr. Bernie Daigle was selected by the College of Arts and Sciences's Graduate Council as a recipient of the Early Career Research Award which recognizes faculty members with outstanding research programs in the early stages of their career.

Dr. Amy Abell was invited to present the Betty Hay Award lecture at the 8th International Meeting on Epithelial-Mesenchymal Transition held in Houston, TX December 2017. She was awarded the Betty Hay Award for an independent female scientist within seven years of establishing her independent lab. The award included a meeting registration waiver and a monetary award.



Dr. Abell (right) receives the Betty Hay Award from Dr. Jing Yang (left). Picture courtesy of AN Abell.

Invited talks and Research Travel

Duane McKenna traveled to Panama (July 2017) to give talks at the Smithsonian Tropical Research Institute and to meet with colleagues and collaborators. He also traveled to Germany (September 2017) to give an invited talk at the Biennial Insect Phylogeny Meeting in Dresden.

Dr. Bernie Daigle, Jr. presented MLE to ABC: Parameter Estimation for Stochastic Biochemical Systems." to the Department of Information Technology, Uppsala University, Uppsala, Sweden, Sep 13, 2017. He also presented "Characterizing Biochemical Rare Events Using Stochastic Simulation." in BINF 7980: Research Seminar in Bioinformatics, The University of Memphis, Memphis, TN, Nov 17, 2017.

Dr. Jaime Sabel presented “Classroom interventions to improve biology students’ understanding of scientific concepts and practices.” to the Innovations Showcase at the University of Memphis April 24th.

Dr. Shawn Brown travelled to Ole Miss on April 27th to present “The cold never bothered me anyways: microbial ecology, cross-domain interactions, and dispersal of snow-borne microbes. He followed this up with a trip to the Great Smokey Mountains National Park to present “Short-term impacts of wildfire on soil and litter microbes display high context-dependency” to National Park Service personnel.

Presentations

Sabel, J. (2017, July). Use of scaffolds to support self-regulated learning and metacognition in undergraduate biology students. Short talk presented at the 2017 National Meeting of the Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN.

Sabel, J. (2017, November). Use of Scaffolds to Support Self-Regulated Learning and Metacognition in Undergraduate Biology Students. Poster presented at the 2017 Professional Development Conference for the National Association of Biology Teachers (NABT), Atlanta, GA.



Dr. Jaime Sabel presenting at NABT, November 2017.
Picture courtesy of J Sabel

Clarke, DJ, Oberprieler R, Marvaldi AE, **McKenna D**. Morphological phylogeny and evolution of weevils (Curculionidae): New insights from the 1K Weevils Project. The 65th Annual Meeting of the Entomological Society of America. Denver, Colorado, USA. November 5–8.



Murin PJ, **C Beza-Beza**, E Scully, **DD McKenna**, J Duan. PCR validation of glycoside hydrolase families 43 and 44 coding for putative plant cell wall degrading enzymes in the emerald ash borer (*Agrilus planipennis*) genome. The 65th Annual Meeting of the Entomological Society of America. Denver, Colorado, USA. November 5–8.

S Shin, A Wijeratne, S Haddad, H Nadel, AM Ray, **DD McKenna**. Phylogenomics of longhorned beetles (Cerambycidae): Does expanded taxon sampling improve phylogenetic resolution? The 65th Annual Meeting of the Entomological Society of America. Denver, Colorado, USA. November 5–8.

A Johnson, B Jordal, J Hulcr, **DD McKenna**. Resolving the chaos of Cryphalini taxonomy. The 65th Annual Meeting of the Entomological Society of America. Denver, Colorado, USA. November 5–8.

DD McKenna, **S Shin** and **D Clarke**. New insights into the evolution and genomic basis of specialized phytophagy in beetles. Member Symposium: Applying Emerging Genomic Techniques to Control Invasive Species. The 65th Annual Meeting of the Entomological Society of America. Denver, Colorado, USA. November 5–8.

DD McKenna, **S Shin**, **D Clarke**. The Phylogeny and Evolution of Beetles. Biennial Insect Phylogeny Meeting. Dresden, Germany.

DD McKenna. Poster. Genome-scale data sets yield new insights into the evolution and genomic basis of beetle diversity. Global Biodiversity Genomics

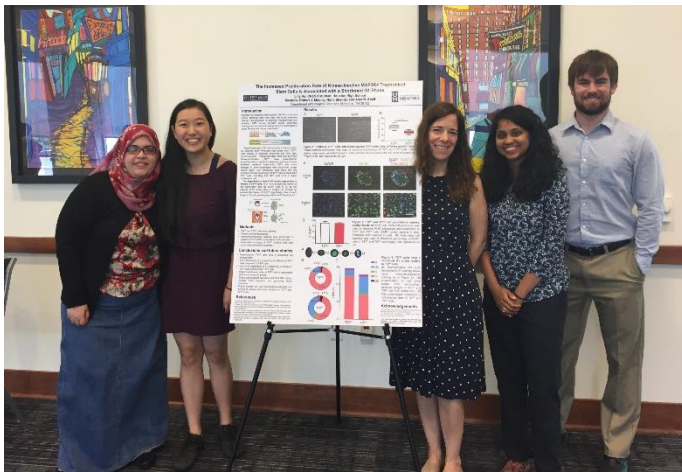
Conference. Smithsonian National Museum of Natural History. Washington, D.C

Outreach

Dr. Duane McKenna contributed extensively to the "Bugs in the Garden festival" at the Memphis Botanical Gardens (Fall 2017) by giving talks and taking part in several outreach and education activities. <https://www.terminix.com/about/big-bug/>

Dr. Tit-Yee Wang was named an "2017 Outstanding Reviewer" by Elsevier, publisher of a number of scientific journals. He was also named to the Editorial Board of the Journal of Environmental Science and Health, part C.

Dr. Amy Abell's lab hosted a student from the CRESH (College Research Experience for Students in High school) program. Lilly He, from Houston High School, joined the lab for six weeks during the summer, and worked closely with graduate student mentors Jackson Mobley and Noha Shendy, to develop and execute a project. Lilly's work, entitled "The Increased Proliferation Rate of Kinase-Inactive Trophoblast Stem Cells Is Associated with a Shortened G1 Phase" showed that loss of MAP3K4 activity in trophoblast stem cells alters their cell cycle, shortening G1 and lengthening G2 phase. Lilly and her mentor's hard work paid off, as her poster won first place at the CRESH.



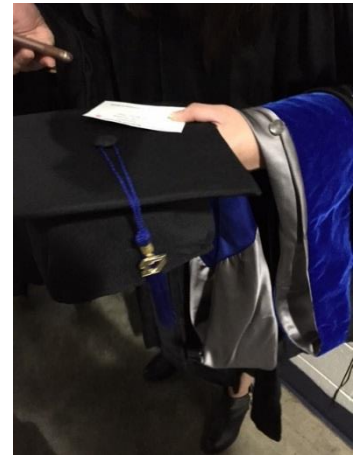
Pictured left to right: Noha Shendy, Lilly He, Amy Abell, Deepthi Raghu, and Dr. R. Jackson Mobley. Picture courtesy of AN Abell

Graduate Student News

Defenses and Degrees

Stephen M. Ferguson defended his dissertation entitled "Vocal aggression in the Florida scrub-jay (*Aphelocoma coerulescens*): behavior, hormones, and

the role of females" on June 30th, 2017. Dr. Ferguson completed his dissertation work under the direction of **Drs. Stephan Schoech** and **David Freeman**.



On October 23rd, 2017 **Jerad R. Henson** defended his dissertation entitled "Impacts of hunting and life-history stage on the stress physiology and body condition of fall and wintering birds (*Anas platyrhynchos*). Dr. Henson did his dissertation research in the labs of **Drs. Stephan Schoech** and **David Freeman**.

R. Jackson Mobley presented his dissertation defense on February 23rd, 2018. Dr. Mobley's research project entitled "MAP3K4 Controls the Chromatin Modifier HDAC6 during Trophoblast Stem Cell Epithelial to Mesenchymal Transition" was performed in the lab of **Dr. Amy Abell**.

Nimish Kathale defended his dissertation entitled "Biochemical Characterization of the Oscillatory Function of CLOCK" on March 22nd, 2018. Dr. Kathale performed his dissertation work under the direction of **Drs. David Freeman** and **Andrew Lui**.

Rebecca Bingham successfully defended her Master's thesis entitled "An Ecological Examination of the Virginia Opossum (*Didelphis virginiana*) and Raccoon (*Procyon lotor*)" on Monday April 2nd, 2018. Ms. Bingham did her thesis work under the direction of **Dr. Michael Kennedy**.

LaKendria Brown completed all the requirements for her Master's in Biology in May 2018. Ms. Brown's Masters mentor was **Dr. Omar Skalli**.

Mazen Istanbuli completed all the requirements for his Master's in Biology in December 2017. Mr. Istanbuli's Masters mentor was **Dr. Judy Cole**.

Grants and Awards

Malle Carrasco-Harris received a Conservation Area Network (CAN) grants from the Memphis Zoo for her project entitled "The Effects of Urbanization on the Physiology, Immunology, and Genetics of *Agkistrodon contortrix*". Malle works with Drs. Steve Reichling (Memphis Zoo) and **Judy Cole** (Biological Sciences)

Elyan Shor has been selected to receive the 2018 Bill A. Simco Graduate Research Scholarship. In March of 2014, the Department of Biological Sciences presented the first Bill A. Simco Graduate Research Scholarship, established to honor Dr. Simco's the many years of service to the Department and the University of Memphis. Elyan also received an Animal Behavior Society student research grant for her proposal "Seasonal and Neuroendocrine Regulation of Immune Function and Glucocorticoids in the Siberian Hamster (*Phodopus sungorus*)". Elyan is a Ph.D. candidate in the lab of [Dr. David Freeman](#).

Prabin Shrestha participated in the Statistics Research Day in the Mathematics Department and won the best presentation award. Prabin is a Ph.D. student in the lab of Dr. Tit-Yee Wang.

Deepthi Raghu, doctoral candidate with [Dr. Amy Abell](#), had an outstanding year with her presentations. In December, she won a \$50 Amazon gift card for her poster presentation entitled "GALNT3 Mediates O-GalNAc Glycosylation of Proteins Essential for the Regulation of EMT" at the 8th International Meeting on Epithelial-Mesenchymal Transition held in Houston, TX December 2017. Deepthi also won 1st place in the Life and Health Sciences Division at the University of Memphis' 30th Annual Student Research Forum in March 2018. Her presentation was entitled "Loss of GALNT3 induces protein mislocalization in trophoblast stem cells". Deepthi also won 2nd place in the 3 Minute Thesis Competition (3MT) AND the People's Choice Award in April. The 3MT completion was started at the University of Queensland to develop academic, presentation, and research communication skills.



Pictured: Deepthi Raghu and Dr. Amy Abell at the Student Research Forum. Photo courtesy of D Raghu

[Dr. Shawn Brown's](#) new doctoral student, **Avery Tucker**, received a Van Vleet Memorial Doctoral Award. These awards are made possible by the generosity of the Van Vleet Foundation established in 1964 by the late McKay Van Vleet, a Memphis civic leader and business executive. The gift to The University of Memphis was made by his wife Harriet Smith Van Vleet. The Van Vleet Memorial Doctoral Awards are designed to attract outstanding doctoral students.



Bailey Patillo (left) and Denita Weeks (right) presenting at the Joint Meeting of Ichthyologists and Herpetologists. Picture courtesy of D Weeks.

Presentations

Bailey Patillo presented "Impacts of Larval Exposure to Predators and Post-metamorphic exposure to Chytrid Fungus on Growth in Spotted Salamanders" at The Joint Meeting of Ichthyologists and Herpetologists in Austin, TX July 12-16, 2017.

Denita Weeks presented "Immunity is Skin Deep: Considering Microbial Pesticides as a Disease Mitigation Strategy for Chytridiomycosis" The Joint Meeting of Ichthyologists and Herpetologists in Austin, TX July 12-16, 2017.

Cristian Beza-Beza presented "Revisiting Halffter's hypotheses of insect distribution in Mesoamerica: Updates on the phylogeny and biogeography of the tribe Proculini Kaup (1868) (Coleoptera: Passalidae)." at The 65th Annual Meeting of the Entomological Society of America. Denver, Colorado, USA. November 5–8.

Adam Ramsey, a doctoral candidate with [Dr. Jennifer Mandel](#), presented at international meetings last fall. At the International Botanical Congress in Shenzhen, China in July, he gave a entitled "The Presence of a Non-native Alters Pollinator Activity of a Native Plant Species on



Adam Ramsey in Israel. Photo courtesy of A Ramsey

Nantucket Island, Massachusetts” as well as a poster entitled “Patterns of cyto-nuclear disequilibrium and the influence of heteroplasmy in wild carrot, *Daucus carota* (Apiaceae)”. In September, he presented “Does heteroplasmy influence patterns of cyto-nuclear linkage disequilibrium in wild carrot, *Daucus carota* (Apiaceae)?” at the Mitochondrial Genome and Evolution Conference, Ein Gedi, Israel. And here’s a pic of the view right outside of the conference venue in Israel. In April, Adam presented a Three Minute Thesis talk on Heteroplasmy, and in May presented a poster at the Genetics Society of America (GSA) Population, Evolutionary, and Quantitative Genetics conference entitled “Identifying sequence heteroplasmy across entire organellar genomes of *Daucus carota* using whole genome sequence data”. He finished up with workshop at GSA “Talk science to me: How to start science outreach in your own community”.



Grad students and faculty all geared up and waiting for “totality”. Picture courtesy of Elyan Shor.

Throughout the Fall and Spring semesters, BioGSA sponsored Graduation Workshops to help students prepare for life after graduate school. Given by Biology faculty, these workshops included CV and cover letter preparation, teaching portfolios, the interview process, job searches, and giving a job talk.

Grad students also took tours of Elmwood Cemetery and St Jude Children’s Research Hospital. While visiting a cemetery might seem strange, Elmwood Cemetery is the final resting place to over 75,000 inhabitants including mayors, governors, blues singers, suffragists, martyrs, generals, civil rights leaders, holy men and women, outlaws, millionaires and victims of the yellow fever outbreaks of the 1870s.



Kate Parsley presenting at the National Association of Biology Teachers in St. Louis, MO. Picture courtesy of J Sabel

Kathryn M. Parsley a Ph.D. student in Dr. Jaime Sable’s lab, presented “Measuring the Effect of Invasive Species Education Curricula on Student Attitudes toward Invasive Species” at the National Association of Biology Teachers in St. Louis, MO in November 2017 and was co-author on a presentation entitled “Comparing learning objective communication between professors and students in the classroom.” Kate also presented “Evaluating plant blindness and botanical literacy in an undergraduate biology classroom.” at the University of Memphis Student Research Forum, Memphis, TN. Kate was also invited to present a posters that the Food, Energy, Water Nexus in Washington, DC May 22-23.

Bio Graduate Student Association

There was lots happening this year thanks to the BioGSA. First up was the Solar Eclipse viewing. Although it was about ~90% of totality and cloudy, it was an other-worldly experience.



Grad students visit St Jude Children’s Research Hospital, the preeminent research center for understanding, treating, and defeating childhood cancers.

The **Graduate Student Invited Speaker** this year was Dr. Melissa Holmes from Department of Psychology at the University of Toronto Mississauga. Dr. Holmes presented a talk entitled “Neuroendocrinology and plasticity of social phenotype in eusocial mammals.”

The new BioGSA board is Elyan Shor (President), Chad Perry (Vice President), Kate Parsley (Grad Representative to the Faculty), Kelsey Clark (Treasurer), and Sarah Garriss (Secretary).

Undergraduate News



Pictured: Adiba Safi and Deepthi Raghu. Photo courtesy of D Raghu

Adiba Safi, an undergraduate working with Deepthi Raghu in Dr. Amy Abell's lab, won second place in the division of "Life and Health Sciences" at the University of Memphis' 30th Annual Student Research Forum in March 2018. Her poster was titled "Regulation of the Cellular Phenotype by GALNT3 in mammary epithelial cells".

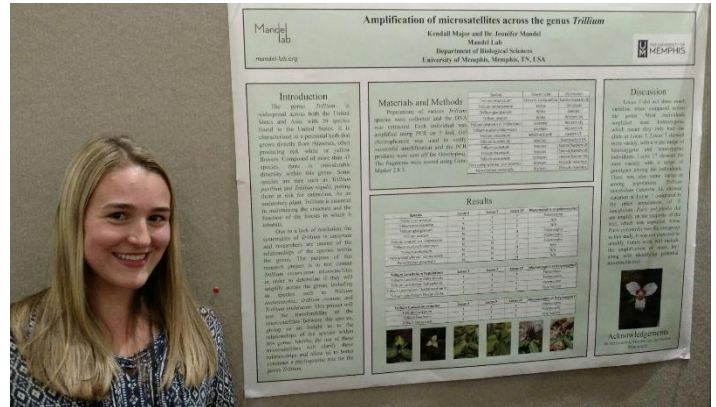
Raven Davis, an undergraduate researcher in Dr. Keith Bowers' lab, has received the 2018 College of Arts and Sciences Dean's Award for Outstanding Undergraduate. This award recognizes an undergraduate student who has displayed outstanding academic achievement, as well as demonstrating leadership, character, scholarship, and service to departmental and campus activities. Raven, who is majoring in Psychology and minoring in Biology, is



Pictured: Raven Davis. Photo Courtesy of K Bowers.

using molecular tools to identify the sex of avian offspring, which cannot be determined by external morphology in young birds, to analyze sex-ratio variation. She has successfully applied markers that had never before been tested within three species of the Southeastern US: the Carolina wren, Carolina chickadee, and prothonotary warbler.

Undergrad Kendall Major, working in Dr. Jennifer Mandel's lab, presented her work on the local Shelby County plant *Trillium* at the Botanical Society of America



Pictured: Kendall Major. Photo courtesy of J Mandel

Biology Department Awards

Chi Beta Phi Award is presented each year to the graduating senior with the highest average among Biology majors.

This year's winner is Adiba Safi

Biological Sciences Faculty Award is presented to the undergraduate student who has made the most significant contribution to the department during the academic year.

This year's winner is Peyton Murin

Biology Scholarship Winners

The Goldye Feinstone Scholarship is given to sophomore, junior or senior with a minimum GPA of 3.25 and an interest in microbiology or molecular cell science. In addition, the recipient must demonstrate academic and research achievements, leadership ability, and the potential for professional success.

This year's winner is Jacob Myers

The Dr. Virginia M. Norton and Dan Norton Scholarship is given to a junior or senior majoring in Biology with an expressed interest in a career in Health Sciences.

This year's winner is David Midlick

The Elizabeth K. Perryman Scholarship is presented to a sophomore, junior, or senior majoring in Biology with an interest in cell and molecular biology, microbiology, or health sciences. The recipient must also have minimum GPA of 3.25 and demonstrated valuable service to the community or University, preferably for women's equity. Preference may be

given to an applicant who is first-generation university educated or has a disadvantaged background.
This year's winner is Kayleigh Caldwell

Staff News

Years of Service

Congratulations to **Ms. E.O. Wade**, who was recognized for her 25 (!) years of service to the University of Memphis and the Department. Ms. Wade is in charge of prepping the laboratories for both BIOL1231 and BIOL3505. The fact that these labs run smoothly is a reflection of her hard work. Thanks E.O.!



Pictured: Ms. E.O. Wade

Biologists@Large

While most of us spend the majority of our days (and some nights) within the friendly confines of Ellington Hall and the Life Sciences Building, sometimes we venture out into the world. Here's a glimpse of some of our adventurous members and what they were doing.

Members of the **Bayer** and **Mandel Labs** spent two weeks collecting a daisy family relative, *Antennaria*, a



*Pictured counter clockwise from the top left: PhD candidate Ramhari Thapa in a bed of the plant species *Antennaria*; Dr. Randy Bayer and Mike Ballou unearthing an *Antennaria*; Dr. Bayer, Mike, and Nathanael Prather collecting in the Grand Canyon.*

species of great interest to plant biologists because of its fascinating and complex evolutionary history.



Mike Ballou, a Masters student in **Dr. Jennifer Mandel's lab**, received a grant to study the in the endangered plant, Lion's Foot. Mike is pictured in the field identifying specimens and their locale using GPS. Mike was forced to work close to the Atlantic ocean during the summer months.



The Botany Club held their annual plant sale at Ellington Hall. Members of the Club grow the plants themselves from seed or propagules (vegetative structure, like a stem, that can become a new plant, whoa!). The Botany Club also The Botany Club gave away spider plants at Earth Day and submitted a successful proposal to the Green Fee Committee for the installation of filling stations in the lobbies of Ellington Hall and Life Sciences. This will enable students, faculty, and staff to fill reusable bottles with fresh water thus eliminating the need to purchase bottled water.



Publications

Bowers EK, SK Sakaluk, and CF Thompson. Interactive effects of parental age on offspring fitness and age-assortative mating in a wild bird. *J Exp Zool A Ecol Integr Physiol*. 2017 Jun;327(5):302-310. doi: 10.1002/jez.2090.

Brown SP, Leopold, DR, and PE Busby (2018) Protocols for investigating the leaf microbiome using high throughput DNA sequencing. In: Ma W and Wolpert T (eds.). *Plant Pathogenic Fungi and Oomycetes: Methods and Protocols*. Springer, New York.

Buddington RK, **K Buddington**, and S Davis. The Risk of Necrotizing Enterocolitis Differs Among Preterm Pigs Fed Formulas With Either Lactose Or Maltodextrin. *J Ped Gastroenterol*, August, 2017. DOI: 10.1097/MPG.0000000000001707

Choi H, **S Shin**, S Jung, **D Clarke**, S Lee. 2017. Molecular phylogeny of Macrosiphini (Hemiptera: Aphididae): an evolutionary hypothesis for the Pterocomma-group habitat adaptation. *Molecular Phylogenetics and Evolution*. doi: 10.1016/j.ympev.2017.12.021



Clarke DJ in press. Systematics, natural history and evolution of the saw-lipped rove beetles (Euaesthetinae): progress and prospects for future research. Ch. 6, In: Betz, O., Irmeler, U., Klimaszewski, J. (eds) *Biology of Rove Beetles*. Springer. Expected publication date April 28, 2018.

Duffield KR, **EK Bowers**, SK Sakaluk, BM Sadd. A dynamic threshold model for terminal investment. *Behav Ecol Sociobiol*, 2017, 71:185

Elderbrock, EK, TW Small, **SJ Schoech**. 2018. Influence of corticosterone treatment on nestling begging in Florida scrub-jays (*Aphelocoma coerulescens*). *General and Comparative Endocrinology* 259:213-222

Elderbrock, EK, TW Small, SJ Schoech. In Press. Nestling corticosterone levels are related to adult provisioning in Florida scrub-jays (*Aphelocoma coerulescens*). *Physiological and Biochemical Zoology*

Haddad S, S Shin, P Svacha, A Ślipiński, D Windsor, E Moriarty Lemmon, A Lemmon, and **DD McKenna**. 2017. Phylogenomics resolves the enigmatic higher-level phylogeny of longhorned beetles (Cerambycidae). *Systematic Entomology*. doi: 10.1603/ICE.2016.92114

Hammamieh R, N Chakraborty, A Gautam, S Muhie, R Yang, D Donohue, R Kumar, **BJ Daigle Jr**, Y Zhang, D Abu-Amara, S-A Miller, S Srinivasan, J Flory, R Yehuda, L Petzold, OM Wolkowitz, SH Mellon, L Hood, FJ Doyle III, C Marmar, M Jett. Whole-Genome DNA Methylation Status Associated with Clinical PTSD Measures of OIF/OEF Veterans. *Translational Psychiatry*, 7(7):e1169, July 2017

Lynch KJ, **Skalli O**, Sabri F. Growing Neural PC-12 Cell on Crosslinked Silica Aerogels Increases Neurite Extension in the Presence of an Electric Field. *J Funct Biomater*. 2018 Apr 20;9(2). pii: E30. doi: 0.3390/jfb9020030. PMID: 29677113

McKenna D.D. in press. Beetle Genomics in the 21st Century: Prospects, Progress and Priorities. *Current Opinions in Insect Science*. <https://www.sciencedirect.com/science/article/pii/S2214574517301785>

Mobley RJ, AN Abell. Controlling Epithelial to Mesenchymal Transition through Acetylation of Histone H2BK5. *J Nat Sci*. 2017 Sep;3(9). pii: e432.

Rouchka EC, JH Chariker, DA Tieri, JW Park, S Rajurkar, V Singh, NK Verma, Y Cui, M Farman, B Condon, N Moore, J Jaromczyk, J Jaromczyk, D Harris, P Calie, EK Shin, RL Davis, A Shaban-Nejad, JM Mitchell, RM Flight, QJ Wang, RM Higashi, T W-M Fan, AN Lane, HNB Moseley, **L Lu, BJ Daigle Jr**, et al. Proceedings of the 16th Annual UT-KBRIN Bioinformatics Summit 2016: bioinformatics. *BMC Bioinformatics*, 18(Suppl 9):377, October 2017

Roy, R. Yun, D., Madahian, B. and **Homayouni, R.** 2017 Navigating the Functional Landscape of Transcription Factors via Non-Negative Tensor Factorization Analysis of MEDLINE Abstracts. *Frontiers in Bioengineering and Biotechnology* 5:48

Sabel JL, JT Dauer and CT Forbes. Introductory Biology Students' Use of Enhanced Answer Keys and Reflection Questions to Engage in Metacognition and Enhance Understanding. CBE Life Sci Educ September 1, 2017 16:ar40; doi:10.1187/cbe.16-10-0298

Sabel, JL, T Vo, A Alred, JM Dauer, and CT Forbes (2017). Undergraduate students' scientifically-informed decision-making about socio-hydrological issues. J College Science Teaching, 46(6), 64-72.

Sahay P, A Ganju, HM Almadadi, HM Ghimire, MM Yallapu, **O Skalli**, M Jaggi, SC Chauhan, P Pradhan. Quantification of photonic localization properties of targeted nuclear mass density variations: Application in cancer-stage detection. J Biophotonics. 2017 Dec 9. doi: 10.1002/jbio.20170025

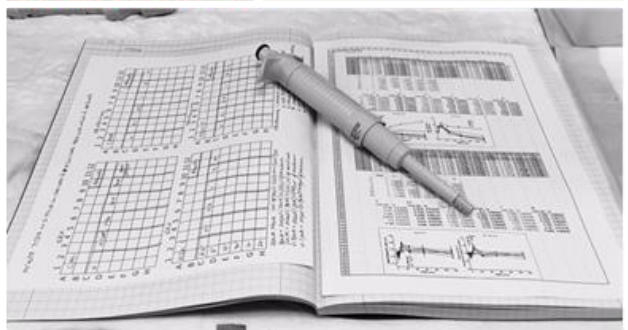
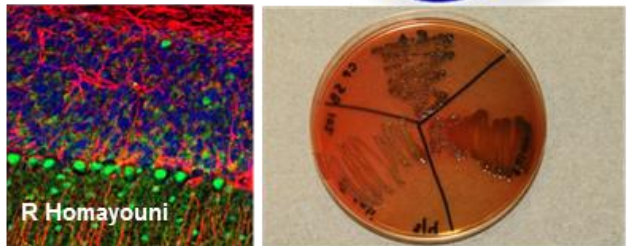
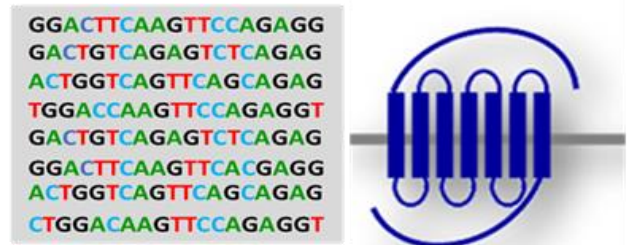
Tricola, GM, MJP Simons, E Atema, PD Boersma, RK Boughton, JL Brown, DC Dearborn, G Divoky, J Elmes, CF Huntington, AS Kitaysky, FA Juola, DB Lank, HP Litwa, EGA Mulder, ICY Nisbet, K Okanoya, RJ Safran, **SJ Schoech** EA Schreiber, PM Thompson, S Verhulst, NT Wheelwright, DM Winkler, R Young, CM Vleck, MF Haussmann. 2018. The rate of telomere loss is related to maximum lifespan in birds. Philosophical Transactions Royal Society B 373:20160445

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