BIOFEEDBACK

THE NEWSLETTER OF THE BIOLOGY DEPARTMENT AT RHODES

VOLUME 29 MARCH 2015 NUMBER 2

The Chair's Niche

We are sorry that many of you had a rough time last semester with construction noise that was annoying at best, and highly distracting at worst, especially in FJ-A, B, and C. Now that the FJ deck is completed, and workers are mostly installing furniture and cabinetry in Rhodes Tower, this semester seems to be a little quieter. But the excitement is not over yet. When you return in August, the Rhodes Tower renovations will be done, but there will most likely be a new construction zone in the parking lot between FJ and Hassell Hall.

We are thrilled that the College has announced its plans for the construction of our new science building which will house new teaching labs, faculty office and research spaces, and a variety of equipment rooms for both the Biology and Chemistry Departments. There will be a groundbreaking ceremony this spring, so keep an eye out for notices.

– Carolyn Jaslow, PhD

Honors and Awards

Congratulations to:

At the Mid-South GIS conference in November, **Miranda Rose ENVS '16** won a $2000 scholarship for her presentation. **Rose** also won 1st place in the student poster competition, along with coauthor **Sara Rodriguez ENVS '16**. **Taylor Sieben ENVS '15** won 3rd place in the poster competition. Details of their presentations are in the "Meetings" section.

Adiha Khan '13 second –year dental student at the University of Tennessee Health Science Center, was awarded the Hinman Student Research Symposium award on December 17, 2014.

New Beta Beta Beta honor society members:

Abdel Amro, Obaid Anwar, Liz Bittner, Morgan Cantor, Perri Carroll, Maddie Carwile, Sophie Costa, Megan Denny, Mariam Ebeid, Carol Elsakr, Sarah Evans, Shannon Feamster, Doug Fetterman, Morgan Fuller, Sierra Gaffney, Emily Hayward, Maggie Jones, Liana Kahn, Mohib Khan, Yoonjee Kim, Jordan Kugler, Gabe Laurence, Sumner Magruder, Adriana Martinez-Lopez, Chloe Meriwether, Margit Mikkelsen, Will Murphy, Samantha Ouyang, Arishna Patel, Zach Pope, Will Porter, Radhika Puri, Sam Robertson, Katy Roy, Sam Sefton, Sarah Shore, Brandon Smith, Anna Stachura, Sara Anne Stringfellow, My Tran, Andrew Tutor, Alex Van Hanneghan, Regan Zehr

New βββ Officers**: Sam Robertson '16** (President), **Will Porter '16** (Vice President), **Emily Hayward BMB '16** (Secretary) and **Sam Sefton BMB '16** (Treasurer).

Two faculty accepted offers for tenure-track positions this fall.
Dr. Thilina Surasinghe, who is filling a one-year appointment with us this year, will become a member of the Biology Department at Bridgewater State University in Massachusetts. In addition, **Dr. Chis Lupfer,** who taught a section of BIOL 130 this past fall, will be joining the faculty at Missouri State University in Springfield.

Publications

Barnett AA, Almeida T, Andrade R, **Boyle S**, de Lima MG, MacLarnon A, Ross C, Silva WS, Spironello WR, Ronchi-Teles B. 2015. Ants in their plants: *Pseudomyrmex* ants reduce primate, parrot and squirrel predation on *Macrolobium acaciifolium* (Fabaceae) seeds in Amazonian Brazil. *Biological Journal of the Linnean Society*. 114:260-273.

Hill T, Jackson-Hayes L, Wang X, and Hoge B. 2015. A mutation in the converter subdomain of *Aspergillus nidulans MyoB* blocks constriction of the actomyosin ring in cytokinesis. *Fungal Genetics & Biology*. 75:72-83.

This semester the Plant Genetics & Diversity class (Bio 235) has been learning about plant breeding and the genetic pathways to floral diversity in the classroom and lab, and by partnering with Memphis' Dixon Gallery & Garden, which is featuring an outstanding living exhibit of Amaryllis (*Hippeastrum*) cultivars. Students have attended lectures by world renowned horticulture experts at the Dixon, and got a behind-the-scenes tour of the Dixon's greenhouses. The class also tried their hands at 'cloning' various plants with asexual propagation techniques.

Gremillion S, Harris D, Jackson-Hayes, Kaminskyj S, Loprete D, Gauthier A, Mercer S, Ravita A and **Hill T**. 2014. Mutations in proteins of the Conserved Oligomeric Golgi Complex affect polarity, cell wall structure, and glycosylation in the filamentous fungus *Aspergillus nidulans*. *Fungal Genetics & Biology*. 73: 69-82.

Gabadage D, de Silva A, Boteju W, Bahir, M, **Surasinghe, T**, Madawala M, Karunarathna D. 2014. On the discovery of second living population of *Adenomus kandianus* (Günther, 1872) from Sri Lanka: with the bioecology, and detailed redescription to the species. *Herpetotropicos*. 10:37-49.

Meetings

Botejue W, Madawala M, Gabadage D, **Surasinghe T**, Bahir M, and Karunarathna D. Current conservation status of the Sri Lankan draconid lizards (*Reptilia: Agamidae*) with future prospect. World Biodiversity Congress, Global Scientific Research Foundation. Colombo, Sri Lanka (2014).

Collins M attended the annual meeting of the American Ornithologists' Union. Estes Park, CO (September 2014).

Presentations at the Mid-South GIS conference in Memphis, TN (November, 2014)

ORAL PRESENTATIONS

Rose B ENVS '16. GIS analysis of beef cattle farms in Tennessee (2007-2012).

Bradley C ENVS '15. Connecting Memphis through green spaces.

Lowrance E '15. Spatial relationships between African elephants at the Memphis Zoo.

Tremarelli M ENVS '16. Spread and transmission of the Ebola virus.

POSTER PRESENTATIONS

Rose B ENVS '16, Rodriguez S ENVS '16. Amphibian and reptile species richness in Shelby Farms Park.

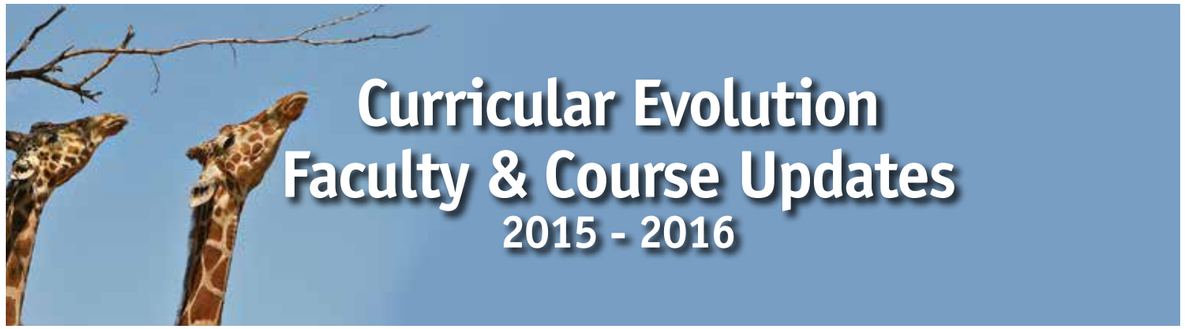
Sieben T ENVS '15. Arboreal mapping of the Memphis Zoo.

Bradley C ENVS '15. Long-term urban development: Austin and Portland 1992-2006.

Jacobs Q ENVS '16. Vendor sales of *The Bridge*.

Lassiter A ENVS '15, Costa S ENVS '16. Climate change's effects on the progression of mountain pine beetle infestation in Colorado (1995-2013).

Miller C ENVS '16. Environmental and anthropogenic factors affecting plant species richness in Shelby Farms.



Curricular Evolution
Faculty & Course Updates
2015 - 2016

New Courses, More Sections, and Course Inversions

This year we are planning to offer Microbiology, Genetics, Molecular Biology, Cell Biology, and BMB Methods classes in both the fall and spring semesters. We are in the midst of a job search to bring in someone who can teach Conservation Biology, so that course should be offered more regularly than it has been in the past few years. Finally, when you arrive in the fall, make sure you check your schedule carefully to find your classroom or lab. With the Rhodes Tower renovation completed this summer, some labs will be moving into new facilities in the fall.

Other Courses that Count for the Bio Major:

When planning your schedule, keep in mind that Biochemistry (CHEM 414), Mechanisms of Drug Action (CHEM 416), and Neuroscience (NEUR 270), with and without the Neuroscience Methods lab (NEUR 350) may count as upper-level Biology courses, but students may count no more than two of these courses toward their major.

What's Up for Next Spring?

In the spring of 2016 we expect to offer the following classes: Mechanisms of Development, Genetics, Cell Biology, Conservation Biology, Molecular Biology, Animal Physiology, Ornithology, Molecular and Cellular Neuroscience, Topics in Biomedical Science, and two sections of Microbiology. Spring will also likely include sections of Neuroscience, Biochemistry, and Mechanisms of Drug Action.

BIOL 350 Comparative Vertebrate Morphology/Anatomy

Comparative Vertebrate Morphology or Anatomy (BIO 350) CVM will again be offered with two 9 AM lectures most weeks and two (unequal) formal lab meetings a week. One lab meets Tuesday from 12:30-3:30. The second lab each week meets Friday for a minimum of 50 minutes, either from 1-1:50, or from 2-2:50. Two additional hours in lab are required, but these hours may be completed at other times during the week. The variable Friday lab time allows students to pre-register in another class meeting MWF at either 1 or 2 PM. CVM has two course numbers. The first includes the lecture and Tuesday lab. This one must be enrolled from the main tree (A, B, or C). The second number allows you to choose one of the two Friday lab times. Please pick the 1 PM Friday time if you can. This Friday section should be added from the Lab portion of the tree. See Dr. A. Jaslow if you have questions.

Senior Seminar Lottery

Wednesday, March 18th at noon in FJ 143w

Next year, the Biology Department will offer four sections of Biology Senior Seminar: two in the fall and two in the spring. Rising seniors, please consult the descriptions of these senior seminar courses on page 4.

All rising Biology seniors must reserve a slot in a fall or spring Biology senior seminar section via a lottery that will be held in the core Bio lab 143w at noon on Wednesday, March 18th.

If you cannot attend the lottery, you must send a representative prepared with an ordered list of your choices. Once you have signed up by lottery, you should list your reserved senior seminar section last on the registration tree under the category of "Other Courses" when you register for that particular semester. Biology students will not be allowed to register in a seminar section other than the one which they reserved through the lottery. If you have questions about the lottery, are planning to be abroad for a semester next year, or are planning to graduate in December, contact Dr. C. Jaslow immediately.

Senior Seminar Choices for '15-'16

Fall Senior Seminars

BIOL 485-1: Topics in Microbiology/ Disease. TuTh 11:00-12:15.

The faculty member assigned to teach this class is still undetermined as of publication, but it will most likely be the person who teaches Microbiology next year.

BIOL 485-2: Seeds. TuTh 4:00-5:15. Dr. Jonathan Fitz Gerald.
Seeds plants have once again gained a spotlight in modern research due to our increased interest in sustainable energy sources, designer crops and the Global Seed Vault. Traditional disciplines, however, are falling short in understanding basic seed biology, opening up new lines of interdisciplinary approaches. So if your interests lean towards the molecular, the physiological, ecology and evolution or computational aspects of biology there are a variety of open questions to be answered. Understanding the seed is confounded by several distinct features of the seed itself. For one, the seed is the result of a double-fertilization event. After fertilization, three genetically distinct compartments must coordinate their development to produce the seed. Very little is currently known about how these compartments communicate with each other. Also, the growth of the seed is regulated in part by parental genomic imprinting. This epigenetic mechanism of gene regulation can result in maternal and paternal genomes that are functionally distinct. This interaction between the genomes has lead to the parental conflict hypothesis. Simply put, this hypothesis proposes that resource allocation to the seed is an evolutionary battle between the different selective pressures on the mother, father and embryo. In addition there is a huge diversity in seed forms, interactions with animals and mechanisms for environmental sensing, making seed biology an exciting topic that can draw from all of your previous Rhodes Biology courses.

Spring Senior Seminars

BIOL 486-1: Biogeography. MWF 9:00-9:50. Dr. Rachel Jabaily.
"Earth and life evolve together" (L. Crouzat). The slow splitting of continents and the differences in temperature and weather around the globe have profoundly shaped the organisms of our planet. We will explore how lineages ranging from microbes to mammals have evolved as the earth around them has changed as well. Students will read and present on both historical and contemporary papers in the diverse and growing field of biogeography.

BIOL 486-2: The Molecular Basis of Cancer. MWF 11:00-11:50. Dr. Mary Miller.
This seminar will focus on the molecular basis of cancer, including impacts on cancer diagnosis and treatment. Students will read and discuss primary literature on topics including cell cycle regulation, apoptosis and programmed cell death, signal transduction, and metatastic tumors. Students will research a topic of their own interest that is pertinent to cancer biology, provide a summary of their findings, present this topic to the class, and evaluate the presentations of other students.

FRAZIER JELKE SCIENCE CENTER

Optimal Foraging

The following courses will be offered next semester

120	Intro to Environmental Sciences*	MWF 11:00-11:50; lab W or Fri 1:00-4:00
130	Biology I (5 sections)	TuTh 8:00-9:15, 9:30-10:45, or 11:00-12:15; MWF 8:00-8:50 or 10:00-10:50
131	Biology I Lab (8 sections)	Tu 12:30-3:30, Wed 1:00-4:00, Th 12:30- 3:30, Th 4:00-7:00, or Fri 1:00-4:00
200	Evolution (Jabaily)	TuTh 9:30-10:45, Th lab 12:30-3:30
207	Animal Behavior (Boyle)	MWF 8:00-8:50, Wed lab 1:00-4:00
301	Microbiology (TBA)	MWF 11:00-11:50, Wed lab 1:00-4:00
303	Genetics w/o Lab (FitzGerald)	MWF 9:00-9:50
304	Genetics with Lab (Miller)	TuTh 9:30-10:45, Tu lab 12:30-3:30
307	Cell Biology (Hill)	TR 8:00-9:15
315	Ecology (Collins)	TR 11:00-12:15; Mon lab 1:00-4:00
325	Molecular Biology (Lindquester)	MWF 10:00-10:50, Th lab 12:30-3:30
330	Virology/Immunology (Sturm)	MWF 8:00-8:50
350	Comp Vert Morph (AJaslow)	MWF 9:00-9:50; Tu lab 12:30-3:30; Fri lab 1:00-2:00 or 2:00-3:00
360	Histology (CJaslow)	MWF 8:00-8:50; Wed lab 1:00-4:00
375	Neuroendocrinology (Kabelik)	MWF 10:00-10:50
BMB 310	Methods in Cell Biology (Hill)	W 1:00-5:00
CHEM 414	Biochemistry (Loprete)	MWF 11:00-11:50 or 12:00-12:50
NEUR270	Neuroscience (Klatzkin)	MWF 9:00-9:50 or 10:00-10:50
NEUR350	Neuroscience Research Methods (Kabelik, Dougherty and Haberman)	Th 3:30-4:45, lab Mon or Tu 1:00-5:00
Senior Seminar Sections		
485-01	Topics in Micro./Disease (TBA)	TR 11:00-12:15
485-02	Seeds (Jonathan (Fitz Gerald))	TR 4:00-5:15

*Does not count towards Biology major

Signals & Displays
Short Communications

Tri-Beta News

Beta Beta Beta (βββ) is a national biological honor society with an active chapter at Rhodes. βββ is dedicated to the enrichment of its members' scientific experiences and to the distribution of knowledge gleaned from those experiences.

Current chapter activities include participation in the Rhodes Journal of Biological Science, coordination of student research presentations, organization of various fundraising events, and hosting of biological seminars. βββ provides a forum to recognize those students, with a biological science as their undergraduate major, who excel academically. May it be noted that Rhodes has an array of biological science disciplines, meaning there are βββ members who are not only passionate biology majors, but also neuroscience, environmental science, and biochemistry and molecular biology majors.

Regular membership can only be attained through invitation but any student meeting the criteria who is interested in becoming an associate member for the next school year should contact the current president, Sam Robertson (robsr-16@rhodes.edu) or vice president, Will Porter (porws-16@rhodes.edu). Go to www.rhodes.edu/biology/22139.asp for detailed membership criteria.

Tri-Beta has some exciting service projects planned for the spring semester. One ongoing project entails hosting monthly meetings with the Springdale Elementary School's Science Club. We will also be volunteering at Springdale Science Saturday events.

Additionally, we are selling Rhodes College Biology t-shirts with a graphic version of our recently retired token FJ dinosaur. The shirts are $10.00 and if you wish to order one please email Emily Hayward at (hayen-16@rhodes.edu) with your size and Rhodes box number. Finally, we will be inducting new members this spring semester. We are excited to welcome new individuals into the society and congratulate them on their commitment to biological excellence. Pictures of βββ events can be seen on theβββ bulletin board outside of the Biology Department office.

Biology Research Award

This spring, the Biology Department will be presenting the "Award for Outstanding Student Research in Biology". Any student who has completed research at Rhodes or elsewhere is eligible for this award. The winner will receive a cash prize, be honored at the award convocation ceremony, and have their name engraved on the Biology Research Award plaque that is displayed outside of the Biology office. To be considered, a student must submit a three to five page research paper, plus a recommendation from the research supervisor, to Dr. Kelly Dougherty by Friday, March 27th. Announcement of the award winner will be made at spring awards convocation on Friday, May 1st.

Undergraduate Research and Creative Activities Symposium

The Rhodes Undergraduate Research and Creative Activities Symposium (URCAS) provide you the opportunity to showcase your outstanding work to the entire campus community. You will gain first-hand experience in communicating your research and creative activity, an essential part of professional growth. URCAS will take place on Friday, May 1, 2015.

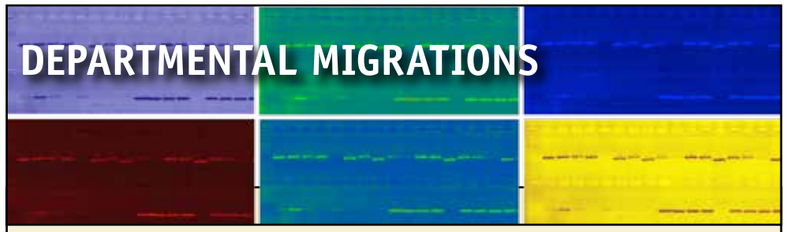
TN Academy of Science Meeting

The annual Western Collegiate Division Meeting of the Tennessee Academy of Sciences (TAS) meeting will be held Saturday, April 11 (8:30 AM – noon), at the University of Memphis. Abstracts are due March 27. Come see presentations by students from regional colleges and universities, including presentations by Rhodes students. If you would like information about presenting at or attending TAS, please contact Dr. Sarah Boyle. http://www.memphis.edu/biology/tas/untitled.php

Work in the Biology Department

The Biology Department is looking for students to work as lab Teaching Assistants for the core biology classes next year. These TA positions will consist of approximately 8-10 hours per week of work. We prefer students for this job who have an interest in Biology and have taken Bio I and II. Pay and further details concerning being a TA will be discussed on an individual basis. Also, the RSAP position will be available. If you have been a TA for the fall and spring core labs, we encourage you to apply for this upper level position. Please feel free to contact Sarah Hasty at 843-3431 (email: hastys@rhodes.edu) for additional information. Applications for the lab TA job can be found outside FJ 102E. The deadline for fall/spring positions is April 24, 2015.

Also, if you are interested in working in the Biology Department this summer, please contact Sarah Hasty.



We are very sorry to announce that this is the last semester that Dr. Laura Luque de Johnson will be with us at Rhodes. During her seven years in the Biology department, Dr. Luque de Johnson taught Microbiology and Parasitology to scores of students in addition to her contributions to the Biology I introductory lectures and labs. Dr. Luque de Johnson has been a vibrant participant in the life of the college, contributing in myriad ways to activities such as URCAS, and programs from Health Professions Advising to Latin American Studies. Through Dr. Luque de Johnson's courses, her research, and her mentoring, many students learned about important public health issues from a regional to an international perspective. Next year, Dr. Luque de Johnson will be joining the faculty at Texas Christian University in Fort Worth, Texas, where she will be closer to her family and the family of her late husband, Dr. Kyle Johnson.

Con todo nuestro afecto y admiración, te deseamos lo mejor en Texas.

The Hybridization Zone

Environmental Studies and Science Program

ENVS majors and minors (declared and potential ones) are encouraged to take BIOL 120 Introduction to Environmental Science as early as possible (preferably as a sophomore). This course will be offered in Fall 2015. Rising seniors who have not reserved a spot in a fall or spring senior seminar must contact Prof. Keller as soon as possible.

Biochemistry and Molecular Biology

The Biochemistry and Molecular Biology Program recently welcomed our class of 2016 with our annual "lab coat party". Our seniors challenged our juniors to a scavenger hunt which ended in the awarding of lab coats and a toast to our new majors! We send heartfelt congratulations to our BMB graduates of 2015!

With our growing program, we will be offering two sections of the BMB 310: Methods in Biochemistry and Molecular Biology next year. Be sure to talk to your advisor about how this might impact your course schedule.

BMB Lab Coat Party. ROW 1, left to right: Eliot Blatt '16, Brian Lenny '16, My Tran '16, Arishna Patel '16, Madhuri Prasad '16, Ashley Truong '16. ROW 2, left to right: Rajiv Heda '16, Allie Limmer '16, Regan McCormick '16, Alex Rhodes '16, Samantha Sefton '16, Sarah Shore '16, Tay Wilson '16

Dr. Miller is back from sabbatical, and thanks Dr. Jackson Hayes for her fantastic work as Program Director. Best wishes from the BMB program committee, we hope for the perfect annealing conditions for everyone's hybridizations

Neuroscience Program Announcements:

The Frazier Jelke renovations are to conclude this summer and the Neuroscience Program is excited to announce that starting in the fall, the Neuro 350 labs will be taught in the new Physiology / Neuroscience laboratory space that is being readied in the southeast corner of the building. Drs. Dougherty and Kabelik will also be moving to new offices and research labs in the adjacent hallway.

The Neuroscience courses on offer for the fall semester include Neur 270 Neuroscience, Neur 318 Neuroscience of Brain Disorders, Neur 350 Neuroscience Research Methods, Biol 375 Neuroendocrinology, and Neur485 Senior Seminar. In Spring 2016, we plan to again offer Neur 270 Neuroscience, as well as Biol 376 Molecular and Cellular Neuroscience, Psyc 345 Cognitive Neuroscience, and Neur 486 Senior Seminar. Sophomores, please remember to declare your major on time so that we can be sure to provide sufficient course offerings for you if demand is high.

Student Research 2014 - 2015
Sponsored by Programs at Rhodes College
(Rhodes faculty supervisors listed)

Barrow D '17. Investigating the interaction between lamotrigine and HCN channels. (Dr. Kelly Dougherty)

Bradley C ENVS '15, Chi Y NEUR '16, Giarla A ENVS '16. Behavioral and spatial patterns of Nile hippos and African elephants. (Dr. Sarah Boyle)

Bittner E '16. Multidrug resistant bacteremia among pediatric cancer patients in Mexico City. Rohit P. Ojha, DrPh, in the Department of Epidemiology and Cancer Control, St. Jude Children's Research Hospital (Dr. Mauricio Cafiero)

Carr C ENVS '17, Jones E '17, Rose M ENVS '16, Tremarelli M ENVS '16. Behavioral and spatial patterns of African elephants. (Dr. Sarah Boyle)

Carwile M '16. Correlating Sumatran and Bengal tiger reproductive behavior with urinary sex steroid concentrations to determine the effectiveness of urinary hormone monitoring for large cats. Dr. Beth Roberts, Memphis Zoo. (Dr. Sarah Boyle)

Choudhury S NEUR '15. Associations between hypothalamic neural activity and social behaviors in anole lizards. (Dr. David Kabelik)

Crowell M '17. Patient safety culture: using survey results to identify improvement opportunities. Dr. James Hoffman, Pharmaceutical Sciences, St. Jude Children's Research Hospital. (Dr. David Kabelik)

Dishuck C '17. DFT calculations of possible inhibitors of the LPXC enzyme. (Dr. Mauricio Cafiero)

Ebeid M '16. Clinician responses to drug-drug interaction and drug-allergy / adverse drug reaction alerts. Dr. James Hoffman, Pharmaceutical Sciences, St. Jude Children's Research Hospital. (Dr. David Kabelik)

Elkin L '17. Development of assisted reproductive techniques for endangered snakes using a model species: *Pituophis catenifer*. Dr. Beth Roberts, Memphis Zoo. (Dr. Sarah Boyle)

Hanson A '15, Jackson E '16, Selman J '16, Minor G '16, Malanchuk L '17, Miller A '16, Gross J '17. Avian haemosporidian parasites in a declining aerial insectivore, the Chimney Swift. (Dr. Michael Collins)

Hartline J NEUR '16. Neuroendocrine regulation of bold-shy social phenotype in the green anole lizard. (Dr. David Kabelik)

Harvey T '17. Pharmacogenetics of methotrexate resistance in pediatric acute lymphoblastic leukemia. Dr. Bill Evans, Pharmaceutical Sciences. St. Jude Children's Research Hospital. (Dr. Terry Hill)

Haugen B BMB '17. GFP tagging of a novel membrane protein in *Aspergillus nidulans*. (Dr. Terry Hill)

Howard A '15, Leavey P '17, Lipman M '15, Patel A '16. Hemoparasites of small mammals from Paraguay. (Dr. Sarah Boyle)

Huerta C '15. Characterizing strain-specific H5 influenza replication in macrophages. Dr. Stacey Schultz-Cherry, Department of Infectious Diseases, St. Jude Children's Research Hospital. (Dr. Gary Lindquester)

Jackson E '16 and **Hanson A '15.** Avian malaria in a South American bird community. (Dr. Michael Collins)

John I '17. Prediction of the structure of hemagglutinin in H1N1 influenza virus strains using correlated mutations in amino acid sequences of homologous H1 proteins. (Dr. Oliver Sturm)

Johnson A NEUR '15. Immunohistochemical colocalization of mesotocin and corticotropin-releasing hormone activity in the female green anole brain following courtship encounters. (Dr. David Kabelik)

Johnson C '16. The weight of obesity on influenza virus evolution. Dr. Stacey Schultz-Cherry, Department of Infectious Diseases, St. Jude Children's Research Hospital. (Dr. Carolyn Jaslow)

Kahn L '16. Prediction of the structure of hemagglutinin in H5N1 influenza virus strains using correlated mutations in amino acid sequences of homologous H5 proteins. (Dr. Oliver Sturm)

Kumar P '17. Visualization and identification of conserved regions in influenza H7 proteins that are critical in conveying host trophism. (Dr. Oliver Sturm)

Lenny B BMB '16. GFP tagging of a putative myosin molecule in *Aspergillus nidulans*. (Dr. Terry Hill)

Lenny B BMB '16. Pathogenesis and replication of Bangladesh H9N2 influenza in pet birds and mammals. Dr. Robert Webster, St. Jude Children's Research Hospital. (Dr. Gary Lindquester)

Lichtenberger E '17. The effect of CPA and freezing technique on the reactivation of frozen eastern indigo snake (*Drymarchon couperi*) sperm. Dr. Beth Roberts, Memphis Zoo. (Dr. Sarah Boyle)

Loome J BMB '18. Deletion of a novel membrane protein in *Aspergillus nidulans*. (Dr. Terry Hill)

Lowrance E '15. GIS analysis of elephant spatial behavior. (Dr. Sarah Boyle)

Magruder S NEUR '16. Immunohistochemical colocalization of mesotocin and corticotropin-releasing hormone activity in the male brown anole brain following social encounters. (Dr. David Kabelik)

Michener P '17. Goodeniaceae genomics for phylogenetic and paleopolyploidy inference. (Dr. Rachel Jabaily and Dr. Andrew Gardner)

Mikkelsen M '15. Potential health risks of variability in blood pressure. Department of Preventive Medicine at the University of Tennessee Health Science Center. (Dr. Alan Jaslow)

Petraglia A '15. Development of 6-[18F]-fluorodopamine, a radiopharmaceutical for positron emission tomographic (PET) imaging of neuroblastoma. Dr. Scott Snyder, St. Jude Children's Research Hospital. (Dr. Ann Viano)

Rao R BMB '16. DNA damage-induced NF-kB signaling in cancer growth and progress. Dr. Jixiao Niu and Dr. Zhaohui Wu, University of Tennessee Health Science Center. (Dr. Gary Lindquester)

Sharfman N NEURO '15. Investigating the interaction between lamotrigine and Kv4 channels. (Dr. Kelly Doughtery)

Sieben T ENVS '14. Spatial ecology of trees at the Memphis Zoo. (Dr. Sarah Boyle)

Singareddy A BMB '16. Visualization and identification of conserved regions in the influenza hemagglutinin as targets for broadly protecting antibody responses. (Dr. Oliver Sturm)

Smith A NEUR '16. Dopaminergic regulation of social behavior in the green anole. (Dr. David Kabelik)

Tews A '16. Monitoring polar bear thermoregulation at the Memphis Zoo. Dr. Katrina Knott, Memphis Zoo. (Dr. Sarah Boyle)

Trychta M '16. Avian haemosporidian parasites in a west Tennessee bird community. (Dr. Michael Collins)

Vacheron A '17. Prediction of the structure of hemagglutinin in H7N9 influenza virus strains using correlated mutations in amino acid sequences of homologous H7 proteins. (Dr. Oliver Sturm)

Rhodes College
—1848—