



BIOFEEDBACK

THE NEWSLETTER OF THE BIOLOGY DEPARTMENT AT RHODES

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Number 2

The purpose of *BIOFEEDBACK* is to provide an important and timely vehicle for the dissemination of information concerning faculty, staff and students of the Biology Department. Any notices or information that you wish to include in *BIOFEEDBACK* should be submitted to Dr. Carolyn Jaslow. *BIOFEEDBACK* is published each semester.

The Chair's Niche



Tempus fugit. According to Wikipedia, the ultimate authority on everything and nothing, it was Virgil who coined this term when he wrote, "But meanwhile it flees: time flees irretrievably, while we wander around, prisoners of our love of detail." Whether

for love, money, duty or otherwise, I have been a servant, if not a prisoner, of detail for eight years. While I like to think that there was direction to all of my actions as department chair, there admittedly were times when they seemed aimless. Nevertheless, as I come to the end of my tenure and prepare to turn the details over to another of our able faculty, I would like to take the opportunity of penning my last Chair's Niche to thank just some of those who have helped me grow as an administrator and a person. My predecessor, Chuck Stinemetz, caused me wait until I was more ready for the job – "more" ready because no one is ever really ready. David Kesler gave me reason to hone my "what were you thinking" glare (there's an old story behind this involving a volleyball). Jay Blundon made me appreciate job security. A few short-term faculty and staff helped me to appreciate everyone else. Through Jonathan Fitz Gerald, I know there is a multitude of ways of looking at a problem. Terry Hill has pressed me to rationalize everything, while Mary Miller and Laura Luque de Johnson have kept me along the straight and narrow path of integrity. I am grateful for Sarah Hasty for being one of the rare ones in her position to do her job so well, and for Karen Thomas for always watching my back and sending tactful reminders with increasing frequency. My inherent optimism is strongly

bolstered by the impassioned way that all of our newer faculty have made this department their home. I am fortunate long to have enjoyed the support and friendship of the Drs. Jaslow (AJ and CJ). And I acknowledge my wife, Terri, who, among other things, was an ideal role model of an administrator as she earlier chaired the Department of Mathematics and Computer Science and served as Associate Dean of Academic Affairs here at Rhodes. Finally, I thank all of you students, former and current, for constantly allowing me to see things through fresh eyes.

Valete!

Dr. Gary Lindquister

Primary Productivity and Secondary Growth



The following is a list of honors, awards, publications and meeting participation of our faculty and students since October 22, 2012.

Honors and Awards

Congratulations to ...

... **John Menz '14**, **Roberta Moore ENVS '14** and **Alison Lang '13** for awards they received at the Mid-South GIS Conference in November. John won a \$1500 GIS Student Fellowship for his oral presentation and written paper "Arboreal mapping of the Memphis Zoo: Long-term sustainable management plan." Roberta won both 1st place and 3rd place for two posters she entered: "The influence of historic streetcar lines on economic development" and "Changes in tree coverage and steps toward arboretum certification at the Memphis Zoo." Alison won 2nd place for her poster "Fish diversity of the Conasauga River."

... **John Goss '02**, who just accepted a position as an Assistant Professor in the Department of Biological Sciences at Wellesley College. We are all very excited for John to have realized his dream of becoming a faculty member of biology at a small liberal arts college

...new βββ officers: **Kristen Wendt BMB '14** (President),

Maggie Klusman '14 (Vice President), **Lauren Stokes BMB '14** (Secretary) and **Stephen Leavelle '14** (Treasurer)

Grants and Fellowships

Dr. Jabaily and co-PI Dr. Dianella Howarth (St. John's University, Queens NY) were awarded a National Science Foundation research grant for their project, "Phylogenetics and Floral Symmetry Evolution of the Core Goodeniaceae." This 3-year project will fund undergraduate researchers in Dr. Jabaily's lab, fieldwork in Western Australia, and a postdoctoral researcher, Dr. Andy Gardner, who will be a welcome



addition to the department faculty.

Publications

Steven SK, Strehle AP, **Miller RE '12**, Gammons, SH, McCarty JT, **Miller ME**, Stultz LK, **Hanson PK Chem '96**. 2013. The anticancer ruthenium complex KP1019 induces DNA damage, leading to cell cycle delay and cell death in *Saccharomyces cerevisiae*. *Mol Pharmacol*. 83:225-34.



Jabaily RS and Sytsma KJ. 2013. Historical biogeography and life-history evolution of the Andean *Puya* (Bromeliaceae). *Bot J Linn Soc*. 171:201-24.

Barnett AM, **Boyle SA**, Pinto L, Lourenço WC, *et al.* 2012. Primary seed dispersal by three Neotropical seed-predating primates (*Cacajao melanophalus ouakary*, *Chiropotes chiropotes*, and *Chiropotes albinasus*). *J Trop Ecol*. 28:545-55.

Meetings

In October, **Dr. Jonathan Fitz Gerald** was invited by the University of Miami to present "Examining parental conflict as a mechanism for the epigenetic regulation of seed development in *Arabidopsis*".



Curricular Evolution

Faculty and Course Updates for '13-'14



Curricular Shifts for 2013-2014

Once again, Animal Physiology will be taught in the spring next year, so Dr. Kabelik can offer some of the required courses for Neuroscience majors in the fall. These fall courses include Neuroendocrinology (BIOL 375), and the Neuroscience Methods class (NEUR 350). Also, next year, Dr. Jabaily will have a post-doc, Dr. Andy Gardner, who will teach a senior seminar section. Dr. Fitz

Gerald is expected to be on a sabbatical leave in '13-'14, and we hope to hire a one-year faculty member to cover some of his teaching obligations. This means that Dr. Fitz Gerald will not be offering Mechanisms of Development in '13-'14. We do not yet know if his replacement will be able to offer a version of that course or will be teaching something else to meet the demand for upper-level classes.

To continue our effort to fulfill requests for certain high-demand courses, we plan to offer Genetics in the fall and in the spring again next year. Dr. Luque de Johnson will again be teaching Microbiology in the fall, but we are hoping to hire someone who will be able to teach a different section of Microbiology in the spring. This is very tentative, so if you are a

rising senior who needs Microbiology as a prerequisite for your graduate program, please prioritize Microbiology first on your tree when you do your preregistration for fall semester.

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.

Comparative Vertebrate Morphology (BIOL 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 any questions.



Optimal Foraging

Where does the Methods Lab (BMB 310) go on the tree?

Methods in Cell Biology & Biochemistry (BMB 310) is the optional laboratory section for Cell Biology (BIOL 307) and/or Biochemistry (CHEM 414). Students who intend to request BMB 310 as a lab with either Cell or Biochemistry should enter it into the Lab portion of the tree. Students who wish to take the course alone, because they took Cell or Biochemistry previously, or intend to take one or both in the future, cannot sign up for it on the tree. Instead, they should contact Dr. Hill as soon as possible

What's Up for Next Spring?

In the spring of 2014, we expect to offer the following upper-level Biology classes: Evolution, Molecular Biology, Animal Physiology, Genetics, Topics in Biomedical Science, Parasitology, and one or two additional upper level classes with lab TBA. One of these courses is likely to be Microbiology, Mycology, or Conservation Biology, and another may be a molecular/cellular topic or another section of Molecular Biology. A section of Neuroscience will also be offered in the spring.

Senior Seminar Lottery

Wednesday, March 20th at 11:00 AM in FJ 143W

Next year, the Biology Department will offer three sections of Biology Senior Seminar. An informal survey of rising seniors suggested there was a preference for spring senior seminar sections and for more organismal subjects. As a result, there will be two spring seminars and one fall section. Rising seniors, please consult the descriptions of these senior seminar courses.

Another issue raised in the survey was concern about the use of a lottery for students to enroll in their senior seminars. The Biology Department has discussed the enrollment procedure several times and has considered multiple alternatives. Each year,

The following courses will be offered next semester

Number	Course Title	Hours Offered
130	Biology I (4 sections)	MWF 9:00-9:50, 11:00-11:50 TR 8:00-9:15, 11:00-12:15
131	Biology I Lab (8 sections)	Tu 12:00-3:00, 12:30-3:30, 3:30-6:30; Wed 1:00-4:00; Th 12:30-3:30, Fri 1-4:00
207	Animal Behavior (Boyle)	MWF 10:00-10:50, Mon lab 1:00-4:00
301	Microbiology (Luque de Johnson)	MWF 11:00-11:50, Wed lab 1:00-4:00
304	Genetics (Miller)	TR 9:30-10:45; Tu lab 12:30-3:30
307	Cell Biology (Hill)	TR 9:30-10:45
315	Ecology (Collins)	TR 9:30-10:45; Th lab 12:30-3:30
330	Virology/Immunology (Sturm)	MWF 10:00-10:50
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 9:00-9:50
BMB 310	Methods in Cell Biology (Hill)	W 1:00-5:00
CHEM 414	Biochemistry	MWF 11:00-11:50
NEUR 270	Neuroscience (TBA)	MWF 10:00-10:50
NEUR 350	Neuroscience Research Methods (Kabelik, Gerecke, Klatzkin)	Th 3:30-4:45, M lab or T lab (1-5 pm)
Senior Seminar Section		
485-01	Senior Seminar	TR 3:45-5:00
For Non-Majors		
120	Introduction to Environmental Sciences.	MWF 8:00-8:50; Mon lab 1:00-4:00

we reach the same conclusion that the lottery is the fairest method of enrolling students. For one thing, it does not require seniors to select their seminar using the pre-registration tree. This would deprive them of a chance to use their first pick to enroll in an upper-level Biology course. Each student who enrolls in a senior seminar has his or her personal reasons for choosing that particular seminar, so how does one decide which student priority is most important? Should athletes be given priority for seminars that do not meet in the afternoons compared to students who have to work or students who have conflicts with classes they want for a second major or a minor? A lottery may be unpopular, particularly for those who do not get good numbers, but with a lottery, every student has the same chance as anyone else to draw a number that yields the seminar he or she prefers.

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 11:00 AM on Wednesday, March 20th. 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, or are planning to graduate in December, contact Dr. C. Jaslow immediately.

Senior Seminar Choices for '13-'14

Fall Senior Seminar

BIOL 485-1: Biogeography. TuTh 11:00-12:15. Dr. Andy Gardner.

Biogeography is the study of the interplay of Earth's history and the distributions of its organisms. This highly integrative field spanning

multiple areas of biology has a rich history of scholarship and today's biogeographers employ an expansive molecular and computational toolset that has led to dramatic paradigm shifts and vastly more refined theories about the history of Earth's biota. Students in Biogeography will become familiar with the wide array of questions and associated methodologies in the field. The content of the class will be driven primarily by the interests of its participants, and students will have the opportunity to research a topic of their choice, which they will then present to the class through an oral presentation and a written paper.



Spring Senior Seminars

BIOL 486-1: Malaria. TuTh 3:45-5:00.

Dr. Laura Luque de Johnson. This spring senior seminar will provide an opportunity for students to explore malaria from many aspects including: molecular mechanisms of disease, immune evasion, vaccine development, mechanisms of antimalarial resistance, vector control, epidemiology, and environmental factors affecting the spread of the disease to name a few.

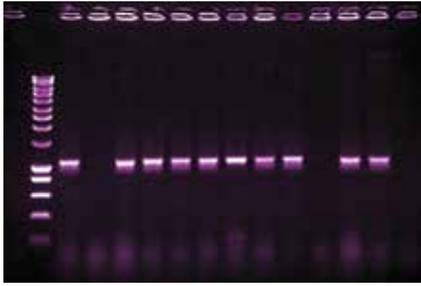
Beyond the science, this course teaches how to analyze and understand primary research literature and to communicate scientific concepts in presentations.



BIOL 486-2: How Organisms Respond to Change. MWF 11:00-11:50. Dr. Sarah Boyle.

This spring senior seminar will broadly address behavioral, ecological, and physiological characteristics that allow some organisms to survive in changing environments. This topic includes examination of organisms' responses to novel environmental change as well as evolved phenotypic change that accompanies movement between different environments. The seminar will focus on why responses to change often differ across species or individuals, and how scientists are currently addressing this topic using approaches from multiple biological sub-disciplines. Students will read and discuss primary literature relating to behavioral flexibility, endocrinology, disease ecology, conservation genetics, and landscape ecology. Students will also research a topic in their area of interest and disseminate their findings to the class through a written paper and oral presentation.





Departmental Migrations

A Sad Goodbye...

This past fall the Biology Department lost a colleague, students lost a mentor, and the Rhodes community lost a friend when Rosanna Cappellato passed away on Thanksgiving Day, November 22nd, 2012. With her passing, the environment itself lost a passionate protector.

Dr. Cappellato came to Rhodes in 2004 after earning her Ph.D. at Emory University and having spent time teaching at Allegheny College and Alfred University. She quickly became a champion for environmental issues. From leading the effort that resulted in Rhodes being certified as a Level IV Arboretum to being a strong voice in the process of developing an Environmental Studies and Science major, she helped to effect important changes on the Rhodes campus.

Dr. Cappellato affected and inspired many across the Rhodes and Memphis communities. Her love for the natural



world will touch many of us for years to come, and hopefully, we'll all be better

stewards of our environment thanks to her influence.

A few comments from those who knew Dr. Cappellato..

Eric Henager, Rhodes Professor: *"The joy Rosanna created in the Rhodes environment combined with the rigorous scholarly inquiry she modeled and her passionate commitment to students, is what we're all so sorrowfully missing now. The void Rosanna leaves here is truly immeasurable."*

Rosanne Hicks, Rhodes staff: *"She was delightful and funny and I'll miss her."*

Alix Matthews ENVS '14: *"Dr. Cappellato joyfully shared her knowledge with everyone she met. She worked very hard to recertify the Rhodes Arboretum. The Scarlet Oak planted in her memory is a symbol of her enthusiasm, passion, and dedication for teaching and the environment."*

Marion Jones, Municipal Planner, Memphis and Shelby County Division of Planning and Development: *"I loved working with Rosanna. She was always such a passionate and positive influence! Rosanna was one of those rare, special teachers who nurtured and challenged her students."*

Sherry Sasson '08, Sergeant, Rhodes Campus Safety: *"She taught me how to evaluate my ecological footprint, ways in which we could conserve soil and, the concepts behind Genetically Modified Foods."*

Willy Bearden, Memphis based Filmmaker and author: *"I was on the Park Friends board of directors with Rosanna. I was drawn to her because she took her work seriously, but herself, not so much. It is so refreshing to know a brilliant person who is also comfortable in the world. I will remember Rosanna for her smile, her quick laughter and her dedication to her beliefs."*

Signals and Displays (short communications)

Tri-Beta News

Beta Beta Beta ($\beta\beta\beta$) is a national biological honor society with an active chapter at Rhodes. $\beta\beta\beta$ is dedicated to the enrichment of its members' scientific experiences and to the sharing and dissemination of information 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. $\beta\beta\beta$ provides a forum to recognize those students, with a biological science as their undergraduate major, who excel academically. Our chapter includes 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 $\beta\beta\beta$ president, Kristen Wendt (wenke@rhodes.edu) or vice president, Maggie Klusman (klums@rhodes.edu). Go to <http://www.rhodes.edu/academics/2981.asp> for detailed membership criteria.

Tri-Beta has some exciting service projects planned for the spring. These include hosting monthly meetings with the Springdale Elementary School's Science Club. This spring we meetings will be held February 12th, March 19th, and April 9th from 3:30-4:30. We will also be volunteering at Rites to Play, at which we will be holding a belated Darwin Day celebration in collaboration with the Memphis Zoo. Additionally, we are selling Rhodes College Biology t-shirts with a graphic version of our token FJ dinosaur. The shirts are \$10.00



and if you wish to order one, please email Stephen Leavelle (lease@rhodes.edu) with your size and Rhodes Box number.

Finally, $\beta\beta\beta$ has hosted several successful events this semester. The club organized and manned a benefit banquet to help fund departmental renovations. Also, our induction took place on March the 7th, along with a catered dinner. We are excited to have these new members as additions to our society, and pictures of the ceremony and dinner will be available on the $\beta\beta\beta$ bulletin board.

\$\$ 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. Luque de Johnson by Friday, March 29th. Announcement of the award winner will be made at spring awards convocation on Friday, April 26th.

TN Academy of Sciences Meeting

The annual Western Collegiate Division Meeting of the Tennessee Academy of Sciences (TAS) meeting will be held Saturday, April 6, at Christian Brothers University. Come see presentations by students from regional colleges and universities, including presentations by Rhodes Biology students. If you would



like more information, please contact Dr. Sarah Boyle.

Undergraduate Research and Creative Activities Symposium (URCAS)

The Rhodes Undergraduate Research and Creative Activities Symposium (URCAS) provides 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. It will take place on Friday, April 26th this year – keep your eyes open for a final schedule of paper/poster presentations.

Those wishing to present a paper or poster need to identify a faculty sponsor and must submit an abstract via the online submission process. Online submission opened March 1st.

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 room FJ 102E. The deadline for the fall/spring positions is **April 27, 2013**. Also, if you are interested in working in the Biology Department this summer, please contact Sarah Hasty.

Student Research 2012-2013 Sponsored by Programs at Rhodes (Rhodes faculty supervisors listed)

Steven Badami '14 *Bergmann's rule, body size, and the response of birds to global climate change.* BIO 452 (Dr. Michael Collins)

Maggie Blake '14 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 451 (Dr. Sarah Boyle)

Maggie Blake '14 *Hormone assays of polar bears.* BIO 452 (Dr. Katrina Knott, Memphis Zoo, and Dr. Sarah Boyle)

Erica Blustein '14 *Bergmann's rule, body size, and the response of birds to global climate change.* BIO 452 (Dr. Michael Collins)

Shawnecca Burke BMB '14 *KP1019 dependent spindle defects in S. cerevisiae.* BMB 451 & 452 (Dr. Mary Miller)

Ashlyn Cahill '14 *Avian health and parasite incidence in an urbanized landscape.* BIO 451 & 452 (Dr. Laura Luque de Johnson)

Currie Carothers '15 *Identification of components of the S. cerevisiae nucleolus.* BIO 451 & 452 (Dr. Mary Miller)

Piper Carroll NEUR '13 *Immunohistochemical localization of neural activation in the hypothalamic paraventricular nucleus following social encounters.* BIO 451 & 452 (Dr. David Kabelik)

Shelley Choudhury NEUR '15 *Immunohistochemical localization of catecholaminergic activation in the brain following social encounters.* NEUR 451 & 452 (Dr. David Kabelik)

Ryan Conley '13 *Using radar technology to understand patterns of avian migration.* BIO 452 (Dr. Michael Collins)

Alexander Croft '14 *Optimization of BRK antibody immunohistochemistry on mammary gland tumors.* Dr. Anton Reiner, UT. BIO 451 and 452 (Dr. Gary Lindquenter)

Ellen Dahl '14 *Gene mapping of adaptive regulators of parental genomic imprinting.* Rhodes Fellow (Dr. Jonathan Fitz Gerald)

Caroline Elbaum NEUR '14 *Immunohistochemical localization of catecholaminergic activation in the brain following social encounters.* NEUR 452 (Dr. David Kabelik)

Sarah Ferguson '13 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 453 (Dr. Sarah Boyle)

Matthew Grisham '13 *Avian health and parasite incidence in an urbanized landscape.* BIO 451 (Dr. Laura Luque de Johnson)

Teddy Huerta '15 *Characterization of intracellular uptake pathways in macrophages used by highly pathogenic avian influenza viruses.* Dr. Stacey Schultz-Cherry, St. Jude Children's Hospital. BIO 451 & 452 (Dr. Gary Lindquenter)

Jordan Infield '14 *Molecular diagnostic of infectious diseases in pediatric patients.* Dr. Anami Patel at Le Bonheur Children's Hospital. BIO 451 & 452 (Dr. Laura Luque de Johnson)

Alyssa Johnson NEUR '15 *Immunohistochemical localization of catecholaminergic activation in the brain following social encounters.* NEUR 451 & 452 (Dr. David Kabelik)

Eden Johnson BIOL '14 *Phylogenetics and species delimitation of the southwest Australian endemic wildflower genus Anthotium (Goodeniaceae)* BIO 451 & 452 (Dr. Rachel Jabaily)

Kelsey Jones '13 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 451 (Dr. Sarah Boyle)

Kimber Jones '13 *Behavioral and spatial analysis of captive wolves.* BIO 453 (Dr. Sarah Boyle)

Allison Julien NEUR '14 *Aggression, altruism, and sexual behavior in the vampire bat, Desmodus rotundus.* BIO 452 (Dr. Sarah Boyle)

Adiha Khan '12 *Morphological, morphometric, and molecular characterization of Hepatozoon spp. from naturally infected snakes in Overton Park, Memphis, TN.* BIO 453 (Dr. Laura Luque de Johnson)

Erik Klingbeil '13 *Epidemiology of nosocomial infections and their risk factors in children with cancer.* Dr. Kyle M. Johnson at St. Jude Children's Research Hospital and Dr. Sergio Gomez, MD at Hospital de Niños Sor María Ludovica La Plata in Buenos Aires, Argentina. BIO 451 (Dr. Laura Luque de Johnson)

Maggie Klusman '14 *Using radar technology to understand patterns of avian migration.* BIO 452 (Dr. Michael Collins)

Leo Kokorev '13 *Bonobo social behavior.* BIO 451 (Dr. Sarah Boyle)

Luke Laudermilk BMB '13, *MicroRNA alteration of transcription levels through interaction with gene promoter regions.* Dr. William E. Evans, St. Jude Children's Research Hospital. BMB 451 (Dr. Gary Lindquenter)

Phuong Le '15 *Molecular characterization of binding interactions at the N-terminal domain of the formin AtFH5.* BIO Rhodes Fellow (Dr. Jonathan Fitz Gerald)

Stephen Leavelle '14 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 451 & 453 (Dr. Sarah Boyle)

Brian Lenny '16 *Sequencing of gene alleles in a sepD mutant strain of Aspergillus nidulans.* BIO 452 (Dr. Terry Hill)

Phillip Lyons '13 *Behavioral and spatial analysis of captive wolves.* BIO 451 & 452 (Dr. Sarah Boyle)

Jennifer Marshall ENVS '14 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 451 & 452 (Dr. Sarah Boyle)

Madison Marullo '13 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 451 & 453 (Dr. Sarah Boyle)

Alix Matthews '14 *Avian blood parasites in an urbanized landscape.* BIO 452 (Dr. Michael Collins)

Roberta Moore ENVS '14 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 451 (Dr. Sarah Boyle)

Luke Newman '016 *Sequencing of gene alleles in a sepD mutant strain of Aspergillus nidulans.* BIO 452 (Dr. Terry Hill)

Kelly Patton '13 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 452 (Dr. Sarah Boyle)

Jordan Perchik '13 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 452 (Dr. Sarah Boyle)

Christopher Perkins '13 *Molecular mechanism of cytoskeleton rearrangement in red blood cells triggered by the Plasmodium falciparum protein EBA-175.* BIO 451 & 453 (Dr. Laura Luque de Johnson)

Amelia Phelps '15 *Social dynamics in a giraffe family.* BIO 452 (Dr. Sarah Boyle)

Brittany Pope '13 *Cortisol assays of African elephants.* Beth Roberts, Memphis Zoo. BIO 453 (Dr. Sarah Boyle)

Radhika Puri '16 *Avian blood parasites in an urbanized landscape.* BIO 452 (Dr. Michael Collins)

Lin Qiu ENVS '13 *Ecological assessment of water resources in Shelby County.* BIO 452 (Dr. Sarah Boyle)

Kira Reich BMB '14 *Understanding the role of nucleolar proteins in the structure of the nucleolus in S. cerevisiae.* BMB 451 & 452 (Dr. Mary Miller)

Jordan Robinson '13 *Avian blood parasites in an urbanized landscape.* BIO 452 (Dr. Michael Collins)

Matthew Sommers NEUR '14
Immunomodulatory TLI/ATS conditioning facilitates engraftment and GVHD protection in a murine model of beta thalassemia. Dr. Asha Pillai, St. Jude Children's Research Hospital. NEUR 451 & 452 (Dr. David Kabelik)

Monique Smyth BMB '13 *Southern blotting of engineered mutations in genes involved in cell division in Aspergillus nidulans.* BMB-451 & 452 (Dr. Terry Hill)

Anna Stachura '15 *Investigation of radioactive [11C] choline and [11C] acetate as potential radiotracer candidates in cancer imaging.* Dr. Scott Snyder, St. Jude

Children's Research Hospital. BIO 451 & 452 (Dr. Terry Hill)

Braden Taylor '15 *KP1019 dependent DNA damage signaling via the RAD9 checkpoint in S. cerevisiae.* BIO 451 & 452 (Dr. Mary Miller)

Sara Beth Taylor BMB '13 *Describing the genetic architecture of sibling resource competition in Arabidopsis thaliana.* BMB 452 (Dr. Jonathan Fitz Gerald)

Rebecca Thompson '13 *Effects of traumatic lumbar puncture on molecular detection of herpes simplex virus encephalitis (HSVE).* Dr. Kamyk Ramirex and Dr. John DeVincenzo, LeBonheur. Hospital. BIO 453 (Dr. Gary Linqeester)

Sierra Thompson '15 *Documenting possible drug-drug interactions (DDIs) among patients in the pediatric ICU.*

Dr. Jorge Morales at the Calvo Mackenna Hospital in Santiago, Chile. BIO 451 & 452 (Dr. Laura Luque de Johnson)

Aaron Vancil '15 *GFP-Tagging of a putative myosin orthologue in Aspergillus nidulans.* BMB 451 & 452 (Dr. Terry Hill)

Sandra Videmsky '14 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 452 (Dr. Sarah Boyle)

Laura Wagner '13 *Behavioral and spatial patterns of African elephants & Nile hippos.* BIO 451 (Dr. Sarah Boyle)

Xiao Wang BMB '13
Co-immunoprecipitation of proteins binding to type V myosin MyoE in Aspergillus nidulans. BMB Honors (Dr. Terry Hill)

Kristen Wendt BMB '14
Co-immunoprecipitation of proteins binding to protein kinase C in Aspergillus nidulans. BMB 451 & 452 (Dr. Terry Hill)

Alex Yu '13 *Morphological, morphometric, and molecular characterization of Hepatozoon spp. from naturally infected snakes in Overton Park, Memphis, TN.* BIO 451 (Dr. Laura Luque de Johnson)



PHOTO BY DAVID SIU '13



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Rhodes College

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