BIOFEEDBACK

THE NEWSLETTER OF THE BIOLOGY DEPARTMENT AT RHODES

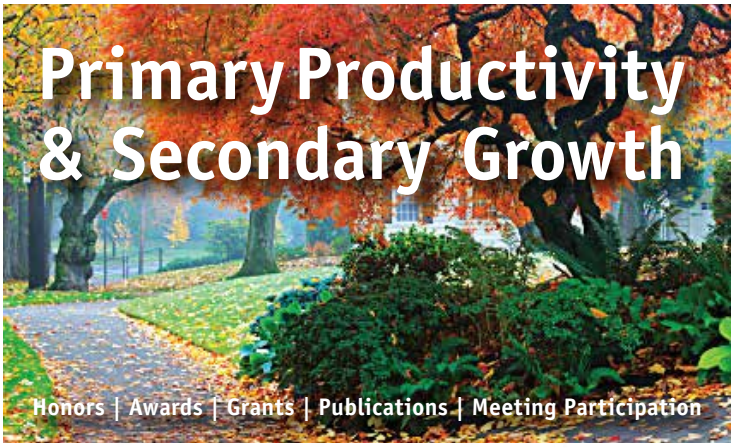
VOLUME 32 OCTOBER 2017 NUMBER 1

The Chair's Niche

Robertson Hall is finally open for science, and we are deeply grateful for the generosity of alumnus Dr. Charles Robertson, and for the hard work and contributions of the many administrators, trustees, donors, alumni, staff, faculty, and students who made it possible, along with the renovations to the east end of FJ. If you haven't yet had a chance to check out Robertson, take a few minutes to wander through. From FJ, the easiest route is through the underground connector, located next to the new Biology office. This space, formerly part of the GIS lab, places the Biology office at a central location for the faculty and staff in both buildings, but this is only one of the multiple migrations that took place this summer. Some faculty now have offices and labs in Robertson, while other people have switched spaces in FJ, so you may need to consult the directory to find your former professors. Also, some offices have brand new faces in them as a result of last year's hiring process (see the Departmental Migrations section on p. 6)

The completion of a major construction project and the presence of new faculty and staff may seem like the end of a long story, but change, and the need to continue changing, is part of the departmental ecosystem. Robertson Hall is finished, but the rest of FJ still needs renovation – something President Hass refers to as her Phase I building project. This fall we are conducting two searches for tenure track faculty in plant evolutionary biology and environmental science. We expect to bring candidates to campus in November and hope that you will be able to participate in the process by attending seminars, lectures, and lunches. Student engagement in our searches is important because we value your feedback, and also because you are impressive individuals who show candidates what a great place Rhodes is! We encourage you to find ways to get involved and become part of our Biology Department ecosystem.

Dr. Carolyn Jaslow, Chair



HONORS AND AWARDS

Congratulations to:

Albert Vacheron '17 received the Award for Excellence in Biology.

Maleelo Shamambo '20 was presented with the Award for Excellence in First-Year Biology.

Patrick Leavey '17 received the Award for Outstanding Research in Biology.

Peter Daniels BMB '18 and **Mac Williamson BMB '18** shared the Award for Outstanding Research in BMB.

Amanda DellaGrotta BMB '17 received the Award for Outstanding Senior in the BMB Program.

Samantha Regala '17 was presented with the Rosanna Cappellato Award in Environmental Science.

Sarah Ferguson '17 received the Senior Award in Environmental Science.

Tierin Burrow ENVS '19 received the Sophomore Award in Environmental Science.

Adrienne Bober ENVS '17 was awarded the Cary Fowler '71 Environmental Studies International Fellowship.

Allie Baldassaro NEUR '17 was presented with the Hunter Award for Excellence in Neuroscience

Nicolette Glidden NEUR '17 Ritika Mazumder NEUR '17, and **Rahul Peravali NEUR '17** shared the Award for Outstanding Senior in Neuroscience.

Emily Lichtenberger '17 won first place in organismal biology at the TN Academy of Science Western Collegiate Meeting.

New Omicron Delta Kappa honor society members:

Jillian Franks NEUR '18, Ellie Fratt NEUR '18, Sarah Morris BMB '18, Ritika Mazumder NEUR '17, Alexus Rias BIOL-ANSO '17, Mikayla Shorten BIOM '17, Albert Vacheron '17.

New Mortar Board Honor Society members:

Alexandra Bartlett NEUR '18, Rachel Bassett '18, Bailey Choudhury ENVS '18, Tasnim Chowdhury, BMB '18, Andrew DaRosa NEUR '18, Robert Del Bello '18, Hope Elliott ENVS '18, Madeline Evans NEUR '18, Jillian Franks NEUR '18, Ellie Fratt NEUR '18, Ellery Hayden NEUR '18, Sarah Morris BMB '18, Maggie Myers BIOM '18, Rachel Myers '18, Diana Vincent '18, Rachel Windmueller BMB '18.

New Phi Beta Kappa society members:

Allie Baldassaro NEUR '17, Amanda DellaGrotta BMB '17, Carolyn Dishuck '17, Patrick Leavey '17, Ritika Mazumder NEUR '17, Isabelle Mulder '17, Rahul Peravali NEUR '17, Samantha Ramsey ENVS '17, Alexus Rias BIOL-ANSO '17, Danielle Wilson '17.

Grants and Fellowships

Ellie Fratt NEUR '18. the Buckman Fellowship for Study Abroad.

David Kabelik. James T and Valeria B. Robertson Chair in Biological Sciences.

David Kabelik. Faculty Development Grant: Sex and Seasonal Differences in Vasopressin Receptor Expression May Underlie Social Behavior Differences.

Publications

Fecchio A, Pinheiro R, Bell J, Felix G, Faria I, Pinho J, Braga E, Farias I, Tkach V, Aleixo A, **Collins M**, Weckstein J. Host community similarity and geography shape the diversity and distribution of haemosporidian parasites in Amazonian birds. *Ecography*. doi:10.1111/ecog.03058

Collins M, Relyea G, **Blustein E '14**, and Badami S. 2017. Neotropical migrants exhibit variable body size changes over time and space. *Northeastern Naturalist* 24:82–96.

Ellis V, Medeiros M, **Collins M**, Sari E, Coffey E, Dickerson R, Lugarini C., Stratford J, Henry D, Merrill L, **Matthews A ENVS '14, Hanson A '15, Roberts J '14**, Joyce M, Kunkel M, and Ricklefs E. 2017. Prevalence of avian haemosporidian parasites is positively related to the abundance of host species at multiple sites within a region. *Parasitology Research* 116:73–80. doi:10.1007/s00436-016-5263-3

Collins M, Relyea G, **Blustein E '14,** and Badami S. 2017. Heterogeneous changes in avian body size across and within species. *Journal of Ornithology* 158:39–52. doi: 10.1007/s10336-016-1391-x.

Wright B, Whittenberg J, Desai, A, **DiFelice C '17**, Kenis P, Lapi S, and Reichert D. 2016. Microfluidic preparation of a 89Zr-labeled trastuzumad single-patient dose. *The Journal of Nuclear Medicine*. 57:747-752.

Hartline J NEUR'16, Smith A NEUR'16, Kabelik D. 2017. Serotonergic activation during courtship and aggression in the brown anole, *Anolis sagrei*. *PeerJ*. 5:e3331.

Meetings

Collins M, Boves T, and Orfanos E. Habitat use by Loggerhead Shrikes (*Lanius ludovicianus*) in the Lower Mississippi Alluvial Valley. Association of Field Ornithologists meeting, Puerto Iguazú, Argentina (August 2017).

Collins M, and Fecchio A. Poster Presentation: Avian haemosporidian distributions in South America shaped by host distributions but not by climate or distance. Association of Field Ornithologists meeting, Puerto Iguazú, Argentina (August 2017).

Frawley E, Yousuf S '19, Karlinsey J, Lippy S, Fang F. Poster presentation: Manganese acquisition is important for the resistance of *Salmonella Typhimurium* to nitrosative stress. Cell Biology of Metals Gordon Research Conference, West Dover, Vermont (July 2017).

Kabelik D, Hartline J NEUR'16, Choudhury S NEUR '15, O'Connell L. Poster Presentation: Involvement of vasopressin and oxytocin systems in behavioral boldness. Joint meeting of the 18th International Congress of Comparative Endocrinology (ICCE18) & 4th biennial conference of the North American Society for Comparative Endocrinology (NASCE) & 9th International Symposium on Amphibian and Reptilian Endocrinology and Neurobiology (ISAREN). Banff National Park, Alberta, Canada (June 2017).

Kutteh W, **Popescu F BMB/NEUR '20,** Ke R, Brezina R, Bailey A, **Jaslow C.** Poster presentation: Recurrent pregnancy loss evaluation combined with 23-chromosome testing of miscarriage tissue explains the cause of pregnancy loss in over 90% of all miscarriages. European Society of Human Reproduction and Embryology Meeting. Geneva, Switzerland. (July 2017).

Western Collegiate Division Meeting of the Tennessee Academy of Sciences, Memphis, TN. Saturday, April 1, 2017

Oral Presentations

Fiornelli K, **Lichtenberger E '17,** and Roberts B. A novel technique for assessing biomarkers of stress in snakes. (1st place in organismal biology)

Goebel K BIOL-ANSO '17 and **Boyle S.** Land cover change in South America and the potential impact on *Trypanosoma cruzi*.

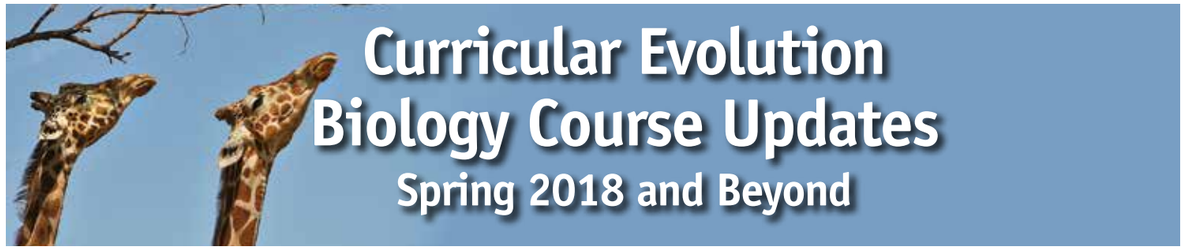
Posters

Carcelén E BIOL and ENVS '17 and **Boyle S.** Protected areas of the southeastern region of the United States. (3rd place).

Carcelén E BIOL and ENVS '17, Ferguson S BIOL and ENVS '17, Boyle S, and **Rose M ENVS '16.** New methods for studying behavior and spatial movement of captive species.

Mugs for Majors!

The Pentaceratops dinosaur that occupied the FJ Lobby for 20 years was removed during renovations in 2013. We now have a mural and fond memories of its time in FJ, plus we also have Biology Dinosaur coffee mugs for majors! When you complete your declaration of a Biology major, stop by the Biology office in its new location (FJ 132, by the Robertson Hall connector) and ask Ms. Dianne Cox for your mug. You can also pick one up if you declared before this year and never got one. Cheers!



Curricular Evolution Biology Course Updates

Spring 2018 and Beyond

Biology Course Information for

This spring will include the return of two courses we did not offer last year: Ornithology and Conservation Biology, both with labs. In addition we will be offering a spring section of Cell Biology. This will be taught by Dr. Dougherty. Please note that next year, Dr. Hill and Dr. Lindquester are likely to be on sabbatical leaves. Dr. Hill will be teaching Cell Biology and the BMB methods course in the fall, but we expect him to have a spring leave, so we do not plan to offer Mycology in 2018-19. Dr. Lindquester is anticipating a full year's sabbatical, so we do not expect to offer Virology/Immunology at all in 2018-19.

Finally, starting in 2018-19, BIOL 375 Neuroendocrinology and BIOL 376 Molecular and Cellular Neuroscience will no longer be offered as non-lab courses. Both of them will be taught with accompanying co-requisite lab sections. Also in 2018-19, CHEM 416 Mechanisms of Drug Action, taught by Dr. Jackson-Hayes, will be offered in the fall semester instead of its usual spring placement.

Two new options for math cognates in the Biology major:

Statistics: the previous statistics choices for Biology majors were Math 111, Psych 211, or Econ 290. Now, Math 211 may be used to fulfill this requirement, too. Math 211 covers the main topics of Math 111 (and more), but students learn to use the statistical software, R. R is used in some upper-level Biology courses (e.g., Ecology) and it is the most commonly used statistical software for researchers in many fields. If you are planning to do research in biology or you believe that statistics will play an important role in your future projects and plans, Math 211 might be a good option. If you have questions about whether Math 211 is right for you, please talk to Dr. Ibrahim Abdelrazeq.

Quantitative skills: In addition to calculus (Math 115 or Math 121) or computer science (COMP 141), students may also take Math 214 – Math Modeling with Biological Applications to fulfill the cognate. In Math 214, students learn to create mathematical models that can describe and predict a variety of biological phenomena such as ecological competition or the spread of a disease within a population or a body. If you have questions about Math 214, please speak to Dr. Ern Bodine.

Rocky Mountain Ecology Field Research Maymester

Are you interested in studying and gaining ecological field experience in Grand Teton and Yellowstone National Parks? If so, check out the Rocky Mountain Ecology Field Research Maymester (ENVS 170; F7 and F11). This year the course will be held from May 27 – June 21. The course is appropriate for science and non-science majors. Applications (and financial aid) are considered on a rolling basis, so apply early! Applications are available through the Buckman Center's site: https://internationalprograms.rhodes.edu/index.cfm?FuseAction=Programs.ViewProgram&Program_ID=26767. Please contact Dr. Collins if you have any questions.

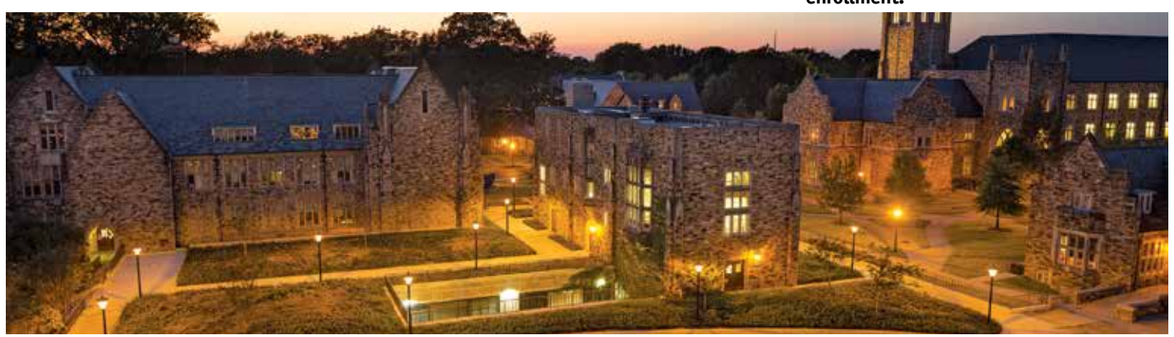
Semester in Environmental Sciences at Marine Biological Laboratory

The Marine Biological Laboratory at Woods Hole offers a Semester in Environmental Sciences Program every Fall. This 16-credit program is geared towards Biology, Chemistry, and Environmental Science majors interested in ecosystem science and biogeochemistry. Students take courses such as Aquatic and Terrestrial Ecosystem Analyses, Microbial Ecology, and Independent Research, and get to know many of the staff and visiting scientists at Woods Hole. Students who are interested in learning more about the program should contact Dr. Collins. The SES deadline is March 19 for the Fall 2018 semester.

Senior Seminar News

This spring the Biology senior seminars are: BIOL 486-01: Microbial Communities & Symbioses, MWF 11:00-11:50 AM, taught by Dr. Frawley and BIOL 486-02: Metamorphosis, Monday and Thursday 4:00-5:15 PM, taught by Dr. Fitz Gerald. Students who signed up for these senior seminars during the lottery last spring should list them on their tree under "Other Courses" when they register this fall.

Juniors note that senior seminars for the '18-'19 academic year will be listed in the spring issue of BIOFEEDBACK, along with information about the lottery for enrollment.



FRAZIER JELKE SCIENCE CENTER

Optimal Foraging

The following courses will be offered next semester

Number	Course Title	Hours Offered
140	Biology II (4 sections)	MWF 8:00-8:50, 9:00-9:50, 10:00-10:50 TuTh 8:00-9:15
141	Biology II Lab (7 sections)	Tu 12:30-3:30 W 1:00-4:00 Th 12:30-3:30, 4:00-7:00
201	Mycology (Hill)	TuTh 9:30-10:45 Tu Lab 12:30-3:30
204	Mech. Of Development (Fitz Gerald)	MWF 8:00-8:50 W Lab 1:00-4:00
301	Microbiology (Frawley)	MWF 9:00-9:50 Th Lab 12:30-3:30
304	Genetics (Miller)	TuTh 11:00-12:15 Tu Lab 12:30-3:30
307	Cell Biology (Dougherty)	MWF 10:00-10:50
320	Conservation Biology (Tuttle)	TuTh 8:00-9:15 W Lab 1:00-4:00
325	Molecular Biology (Lindquester)	MWF 10:00-10:50 Th Lab 12:30-3:30
340	Animal Physiology (Kabelik)	MWF 9:00-9:50 M Lab 1:00-5:00
345	Ornithology (Collins)	TuTh 9:30-10:45 M Lab 1:00-4:00
376	Molec & Cell Neuroscience (Dougherty)	TuTh 11:00-12:15
380	Topics in Biomedical Science (Miller)	TuTh 8:00-9:15
CHEM 414†	Biochemistry (2 Sections)	MWF 11:00-11:50 TuTh 11:00-12:15
CHEM 416†	Mech. of Drug Action (Jackson-Hayes)	TuTh 9:30-10:45
NEUR 270†	Neuroscience (Sprowles)	MWF 10:00-10:50
Senior Seminar Sections		
486-01	Microbial Communities and Symbioses (Frawley)	MWF 11:00-11:50
486-02	Metamorphosis (Fitz Gerald)	M and Th 4:00-5:15
Courses for non-majors (fulfill the F7 requirement)		
105	Infectious Diseases: from the past and into the future (Honsa)	MWF 11:00-11:50 Th Lab 12:30-3:30

† *No more than two courses taken outside the Biology Department may count for the six upper-level courses required for the Biology Major*

The Hybridization Zone

Neuroscience Program Announcements:

Neuroscience Majors, please note that we're making a few exciting changes this year and next! As of this year, we're increasing our list of potential breadth requirement courses by adding classes in Computer Science and Philosophy. You can now count COMP 141 or COMP 142 as a breadth course (only one of these two can count, but since some students jump right into the second course in the series, we wanted to give you two options). The other course that we're accepting as a breadth course this year is Phil 250: Philosophy of Neuroscience.

Also, if you haven't yet heard the exciting news, as of 2018-2019, we'll be retiring the NEUR 350 Research Methods course and replacing it with lab sections for all of our Biology and Psychology depth courses. This will include a new course in the specialty area of the hire we make to replace Dr. Gerecke. During 2017-2018, since our depth courses are not yet offered with labs, we are also accepting CHEM 411 (offered in Spring 2018) in place of either a Biology or Psychology depth course, in case you want to get started on your depth courses with labs requirements. In the future, we will still require you to take one Biology depth course with lab and one Psychology depth course with lab. We will also add a third category of required courses will include a choice among Chem 411 Medicinal/Computational Chemistry course, Philosophy of Neuroscience, or a new Philosophy of Cognition course. The Philosophy courses are planned to fulfil an F1 requirement. With the advent of this new course category, the number of required breadth courses will correspondingly decrease from three to two. Please contact Dr. David Kabelik, Neuroscience Program Chair, with any questions that you may have about these changes.

Biochemistry and Molecular Biology Program

ASBMB Accreditation: The Rhodes College Biochemistry and Molecular Biology (BMB) Program recently became accredited by the leading professional society for the discipline, the American Society for Biochemistry and Molecular Biology (ASBMB). Accreditation affirms the quality of our program, and provides both the program and students tangible benefits. For students, program accreditation allows them the opportunity to earn an ASBMB accredited B.S. degree, which conveys to graduate and professional school admissions teams as well as potential employers the high-level training Rhodes BMB students receive. Accredited degrees will make future graduates more competitive among admissions and employment applicant pools. Look out for an invitation to be our special guests at an accreditation celebration later this fall.

A student interest group is forming to pursue a student chapter of ASBMB here on campus! Please look out for organizational meeting announcements.

St. Jude/BMB Senior Seminar: Spring 2018 BMB Senior Seminar will feature lectures by faculty and post-doctoral fellows from St. Jude Children's Research Hospital.

As always, please feel free to contact program chair Dr. Jackson-Hayes at jacksonhayesl@rhodes.edu if you have questions concerning the BMB program.

Environmental Studies and Sciences Program Announcements

Congratulations to Prof. Boyle who earned tenure and was promoted to Associate Professor. In August, she and her husband, Prof. Kabelik, welcomed a daughter, Emilie. Prof Boyle will be on maternity leave and sabbatical leave in 2017-2018, but will return in Fall 2018 to teach and chair ENVS. This fall, we will conduct a search for a tenure track position in Environmental Biology. Please consider helping Rhodes to attract the best possible candidates by attending teaching demonstrations, research talks, and joining candidates for lunch. In Spring 2018, a variety of environmental science electives will be available, including BIOL 201 Mycology, BIOL 301 Microbiology, BIOL 320 Conservation Biology, and BIOL 345 Ornithology. In addition, ENVS will offer ENVS 150 Environment and Society Tues/Thur at 12:30 and ENVS 486 Senior Seminar on Tues/Thur at 11. If you are considering an ENVS major or minor, please speak with Dr. Collins so he can make sure you receive important emails.

Biomathematics Program Announcements

Rhodes College is one of only a few liberal arts colleges offering a major in Biomathematics, a field which addresses questions arising from biological systems using mathematical and computational theory. Spring 2018 courses offered that could build towards the major include Calculus I-III (Math 121, 122, 223), Discrete Mathematical Modeling with Biological Applications (Math 214), Differential Equations (Math 251), Linear Algebra (Math 261), Mathematical Statistics (Math 312), Evolutionary Game Theory (Math 465), Introduction to Computer Science (CS 141), Biology II (Bio 140 + lab), and any upper level Biology course. The Math Modeling & Scientific Writing course for the major (Math 315) will be offered again next fall. If you are interested in learning more about the Biomath Major, please contact Dr. Erin Bodine (bodinee@rhodes.edu).

Robertson Hall

By Sarah Morris '18

The library quad, now known as the Bill and Carole Troutt Quad, is open again! More noticeably, however, we have a 55,000 square foot, brand new academic building home to fantastic biology and chemistry facilities. Dedicated on August 31st of this year, Robertson Hall holds both core chemistry and upper level biology labs. It also features impressive facilities for faculty research, including a walk-in cold room for storage and a tissue culture room for sterile work with cell lines. The lab facilities are state-of-the-art, allowing space for lecture and instruction, data collection at the bench, analysis on desktop computers, and results presentation on overhead projectors. The open layout promotes collaborative and impactful learning.

Not just the newest Gothic construction on our campus, Robertson Hall has an incredible backstory to accompany its facilities. Charles Robertson Jr, the building's primary benefactor, graduated from Rhodes in 1965 with a degree in Physics. After completing graduate studies at Florida State University, Dr. Robertson founded Nanodrop Technologies, a name that may sound familiar if you've dabbled in molecular biology. There, in the span of just two years, he was able to move from concept to functional prototype in the creation of the Nanodrop spectrophotometer, an instrument that allows for the precise quantification of nucleic acid samples. By requiring only 1 microliter of sample to provide an accurate measurement, it conserves precious sample volume and protects it from possible contamination. Since selling Nanodrop Technologies to ThermoFisher Scientific, Dr. Robertson has never stopped supporting Rhodes as a member of the Board of Trustees, founder of the Jack H. Taylor Fellowship in Physics, and the generous donor of the Biology Department's Zeiss confocal microscope. While the building bears the Robertson name, it is not named after Charles Jr. Instead, he has dedicated it to a pair of successful Rhodes graduates and biologists, his parents, Charles and Lola Robertson. You can learn more about the Robertson family's history on the display located in the walkway connecting the main floor of Frazier-Jelke with the basement of Robertson Hall.

DEPARTMENTAL MIGRATIONS

Interviews by Sarah Morris '18

Graham Tuttle

Growing up hiking in upstate New York, Dr. Tuttle has always been interested in the outdoors. While completing his undergraduate studies in environmental biology at SUNY ESF, he developed a concern for the environment there as he studied species interaction and conservation. He became interested in nitrogen-fixing species while completing his PhD in ecology at Colorado State University. Currently he is involved in a collaborative project on nitrogen in riparian environments with a group in Mississippi and looks forward to possibly beginning an additional project here on a common invasive species, the Kudzu vine. While at the moment he is focusing on getting his lab up and running, he hopes to continue exploring plant communities and invasive species through his research here at Rhodes. Having always made extended efforts to be involved in teaching during the completion of his PhD, Dr. Tuttle is ready to make the transition from large research institution to small liberal arts college. From the classroom to the lab, he enjoys the student-focused atmosphere and looks forward to involving them in his projects. Having moved recently from Fort Collins, Dr. Tuttle is enjoying the process of getting to know Memphis' outdoor scene, even if it is a little flatter than Colorado.

Stephanie Haddad

After finishing her Masters in insect ecology at the American University of Beirut (Beirut, Lebanon), Dr. Stephanie Haddad became interested in exploring insect evolution, systematics, and phylogenetics. She quickly realized that those fields were not as advanced in Lebanon and consequently began looking the world over for PhD programs that would enable her to develop the skills and experience necessary to become an insect scientist with well-rounded experience. Her aspirations brought her to the University of Memphis where she completed her PhD in insect systematics and evolution, so she is not exactly new to Memphis. She spent her summer in southern Illinois collaborating with scientists at Southern Illinois University, Carbondale and conducting insect pollinator studies in the Shawnee National Forest and the Crab Orchard National Wildlife Refuge. She now joins Rhodes as an Assistant Professor and hopes to continue exploring insect biodiversity in urban environments, particularly in the old-growth forest of Overton Park. The excellent relationships among administration, faculty, and students drew her to Rhodes where she now is excited to be supported by an institution that encourages her equally in her teaching as it does in her research. Having traveled all over the US, Dr. Haddad always breathes a sigh of relief when returning to the wonderful sense of community in Memphis.

Justin Porter

Mr. Justin Porter is joining the Biology Department this fall as the new Lab Manager in Robertson Hall. His previous work centered on horticultural research in topics such as floral biology, post-harvest fruit quality, anti-malarial medicinal plants, and native threatened plants. After completing his Bachelor of Science in Horticulture at the University of Georgia, he worked for a time in a commercial greenhouse growing thousands of poinsettias and pansies. He returned to graduate school and completed his Master's degree in Horticulture at the University of Georgia where his thesis work focused on a rare threatened species, the Georgia plume. After working exclusively in multiple horticulture labs, Mr. Porter has enjoyed getting to work with molecular biologists in Robertson as well as running the Biology core lab in FJ. From pipetting to woodworking to animal care, he enjoys that his job allows him to do something new every day.We owe Mr. Porter our appreciation as he ensures the success of our lab sessions from core bio to the upper level sciences.

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. Note that Rhodes has an array of biological science disciplines, meaning there are βββmembers 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, Mac Williamson (wilmh-18@rhodes.edu) or vice president, Fatiha Albulahi (abdfa-18@rhodes.edu). Go to www.rhodes.edu/biology/22139.asp for detailed membership criteria. Tri-Beta has some exciting service projects planned for the fall and spring semesters. 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. Finally, we will be inducting new members toward the end of this fall semester. We are excited to welcome new individuals into the society and congratulate them on their commitment to biological excellence

Get Your Research in Print

After hours of hard work in the lab or field, why not publish your research in the Rhodes Journal of Biological Science? We encourage you to submit papers from your summer research or research conducted during the school year, as well as commentaries and reviews of biological topics. If you haven't written a paper recently, think about helping out with the journal! Please contact Erin Deery (deeel-18@rhodes.edu) if you are interested in submitting a paper or working with the journal. The deadline for paper submissions will be at the start of Spring semester, so start thinking about your submission now!

$$ Biology Research Award $$

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. Dougherty, doughertyk@rhodes.edu by Friday, March 30. Announcement of the award winner will be made at spring awards convocation on Friday, April 27th.

Wildflower Experiment Underway

Last semester, Dr. Tara Massad worked with campus horticulturalist Mr. Kevin Sackett and Physical Plant Director Mr. Brian Foshee to start a wildflower garden in the small beds facing the amphitheater. The goal was to introduce plants on campus that would attract and support local pollinators (and to grow some pretty flowers). If you walked by during full blooming of the plants, you would agree that our wildflower experiment was a huge success! The number and diversity of insect pollinators has been tremendous, and even though there are fewer colorful blossoms at this time of year, the gardens are still receiving insect visitors. We hope to continue and even expand our wildflower "experiment," providing an opportunity for new faculty member, Dr. Stephanie Haddad, to introduce students to her favorite biological subject – entomology – the study of insects. We would be very interested to have a study done of the diversity of pollinators supported by our gardens.

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Student Presentations | April 2017
Rhodes Undergraduate Research and Creative Activity Symposium
(Rhodes faculty supervisors listed)

Burman E '18. Invasion checkmate: *Puccinia* rust attacks *Syzygium jambos* trees in Puerto Rico (Dr. Rachel Jabaily)

Carcelen E BIOL/ENVS '17. Effects of habitat degradation on amphibian embryo development and survivorship (Sinlan Poo, Memphis Zoo)

Carcelen E BIOL/ENVS '17, Ferguson S BIOL/ENVS '17 and Rose M. New methods for studying behavior and spatial movement of captive species (Dr. Sarah Boyle)

Daniels P BMB '18. Determining the role of ABIN1 in cell death through treatment of immortalized mouse embryonic fibroblasts with apoptotic agents (Dr. Gary Lindquester)

DellaGrotta A BMB '17 and Miller M. Functional specificity of G1 cyclins depends on Thi73 (Dr. Mary Miller)

Dorian C NEUR '18. Repeated subconcussive brain trauma leads to worse memory deficits in the long-term than repeated concussive brain trauma (Dr. Kim Gerecke)

Glidden N NEUR '17. Taboo distractors influence processing of negative distractors in picture-word interference (Dr. Katie White)

Harrison E, **Ritter A BMB '18**, Peterson L, and Cafiero M. DFT Study of the selectivity of DOPA-decarboxylase (Dr. Mauricio Cafiero)

Hayden E NEUR '18, Baldassaro A NEUR '17, Rashid S NEUR '17, Dasani R NEUR '19, and **Cattaneo C NEUR '18.** Do correlates of acute stress-induced eating differ for women with high versus low chronic stress? (Dr. Rebecca Klatzkin)

Hayes C BMB '19, Welsh C, May X BMB '17, and Stoddard S. Do mutations lead to epitope sites? Characterization of the CTLD1 domain of PLA2R for the development of epitope binding caps (Dr. Shana Stoddard)

Hope H ENVS '18 and **Wilson D ENVS '17** Regeneration dynamics of an old growth urban forest: A 30-year comparison in Memphis, TN (Dr. Kimberly Kasper)

Hutchison H, Graves A, **Taghavi O NEUR '17,** Kiker M, and Tinkner C. Electrocatalytic hydrogen formation using a Cobalt Schiff base complex (Dr. Will Eckenhoff)

Jelinek S NEUR '18, Woody A, Morris M, Peterson L, and Cafiero M. DFT study of the selectivity of Monoamine Oxidase B (MAOB) (Dr. Mauricio Cafiero)

Joshi A '19 and **Wheeler B.** A centromeric promoter is important for establishing gene silencing (Dr. Bayly Wheeler)

Joyner T NEUR '18 and **Alapati A NEUR '19.** Does exercise promote the expression of the resiliency factor Neuropeptide Y in the hippocampus of stressed mice? (Dr. Kim Gerecke)

Kiker M, Graves A, **Taghavi O NEUR '17**, and Eckenhoff W. Nickel Schiff base complexes for hydrogen production in aqueous solution (Dr. Will Eckenhoff)

Leavey P '17. Characterizing the phenotype of the Pax3-Foxo1 fusion transcription factor in alveolar rhabdomyosarcoma (Dr. Rachel Jabaily)

Lee A BMB '19 and Miller M. Engineering a model system to study G1 cyclins (Dr. Mary Miller)

Linville T, **Peravali R NEUR '17**, and Maddox G. Training in spaced retrieval results in memory improvement (Dr. Geoff Maddox)

Loome J BMB '18. Investigate separate functions of EZH1 and EZH2 (Dr. Kim Gerecke)

Mancieri A NEUR '18. Tissue proteomics and mouse modeling reveal U1 SnRNP and RNA splicing dysfunction in Alzheimer's Disease (Dr. David Kabelik)

Martinez T BMB '19. Identification of novel interactors of the Histone Demethylase UTX (Dr. Kim Brien)

Mazumder R NEUR '17 and Haberman J. Amputees misperceive the size of artificial limbs (Dr. Jason Haberman)

McDowell M NEUR '17 and Haberman J. A Preference for flipped depictions of self (Dr. Jason Haberman)

McDowell M NEUR '17. Cell fate commitment, a potential role for NuRD and PRC2 in the mammalian inner ear (Jian Zuo, St. Jude Children's Research Hospital)

Menke J BMB '19. Ascertaining the role of calcium dependent phospholipases in the sonic hedgehog pathway (Dr. Jonathan Fitz Gerald)

Morris S BMB '18. Modeling of genetic alterations in acute erythroid leukemia (AEL) (Dr. Mary Miller)

Mullasseril A BMB '19, Parkinson Z, Virk Z, Salud Bea R, Brien K and Stoddard S. Investigating the effects of certain antigen mutations associated with idiopathic membranous nephropathy (Dr. Kim Brien)

Olsen E BIOM '18, Betton B, **Singh A '19, Atiq Z BMB '17,** Campbell L, Parish P BMB '18, and Jackson-Hayes L. Analyzing Protein Kinase C domain interactions with the formin SepA using Gal4 based yeast two-hybrid (Dr. Loretta Jackson-Hayes)

Parish C '18. Phase separation and multivalent interactions between human nucleolar protein NPM1 and prokaryotic ribosomal components (Dr. Dhammika Muesse)

Pinckney C '17, Magee C, Peterson L, and Cafiero M. DFT analysis of the selectivity of known bioactive ligands in the sulfotransferase and catechol-o-methyltransferase enzymes (Dr. Mauricio Cafiero)

Popescu F BMB/NEUR '20, Kutteh W, Ke R, Brezina P, and Bailey A. Recurrent pregnancy loss evaluation combined with 23-chromosome testing of miscarriage tissue explains the cause of pregnancy loss in over 90% of all miscarriages (Dr. Carolyn Jaslow)

Porter H NEUR '18. Household food environment among pregnant women and the association with excessive gestational weight gain (UTHSC Population Health Research Program. Dr. Alan Jaslow)

Reed K BMB '17, Fields S BMB '19, Rogowiec J NEUR '17, Cafiero M, and Peterson L. HPLC analysis of sulfation of dopamine derivatives by SULT1A3 (Dr. Larynn Peterson)

Roldan R, Embry C, Wilson K, **Lamanilao G BMB '16,** Cafiero M, and Peterson L. Synthesis and analysis of propargylglycine-based derivatives as potential inhibitors of LpxC (Dr. Larynn Peterson)

Rowland L BMB '19, Daniels P BMB '18, and Beckman S. Identification of new genes required for cytokinesis in the filamentous fungus *Aspergillus nidulans* (Dr. Terry Hill)

Selner E '18, Magee, C, Peterson L. Design of novel inhibitors for the aldehyde dehydrogenases (Dr. Mauricio Cafiero)

Shorten M BIOM '17 and **Cook C BIOM '16**. The potential impact of a prophylactic vaccine for Ebola in Sierra Leone (Dr. Erin Bodine)

Suresh S NEUR '18, Thomasson S NEUR '18, and Haberman J. Ensemble representations account for size constancy (Dr. Jason Haberman)

Virk Z, Parkinson Z, **Mullasseril A BMB '19,** Brien K, Salud Bea R, and Stoddard S. Synthesis of peptides with biological activity (Dr. Roberto de la Salud Bea)

Welsh C, **Hayes C BMB '19, May X BMB '17,** and Stoddard S. Utilization of python scripting to aid the design of CTLD1 epitope specific blocking caps (Dr. Shana Stoddard)

Williams A BIOM/NEUR '17 and Bodine E. Modeling the development of water terrorism (Dr. Erin Bodine)

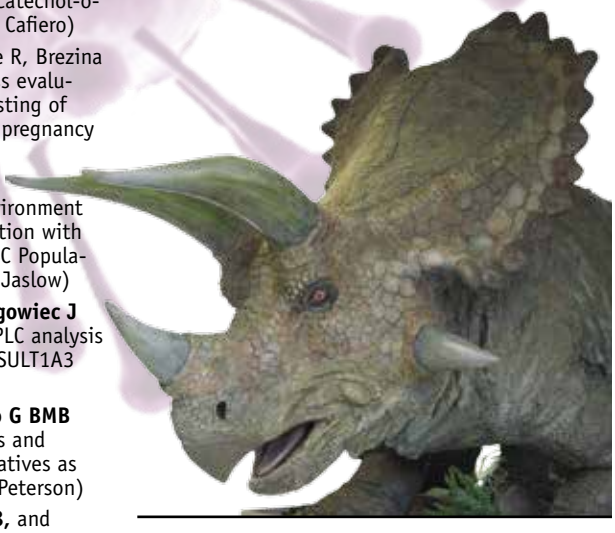
Williamson M BMB '18, Pettis C BMB '17, and **Loome J BMB '18.** Optimization of GFP-Trap, a variant of co-immunoprecipitation (Dr. Terry Hill)

Wilson D '17, Young A '19, Peterson L, and Cafiero M. DFT study of the selectivity of the tyrosinase active site (Dr. Mauricio Cafiero)

Wilson D ENVS '17, Williams G BIOL/ENVS '18, Hulsey C BIOM/ENVS '19, Deery E BIOM '18, Malanchuk L ENVS '17, Gleeson E ENVS '18. Treefall gap regeneration in an old-growth urban forest (Dr. Tara Massad)

Zaravar A '18, May X BMB '17, and Stoddard S. Rational design of epitope binding monobodies: New tools for autoimmune therapy (Dr. Shana Stoddard)

ZeeAbrahamsen E NEUR '18 and Haberman J. Identifying 'confusability regions' in face morphs used for ensemble perception (Dr. Jason Haberman)



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