



BIOFEEDBACK

THE NEWSLETTER OF THE BIOLOGY DEPARTMENT AT RHODES

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Number 1

The purpose of *BIOFEEDBACK* is to provide an important and timely vehicle for the dissemination of information concerning BOTH faculty 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



In my first Chair's Niche column in the Fall of 2006, I noted some of the things the Biology Department had to look forward to. One was the eventual renovation and new construction of biology facilities expected to follow at the end of a long chain of events initiated

by the Barrett Library opening. In 2006, we had 9 full-time faculty members; now, six years later, our department has grown to 13+ faculty members. In 2006-07, we offered 23 lab sections across the biology curriculum; this year we will offer 31. Looking back a little further, the department graduated 14 majors in 1989; whereas, the class of 2010 had a total of 58 majors in biology and its related interdisciplinary programs.

Since the Frazier Jelke Science Center was completed in the late 1960s, the department faculty and student body have effectively doubled. It is a tribute to the planners of the time that the building physically has been able to accommodate this much growth – it was initially designed for much less. Meanwhile, unanticipated changes in the use of the space have occurred. Rhodes now places a much greater emphasis on both faculty and student research. Our curriculum emphasizes laboratory courses, many of which have investigational components. Many more teaching and research activities are of a collaborative nature. Through all these changes, however, we have seen only minimal renovation of the facilities. Yet, despite the structural constraints, the outmoded styling, the fact that virtually all Rhodes' competitors have modern

facilities, Rhodes Department of Biology has enjoyed great success in recruiting talented and dedicated faculty and students. But how long can this last?

While we celebrate the kind of successes highlighted in this newsletter and in the Fall 2012 issue of *Rhodes* magazine, let us continue to imagine how much greater success there is to be gained when the infrastructure is of a size and configuration that removes any physical constraints on creativity in research, teaching and learning.

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 March 19, 2012.

Honors and Awards Congratulations to ...

...**Sharwil Bell '12** and **Theodore Boozalis '12** who received the Outstanding Biology Senior Award for the '11-'12 academic year. **Lindsey Bierle '12** was presented the Award for Outstanding Research in Biology, and **Stephanie Kasper '15** was given the Award for Excellence in First-Year Biology.

...two new members of the Rhodes Hall of Fame, **Sharwil Bell '12** and **Salar Rafieetary '12 NEUR**. Additionally, Salar received the Algernon Sydney Sullivan Award for his service to Rhodes and to the community, and Sharwil received an NCAA Post-Graduate Scholarship to support her pursuit of a doctorate in Physical Therapy.

...**Xiao Wang '13 BMB** and **Sara Beth Taylor '13 BMB** who received the Outstanding Achievement Award in Biochemistry and Molecular Biology.

...**Mae R. Gillespie '12 NEUR** who was presented with the award for Outstanding Senior in Neuroscience.

... **Kimber Jones '13** and **Sarah Ferguson '13** for their awards at the Western Regional Meeting of the Tennessee Academy of Sciences. Kimber won first place for her poster

presentation; Sarah won second place in the Environmental Science category for her oral presentation (see "Meetings" below for the titles of their presentations).

...to the following students who received stipends from the National Science Foundation to do summer research with Dr. Terry Hill: **Xiao Wang '13 BMB**, **Kristen Wendt '14 BMB** and Taylor Leflore '14 (Tougaloo College), and **Brianna Hoge '12**.

...the new ODK honor society members: **Shannon Blair '13**, **Catherine Bordelon '12**, **Cintara Bradley '12 NEUR**, **Catherine Carlile '13 BMB**, **Zoe Clark '12**, **Catherine Coleman '12**, **Ryan Costello '12**, **Harrison Daniel '13**, **Madeline Jeansonne '12**, **Emmanuel John-Teye '13**, **Kimber Jones '13**, **Adiha Khan '13**, **Mustafa Motiwala '13 NEUR**, **Megan O'Brien '12 NEUR**, **Sara Beth Taylor '13**, and **Emily Woods '12 BMB**.

...the senior Phi Beta Kappa initiates: **Sharwil Bell**, **Theodore Boozalis**, **Zoë Clark**, **Cathryn Coleman**, **Mae Gillespie NEUR**, **Haley Johnson**, **Anna Magliolo NEUR**, **Chelsea Peters ENVS**, **Salar Rafieetary NEUR**, and **Emily Woods BMB**. **Xiao Wang '13 BMB** was included among the junior inductees.

...Biology seniors **Shannon Blair**, **Harrison Daniel**, **Emmanuel John-Teye**, and **Rebecca Thompson**; Biochemistry and Molecular Biology senior **Catherine Carlile**; and Neuroscience senior **Mustafa Motiwala**, who were initiated into the Mortar Board Honor Society.

...the new officers of Rhodes' chapter of βββ: **Adiha Khan '13** (President), **Kimber Jones '13** (Vice President), **John Garry '13** (Secretary), **Sara Beth Taylor '13** (Treasurer), and **Bethany Larkin '13** (Historian). For more information about this organization, see p. 7

...**Dr. Mary Miller** who was elected secretary of the Biology Division of the Council for Undergraduate Research (CUR), and selected to chair the CUR Constitution and Bylaws committee.

Grants and Fellowships



...**Dr. Carolyn Jaslow**, recipient of a \$1,500 Frank Ling Research Grant in Obstetrics and Gynecology from the University of Tennessee Health Science Center.

...**Dr. Mary Miller**, who was awarded a grant from the American Colleges of the South (ACS) to support inter-institutional collaboration in teaching Cancer Biology. Other collaborators in this grant are Jonathon King (Trinity College), Renee Chosed (Furman College), and **Pam Hanson '96** (Birmingham Southern College).

Publications



(Be sure to send us copies of your publications when they appear. Thanks!)

Boyle SA, Zartman CE, Spironello WR, Smith AT. 2012.

Implications of habitat fragmentation on the diet of bearded saki monkeys in central Amazonian forest. *Journal of Mammalogy* 93: 957-976.

Davis JR, **Boyle SA**, **Khan A '13**, **Gay ALJ '11**, **Grisham JM '13**, and **Luque LE** 2012. Snake parasitism in an urban old-growth forest. *Urban Ecosystems* 15: 739-752.

Barnett AM, **Boyle SA**, Norconk M, Palminteri S, Santos RR, Veiga LM, et al. 2012. Terrestrial activity in Pitheciins (*Cacajao*, *Chiropotes*, and *Pithecia*). *American Journal of Primatology* DOI:10.1002/ajp.22068.

Barnett AA, Pinto AP, Bicca-Marques JC, Ferrari SF, Gordo M, Guedes PG, Lopes MA, Opazo JC, Port-Carvalho M, dos Santos RR, Soares RF, Spironello WR, Veiga LM, Viera TM, and **Boyle SA**. 2012. A proposal for the common names for species of *Chiropotes* (Pitheciinae: Primates). *Zootaxa* 3507: 79-83.

Truman AW, Kitazono AA, **Fitz Gerald JN** and Kron SJ. 2012. "Cell Cycle: Regulation by Cyclins." In: *Encyclopedia*

of Life Sciences, Chichester: John Wiley & Sons, Ltd

Meetings



Dr. Sarah Boyle attended the US - International Association for Landscape Ecology Conference, Newport, RI where she presented "Effects of imagery resolution

on analysis of Atlantic Forest fragmentation" coauthored with Christina Kennedy, Julio Torres, Karen Colman, Pastor Pérez, and Noé de la Sancha. In July, Dr. Boyle coauthored "A GIS management tool for the Memphis Zoo" presented by Adam Alsamadisi '12 at the ESRI International Conference in San Diego, CA. This presentation was also coauthored by Dr. Andy Kouba of the Memphis Zoo.

In March at LeMoyne-Owen College, **Kimber Jones '13** and **Sarah Ferguson '13** attended the Western Regional Meeting of the Tennessee Academy of Sciences. Kimber presented a poster "Analysis of behavior and spatial preferences in snow leopards (*Uncia uncia*)" and Sarah gave an oral presentation "Activity budgets of two captive red pandas at the Memphis Zoo." Both presentations were coauthored by Dr. Andy Kouba and **Dr. Sarah Boyle**.

In August, **Dr. Rosanna Cappellato** presented, "Environmental benefits and monetary value of wooded parks in Memphis" at the Ecosystem Services Partnership International Conference in Portland, OR. The poster was coauthored by **Kathy Marr '13**.

Dr. Terry Hill attended the 11th European Conference on Fungal Genetics in Marburg, Germany, March 30-April 2, 2012. There he presented "Actin precedes myosin in formation of contractile rings in *Aspergillus nidulans*." Also in April, he attended the American Society for Biochemistry & Molecular Biology (ASBMB) in San Diego, CA, along with his student **Xiao Wang '13 BMB**. Xiao presented "Myosin II is necessary for septum formation in *Aspergillus*

nidulans,” coauthored by **Wenbin Du '13 BMB, Brianna L. Hoge '12, Dr. Hill** and Dr. Loretta Jackson-Hayes. **Kristen Wendt '14 BMB** presented “Myosin light chain plays a role in cell division in the fungus *Aspergillus nidulans*” at the same conference. Her paper was coauthored by Drs. Jackson-Hayes and Hill.

In August, **Dr. Michael Collins** attended the North American Ornithological Conference in Vancouver, British Columbia, Canada.

In May, **Dr. Jonathan Fitz Gerald** spoke on “Characterization of parentally-biased events during the development of the *Arabidopsis thaliana* seed endosperm using native autofluorescence” at the Society of Developmental Biology regional meeting at St. Jude Children’s Research Hospital in Memphis, TN. Dur-

ing July, Dr. Fitz Gerald was invited to present “Characterization of parentally-biased events during the development of the *Arabidopsis* seed endosperm using native autofluorescence” at the International Conference on Arabidopsis Research in Vienna, Austria.

Dr. Rachel Jabaily presented “Molecular and morphological evidence towards a taxonomic revision of paraphyletic *Goodenia* (Goodeniaceae)” at the July meeting of the Botanical Society of America meeting in Columbus, Ohio.

In June, **Dr. Mary Miller** attended the 14th Biennial CUR Conference at The College of New Jersey. At this conference, Dr. Miller participated in a presentation about the ACS grant she had received as part of a group collaboration on teaching cancer biology (see

above). Dr. Miller was also invited to discuss the research experiences taught in labs at Rhodes for a National Science Foundation (NSF) Research Coordination Network – Undergraduate Biology Education (RCN-UBE) Grant.

Dr. David Kabelik presented the poster “Vasotocinergic and dopaminergic activity in relation to social behavior in the male brown anole lizard” coauthored by Veronica Alix, **Piper Carroll '13 NEUR, Caroline Elbaum '14 NEUR, Aaron Kala '12 NEUR, Megan O'Brien '12 NEUR, Salar Rafieetary '12 NEUR** and **Maddie Scott '13 NEUR** at the 15th Annual Meeting of the Society for Behavioral Neuroendocrinology (SBN) in Madison, Wisconsin in June.

See page 8 for student URCAS presentations.

Curricular Evolution Updates for Spring 2013



The course schedule this spring may look different from what you have seen in previous years, but most of these are temporary changes that provide courses students need during a year when some of the faculty had leaves from teaching. **Microbiology (BIOL 301)**, traditionally a spring course, will not be offered next semester (spring 2013) because Dr. Luque de Johnson will be on leave then. Of course, Dr. Luque de Johnson has been teaching Microbiology this

fall so this important course was not absent from our curriculum this year. Anticipate that Microbiology will return to its spring spot in 2013-2014. Another switch this year occurred with **Animal Physiology (BIOL 340)**. If you were disappointed when Animal Physiology disappeared from our fall line-up you will be happy to see that Dr. Kabelik is offering it next semester (spring 2013). It will have lab on Monday. For other information about Animal Physiology and the Neuroscience classes that can count for the Biology major, please see the section, “Neuroscience Course Rewiring” below.

While some courses are offered by the department every year, or even twice in one year, as Genetics is right now, other classes appear on a more inter-

mittent schedule. This spring we are pleased to offer Mycology, Ornithology, Plants and People, and Vertebrate Life. Below is a course description for Plants and People; for the other three courses, please consult your catalog for descriptions.

BIOL 365 – Plants and People: This course will familiarize students with the biological, historical, and technological relationships that exist between humans and plants.



Students will learn how plant anatomy, physiology, genetics, evolution, ecology, and conservation directly impact humans. Topics will include genetically

modified organisms, agriculture, botanical field research, invasive species, and the specific effects (e.g., medicinal, psychoactive, poisonous) that some plants have on our bodies. This upper-level biology course without lab will count as an elective for the Environmental minors and majors.

Neuroscience Course Rewiring

Due to the Rhodes Early Leave that Dr. David Kabelik took this fall, the Animal Physiology and Neuroscience courses he teaches have been moved to new semesters and times. **Animal Physiology (BIOL 340)** will be taught in the spring this year and next; please note the new Monday lab time. **Neuroendocrinology (BIOL 375)** and **Neuroscience Research Methods NEUR 350** courses will next be taught



Optimal Foraging

The following courses will be offered next semester.

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

Number	Course Title	Hours Offered
140	Biology II	MWF 8-8:50, 11-11:50 or TuTh 8-9:15, 9:30-10:45 4 Sections
141	Biology II Lab	Tues 12:30-3:30, Wed 1-4:00, Thurs 12:30-3:30 or Fri 1-4:00 7 Sections
200	Evolution (Jabaily)	TuTh 11-12:15, Wed lab 1-4:00
201	Mycology (Hill)	TuTh 9:30-10:45, Tu lab 12:30-3:30
202	Vertebrate Life (A. Jaslow)	TuTh 11-12:15
204	Mechanisms of Development (Fitz Gerald)	MWF 8-8:50, Thurs lab 12:30-3:30
212	Environmental Issues in Southern Africa (Cappellato)	TBA
304	Genetics (Miller)	TuTh 9:30-10:45, Tu lab 12:30-3:30
325	Molecular Biology (Lindquenter)	MWF 10-10:50, Th lab 12:30-3:30
340	Animal Physiology (Kabelik)	MWF 9-9:50, Mon lab 1-5:00
345	Ornithology (Collins)	TuTh 11-12:15, Tu lab 12:30-3:30
365	Plants and People (Boyle)	TuTh 8-9:15
CHEM 414*	Biochemistry (Loprete)	MWF 12-12:50
CHEM 416*	Mechanisms of Drug Actions (Jackson-Hayes)	TuTh 11-12:15
NEUR 270*	Neuroscience (Gerecke)	TuTh 11-12:15
Senior Seminar Sections		
486-1	Cancer Biology (Miller)	MWF 11-11:50
486-2	Human Pathogens and Immune Evasion (Sturm)	TuTh 3:45-5:00
For Non-Majors		
105	The Biology of Infectious Diseases (Sturm)	MWF 10-10:50, Mon lab 1-4:00

in Fall 2013. Also in Fall 2013, Dr. Kabelik will offer a section of Neuroscience Senior Seminar that may have a spot or two for Biology majors with the appropriate prerequisites (i.e. **NEUR 270+350**).

More courses for Biology majors

Dr. Loprete will again offer a spring **Biochemistry (CHEM 414)** next semester. It will meet MWF 12-12:50. Dr. Jackson-Hayes will offer **Mechanisms of Drug Action** TuTh 11-12:15. Please remember that no more than two courses from outside the Biology Department may be used to fulfill the six upper-level courses required for the Biology major.

Senior Seminar News

The spring Biology senior seminars are described below. Students who signed up for one of these seminars during the lottery last spring should list it on their tree under "Other Courses" when they preregister this fall.

Juniors note that senior seminars for the '13-'14 academic year will be listed in the spring issue of BIO-FEEDBACK, along with the date and time of the lottery through which you will select your seminar.

BIOL 486-1: Cancer Biology. MWF 11-11:50; Dr. Mary Miller. Cancer Biology 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 metastatic 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.

BIOL 486-2: Human Pathogens and Immune Evasion. TuTh 3:45-5:00;

Dr. Oliver Sturm. This seminar will focus on the strategies of human pathogens to evade the human immune system. Students will learn about the



biology of pathogenic bacteria, viruses and parasites and about the im-

mune defense mechanisms humans have in their arsenal to fight these pathogens. Of particular interest are pathogens that evolved particularly successful mechanisms of immune subversion, such as human immunodeficiency virus (HIV), *Plasmodium falciparum* (malaria) or *Mycobacterium tuberculosis* (TB). Specifically, how these pathogens are able to subdue the immune system and what treatment options are currently in development? Beyond the science, this course teaches how to analyze and understand primary research literature and to communicate scientific concepts in presentations. The overall objective is to help students to acquire the skills needed participate in scientific discourse and to design and conduct research projects on their own.

Plan Now For One of Two Amazing Summer Experiences

Environmental Study in Africa

The spring class, **Environmental Issues in Southern Africa (BIOL 212)**, and the summer study-abroad course,

Environmental Field Study in Namibia (BIOL 214),

are tentatively scheduled for 2013. If enough students sign up (5 students), the trip will be offered this year (May 9th – 30th). The class will visit the Namib Desert, dry thornveld savannas, and the Kalahari sands, and will meet indigenous people, NGOs, and governmental officers involved in local environmental issues. Together, the two-credit spring course at Rhodes (Biol



David Siu '13

212) and the two-credit summer trip to Namibia (Biol 214) fulfill an upper-level Biology course requirement, an Environmental Science requirement, and the F11 requirement. On Oct. 23 at 3:30 in FJ140E Dr. Cappellato will hold an informational session for students who are interested in going to Namibia. Because the response of students attending this meeting will help to determine if the course is offered, please contact Dr. Cappellato if you are interested but cannot attend the session.

Rocky Mountain Ecology Maymasters and Internships

Are you interested in spending June studying and gaining ecological field experience in Grand Teton and Yellow-

stone National Parks? If so, check out the Rocky Mountain Ecology Maymasters. Students may choose one of two courses: **ENVS 160 Rocky Mountain Ecology** (two credits, F11) or **ENVS 170 Rocky Mountain Ecology Field Research** (four credits, F7 and F11). Both courses are appropriate for Biology majors, as well as non-majors. The application deadline is February 15, but applications will be considered on a rolling basis. If you



Roberta Moore '14 ENVS

would like to be considered for financial aid, the deadline is February 1. There will also be opportunities for students to apply for paid internships at Teton Science Schools. Please contact Dr. Boyle for more information on either the Maymasters or the paid internship positions.



Alumni Luminescence

Most of you have heard people stress the importance of really getting to know your professors to fully benefit from being in a relatively small, liberal arts college. Our upcoming seminar speaker, Dr. Katie Jameson '05, is an excellent example of how mentoring by a professor in conjunction with terrific networking skills can pave the way for an exciting future. As you read about Dr. Jameson, notice the impact professors and mentors have had on her journey.

While at Rhodes, Dr. Jameson did research in Dr. Mary Miller's lab for three years, which culminated in an American Society for Microbiology Undergraduate Research Fellowship, a publication in *Yeast*, and the 2005 Award for Outstanding Research

in Biology. In her spare time, she was also vice president of $\beta\beta\beta$ Biological Honor Society, editor of the *Rhodes Journal of Biological Science*, student chair of URCAS, and a member of Kappa Delta Sorority.

Dr. Jameson began seeing the connections in 2004, when Dr. Miller encouraged her to attend the International Yeast Genetics and Molecular Biology Meeting in Seattle. Dr. Robert Strandburg (Dean of Research) enabled her to attend by allotting travel funds. Dr. Jameson reports that, "It was



Dr. Katie Jameson

at this meeting that I met Dr. Tim Stearns of Stanford University, who after hearing my presentation, said the following (which I will never forget): "Well, I hope you will consider applying to Stanford." Needless to say, I was floored. I applied and was accepted."

At Stanford University, Dr. Jameson studied tumors caused by mutations in Ras genes – genes that affect cell growth and proliferation. Graduating with her PhD in 2011, her thesis work is under positive revision at *Nature Medicine* with an additional three manuscripts in preparation. Her research has also resulted in a patent-pending cancer therapeutic, and there are plans to pursue this in a phase I clinical trial via Stanford's SPARK program, in which experts from industry, academia, and medicine collaborate to move research innovations from bench to bedside. Dr. Jameson

tells us that based on her work, she was one of five young academics selected to attend the Merck Serono Innovation Cup in Germany, where she joined a team tasked with developing a novel research platform for the drug company. Back in the U.S., Dr. Jameson is now a postdoctoral research fellow in the Biochemistry Department of the Cancer Center at Vanderbilt University. Dr. Jameson says her goal is to pursue a tenure-track faculty position in an academic research setting.

Dr. Jameson states that "the most important thing for us of all to remember is to believe in yourself enough to pursue the opportunities in front of you. Rhodes is an amazing institution, but you only get out of it what you are willing to put in. The one thing that changed my life forever was walking into Dr. Miller's office and asking to start working in her lab."

During her Rhodes visit, Dr. Jameson would like to encourage you to ask her about research at Rhodes and Stanford, applying to graduate school and grants, and being a female in science. She says it would be a pleasure to help a fellow Rhodes student. So, let the networking begin.



Departmental Migrations

Welcome to Our Newest Department Member...

Dr. Oliver Sturm joins the Department of Biology as an Assistant Professor. Growing up in southern Germany in the border region to Switzerland and Austria, Dr. Sturm adds to the international flavor of our department. He studied chemistry and biochemistry at the University of Bayreuth, a small university in northern Bavaria.

After he graduated as "Diplom Chemiker", a degree similar to a Masters degree, Dr. Sturm left Germany for a PhD program in Bioanalytical Chemistry at Imperial College of Science, Medicine and Technology in London (UK). There, he worked on engineering the enzyme alkaline phosphatase for use in biosensors designed to quantify the amount of phosphorous pesticides. After finishing his PhD, Dr. Sturm stayed for another year in London as a postdoc, working in software development for a small spin-off company of Imperial College. During

that time Dr. Sturm developed an interest in computing, which prompted him to accept a position as Research Fellow at the University of Glasgow in Scotland where he joined an interdisciplinary project in systems biology on computational modeling of cellular signal transduction pathways.

After working for four years in Scotland, he left Europe and took a Postdoc position at St. Jude Children's Research Hospital in Memphis in the lab of Peter Doherty and Paul Thomas, working for four years in the Immunology Department. During this time we got to know Dr. Sturm as he started to teach at Rhodes College as an adjunct professor.

As a full time member at Rhodes, Dr. Sturm will teach immunology and virology, plus introductory biology and senior seminar. His research interests are in the field of systems biology and

he is already exploring ideas to set up collaborative research projects with friends from the Physics and Mathematics departments. Students who are interested in projects that combine math, computing and biology are welcome to participate.



Dr. Oliver Sturm

Dr Sturm lives in midtown with his wife Sandra and their young son Felix. He spends most of his spare time playing with his son, and like many parents with a baby, they are often found on the weekends at the Memphis Zoo or the Children's Museum.

Signals and Displays (short communications)

Tri-Beta News

Beta Beta Beta ($\beta\beta\beta$) is the biological honor society for the Rhodes Biology Department. $\beta\beta\beta$ has a two-fold purpose. First is to provide a club where individuals with a shared interest in biology can get together in a setting free of classroom pressures and have a little social interaction and fun. The other purpose is that of an honor society. $\beta\beta\beta$ is a national honor society and 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*, student research presentations, and a proposed URCAS reception for the biological sciences. $\beta\beta\beta$ provides a forum to recognize those students, with a biological science as their undergraduate major, who excel academically. $\beta\beta\beta$ sponsors a variety of projects throughout the year, some of which include a booth at Rites to Play, hosting speakers from the Memphis community, volunteering at Science Saturdays on Mud Island with local elementary schools, attending and providing interactive presentations at a local elementary school's monthly science club meetings and science nights. Although membership in $\beta\beta\beta$ does not mandate participation in these events, attendance is strongly encouraged among the group in order to remain in good standing. Any student meeting the criteria below who is interested in becoming an associate regular member for the next school year should contact the $\beta\beta\beta$ president. Adih Khan (khaaa@rhodes.edu).

$\beta\beta\beta$ Associate Membership Requirements:

- Completed Bio 130/131 and 140/141 or the AP equivalent
- Completed at least one 200 level BIO course
- At least 3.0 GPA for BIO courses
- Overall GPA of at least 3.0
- Must be junior or senior

- One-time \$35 initiation fee
- $\beta\beta\beta$ Regular Membership Requirements:
- Major in Biology, BMB, Neuroscience, or Environmental Science
 - Completed at least two BIO courses at 200 level or above
 - At least 3.0 GPA for BIO courses
 - Overall GPA of at least 3.0
 - Must be at least in sophomore year
 - One-time \$45 initiation fee (or \$10 if promoted from Associate)

An International Experience In Health Care: Improving Infection Prevention And Control In Nicaragua

Last summer, Rhodes students Jayme Alexander, Lindsey Bierle, Kevin Chien, Jonathan Fisher, Sarah Kennedy, Chris-



topher Sloan, Peter Ward, and Virginia Whitman traveled to Nicaragua with Dr. Luque de Johnson to join an existing program headed by St. Jude Children's Research Hospital. The purpose of this program is to inform personnel in Latin America hospitals on current policies on infection prevention and control. The students stayed in Managua, Nicaragua for two weeks and were immersed in the everyday procedures of surgical equipment sterilization and blood collection. They learned about the hospital's environmental hygiene. The students provided the local hospital with realistic solutions on how to reduce hospital acquired infections. This 2 credit course, **BIOL160**, is offered every other summer and provides F-11 credit. Our next trip will be in the summer of 2014.



Biology Seminar Series

Mark your calendars! There are still two remaining seminars sponsored by the Biology Department. On Monday, November 5th, Rhodes graduate Katie Jameson '05, Postdoctoral Research Fellow at Vanderbilt University, will present "Pulling the Plug on Cancer Signaling - Scaffold-Kinase Interaction Blockade." Dr. Troy McEachron, a Postdoctoral Researcher in the Department of Neurobiology at St. Jude Children's Research Hospital, will present "Epigenetic Mutations in Pediatric Brain Tumors" on Monday, November 19th. The Biology Department is hosting Dr. McEachron as part of the St. Jude Cutting Edge Seminar Series.



Dr. Troy McEachron

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 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 Helen Floersh (flohd@rhodes.edu) if you are interested in submitting a paper or working with the journal.

Biology Research Award

Each spring, the Biology Department honors a student with its Award for Outstanding Student Research in Biology. Any Biology student who has completed research at Rhodes or elsewhere is eligible for this award and cash prize. To be considered, a student must submit a three- to five-page research paper, plus a recommendation from the research supervisor. If you are interested in submitting your work for this

prize, please speak to your advisor or to Dr. Luque de Johnson. The deadline for applications for this Research Award will be announced in the spring issue of BIOFEEDBACK.

St. Jude Research Program Going Strong

Applications for next year's Summer Plus Research Program will be due January 21st. Be on the lookout for notices or e-

mails informing you of the details. See <http://www.rhodes.edu/academics/1115.asp> for additional information, or contact Dr. Ann Viano (viano@rhodes.edu or x3912).

The following student presentations were given in April at Rhodes's Undergraduate Research and Creative Activity Symposium.

Damiana Altamirano '12 Mapping the arabidopsis genes responsible for variation in parental genomic imprinting

Nolan Bielinski '13, Alex Nord '12

The effects of chinese privet (*Ligustrum sinense*) on soil composition at Shelby Farms

Margaret Blake '14, Alison Lang '13, Stephen Leavelle '14, Sandra Videmsky '14 Elephants after dark: assessment of environmental changes to reduce stress in captivity

Lindsey Bierle '12, Rebecca L. Miller '12 Ruthenium-based chemotherapeutic KP1019 induces DNA damage response in *Saccharomyces cerevisiae*.

Theodore Boozalis '12, Ryan Costello '12 Analysis of pollution and biodiversity levels in Patriot Lake at Shelby Farms

Zoe Clark '12 A model for methylation of cytosine: a potential marker for cancer

Allie Dillon '12, Kathy Marr '13 Carbon sequestration and the monetary value of Shelby Farms Park, Memphis, TN

Katherine DiGiovanni '12 MP2 calculations of interaction energies between acetaminophen and acetaminophen analogues and aryl sulfotransferase

Wenbin Du '13 Identifying the role of components of the SHREC complex in the assembly of centromeric heterochromatin in fission yeast

Sarah Ferguson '13 Activity budgets of two captive red pandas at the Memphis Zoo

John Paul Garry '13, Megan Hauver '12, Melissa Welch '13 Calculating the biodiversity within two different agricultural fields based on soil texture and chemistry

Mae Gillespie '12 NEUR Broken windows of healthcare: The importance of cultural factors in reducing medica-

tion errors

Madeline Jeansonne '12, Anahita Rahimi-Saber '13 Characterizing the molecular interaction between the malaria parasite and human red blood cells

Kimber Jones '13 Analysis of behaviors and spatial preferences in snow leopards (*Uncia uncia*) housed in captivity

Aaron Kala '12 NEUR, Veronica Alix '12, Madeline Scott '13 NEUR Investigating the involvement of dopamine in courtship and aggression in brown anole lizards

Adiha Khan '13, Matt Grisham v13, Anna Johnson '11, Matt McCravy '12 BMB, Alex Yu '13, Kimber Jones '13 An integrative assessment of snake parasitism in urban old-growth forest

Anna Kushnir '14 Molecular mechanisms that influence T cell survival

Ashley Ladd '12 NEUR Identifying proteins potentially causal to development of autism-related antibodies in children with familial autoimmune history

Lucas Lauder milk '13 MicroRNA alteration of transcriptional activity by gene promoter interaction as monitored by gold nanoparticle aggregation

Kathryn Marr '13 Carbon uptake and sequestration assessment of Memphis, TN green canopy coverage as a tool to promote the conservation of Memphis wooded parks

John Menz '14 Birds of the Maine Coast: GIS analysis of seabird reintroduction islands and shorebird habitat status

Jessica Newman '13, Madison Marullo '13 Soil nutrient analysis and plant biodiversity at Epping Way, Memphis

Kelly Patton '13, Madison Marullo

'13, Laura Wagner '13, Jennifer Marshall '14 Outdoor movement and location behavioral observations of african elephants (*Loxodonta africana*) in captivity

Salar Rafieetary '12 NEUR, Megan O'Brien '12 NEUR, Piper Carrol '13 NEUR Vasotocinergic activity varies with social context in the brown anole (*Anolis sagrei*) lizard

Kira Reich '14 Radiation therapy dose has minimal effect on subsequent physis closure in pediatric patients treated for sarcomas adjacent to long bones.

Jordan Robinson '13, Chelsea Peters '12 ENVS Wolf River macroinvertebrate biodiversity

Evan Savage '12 NEUR Radiation treatment for medulloblastoma survivors disrupts normal reading acquisition

Morgan Slevin '12, Kimber Jones '13 Forest stand age vs. diversity of cavity nesting species: the effect of primary cavity nesters

Sara Beth Taylor '13 BMB and Xiao Wang '13 BMB Genotype-independent maternal regulation acts in response to paternally-directed increase of seed size in natural variants of arabidopsis

Rebecca Thompson '13 Effects of traumatic lumbar puncture on molecular detection of herpes simplex virus encephalitis (HSVE)

Diana Wong '12, Madeline Jeansonne '12, Impact of environmentally oriented classes on Rhodes students' perceived value of the Memphis Zoo

Zongyu Yang '13 BMB Proliferation study of the subventricular zones in GFAP::Cre;SmoM2[fl/+] mice brains

Alex Yu '13, Amanda Sandifer '12, Matthew McCravy '12 BMB, Adiha Khan '13, John Grisham '13 Snake parasites in Overton Park