



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 either Dr. Carolyn or Dr. Alan Jaslow. *BIOFEEDBACK* will be published each semester.

The Chair's Niche



Teaching senior seminar brings special joys and challenges to the professor. From the teaching standpoint, the greatest challenge comes before the course begins. This is when the pro-

fessor searches through a host of journal articles, looking for appropriate papers that the students will read and discuss in the early weeks of the class. This is the challenge in which I have been engaged over the past several weeks.

Preparing for my senior seminar on the means by which pathogens subvert or evade the immune response, I ran across an intriguing review article. The author points out that we and our normal gut bacteria are most properly considered as symbionts. Furthermore, in order for the symbiotic bacteria to persist in our gut, they must have evolved special means for subverting and evading the immune response, much as pathogens have done to maintain pathogenesis. So although the article was not about pathogens *per se*, I felt it would add an interesting comparison for the senior seminar.

As I finally looked at the byline of the paper, I had a bold and pleasant surprise. The author of this article in the prestigious journal, *nature*, was Lora v. Hooper, none other than my very first research student at rhodes, who did senior

honors research with me in 1988! Lora has had a very successful research career. She is tenured at the University of Texas Southwestern Medical Center at Dallas and holds the honor of being a Howard Hughes Medical Institute Investigator.

And this brings me to the joy of teaching Senior Seminar, and of teaching at a liberal arts college in general. As your professors, we meet you when you step on campus with wide eyes and trepidation. Then, we get to witness and be part of your four years of intellectual and social growth and maturity. At times, we get to see this stage of your intellectual development culminate in our Senior Seminar class. And on special occasions, including at least once a year as we invite an alumnus or alumna to speak in our seminar series, we celebrate what you achieve after leaving rhodes. Thank you for these opportunities.

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 11, 2009.

...**Kim Green '09** who won the Award for Excellence in Biology for the '08-'09 academic year. **Jackie Hancock '10** was given the Award for Outstanding Research in Biology, and **Ted Boozalis '12** was presented the Award for Excellence in First-Year Biology.

... **Dr. David Kesler**, who received the Jameson M. Jones Award for Outstanding Faculty Service at the Opening Convocation in August. This award honors current faculty who have rendered exemplary service and provided leadership to the Rhodes community.

...the Phi Beta Kappa initiates of the class of 2009: **Jamie Glancy, Kimberly Green, Anum Minhas, Marianne Olson, Andrew Roads, and Rebekah Russ.**

...our former post-doctoral fellow, **Dr. Sara Gremillion**, who accepted a faculty position in the Department of Biology at Armstrong Atlantic State University in Savannah, GA. Dr. Gremillion will be teaching Cell Biology and Introductory Biology, and will continue her research on the cell components needed for fungal growth and development. She sends greetings to all her former colleagues and students.

...**Michael Pluta '11, Chassidy Groover '10, Rachel Hickey '11 BCMB, and Brittany Chavez '11**, who received NSF-supported Research Fellowships to work with Drs. Hill, Jackson-Hayes, and Loprete on fungal cell biology this summer. They were joined by students from Rust College (Holly Springs, MS) and Lane College (Jackson, TN).

...the four Cell Cycle Fellows who were selected to work with Dr. Miller during the summer. **Jackie Hancock '10, Brett Dagen '10, Mary Elizabeth Huddleston '10 and Lindsey Bierle '12** were supported by a grant awarded to Dr. Miller from the National Science Foundation.

...three students who were awarded summer research internships at the Memphis Zoo. **Allison Graham '10** studied reproductive hormone physiology in critically endangered Amur and snow leopards, **Dan Eastlack '11** developed a method using near-infrared reflectance spectroscopy for detecting fatal fungal disease in amphibians, and **Lauren Lieb '10** helped survey tree species diversity in Overton Park in preparation for the Zoo's development of a new forest trail exhibit.

...those whose research presentations received recognition at meetings. At the American Society for Biochemistry and Molecular Biology (ASBMB) meeting in New Orleans,

John Musgrove BCMB '10 and Erinn Ogburn '11 were awarded an Honorable Mention for their poster, and **Dr. Sara Gremillion** won Best Poster in her category. At the April meeting of TAS (Tennessee Academy of Science), **Stephanie Cassel '10** won 1st place in the Environmental Science Oral Presentation Session, and the poster presented by **Lauren Lambeth '09** earned the 2nd best poster award.

Also at this TAS meeting, **Amanda Hoeffken '10**, and the team of **Laura Johnson BCMB '10 and Chassidy Groover '10** each received a 2nd best paper prize for her oral presentations. **Jacy Gentry '09** won the Best Poster award in Environmental Studies, and **Brett Miller '09** garnered the Best Poster award in Environmental Science. Additionally,

Stephanie Cassel '10 won 1st place in the Environmental Science Oral Presentation Session (see the "Meetings" section for titles of these presentations and others).

...**Julia Goss '10**, who participated in a summer REU (Research Experience for Undergraduates program called RIOS (Research Internships in Oceanic Sciences). At the conclusion of the internship, her research poster, "Recruitment and mortality of *Spisula solidissima*: field and flume experiments," was selected as the winner, so she will be traveling to the 2010 Ocean Sciences Meeting sponsored by the American Society of Limnology and Oceanography in Portland, Oregon in the spring.

...the new ODK honor society members: **Mohammad Atiq '10, Andy Foss-Grant '10, Scott Galloway BCMB '10, Julia Goss '10, Nina Guo '10, Jackie Hancock '10** (President), and **Natalija Kokoreva '10**.

...seniors **Mohammad Atiq, Cassie Burton, Ciara Conway, Nina Guo, Thomas Hamilton BCMB, and Gayatri Patel BCMB**, who were initiated into Mortar Board Honor Society.

...the new officers of Rhodes' chapter of βββ: **Cassie Burton '10** (President), **Andy Foss-Grant '10** (Vice President), **Scott Galloway BCMB '10** (Treasurer), **Thomas Hamilton BCMB '10** (Secretary) and **Lesley Baker BCMB '10** (Historian). For more information about this organization, see p. (put appropriate page once laid out)



Grants and Fellowships

Dr. Laura Luque de Johnson has been accepted to a unique scholarly development program sponsored by the University of Texas at Dallas and supported by NIH.

Dr. Sarah Boyle attended a Fulbright Workshop on the Environment: Creating Regional Partnerships in the Americas, LASPAU, Harvard University, June 10-12. This workshop brought together U.S. and international Fulbright Scholars who study environmental issues in Latin America and the Caribbean. As a result of the workshop, Dr. Boyle and three collaborators have received Fulbright funding from the U.S. State Department to study how forest fragmentation impacts fauna in Paraguay.

In April, **Dr. Jon Davis** was awarded two research grants from the Conservation Action Network (CAN) at the Memphis Zoo. The first, co-authored with Dr. Andy Kouba (Memphis Zoo), provided \$4,500 for studying "Habitat characteristics of Chinese giant salamanders in nature and captivity". Dr. Davis traveled to China for three weeks in July to conduct this research. The second CAN grant of \$4,949 was awarded to **Dr. Davis, Dr. Carrie Vance, and Ms. Sara Hasenstab** (Memphis Zoo), for their project entitled "Prevention of catastrophic fungal infection in amphibians at the Memphis Zoo."

In May, **Dr. Jon Davis** was selected



as a National Science Foundation Faculty Institutes for Reforming Science Teaching (FIRST IV) scholar and attended a science teaching workshop in Oregon from June 8-13, 2009. In August, he received a \$20,000 National Science Foundation planning grant for his role on a multi-institutional interdisciplinary collaborative project entitled, "A U.S.-China Planning Visit: Landscape-level biodiversity conservation, forest restoration and socioeconomics at multiple scales." His coauthors on this grant are Andy Kouba, Carrie Vance, Jiang Pingping (All from the Memphis Zoo), and Scott Willard (Mississippi State University). **Dr. Davis** and **Dan Eastlack '11** will travel to China in May, 2010 for the planning meeting.



Publications

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

Boyle SA, Lourenço WC, da Silva LR, Smith AT. 2009. Travel and spatial patterns change when northern bearded saki monkeys (*Chiropotes satanas chiropotes*) live in forest fragments. *International Journal of Primatology* 30: 515-531.

Boyle SA, Lourenço WC, da Silva LR, Smith AT. 2009. Home range estimates vary with sample size and methods. *Folia Primatologica* 80: 33-42.

Jackson-Hayes L, **Hill TW**, Loprete DM, Fay LM, Gordon BS, Nkashama SA, **Patel RK**, **BCMB '08**, **Sartain CV**, **BCMB '07**. 2008. Two GDP-mannose transporters contribute to hyphal form and cell wall integrity in *Aspergillus nidulans*. *Microbiology* 154: 2037-2047.

Goodson JL, Schrock SE, Klatt JD, **Kabelik D**, Kingsbury MA. 2009. Oxytocin-like receptors and mesotocin promote songbird flocking behavior.



Science 325(5942): 862-6.

Goodson JL, **Kabelik D**, Schrock SE. 2009. Dynamic neuromodulation of aggression by vasotocin: Influence of social context and social phenotype in territorial songbirds. *Biology Letters* 5(4): 554-6.

Kabelik D, Klatt JD, Kingsbury MA, Goodson JL. 2009. Endogenous vasotocin exerts context-dependent behavioral effects in a semi-naturalistic colony environment. *Hormones and Behavior* 56: 101-107.

Goodson JL, **Kabelik D**, Kelly AM, Rinaldi J, Klatt JD. 2009. Midbrain dopamine neurons reflect affiliation phenotypes and are tightly coupled to courtship in Estrildid finches. *PNAS* 106(21): 8737-8742.

Goodson J.L., **Kabelik D**. 2009. Dynamic limbic networks and social diversity in vertebrates: From neural context to neuropeptides. *Frontiers in Neuroendocrinology* 30: 429-441.



Meetings

In June, **Dr. David Kabelik** attended the meeting of the Society for Behavioral Neuroendocrinology at Michigan State University in East Lansing. There, Dr. Kabelik presented a poster of his work, "Vasotocin regulates group size prefer-

ences in zebra finches," coauthored with R.R. Thompson, M.A. Kingsbury, K. Hoffbuhr, S.E. Schrock, and J.L. Goodson.

Several students and faculty



attended the West Tennessee Regional Collegiate Meeting of the Tennessee Academy of Sciences here at Rhodes. At this April meeting, **Dr. Laura Luque de Johnson** gave the keynote address, "Traveling germs: infectious diseases in an era of globalization." Student presentations included the research posters, "Changes in soil characteristics by English Ivy (*Hedera helix*) in Overton Park," by **Lauren Lambeth '09**, and "Urban Memphis parks as carbon sinks," by **Jacy Gentry '09**. Both projects were co-authored with **Dr. Rosanna Cappellato**. Another poster, "Correlation of seed size with fitness traits in *Arabidopsis thaliana*: an analysis of Columbia and Landsberg ecotypes," was presented by **Nadia C. Winston '10**, who had worked with **Dr. Jonathan Fitz Gerald**. **Dr. Fitz Gerald** was also a coauthor with **Jenkin Chan '11**, who delivered, "ROP2 gtpase is required for proper ATFH5 localization in *Arabidopsis thaliana*." Other oral presentations included **Brett Dagen '10**, who spoke on "The role of Bro1 in CLN3-Dependent cell division in *S. cerevisiae*," co-authored with **Dr. Mary Miller**, and **Stephanie Cassel '10** who presented "Assessing amphibian marking techniques in recent toad metamorphs; reliability, effects on survivorship and physiology, and conservation implications" with **Dr. Jon Davis**. **Amanda Hoeffken '10** spoke about her work, "Obesity among childhood Hodgkin Lymphoma survivors." "GDP-mannose transporters in the filamentous fungus *Aspergillus nidulans*" was presented by **Laura Johnson '10 BCMB** and **Chassidy Groover '10** along with **Drs. Loretta Jackson-Hayes, Terry W. Hill**, and **Darlene Loprete**.

Also in April, **Drs. Terry Hill** and

Sara Gremillion traveled with their research students to the meeting of American Society for Biochemistry & Molecular Biology (ASBMB) in New Orleans, LA. There, the research poster by **John Musgrove '10** and **Erinn Ogburn '11**, "Tightly regulated expression of the PkcA and SccA genes by the inducible AlcA promoter affects both development and cell wall integrity in *Aspergillus nidulans*," won an honorable mention. This work was coauthored with **Drs. Terry Hill**, Darlene Loprete, and Loretta Jackson-Hayes. Another poster presented was "Two GDP-mannose transporters contribute to cell wall stability in the filamentous fungus *Aspergillus nidulans*," by Drs. Jackson-Hayes, **Hill**, and Loprete, and students **Laura Johnson '10**, **Chassidy Groover '10**, **Barrie Gordon '09**, and **Stuart Martin '09**. **Dr. Gremillion's** award-winning poster was "Two Golgi apparatus COG proteins are important to polarity establishment and maintenance in *Aspergillus nidulans*."

Dr. Terry Hill was also a participant at the 25th Fungal Genetics Conference in Pacific Grove, CA, in March, where he presented, "The *Aspergillus nidulans* orthologue of protein kinase C (*PkcA*) localizes to forming septa in a formin- and actin-dependent manner," with **John Musgrove '10**, **Erinn Ogburn '11**, **Bianca Cathey**, and **Jessica Lemon**. Additionally, **Dr. Hill** gave an invited seminar, "Cell walls & cell polarity in *Aspergillus nidulans*," at the Department of Molecular Sciences, University of Tennessee Health Science Center, in November of 2008.

In June, **Dr. Jen Houghton** attended the Sustainability and Curriculum Workshop for Campus Leaders held at San Diego State University. It was hosted by the Association for the Advancement of Sustainability in Higher Education.

In the summer of 2009, **Dr. Laura Luque de Johnson** was selected to participate in the Summer Institute Program to Increase Diversity (SIPID). Only 10 candidates from all over the nation were selected to this all-

expense-paid research career advancing opportunity sponsored by the National Heart, Lung, and Blood Institute (NHLBI). SIPID provides mentor-mentee partnerships with matching based on common research interests. Through the training **Dr. Luque de Johnson** will receive during the two-year program, she will increase her potential as an independent investigator and her success in Health Related Research.

This June, **Dr. Jonathan Fitz Gerald** attended the 20th International Conference of Arabidopsis Research held in Edinburgh, Scotland. He presented a combination of work conducted by himself and **Maria Cartagena '11** in a poster titled "Paternal regulation of maternal gene expression may provide an adaptive mechanism in *Arabidopsis thaliana*." **Dr. Jonathan Fitz Gerald** was also invited to speak to the Department of Plant Reproduction and Development at the École Normale Supérieure – Lyon, France in July. He presented an overview of current work in his lab including the projects of **Jenkin Chan '11**, **Maria Cartagena '11**, **Nadia Winston '10** and **Jonathan Holt '09**. The talk was titled "Polycomb regulates endosperm structure through parental and regional silencing of the Arabidopsis formin *AtFH5*: developmental and evolutionary perspectives."

In July, **Dr. Jon Davis** attended the Society for Conservation Biology meeting in Beijing, China. **Dr. Davis** presented a paper with co-authors, **Dr. Andy Kouba** (Memphis Zoo) and **Stephanie Cassel ('10)** entitled, "Assessing amphibian marking techniques in recent toad metamorphs: Reliability, effects on survivorship and physiology, and conservation implications."

Dr. Rosanna Cappellato and **Jacy Gentry '09** presented *Carbon uptake by Memphis' urban parks estimated by using the CITYgreen software* at the Ecological Society of America meeting in Albuquerque, NM, August, 2009. In September, **Dr. Cappellato** also traveled to the ACS-Furman conference on Sustainability and the Environment. The purpose of this conference was

stimulate inter-institutional cooperation and the sharing of new ideas and best practices among peers.

Dr. Mary Miller participated in the Yeast Cell Biology at the Cold Spring Harbor Laboratories on Long Island, NY from August 13-17th, 2009.

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

Burford, Emily '10, **Andrew Hassink '10**, and **Logan Eberly '10**. The effect of Angiotensin II on blood pressure, stroke volume, heart rate, and urine output after the application of AT1 and AT2 antagonists.

Cartagena, Maria '11. Epigenetic mechanisms may provide and adaptive regulation of the genetic repertoire in *Arabidopsis thaliana*.

Cassel, Stephanie '10. Assessing amphibian marking techniques in recent toad metamorphs: reliability, effects on survivorship and physiology, and conservation implications.

Chan, Jenkin '11. ROP2 GTPase is required for proper Atfh5 localization in *Arabidopsis thaliana*.

Dagen, Brett '10. BR01 dependent function of the G1Cyclin Cln3 in *S. cerevisiae*.

Forbes, Charlie '10. Linking geochemical models and microbial populations within hydrothermal chimneys on the East Pacific Rise.

Foss-Grant, Andy '10. Areas of Texas at high risk for water contamination.

Fuller, Shannon '11. Recombinant expression of *Plasmodium falciparum* reticulocyte homology 4 9PFRH4) protein.

Gentry, Jacy '09. Urban Memphis parks as carbon sinks.

Gentry, Jacy '09. Determining efficient energy usage in Barret Library through cost-benefit research.

Hancock, Jackie '10. THI73 dependent activity of the *S. cerevisiae* G1 cyclin Cln3.

Johnson, Laura '10 BCMB and **Chassidy Groover**. GDP Mannose transporters in the filamentous fungus *Aspergillus nidulans*.

Lambeth, Lauren '09. Changes in

seedling abundance and soil characteristics by English Ivy (*Hedera helix*) in Overton Park.

Litherland, Claire '09. *Plasmodium falciparum* and human immunodeficiency virus -1: Co-infection and coexistence in sub-Saharan Africa.

Long, Dusty '09. The impact of global climate change on the new recruits of a scleractinian coral, *Porites astreoides*.

Miller, Brett '09. Use of GIS to evaluate threats to waterfowl breeding

habitat.

Miller, Brett '09. Age and growth structure of the largemouth bass (*Micropterus salmoides*) population in Garner Lake, Tennessee.

Morgan, Zachary '10. The transformation of Rbl-10 retinoblastoma cells by transfection of pluripotency-inducing genes.

Patel, Neema '09. Automatic abstraction of plant seed diameters through images.

Roads, Andy '09. Assessing soil

carbon sequestration in turf grass and urban forest ecosystems.

Snedden, Tyler '10. Expression analysis of microRNAs affecting pediatric cancer cell lines.

Winston, Nadia '10 BCMB.

Correlation of seed size with fitness traits in *Arabidopsis thaliana*: an analysis of Columbia and Landsberg ecotypes.

Zhang, Jiyuan '11. PB1-F2 influences the polymerase activity in influenza A viruses.

Curricular Evolution

New Faculty and Course Updates for '09-'10



New Classes and Old Classes with New Faculty

This spring, Dr. Olsen will be teaching a new upper-level class titled "Plants and People" (see below). This class will be offered for 4 credits and does not include a scheduled lab. Also, Dr. Lindquister will be taking a sabbatical leave during the spring semester, so Dr. Miller will be offering Molecular Biology. Notice that it will meet at a different time than it has in the past. Be sure to read the notices below for other information about spring classes.

New Upper-level Bio Class Offered

Dr. John Olsen will be offering **Topics – Plants and People (Biol 385)** this spring. Students will examine the variety of uses we have for plants and plant products. The focus will be on elements of the structure, function, genetics and biochemistry of the



plants that make them suitable for the roles we have given them. We will look at the obvious uses as foods, beverages and spices, but will also examine plant

uses in construction, paper, cloths, medicinals, psychoactives, allergens and toxins. How have plants changed under cultivation? What features of woods make some more suitable for particular uses than others? How do you make paper? How do plant cloths differ (cotton, linen, burlap, sisal)? Why do some plants kill you and others make you well? What are psychoactives and how do these work? Why do some plants make you sneeze? The answers to all of these (and much more) will be the focus of this class.

Environmental Science Course

For students who are minoring in Environmental Science, note that **Environmental Geology (GEOL 214)**, a course focusing on the hydrologic cycle, water quality and sustainability, will return in the spring of 2010. This course, which carries both F7 and F11 credit, will focus on water-related

issues and will have a strong component of working within the Memphis community on water pollution issues as part of the F11 designation.

There's nothing like Biochemistry in the springtime...

For those of you who want to take Biochemistry, but could not get into it this fall, Dr. Loprete will be offering a spring section again this year. The class will meet on MWF from 11-11:50. Note that the Methods lab (BCMB 310), which works as a lab for Biochemistry, will NOT be offered in the spring.

Senior Seminar News

The spring Senior Seminar offering is **BIOL 486-1, "The Urban Jungle"**, taught on Tu/Th 4:00-5:15, by **Dr. Jon Davis**. Remember that this seminar includes **two required Saturday field trips**. Students who signed up for Dr. Davis's seminar during the lottery last

spring should list it on their tree under "Other Courses" when they do preregistration this fall.

Juniors take note that the senior seminar offerings for the '10-'11 academic year will be listed in the spring issue of BIOFEEDBACK, along with the date and time of the lottery through which you will select your seminar.

GIS Class Provides Exciting Opportunities

Animal migrations, the spread of a virus, the accessibility of medical centers to city residents, lead contamination, invasive species, habitat suitability for endangered species, childhood obesity, deforestation and urban growth patterns.... These topics are just a few examples of research projects that students can conduct using Geographic Information Systems (GIS). **Dr. Sarah Boyle** will be teaching



GIS (Interdepartmental 222) in the Spring 2010 semester. The GIS course is a requirement for the Environmental Science and Environmental Studies minors; however, GIS is not limited to environmental topics. Students with various interests (including, but not limited to, ecology, conservation biology, hydrology, geology, geography, urban studies, archaeology, anthropology, political science, history, economics, chemistry or business) may benefit from using GIS at Rhodes or in the future. Dr. Boyle invites students to contact her (boyles@rhodes.edu) if they would like to discuss how GIS may be applicable in their area of interest.



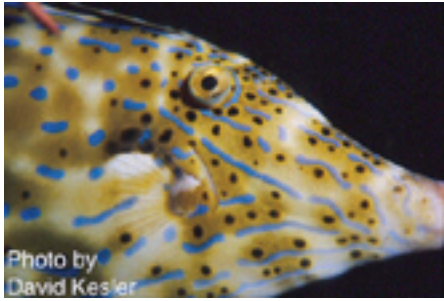
Optimal Foraging

The following courses will be offered next semester

Number	Course Title	Hours Offered
140	Biology II	MWF 9-9:50, 10-10:50, or TuTh 9:30-10:45 3 Sections
141	Biology II Lab	Tues 12:30-3:30, Thurs 12:30-3:30, or Wed 1-4:00 5 Sections
201	Mycology (Hill)	TuTh 9:30-10:45, Tues lab 12:30-3:30
202	Vertebrate Life (AJaslow)	TuTh 11:00-12:15
204	Mechanisms of Develop. (Fitz Gerald)	MWF 10:00-10:50, Wed lab 1:00-4:00
253	Coral Reef Ecology (Kesler)	M 3:00-3:50 and W 7:15-8:30 pm
301	Microbiology (Luque de Johnson)	MWF 8:00-8:50, Mon lab 12:30-3:30 or Wed lab 12:30-3:30
320	Conservation Biology (Cappellato)	TuTh 11:00-12:15, Wed lab 1:00-4:00
325	Molecular Biology (Miller)	TuTh 9:30-10:45, Th lab 12:30-3:30
370	Neuroscience (Kabelik)	MWF 9:00-9:50, Mon lab 1:00-5:00
385	Topics-Plants and People (Olsen)	TuTh 8:00-9:15
CHEM414	Biochemistry (Loprete)	MWF 11:00-11:50
Senior Seminar Sections		
486-1	The Urban Jungle (Davis)	TuTh 4:00-5:15

Last time for Coral Reef Ecology

Have you ever thought about SCUBA diving in the Caribbean? Do you want to learn to recognize different species of coral or tell the difference between a hogfish and a grouper? If so, think about registering for Coral Reef Ecology. The two-hour course, **Biol 253**, is given on campus next term and the two hour **Biol 254** (counts as an



F11) is given in Honduras from May 22 to June 5, 2010. Together these four hours count as an upper-level biology course, and they fulfill an Environmental Science Minor requirement. Students taking Biol 140 next semester ARE eligible to enroll in Biol 253. Since admission into this course is by permission only, you must talk with Dr. Kesler before registration if you are interested in gaining admittance to Biol 253. There will be an information session October 29th in FJB at 4:15 PM. Please try to attend if you have any interest in taking Coral Reef Ecology. Dr. Kesler is retiring at the end of this year, so this is the last time this course will be offered.

Environmental Study in Africa

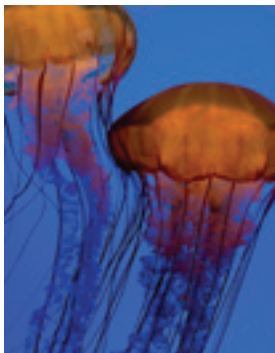
Environmental Issues in Southern Africa (**Biol 212**) and the Environmental Field Study in Namibia (**Biol 214**) are not currently scheduled for next semester. However, if enough students wish to go (5 students), then the class and the trip will be offered. The class visits the Namib Desert, dry thornveld savannas, and

the Kalahari sands, along with meeting indigenous people, NGOs, and governmental officers involved in local environmental issues. Together, the 2-credit spring course at Rhodes (Biol 212) and the 2-credit summer trip to Namibia (Biol 214) fulfill an upper-level Biology course requirement, an Environmental Science requirement, and the F11 requirement. Students

who are interested in going should attend an informational session held by Dr. Cappellato on October 28th at 4:00 PM in the Biology Seminar room (FJ 140E). 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 on the 28th.



Alumni Luminescence



As a Rhodes student, you are among a very select group of individuals who are recognized for achievements in the past, ongoing success throughout college, and anticipated success in the future. Alumnus John Goss, who will be a featured speaker this fall in our seminar series, shows one example of this successful road travelled by so many Rhodes students. While at Rhodes, Dr. Goss worked for 2 years at St. Jude Children's Research Hospital testing a variety of pharmaceutical treatments for their

ability to counteract the ototoxic side effect of a popular anti-cancer drug, Cisplatin. His work was published in the Rhodes College Journal of Biological Sciences and Dr. Goss received the Rhodes College Award for Outstanding Research in Biology. After graduating from Rhodes in 2002, Dr. Goss worked as a research technician at the University of Chicago, studying the interaction between mammalian host cells and the bacteria *Yersinia enterocolitica* (a variant of the Bubonic plague). He went on to receive his PhD



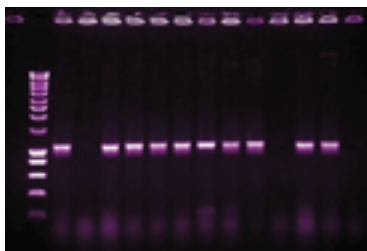
in Cellular Biology at Yale University in 2009. Dr. Goss's graduate research focused on proteins that facilitate the fusion of vesicles from the Golgi apparatus with the inner surface of the plasma membrane. Malfunctions in this process have been implicated in a variety of diseases, including diabetes and cancer metastasis. From this work, Dr. Goss received the Harry Burr Ferris Prize for writing the best PhD

dissertation in the Cellular Biology Department. In addition to his notable history of research and publications, Dr. Goss was also recognized at Yale for his excellence in teaching when he was named a Biological Sciences Prize Teaching Fellow in '08-'09. Dr. Goss is currently a post-doctoral fellow in the Molecular, Cellular, and Developmental Biology Department at Yale, where he studies proteins that affect the action-

myosin contractile ring during cytokinesis in budding yeast *Saccharomyces pombe*. We look forward to hearing from Dr. Goss in November when he presents some of his research to us. As you look forward to continuing to excel past your Rhodes experience, be sure to ask Dr. Goss about his travels from Rhodes to graduate school and beyond.

Departmental Migrations

Welcome to Our Newest Department Members...



Dr. David Kabelik joins the Department of Biology as Assistant Professor. Dr. Kabelik originally hails from the Czech Republic, but grew up in Canada where he received his Honors Bachelor of

Science Degree in Behavior, a joint program between the University of Toronto's Zoology and Psychology Departments. He then received a Ph.D. in Biology from Arizona State University, where he studied the neuroendocrine regula-

tion of aggressive behavior in the tree lizard (*Urosaurus ornatus*). During this time, Dr. Kabelik was a faculty associate at Arizona State University and at Phoenix College, where he taught courses in Human Anatomy and Physiology. After graduate school, Dr. Kabelik moved on to the University of California at San Diego, and then Indiana

University (when the lab moved cross-country), where he conducted postdoctoral research examining the neural bases of sociality in several estrildid songbird species (zebra finches and kin).

Dr. Kabelik's research examines the neural circuits that regulate social and aggressive behaviors, and how steroid hormones modulate these circuits and behaviors. At Rhodes, he will be conducting this work



in Green Anoles (*Anolis carolinensis*), as well as in several *Sceloporus* species (Spiny/Fence lizards) that vary in aggression levels, thus allowing for evolutionary comparisons of brain circuitry. Dr. Kabelik is excited about integrating students into his research, and about his Animal Physiology and upcoming Neuroscience courses.

In his spare time, Dr. Kabelik enjoys reading, listening to audiobooks, photography, cooking, hiking, camping, kayaking, soccer, tennis, watching movies, going to the zoo, and traveling. He's lived in five countries, and visited more than fifteen others, always hoping to increase the latter count. He and his wife, Dr. Sarah Boyle, live in Midtown, and own a rambunctious cat named Frankie.

Dr. Sarah Boyle joins the Department of Biology as a Visiting Assistant Professor. Dr. Boyle grew up in Charlottesville, Virginia, and received a B.A. in Anthropology from The College of William and Mary. She worked for three years at the National Wildlife Federation and has been an intern or volunteer at the Bronx Zoo, National Zoo, Jane Goodall Institute, International Center for Gibbon Studies, and The Nature Conservancy. In 2008 Dr. Boyle received a Ph.D. in Biology and a Graduate Certificate in Geographic Information Science (GIS) from Arizona State University. During graduate school Dr. Boyle was a Fulbright Scholar to Brazil, where she conducted research on the effects of forest fragmentation on the ecology, behavior, and conservation of primates in the Amazon. In addition to tropical research, Dr. Boyle has conducted research on North American snakes and she worked with students on water-quality projects in Indiana.

Dr. Boyle has taught a variety of courses, including Introductory Biology, Environmental Science, and Tropical Biology. At Rhodes Dr. Boyle is teaching Animal Behavior





in the fall and GIS in the spring. She is excited to work with Rhodes students both in and out of the classroom, and she encourages students to stop by her office and introduce themselves.

When Dr. Boyle isn't teaching or planning her next field adventure, she

enjoys reading, hiking, kayaking, playing tennis, watching soccer games, and eating spicy food. She and her husband, Dr. David Kabelik, moved to Midtown in July. They are having fun exploring Memphis, and they welcome suggestions for places they should check out.

...and Goodbye to a Senior Faculty Member Dr. David Kesler is retiring this year after 30 great years at Rhodes. You may know Dr. Kesler best from taking one of his recent classes in Ecology, Coral Reef Ecology, or second semester core Biology, but over the years, Dr. Kesler also taught students Biometry, Invertebrate Biology, GIS, Behavior, and Biology though Honeybees to name a few. If you didn't know some of the many students who did research with Dr. Kesler, you would be sure to recognize them as they entered the building wet or muddy from netting fish or *Chaoborus* larvae. Dr. Kesler has been a cornerstone of the Biology Department for many years and we will miss him greatly. This fall, we will be interviewing applicants to fill his position as our ecologist, and we hope that you will participate by attending the seminars they present, and providing good feedback to your professors or to Dr. Lindquister, the department

chair. The candidates' seminars should be announced near the end of the semester. With your help and input, we hope to hire the best possible person to replace Dr. Kesler ... our new ecologist will have some pretty big waders to fill!



Musical Chairs

In the spring, Dr. Lindquister will be taking a sabbatical leave to pursue his research on viruses. During that time, Dr. Carolyn Jaslow will be the acting chair, so please look for her beginning in January when you need that signature of the department chair on your forms.



Signals and Displays (short communications)

Tri-Beta News

Beta Beta Beta (βββ) is the biological honor society for the Rhodes Biology Department. βββ has a two-fold purpose. The 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. βββ 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, Science Fair judging at Memphis City Schools, student research presentations, and a proposed URCAS reception for the biological sciences. βββ provides a forum to recognize those students, with a biological science as their undergraduate major, who excel academically. Regular membership can only be attained through invitation, but any student meeting the criteria below who is interested in

becoming an associate member for the next school year should contact the βββ president. If you are interested in membership, please contact current βββ president, Cassie Burton (burcl@rhodes.edu).

βββ Associate Membership requirements:

- 1 completed biology course (grade of B or better)
- An interest in biology
- One time \$50 initiation fee

βββ Regular Membership requirements:

- Must be a Biology Undergraduate
- 3 completed semesters of Biology at Rhodes
- At least a 3.0 average in Biology at Rhodes and 3.0 average overall
- General good academic standing at the college
- One time \$45 initiation fee*

*Those associate members who now qualify for a regular membership will have a \$10 promotion fee.

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? If you're doing research this year or have a completed project, contact Andy Foss-Grant (fosap@rhodes.edu) about submitting your paper. We encourage you to submit papers from your summer research or research during the school year, as well as editorials and reviews.

Biology Research Award

Each spring, the Biology Department honors a student with its **Award for Outstanding Student Research in Biology**. Any 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. Miller**. 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 in mid-January. Keep a 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)

Biology Seminar Series

Remember, on November 2nd, Rhodes alum, **Dr. John Goss '02**, will present some of his research in our Biology Seminar Series. His presentation, titled "Spatial and Temporal Regulation of Exocytosis by Molecular Tethering Complexes", is based on work he did as a graduate student in Cellular Biology at Yale University. For more information about Dr. Goss, see "Alumni Luminescence" on page 7.

Dr. Goss's presentation is the second in our Biology Seminar Series this year. No other seminars are scheduled yet, but we expect another two or three to be offered near the end of the semester by candidates who are applying for our faculty position in Ecology.



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THE NEWSLETTER OF THE BIOLOGY DEPARTMENT AT RHODES



Rhodes College

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