BIOFEEDBACK

THE NEWSLETTER OF THE BIOLOGY DEPARTMENT AT RHODES

Volume 25 | 19 October 2010 | 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* is published each semester.

The Chair's Niche

The Biology faculty have always found it a challenge to ensure that all students are aware of the many opportunities they have to engage in activities outside of the classroom. Anecdotal evidence and survey results tell us that many students just are not aware of how to find and apply for research, internship, and volunteer opportunities. Therefore, I'm happy to announce a new feature of our website and invite you to explore our Student Opportunities pages.

You will find a Student Opportunities menu link in the left navigation bar at www.rhodes.edu/biology. We've organized these pages to provide easy access to information on opportunities such as research on and off campus, internships, volunteer activities, βββ Honor Society, international study, graduate school, health professions study, and more.

Other pages on the site have been updated or moved as well. The site is intended to attract prospective students and to serve you, our current students. If you ever have suggestions for improvement or new content, please let Dr. Fitz Gerald or me know.

Dr. Gary Lindquester

Primary Productivity and Secondary Growth

The following is a list of honors, awards, publications and meeting participation of our faculty and students since March 22, 2010.

Honors and Awards Congratulations to...

... **Jacquelyn Hancock '10** and **Erin Svoboda '10** who shared the Award for Excellence in Biology for the '09-'10 academic year. **Kelly Zhang '11** was given the Award for Outstanding Research in Biology, and **Xiao Wang '13** was presented the Award for Excellence in First-Year Biology.

... **Jacqueline Ward '10 BMB** who was awarded the Outstanding Achievement Award for the Biochemistry and Molecular Biology Program.

... **Drs. Terry Hill** and Darlene Loprete for winning the Clarence Day Dean's Award for Outstanding Research and/or Creative Activity. This award recognizes unusually significant professional work that has been judged to be an important contribution to the discipline of the winners and played an important role in the recipients' teaching; thus, directly benefiting Rhodes students.

... **Allison Graham '10**, who was awarded the Rhodes Early Career Award in Environmental Studies and the Environmental Studies Travel Grant by the Environmental Studies and Sciences programs.

... the Phi Beta Kappa initiates of the class of 2010: **Mohammad Atiq**, **Elizabeth Bernard**, **Rachel Bernard**, **Cassondra Burton**, **Brett Dagen**, **Andrew Foss-Grant**, **Nina Guo**, **Jacquelyn Hancock**, **Gustavo Huerta**, **Zachary Morgan**, **Tyler Snedden**, and **Jacqueline Ward**. In addition, **Alex Tong BMB '10** was invited to Phi Beta Kappa Membership-in-Course.

... the students whose research presentations received recognition at meetings (see "Meetings" on pp. 3-5 for titles of their work). **Stephanie Cassel '10** received 1st place for her presentation at the April meeting of the Tennessee Academy of Science (TAS). Another 1st place was awarded

to **Allison Graham '10** for her poster, and **Dan Eastlack '11** earned 3rd place for his presentation. At URCAS, **Maria Cartagena '11** and Brennan Lowery '11 won an award for their Environmental Studies presentation. **Allison Graham '10** also won an award for her Environmental Science presentation, and the Environmental Science poster presentation award went to **Blair O'Neal '12** and **Adam Alsamadisi '12**. The GIS awards were given to **Becky Vandewalle '12** for her oral presentation and to **Andy Foss-Grant '10** for his poster.

... **Rachel Hickey '11 BMB** and Claire DelBove '12 CHEM, who received National Science Foundation stipends to work during the summer of 2010 with Drs. Hill, Loprete, and Jackson-Hayes in the area of fungal cell biology. They were joined by Rust College student Fanta Suwaneh and by Tougaloo College students Tyra Hayes, Jordan Henley, and Ashley Poullard. All students presented the results of their projects at the end of the summer.

... to the students appointed as fellows to the Rhodes Institute for Regional Studies (RIRS). Working with Dr. Rosanna Cappellato, **Blaire O'Neal '12** completed the project "Research on Nine Potential Brownfield Sites in the Hollywood-Springdale Area, Memphis TN" and **Alex Nord '12** finished "The Hollywood District Brownfields, Memphis, Tennessee." Working with Dr. Jen Houghton, **Adam Alsamadisi '12** worked on "An Analysis of Communities at Risk of Environmental Injustices" and **Andrea Perkins '12** completed "Discordant Dialogue: Discursive Differences at Defense Depot Memphis, Tennessee."

...**Landon LaSalle '12, Ted Boozalis '12,** and Research Fellow **Anna Johnson '11,** who received $800 awards from the Rhodes Student Travel Society Fund to attend the Society for Integrative and Comparative Biology annual meeting in Salt Lake City, UT in January 2011.

...**Dr. Laura Luque de Johnson**, who successfully completed in July a two year competitive summer institute program to increase diversity among the researchers who study the functional genomics of blood disorders**.** This program, sponsored by the National Heart Lung and Blood Institute (NHLBI), gave Dr. Luque de Johnson training and guidance that have enhanced her current research activities at Rhodes. In addition, she has established two important collaborations with experienced scientists in her field of research.

... the new ODK honor society members: **Andrew Boucher '10 NEUR**, **Melissa DeFabrisio '10**, **Danielle Fincher '10 NEUR**, **Shannon Fuller '11 (Secretary)**, **Thomas Hamilton '10 BMB**, **Guy Handley '11**, **Tia Hannum '10**, **Andrea Hassink '10**, **Sandy Henin '11**, **Matthew McCulloch '11 NEUR**, **John Musgrove '10 BMB**, **Alex Tong '11 BMB (President)**, and **Jacqueline Ward '10 BMB**.

... seniors **Sarah Allen**, **Shannon Fuller**, **Guy Handley**, **Sandy Henin**, **Matt McCulloch NEUR**, **Greg Palm**, and **Alex Tong BMB**, who were initiated into Mortar Board Honor Society.

... the new officers of Rhodes' chapter of βββ: **Lindsey Bierle '12 BMB** (President), **Ted Boozalis '12** (Vice President), **Salar Rafieetary '12 NEUR** (Secretary), and **Austin DeBeaux '12** (Treasurer). For more information about this organization, see pp. 9-10.

Grants and Fellowships:

In May 2010, **Drs. Laura Luque de Johnson**, **Sarah Boyle**, and **Jon Davis** were awarded $12,830.40 for their Rhodes Fellowship "Integrative research training in biological subdisciplines." **Adiha Khan '13**, **Matt Grisham '13**, and **Anna Johnson '11** were selected to conduct research on snake-hosted parasite ecology across an urban-rural gradient. The fellowship provides the students hands-on experiences that augment courses in field ecology, molecular biology, microbiology, parasitology, and GIS (Geographic Information Science).

Dr. Sarah Boyle and her collaborators from University of Maryland and Texas Tech University received a grant of high-resolution IKONOS satellite imagery from the GeoEye Foundation for their project "Land cover assessment in eastern Paraguay." In addition, in June 2010, Dr. Sarah Boyle was selected by and received funding from ESRI to participate in the Teachers Teaching Teachers GIS ESRI workshop in Redlands, California. Dr. Boyle also received an education and technology grant from the GeoTech Center in order to provide more opportunities for Rhodes students and local high school students to learn GIS. Dr. Boyle invites students to stop by the GIS Lab and learn more about local GIS opportunities that have been made possible through this grant.

Publications:

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

Boyle, S. A. and A. T. Smith. 2010. Can landscape and species characteristics predict primate presence in forest fragments in the Brazilian Amazon? *Biological Conservation* 143: 1134-1143.

Simberloff, D., and **Collins, M.D**. 2010. Birds of the Solomon Islands: The domain of the dynamic equilibrium theory and assembly rules, with comments on the taxon cycle. Pages 237-263 in J.B. Losos and R. Ricklefs, eds. *The Theory of Island Biogeography Revisited*. Princeton University Press, Princeton, New Jersey.

Houghton, J. L. and W. E. Seyfried, Jr. 2010. An experimental and theoretical approach to determining linkages between geochemical variability and microbial biodiversity in seafloor hydrothermal chimneys. *Geobiology*, DOI: 10.1111/j.1472-4669/2010/00255.x.

Jaslow, C. R., J. L. Carney, and W. H. Kutteh. 2010. Diagnostic factors identified in 1020 women with two versus three or more recurrent pregnancy losses. *Fertility and Sterility*. 93: 1234-43.

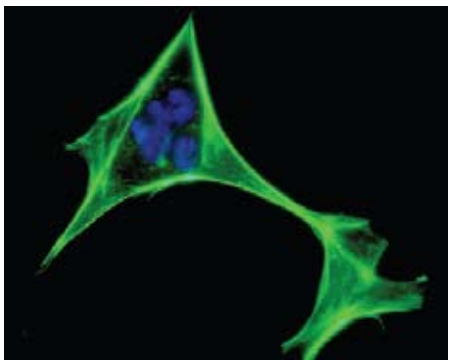
Jaslow, C. R., K. S. Patterson, S. Cholera, L. K. Jennings, R. W. Ke, and W. H. Kutteh. 2010. CD9 expression by human granulosa cells and platelets as a predictor of fertilization success during IVF. *Obstetrics and Gynecology International* DOI:10.1155/2010/192461.

Kabelik D., J. A. Morrison, J. L. Goodson (2010) Cryptic regulation of vasotocin activity but not anatomy by sex steroids and social stimuli in opportunistic desert finches. *Brain, Behavior and Evolution* 75: 71-84.

Wright D., **A. Debeaux '12**, R. Shi, A.J. Doherty, and L. Harrison 2010. Characterization of the roles of the catalytic domains of Mycobacterium tuberculosis ligase D in Ku-dependent error-prone DNA end joining. *Mutagenesis* 25(5): 473-81.

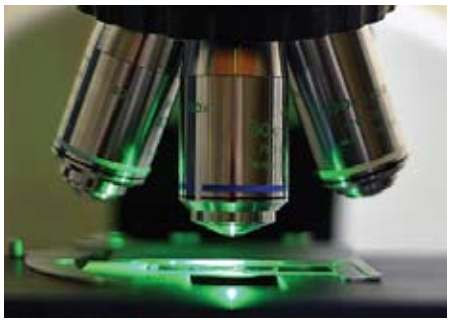
Meetings:

Several students and faculty attended the West Tennessee Regional Collegiate Meeting of the Tennessee Academy of Sciences at Christian Brothers University this past April. **Stephanie Cassel '10** presented "Stop and smell the roses: How olfactory enrichment affects the behavior of captive jaguars (*Panthera onca*) at the Memphis Zoo" which was coauthored by **Allison Graham '10**, Dr. Andrew Kouba, Morgan Powers and **Dr. Sarah Boyle**. **Dan Eastlack '11** spoke on, "A novel, NIRS-based approach to chytrid (*Batrachochytrium dendrobatidis*) detection in the toad *Anaxyrus fowleri*" coauthored by **Dr. Jon Davis**, Dr. Andrew Kouba and Dr. Carrie Vance**. Allison Graham '10** presented her poster "Development of non-invasive reproductive monitoring techniques for endangered snow leopards and Amur leopards" which was coauthored by Dr. Andy Kouba and Dr. Erin Willis. **Lauren Lieb '10** presented her poster "Behavioral observations of wild orphaned grizzly bears in a new captive environment" which was coauthored by **Kelly Patton '13**, Dr. Andrew Kouba and **Dr. Sarah Boyle.**



In March, **Dr. Mary Miller** attended the South Eastern Regional Yeast Meeting in Little Rock, Arkansas along with **Jackie Ward BMB '10** who presented "Analysis of the C-terminal domain of a putative cell wall receptor in the filamentous fungus *Aspergillus nidulans*" (co-authored by Drs. Hill, Loprete, and Hayes). Over the summer Dr. Miller attended the Genetics 2010: Model Organism to Human Biology meeting in Boston Massachusetts. Dr. Miller also traveled to Vancouver, British Columbia to attend the Genetics Society of America's meeting on Yeast Genetics and Molecular Biology. At the yeast genetics meeting, Dr. Miller chaired a session focused on bridging research and education at the undergraduate and graduate level. Travel to both of these meetings was provided by a Mellon Faculty Renewal Award. Finally, Dr. Miller serves as an elected council member for the Council on Undergraduate Research (CUR), and also attended the business meeting for this organization over the summer. CUR is a national organization which supports undergraduate research, both in the form of providing meeting forums for undergraduates to present their work, as well as support for faculty committed to such endeavors.

Drs. Terry Hill, **Darlene Loprete**, and **Loretta Jackson-Hayes** attended the 10th European Conference on Fungal Genetics in the Netherlands, in March/ April 2010. There they presented "Signaling through the *Aspergillus nidulans* orthologue of PKC mediates septum formation" (coauthored with **Brittany Chavez '11**, **Chassidy Groover '10**, **Erinn Ogburn '11**, and **Michael Pluta '11 BMB**), "Reduced expression of *SccA* increases sensitivity to wall stress" (coauthored by Erinn Ogburn and **John Musgrove, '10 BMB**), and "Mutations in two Golgi apparatus COG proteins affect growth and glycosylation in *Aspergillus nidulans*" (coauthored by Dr. Sara Gremillion).



Dr. Sarah Boyle presented "Conservation implications for primates living in a fragmented landscape" at the April NatureServe Conservation Conference in Austin, TX and "Use of satellite images in studying land cover changes in the Amazon" at the May symposium Colaboración International para el Desarrollo Bioinformático de Ciberestructuras para Estudios Ecohidrológicos held in Panama City, Panama. While in Panama she also presented, "Satellite imagery" (in Spanish) at Universidad Tecnológica de Panamá, and "Biodiversity: What are the human

impacts?" (in Spanish) for the Centro de Investigaciones Hidráulicas e Hidrotécnicas, Universidad Tecnológica de Panamá. In July 2010, Dr. Boyle attended the First Paraguayan Conference on the Environment and Sustainable Development in Asunción, Paraguay. There she gave a lecture "Studying forest fragmentation using GIS and remote sensing" at the Universidad Nacional de Asunción.

This summer, **Dan Eastlack ('11)** traveled to China with the Memphis Zoo Conservation and Research department to participate in a National Science Foundation research planning workshop entitled,"A U.S.-China Planning Visit: Landscape-level biodiversity conservation, forest restoration and socioeconomics at multiple scales."

Dr. Jon Davis was selected as a National Science Foundation FIRST IV Scholar and traveled to Oregon to participate in a science teaching workshop.

At the 2010 Goldschmidt Conference in Knoxville, TN this June**, Dr. Jennifer Houghton** presented "Evaluating fluid dynamic and geochemical perturbations in seafloor hydrothermal systems by subsurface biofilms using a novel flow-through experimental apparatus."

In July 2010, **Dr. David Kabelik** attended the 14th Annual Meeting for the Society for Behavioral Neuroendocrinology in Toronto, Canada, where his research, "Sociality and anxiety-like behavior in male zebra finches are decreased by vasotocin antisense infusions into the bed nucleus of the stria terminalis, and V1a antagonist infusion into the septum" with collaborators A. M. Kelly, M. A. Kingsbury, K. Hoffbuhr, S. E. Schrock, B. Waxman, R. R. Thompson, and J. L. Goodson was presented. Also in July, additional work by Dr. Kabelik was presented at the 47th Annual Meeting of the Animal Behavior Society in Williamsburg, VA. These projects included, "Do male morphs in ornate tree lizards differ in hippocampal volume?", coauthored by R. L. Hancock and D. K. Hews, and "Effect of stress on reproduction and ornament development in female striped plateau lizards," with S. L. Weiss and E. E. Mulligan.

"Chance favors the prepared mind."
Louis Pasteur

This past summer, **Dr. David Kesler's** work was presented at the 2nd International Sclerochoronology Conference in Mainz, Germany. The presentation, entitled "Periodicity of growth lines in freshwatrer mussels: a stable isotope study", was coauthored by D. P. Gillikin and D. H. Goodwin.

On September 25, **Dr. Rosanna Cappellato** presented "Mississippi River at Memphis" at the Gather at the River Conference held at the Bridges Center in Memphis. On the same day, she also co-presented with **Blaire O'Neil 12'** and Marion Jones "Wolf River Neighborhood Brownfields to Greenfields" at the Wolf River Conservancy Day.

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

Carsen Bahn '11 Ecosystem analysis of Rhodes College campus

Lindsey Bierle '12 G1 Cyclin Cln3 is dependent upon NPL3, a gene required for nuclear export of mRNA in *Saccharomyces cerevisiae*

Ted Boozalis '12 and **Landon LaSalle '12** Costs of loss: a comparison of biochemistry and morphology of original and regenerated lizard tails

Yuriy Brodskiy '11 Proteomic comparison of spleen leukocyte nuclei from non-obese diabetic and control strains of mice

Emily Burford '10, Veronica Alix '12, Jason Ballard '11, Aaron Kala '12 NEUR, and **David Siu '12** Localization of neural activation during aggressive behavior in the brown anole (*Anolis sagrei*)

Brennan Lowry '11 **Maria Cartagena '11** Food security, poverty, and bike lane correlations in Memphis

Maria Cartagena '11 Father knows best: identification of paternal genommic loci that regulate flowering time in Arabidopsis thaliana

Stephanie Cassel '10 Spatial patterns and behavioral activity budgets of grey wolves (*Canis lupus*) at the Memphis Zoo

Stephanie Cassel '10 and **Allison Graham '10** I speak for the bamboo: an evaluation of red panda (*Ailurus fulgens*) habitat and human impact

Stephanie Cassel '10 and **Allison Graham '10** Stop and smell the roses: how olfactory enrichment affects the behavior of captive jaguars (*Panthera onca*) at the Memphis Zoo

Anthony Chiang '11 Mutating PAX3-FOX01 to understand its regulation and its role in alveolar rhabdomyosarcoma tumorigenesis

Blake Copeland '11 Development of new treatment for skeletal metastases

Cybil Covic '10 and **Julia Goss '10** Assessing potential conservation threats to the leatherback sea turtle (*Dermochelys coriacea*) in the designated critical habitat of St. Croix

Khang Dang '11 Analysis of seipen expression in the mouse and construction of a targeting vector for the generation of a mouse model of Spastic Paraplegia 17

Dan Eastlack '11 A novel, NIRS based approach to Chytrid (*Batrachochytrium dendrobatidis*) detection in the toad *Anaxyrus fowleri*

Andy Foss-Grant '10 Using GIS to model the consequences of global climate change

Shannon Fuller '11 Globe Med at Rhodes College

Julia Goss '10 Behavioral modifications following tail loss in lizards

Allison Graham '10 Development of non-invasive reproductive monitoring techniques for endangered amur leopards

Chassidy Groover '10, Brittany Chavez '11, Michael Pluta ' 11 BMB, Erinn Ogburn '11, and **Miranda White '12**

BMB The role of septation-related proteins and protein Kinase C in cell wall structure and septation of *Aspergillus nidulans*

Anna Johnson '11 and **Cybil Covic '10** True blood: hematological comparison between wild and captive reptiles

Laura Johnson '10 BMB GDP-mannose transporter oligomer formation in the filamentous fungus *Aspergillus nidulans*

Kimber Jones '13, Chelsea Peters '12, and **Allison Graham '10** Development of reproductive monitoring techniques in endangered snow leopards

Lauren Lieb '10 and **Kelly Patton '13** Behavioral observations of wild orphaned grizzly bears in a new captive environment

Maggie Meehan '11 BMB Catalyticly inactive Caspase-8 role in tumor cell migration and metastasis

John Musgrove '10 and **Erinn Ogburn '11** Regulated expression of the SccA gene by the inducible AlcA promoter affects both development and cell wall integrity in *Aspergillus nidulans*

"If I have seen further it is by standing on ye shoulders of giants."
Issac Newton 1676

Blaire O'Neal '12 and **Adam Asamadisi '12** Human-elephant conflict in Namibia

Kelsie Persaud '10 Localization in *Aspergillus nidulans*

Van Phan '12 BMB Defining the role of human zinc-finger antiviral protein in influenza virus infection

Daniel Schrader '10 and **Joshua Anderson '11** Construction and thermal rearrangement of 4-Hydroxy-2, 4-Diaryl-2-Cyclobuten-1-Ones

Alex Tong '11 BMB Protein phosphatase 2Cbl regulates human Pregnane X receptor-mediated CYP3A4 gene expression in HepG2 liver carcinoma cells

Hunter Utkov '10 and **Allison Price '11** Fragment based design of novel cholesterol moderating drugs using Ab Initio and DFT methods

Jackie Ward '10 BMB Analysis of the C-terminal domain of a putative cell wall stress receptor in *Aspergillus nidulans*

Jennifer Whatley '10 Accuracy of chlordane extraction in organic-rich versus organic depleted soils

Curricular Evolution

New Faculty and Course Updates for '10-'11

What's Up for Spring Term?

New Upper-level Biology Class Offered

It's a bird, it's a plane, it's a ... Black Vulture! Learn to identify Black Vultures and other local birds! This spring, **Dr. Michael Collins**, our new Assistant Professor, will offer a five-credit course in ornithology, the study of birds. This field-based course will examine how the study of birds has informed our understanding of the natural world. Topics include the ecology, conservation, behavior, biogeography, and evolution of birds. We will even address the ancient question, "Which came first, the chicken or the egg?" (Several scientific disciplines have converged on an answer, but simply telling you now would spoil the thrill of intellectual inquiry!) Anticipated field trips to the Ghost River, Meeman-Shelby Forest State Park, Reelfoot Lake, Eagle Lake, and Wapanocca National Wildlife Refuge will provide opportunities to learn to identify local birds in their natural habitats. By April, students will fully appreciate (and maybe even celebrate) spring migration, when neotropical migrants return to North America. **Ornithology (BIOL 345, 345L)** will meet on Tuesdays and Thursdays 9:30-10:45 and Mondays 1-4. Biology 130 and 140 are recommended prerequisites; however students who feel they may have appropriate background without having completed those courses may seek permission from Dr. Collins to enroll.

DR. MICHAEL COLLINS.

BIOL 380 - Topics in Biomedical Science

This spring we will continue our successful *Topics in Biomedical Science* course in collaboration with researchers at St. Jude Children's Research Hospital. BIOL 380 will be taught by four post-doctoral researchers, each of whom will explore a subject related to his or her own research. **Dr. Hill** will supervise.

The topics last year were: 1) Mitochondrial Diseases, 2) Lessons from Pancreas Development Applied to Stem Cell Therapies, 3) Cancer Genetics, and 4) Pandemic H1N1. The topics this year are yet to be determined – this will depend upon the research areas of the four scientists who participate. Each topic will begin with lectures on basic and advanced material related to the research area, followed by reading and discussion of review and primary literature articles. Students will be evaluated by their performance on one brief exam and one longer exam in each of the four sections. Significant emphasis will be placed on understanding how modern research techniques are used in the research laboratory.

BIOL 380 will satisfy one Biology upper-level course require-

ment (without lab) or one BMB elective course requirement. Please note the non-standard class meeting schedule: The class will meet on Tuesday and Thursday from 7:30 – 8:45 AM; to allow the researchers to arrive at their laboratories by 9:00 – an active research program at the level of St. Jude requires no less!

Neuroscience News
Please note that the **BIO 370 Neuroscience** course will still have lectures at 9:00 am on MWF, but the labs will be held on Tuesday afternoons from 12:30 - 5:00 pm.

No Development this Spring
Normally, Dr. Fitz Gerald teaches Mechanisms of Development during the spring semester. This year, however, Dr. Fitz Gerald taught MoD in the fall because he received a research grant that excused him from his teaching responsibilities in the spring. We expect that MoD will return to its usual spring schedule in 2011-2012.

Spring Biochemistry Continues
Dr. Loprete will again offer a spring section of **Biochemistry** (**CHEM 414**) next semester. 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.

Curricular Adaptations: Multiples of Molecular Biology
For the past few years, demand for Molecular Biology has been extremely high on the Registration "Tree." In an effort to accommodate this need, Dr. Lindquester will increase the class size and add a second lab section for Molecular. This is what Dr, Luque de Johnson did for the past two years to meet the demand for Microbiology that had built up in the years preceding her arrival at Rhodes. Now that demand for Microbiology appears to be back to normal levels, only one section of Microbiology will be taught this spring.

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 8-9:15 3 Sections
141	Biology II Lab	Tues 12:30-3:30, Wed 1-4:00 or Thurs 12:30-3:30 5 Sections
209	Embryology (C. Jaslow)	TuTh 8:00-9:15
212	Environmental Issues in Southern Africa (Cappellato)	TBA
301	Microbiology (Luque de Johnson)	MWF 11:00-11:50, Wed lab 1:00-4:00
304	Genetics (Miller)	TuTh 9:30-10:45, Tu lab 12:30-3:30
325	Molecular Biology (Lindquester)	MWF 10:00-10:50, W lab 1-4:00 or Th lab 12:30-3:30
365	Ornithology (Collins)	TuTh 9:30-10:45, Mon lab 12:30-3:30
370	Neuroscience (Kabelik)	MWF 9:00-9:50, Tu lab 12:30-5:00
380	Topics in Biomedical Science (Hill)	MW 7:30-8:45
CHEM 414	Biochemistry (Loprete)	MWF 11:00-11:50
Senior Seminar Section		
486	Environmental Physiology: Life in the Extremes (Davis)	TuTh 11:00-12:15
Courses for non-majors (fulfills the F7 requirement)		
105	Fantastic Fungi: A Survey of Fungi (Hill)	TuTh 9:30-10:45, Th lab 12:30-3:30

Senior Seminar News
The spring Senior Seminar offering is **BIOL 486-1**, **"Environmental Physiology: Life in the Extremes"**, taught on Tu/Th 11:00-12:15, by Dr. Jon Davis. 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.

Environmental Science Options

This spring, students pursuing a minor in Environmental Science may choose among the course options listed below. For more information about Environmental Science, please feel free to contact Dr. Rosanna Cappellato, Associate Director of the Environmental Studies and Sciences program. A full listing of courses required for the Environmental Science minor may be found at http://www.rhodes.edu/academics/18482.asp.

ENVS 150 – Environment and Society is a required course for both the Environmental Science and Environmental Studies minors that will be co-taught by faculty from the Science and non-Science disciplines (Dr. Rosanna Cappellato and Dr. Jennifer Sciubba). ENVS 150 fulfills the F2i curriculum requirement. Topics include resource consumption, biological diversity, agriculture, development, globalization, and local issues. Using an interdisciplinary approach, students learn the science behind environmental change, as well as the economic, political and social factors that influence and shape our responses to it.

GEOL 214 - **Environmental Geology** focuses on water-related issues such as the hydrologic cycle, and water quality and sustainability. This course, which carries both F7 and F11 credit, will have a strong component of working within the Memphis community on water pollution issues as part of the F11 designation.

INTD 225 - Geographic Information Systems will be offered by Dr. Boyle as a **four-credit course** that fulfills the **F6** requirement. Students will learn how to use GIS to analyze spatial data that span topics such as epidemiology, public health, pollution, natural resource conservation, urban sprawl, human behavior, and social issues. Students are welcome to stop by Dr. Boyle's office or the GIS Lab in 132 E to learn more about the GIS course, and to see examples of how students are currently using GIS with their research.

From the Biology Department, **Ornithology (BIOL 345)** with Dr. Michael Collins (see above), **Environmental Issues in Southern Africa (BIOL 212)** with Dr. Cappellato (see below), and **Microbiology (BIOL 301)** with Dr. Laura Luque de Johnson round out the Environmental Science offerings for Spring 2011.

Plan Now For an Amazing Summer Experience – You Have Two Great Options!

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 2011. If enough students wish to go (5 students), then the class and the trip will be offered this spring and summer. 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 two-credit spring course at Rhodes (Biol 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. Students who are interested in going should have attended an informational session held by Dr. Cappellato on October 13th 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 did not attend on the 13th.

Rocky Mountain Ecology (BIOL 161)

Spend two weeks this summer studying the animals, plants, community ecology, and geology of the Rocky Mountains by using Grand Teton and Yellowstone National Parks as your classroom. Students

JAIMIE HAYES '13

LIONS ETOSHA BY ADAM ALSAMADISI '12

will be based out of the Teton Science Schools in Wyoming, where they will learn field data collection and research techniques. This two-credit, F11 course will be held in June 2011. There are no prerequisites. The financial aid deadline is **February 1**, and the deadline for applications to the program is **February 15**. Forms are located at: http://www.rhodes.edu/2235.asp.

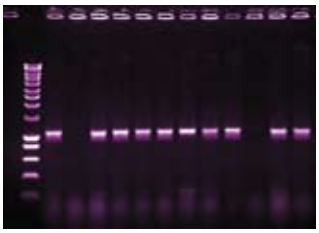
Student feedback from last year's course was very positive:

"Rocky Mountain Ecology will definitely be the most memorable class that I have taken. It's different from other classes because you're right in the middle of everything you're learning about: moose, sagebrush, geology, alpine forests. You don't see the ecosystem as something detached and far away, you're in it." –Haley Johnson ('12)

"The best part of the course was the manner in which we studied. It is not your typical lecture class indoors; the classroom followed you outside and everyone was fully engaged." – Jaimie Hayes ('13)

"This experience was the best hands-on experience I have had in my college career so far." – Melissa Porter ('11)

Please contact Dr. Boyle if you are interested in taking the course, or if you would like more information regarding the October visit. This class requires a minimum of 8 students to be offered.



Departmental Migrations

Welcome to Our Newest Department Member...

Dr. Michael Collins joins the Department of Biology as an Assistant Professor. He grew up in Chandler, Arizona and earned his B.S. in Ecology and Evolutionary Biology from The University of Arizona. After working with the Arizona Game & Fish Department on Northern Goshawks and the Arizona Breeding Bird Atlas, he earned his M.S. in Biological Science at Florida State University his Ph.D. in Ecology and Evolutionary Biology from The University of Tennessee in Knoxville, where he studied avian community ecology.

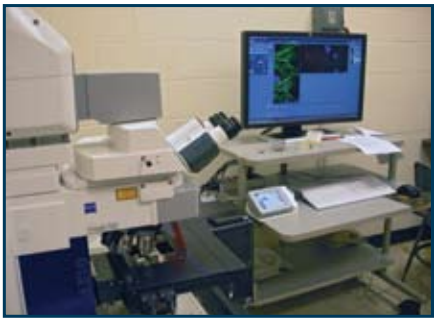
After graduate school, Dr. Collins was a Visiting Assistant Professor of Biology for a year at The College of Wooster (Ohio) before he became an Assistant Professor of Biology at Hampden-Sydney College (Virginia). Dr. Collins has taught an array of courses, including Ecology, Wildlife Biology, Ornithology, Conservation Biology, and Biostatistics. At Rhodes, he will teach Ecology, Ornithology, and second semester Core, and will contribute to the Environmental Studies and Environmental Sciences program. As the new ecologist at Rhodes, Dr. Collins looks forward to continuing the tradition of excellence in ecology established by his now-retired predecessor, Dr. David Kesler.

Dr. Collins' research interests are broad but center on examining the determinants and consequences of species diversity at local, regional, and global scales. His research employs observational, field, computational, statistical, and GIS approaches to understand issues in community ecology, conservation biology, avian ecology, and invasive species. Dr. Collins is excited to begin field studies in the Memphis area and encourages students to swing by his office to meet him, especially if they have an interest in avian conservation biology or field ecology.

In his spare time, Dr. Collins enjoys hiking, kayaking, and playing sports. He and his wife, Andy, live in Midtown and have a young son, Daniel. Dr. Collins' family is eager to explore Memphis and has already joined the zoo and paddled the Ghost River section of the Wolf River.

. . .And Our Newest Equipment

Join us in welcoming a new and exciting piece of equipment to the Biology Department! Due to the incredible generosity of Dr. Charles and Patricia Robertson, the Biology Department will house a new confocal microscope fluorescence imaging system. The Zeiss LSM 700 system will allow professors



DR. JONATHAN FITZ GERALD

and students from Biology, Chemistry, Physics, Biochemistry Molecular Biology, Neuroscience and Psychology to engage in cutting-edge cytological analysis of living cells! For example, we will be able to track the real-time movement of a protein, within a living cell over time and even reconstruct a three-dimensional image of the cell using this system! We anxiously await the installation of the microscope in mid-October.

Signals and Displays (short communications)

The Search Is On!

Once more, the Biology Department is seeking to hire a new faculty member, but in this search we are looking for someone who is a specialist in both evolutionary biology and plant biology. Historically, this position was held by Dr. John Olsen, who became an Associate Dean of Academic Affairs in 2000. Since Dean Olsen left FJ for a windowed office in Palmer, we have been grateful that he was able to return each year to teach courses in either Evolutionary Biology or Plant Biology. However, the needs of the department have grown, and we are fortunate that we have the opportunity now to hire a full-time department member to cover these important areas.

Currently the department is receiving applications for this position. In late November or early December you should see announcements for seminars presented by candidates who are coming here for interviews. We strongly encourage you to attend these seminars, and to meet with the candidates during the refreshment period before the seminars, so you can give us your feedback on these future members of the Biology Department. We will also need student volunteers to have lunch with the candidates so they can meet some of you, and so you can get to know them. If you would like to be considered for this opportunity, please send your name to Dr. Lindquester.

Whether you meet a job candidate personally, or simply hear him or her speak, please tell your impressions to Dr. Lindquester or to any other faculty member in the department. Remember, this person may become your teacher, or research mentor, or adviser, so let us know what you think!

Success was Infectious in El Salvador this Summer

In June, **Rachel Chassan '11, Alice Hilgart '11, Caroline Lee, '11, Michelle Shroyer '11, John Alexander '12,** and Bonner Scholar **Laura Atkinson, '12** traveled with **Dr. Laura Luque de Johnson** and Dr. Kyle Johnson, Clinical Research Associate at St. Jude Children's Research Hospital, to Hospital Nacional de los Niños Benjamin Bloom in San Salvador, El Salvador. This trip was part of a two-credit summer course intended to give students firsthand experience in international healthcare. Prior to the trip, the students received training at St. Jude regarding the correct methods of handling and processing clothing and equipment used during surgery, blood and blood products, and general hospital waste. While in El Salvador, the class looked for discrepancies between actual practice and the guidelines at Hospital Bloom, then they presented their findings to the hospital administration and the El Salvador Ministry of Health. This collaboration lead to a full project focusing on waste management and infection prevention and control in Hospital Bloom. The summer course in El Salvador will not be offered in 2011, but we hope to provide this opportunity the following year.

"When you make the finding yourself - even if you're the last person on Earth to see the light - you'll never forget it."
Carl Sagan

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,* 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, Lindsey Bierle (biela@rhodes.edu).

βββ **Associate Membership requirements:**
• 1 completed biology course (grade of B or better) • An interest in biology • One-time $35 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 either Greg Palm (palgm@rhodes.edu) or Caroline Lee (leece@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. Luque de Johnson**. The deadline for applications for this Research Award will be announced in the spring issue of *BIOFEEDBACK*.

"An experiment is a device to make nature speak intelligibly. After that one has only to listen."
George Wald. 1968

St. Jude Research Program Going Strong

Applications for next year's Summer Plus Research Program will be due January 19th. 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).

BIOFEEDBACK
THE NEWSLETTER OF THE BIOLOGY DEPARTMENT AT RHODES

Rhodes College
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