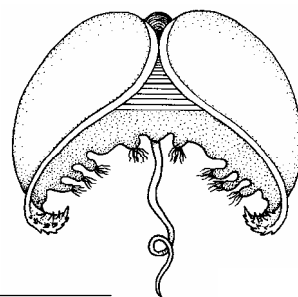


BIOFEEDBACK



The Newsletter of the Biology Department at Rhodes

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Number 2

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

Rhodes is an institution that prides itself on the unusually high degree of productive interactions between faculty and students. You can see proof of this in our department in a variety of ways including classroom interactions, self-designed research projects, strong student internship programs, and individual social interactions. This close association of students and faculty has always been mutually beneficial and is the reason that many students choose to attend Rhodes and why many faculty choose to work at Rhodes.

However, even though there are a variety of ways for students and faculty to interact individually, I am concerned that there is no official avenue for students to relay their concerns to the department faculty in a way that can help guide the formulation of departmental policy and point out student concerns/needs of which the faculty may be unaware. I think the establishment of a clearer means that facilitates this type of communication between majors and the faculty would be very productive to both groups. Further, a more official organization of a student/faculty communication channel would allow for consensus building among students and insure a certain level of anonymity. I'd like to ask for your ideas on how to create such a structure in our department. Feel free to write, phone, email, or just talk with me in the hallways about suggestions for accomplishing this goal.

---- Dr. Chuck Stinemetz



Primary Productivity and Secondary Growth

The following is a list of honors, awards, publications and meeting participation of our faculty and students since October 22, 2004.

Honors and Awards:

CONGRATULATIONS TO ...

.....**Caroline Sartain '07** and **Sarah Mercer '08**, who received \$4000 fellowships to do summer research on fungal genetics with Drs. **Hill** and Loprete. These fellowships are funded by a grant to Drs. Hill and Loprete from the National Science Foundation.

.....**Rami Almefty '06**, **Justin Marlar '06**, **Rachel Pigg '06**, **Nicole Walker '06**, and **Sonia Singh '06**, who were recently inducted into the Mortar Board Honor Society. **Sonia Singh** was also just inducted into the Phi Circle of ODK, as were **Leslie Austin '06**, **Christine Bass '06**, **Moss Driscoll '05**, **Danny Heine '05**, **Liz Nabers '06**, and **Lydia Vincent '06**.

.....**Dr. Cate Fenster**, who accepted a tenure-track job offer in the Department of Biology at The College of Wooster in Ohio. We all give Dr. Fenster our best wishes for much success and happiness in her new position.

.....**Dr. Alan Jaslow**, recently named a Research Associate at the Memphis Zoo Department of Conservation.

.....**Dr. Chuck Stinemetz**, who was elected a Biology Councilor to the Council on Undergraduate Research. He will serve a 3 year term beginning in the summer of 2005.

..... **Mark Stratton '06**, whose essay for the fall 2004 Ecology class, "Wolf River Excursions," was published in the Wolf River Conservancy Fall 2004 Newsletter. Way to go Mark!! While all of Ecology Students wrote wonderful pieces, the newsletter was chocked full of other articles and they were very limited on space

PLEASE BE SURE TO LET US KNOW ABOUT YOUR AWARDS, HONORS AND ACTIVITIES.

Grants and Fellowships:

Dr. Carolyn Jaslow received a CAP Mellon Sabbatical Grant. Funding from this grant will allow her to take a full year's sabbatical leave in '05-'06, so she can pursue new research in reproductive biology.

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

Herrin, B.R., **A.L. Groeger '04**, and L.B. Justement. 2005. The adaptor protein HSH2 attenuates apoptosis in response to ligation of the B cell antigen receptor complex on the B lymphoma cell line, WEHI-231. *J Biol Chem* 280(5):3507-15.

Momany, M, R. Lindsey, **T.W. Hill**, E. A. Richardson, C. A. Momany, M. Pedreira, G. M. Guest, J. F. Fisher, R. B. Hessler, and K. A. Roberts. 2004. The *Aspergillus fumigatus* cell wall is organized in domains that are remodeled during polarity establishment. *Microbiology* 150: 3261–3268.

Lindquister, G.J., R.L. Burks, and C.R. Jaslow. 2005. Developing information fluency in introductory biology students in the context of an investigative laboratory. *Cell Biol Educ.* 4(1):58-96.

Savage, J.M., B.D.B. Hollingsworth, K.R. Lips, and **A.P. Jaslow.** 2004. A new species of rainfrog (genus *Eleutherodactylus*) from the Serranía de Tabasará, west-central Panama and reanalysis of the *Fitzingeri* species group. *Herpetologica* 60(4): 519-529.

Meetings:

In November, **Dr. Stinemetz** presented a poster on a "Collaborative Model for Teaching Environmental Public Policy" at the North American Environmental Educators annual meeting in Biloxi, Mississippi.

Last January before Rhodes started classes, **Drs. David Kesler and Rosanna Cappellato** attended a five day workshop, "Introducing GIS Across the Curriculum" at Furman University where they beefed up their GIS skills. These skills are now being used in teaching the Interdisciplinary Course, GIS 222.

Student presentations at Memphis Zoo Lunch Conservation Talks, 29 November 2004 included:

Jonathan Berger '05. Bamboo Energetics. .

Joe Vaughan '05. Development of a Giant Panda fecal pH protocol.

Moss Driscoll '05. Internal Digesta Mixing in the Giant Panda.

Curricular Evolution: Course Changes and Announcements

Comparative Vertebrate Morphology Bio-350

Comparative will again be offered with two 9:00-9:50 lecture meetings most weeks, and two (but unequal) formal lab meetings a week. One is Tue (R) lab which meets from 12:30-3:30pm. The second meeting each week is for a minimum of 50 minutes, either from 1:00-1:50 pm or from 2:00-2:50 pm each Friday. Two additional hours of lab are required but these may be done at other times during the week. The variable Friday meeting time will allow students to take a 1:00 or 2:00 MWF class along with Comparative. Before the tree runs, the registrar will remove the Friday lab component from the program to allow Banner to add the 1:00 or 2:00 MWF class. Following registration, the Friday lab will be added back to Comparative students' schedules.

See Dr. A. Jaslow if you have any questions.

Dr. Carolyn Jaslow will be taking a sabbatical leave next year, so Histology and Embryology will probably not be offered during in '05-'06. The department is currently undergoing a search for a faculty replacement who will offer an organismal type upper level course and a senior seminar section in the fall.

New Major Biochemistry & Molecular Biology

Coming this fall, '05-'06, the Biology and Chemistry departments will combine their resources to offer a new interdisciplinary major in the natural sciences. **Biochemistry and Molecular Biology** ("BMB"), an independent major instead of a track in either department, will focus upon life at the level of cells and molecules, with particular emphasis on the role of genes and gene products in controlling life processes.

Biochemistry, molecular biology, and cellular biology are closely overlapping fields, which combine the special perspectives of biologists, chemists and computational scientists. Research results in the area encompassed by BMB are having an increasing impact on fields like agriculture, medicine, and industry. In addition, laboratory methodologies coming from BMB are finding applications in fields as diverse as organic chemistry (e.g., drug design), ecology (e.g., population structure analysis at the DNA level), and law enforcement (e.g., genetic fingerprinting).

Initially, the requirements for a major in BMB will draw from courses already in the Rhodes Catalog (see the following list), with the addition of a new team-taught senior seminar. However, plans are also underway to add further offerings to the program

within the next few years, including such possible new courses as Pharmacology and Bioinformatics.

Major Requirements

Required courses

Chemistry I and lab (Chem 111, 111L)
 Chemistry II and lab (Chem 112, 112L)
 Biology I and lab (Bio 130, 131)
 Organic I and lab (Chem 211, 211L)
 Organic II and lab (Chem 212, 212L)
 Cell Biology (Bio 307)
 Biochemistry (Chem 414)
 Methods in Cell and Biochem (Bio/Chem 310)
 Molecular Biology with lab (Bio 325)
 Senior Seminar (BMB 485 or 486)

Electives (2 from the following list)

Genetics (Bio 304)
 Physical Chemistry I (Chem 311)
 Research in BMB (BMB 451/452)
 Mechanisms of Development (Bio 204)
 Microbiology (Bio 301)
 Topics in Biomedical Science (Bio 380)
 Computer Science I (CS 141)

Other electives are being developed

Students considering a BMB major should show a copy of the above Major Requirements to their academic advisors. They should also talk to one of the members of the interdisciplinary BMB Committee – Drs. Hill, Ilinkin, Jackson-Hayes, Lindquenter, and Loprete. **Rising seniors who wish to change their majors to BMB should speak ASAP to the BMB chair, Dr. Lindquenter, about enrolling in the BMB senior seminar next year.**

SENIOR SEMINAR LOTTERY Wednesday March 30th

Next year, the Biology Department will again offer multiple sections of Senior Seminar (topics are described below), including the interdisciplinary section taught in collaboration with faculty from St. Jude Children's Research Hospital. **Rising seniors must reserve a slot in a senior seminar section.** If you want to enroll in the St. Jude Interdisciplinary seminar, you must speak as soon as possible to Dr. Robert Strandburg, director of Rhodes CARES in 201 Clough (x3169 or e-mail strandburg@rhodes.edu). These op-

portunities are "first-come, first-served," and only 8 students total will be enrolled from Psychology, Chemistry and Physics as well as from Biology. **Students who wish to enroll in one of the other three seminars must do so via lottery to be held in the Biology Library at 11:00 AM on Wednesday, March 30.** If you cannot attend the lottery, you must send a representative prepared with an ordered list of your choices. Once you have signed up, either with an acknowledgement from Dr. Strandburg, or through the lottery, you should list your reserved senior seminar section last on the preregistration tree under the category of "Other Courses." Students will not be allowed to enroll in a seminar section other than the one which they reserved. If you have questions about the lottery, speak to Dr. A. Jaslow.

Senior Seminar Choices for '04 -'05

Bio. 485(1): **Dr. Cappellato's** fall senior seminar is entitled "**The Mississippi River**," and it will meet at 9:30-10:45 on Tuesdays and Thursdays. This course will focus on the history and ecology of the mighty river, with students reading and presenting

Optimal Foraging

The following courses will be offered next semester
 For information and syllabi, and a tentative list of courses to be offered next spring, check out the Biology Dept. home page:
<http://kesler.biology.rhodes.edu/biol.html>

NUMBER	COURSE TITLE	HOURS OFFERED
130	Biology I	TuTh 8 – 9:15 or 11 – 12:15
131	Biology I Lab	TuTh 12:30-3:30 Wed 1:00 – 4:00
200	Evolution	MWF 8:00-8:50
207	Animal Behavior	MWF 11:00-11:50 Wed lab (1:00 – 4:00)
304	Genetics	MWF 10:00-10:50 Fri lab (1:00 – 4:00)
307	Cell Biology	TuTh 9:30 – 10:45
310	Methods in Biochem & Cell	Wed 1:00 – 5:00
315	Ecology	MWF 9:00 – 9:50 Th lab (12:30 – 3:30)
340	Animal Physiology	TuThu 11:00 – 12:15 Mon lab (1:00 – 5:00)
350	Comp Vert Morph.	MWF 9:00 – 9:50 & labs Tue (12:30 – 3:30), F (1 – 4)
FOR NON-MAJORS		
105-1	Environmental Science	10:00-10:50 MWF



background information and primary literature on the river. All students will be responsible for submitting summaries and discussion questions from the assigned readings and for evaluating one another's work.

Bio. 485(2): The second fall senior seminar is titled, "**Biological Principles.**" It will meet Tu/Th 3:30 – 4:45, and will be taught by the sabbatical replacement for Dr. C. Jaslow. Although the specific topic of this seminar is undetermined, it will likely have an organismal theme covering some aspect of ecology/behavior/evolutionary biology.

Interdisciplinary Senior Seminar 485: This year's Rhodes/St. Jude Interdisciplinary Senior Seminar will be **Emerging Infectious Diseases**, a close examination of the research of nine St. Jude scientists from the Department of Infectious Diseases. Their work covers the pathogenesis of and immune response to viral and bacterial infection with particular emphasis on those infections which prove to be most devastating in children, especially in those with compromised immune function. This interdisciplinary seminar is open to nine Rhodes students majoring in Biology, Chemistry, Physics, Psychology, or the Biology-Psychology Bridge major. The course will be filled on a first come, first served basis, so contact Dr. Robert Strandburg (x3169) ASAP if you are interested in participating in this senior seminar. TuTh 4:30-5:45.

Bio. 486 (1) (spring semester): **Dr. Miller's** senior seminar is "**Cancer Biology.**" Discussions 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, signal transduction, DNA/RNA tumor viruses, the Rb tumor suppressor family, and mouse/tissue culture models for human cancer. Students will re-

search 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. Tu/Th 3:30-4:45.



Signals and Displays (short communications)

TN ACADEMY OF SCIENCE MEETINGS

The Western Collegiate Tennessee Academy of Science Meeting will be held at CBU on Sat. March 19. This is a chance for you to learn about the research conducted by undergraduates in our area. You do not need to present a poster or paper to attend.

Come support Rhodes at this event. If you have any questions, contact Dr. Kesler - he'll even give you a ride to the meeting! The call for papers and abstract submission guidelines are now available at <http://www.cbu.edu/sciences/biology/TAS-CBU2005.htm>.

WORK IN THE BIOLOGY DEPARTMENT!

The Biology Department is looking for one student to work this summer in the department. The summer position is full time, 37.5 hours per week with weekends and holidays off. The position will start May 31st and will go until August 12th, 2005. The department is also looking for several students to work as lab TA's for the core biology classes next fall and spring. These TA positions will consist of approximately 8 hours a week of work. We prefer someone who has an interest in Biology and has taken Bio I and II for both jobs. Pay and further details concerning the jobs will be discussed on an individual basis. Please feel free to contact Christian Hardin at 843-3561 (email: Hardin@Rhodes.edu) for additional information or an application. The deadline for the summer and fall/spring positions is April 20, 2005.

New Information Resource on Graduate School in Biology

If you haven't been in the hall outside the Core labs this semester (or if you're in the habit of walking down that hall too fast or too wrapped up in conversation to notice what has changed), then please take a couple of minutes to visit the new information poster about grad school in biology.

Whether you're planning a doctoral-level research career, or if you think instead that you'd just like a job in an interesting science-related field (hospital administration? forest ranger? environmental impact assessor?), or even if you're not sure at all just what you want to do after you graduate, there's some very useful information there for you --- if you'll just slow down and look.

So check out the Grad School Poster – just to the left of the Xerox machine.

\$\$ BIOLOGY RESEARCH AWARD \$\$

This spring, the Biology Department will again be presenting the "**Award for Outstanding Student Research in Biology**". Any student who has completed research at Rhodes or elsewhere is eligible for this award and cash prize. To be considered, a student must submit a three to five page research paper, plus a recommendation from the research supervisor, to Dr. C. Jaslow by Friday April 1. Copies of the recommendation form may be obtained from Dr. Jaslow. Announcement of the award winner will be made at spring awards ceremony on Friday, April 29th.

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. We will be hosting a Science expo for a local elementary school on April 1st, and are currently organizing a friendly game of assassins as a fundraiser. We are also participating in the Overton Park project with other Rhodes faculty members and looking to host a babysitting night for the biology faculty members' children in mid-March. Our next meeting is scheduled for the 15th of March at 9pm in FJB. We will be holding an initiation ceremony on April 5th at 9pm as well. βββ provides a forum to recognize those students, with biology as their undergraduate major, who excel academically. Regular membership can only be attained through invitation, but any student meeting the criterion below that is interested in becoming an associate member should contact Julie Bishop (bisje) or email Carolyn Westfall (wescj).

Membership requirements:

Associate Membership:

- ☞ 1 completed course of a natural science class
- ☞ An interest in biology
- ☞ One time \$20 initiation fee (in the form of a check made out to Rhodes College; if sent to Julie Bishop by 3/29, may participate in the April 5th induction ceremony.)

Regular Membership:

- ☞ Must be a Biology Undergraduate
- ☞ 3 completed semesters of Biology at Rhodes
- ☞ At least a 3.0 average in Biology at Rhodes
- ☞ General good academic standing at the college
- ☞ One time \$30 initiation fee

BIOLOGY SEMINAR SERIES

Our next scheduled seminar is coming up quickly. On Monday, March 28th, **Dr. Andy Gannon** from Birmingham-Southern College will be speaking about "**Land Crabs: Heavy Breathing in the Air.**" Please come hear him talk about crustaceans other than our familiar tasty crawdads!



Dr. Andy Gannon

Then, next month, on Monday April 4th, **Dr. Alan Jaslow** will be telling us about his work at the Memphis Zoo and elsewhere in his seminar titled, "**Legs, Voices and New Faces: Topics in Animal Morphology and Behavior.**" Both seminars will begin in FJ-B at 4:15. Refreshments, and an opportunity to meet and speak to the presenters, will be available in the Biology Library at 4:00.



Dr. Alan Jaslow

Student Research 2004-05 Sponsored by Programs at Rhodes

Jonathan Berger '05. *Bamboo Energetics.* Memphis Zoo and Bio. 451 with Dr. Alan Jaslow

Christie Campion '07. *Pawpaw (Asimina triloba) of Overton Park: how old are they and how fast do they move?* Bio. 452 with Dr. David Kesler

Aaron Creek '07. *Reducing the expression of neuronal interleukin-16 in cultured hippocampal neurons using small-interfering RNA.* Bio. 451 & 452 with Dr. Cate Fenster.

Jessica Devitt '06. *The role of IL-16 in long term potentiation of the mouse hippocampus.* Bio 451 & 452 with Dr. Jay Blundon.

Moss Driscoll '05. *Internal digesta mixing in the giant panda.* Memphis Zoo and Bio. 452 with Dr. Alan Jaslow

Emily Furlow '05. *Research on genetics and tumor cell biology.* Bio. 452 with Dr. Linda Hendershot at St. Jude Children's Research Hospital.

Lauren Fay '05. *Cloning and characterization of GDP-mannosyl transferase genes in Aspergillus nidulans.* Bio. 452 with Drs. Hill, Loprete, and Jackson-Hayes.

Valerie Hartman '06. *The role of light and oxygen in controlling phantom midge (Chaoborus) migration.* Bio 452 with Dr. David Kesler

Jennifer Herrold '05. *Social behavior in bonobos.* Bio 452 with Dr. Tony Becker.

Hennessy Howell '05. *Determination of calcium content using atomic absorption spectroscopy in osmotically stimulated pea roots.* Bio. 451 with Dr. Chuck Stinemetz.

Monica Huerta '07. *Mechanisms of group B streptococcus-induced epithelial cell injury.* St. Jude Mentor: Dr. Elizabeth Adderson of St. Jude Children's Research Hospital & Dr. Gary Lindquester

Nauzanene Jafarifard-Veyjoyeh '07. *Immunohistology of vessel walls.* Bio 452 with Dr. K.U. Malik, at the University of Tennessee and Dr. C. Jaslow.

Katie Jameson '05. *High copy suppression analysis of mis-localized G1 cyclin Cln3 in S. cerevisiae.* Research Assistantship with Dr. Mary Miller

Daniel Keedy '06. *Isolation of genes governing wall integrity spore swelling in a mutant of Aspergillus nidulans.* Bio. 452 with Drs. Hill and Loprete.

Justin Marlar '06. *Protein Binding to MDM2 Splice Variants A and B: Possible Effects on Tumorigenesis.* Bio 451 & 452 with Dr. Linda Harris of St. Jude Children's Research Hospital and Dr. Mary Miller.

Sinifunanya Nwaobi '07. *Reducing the expression of neuronal interleukin-16 in cultured hippocampal neurons using small-interfering RNA.* Bio. 451 & 452 with Dr. Cate Fenster

Bradley Petkovich '06. *The role of neuronal interleukin-16 in regulating acquisition and retention of motor skills in mice.* Bio. 451 & 452 with Dr. Cate Fenster.

Caroline Sartain '07. *Characterization of a glycosylated membrane protein affecting cell wall integrity in Aspergillus nidulans.* Bio. 452 with Drs. Hill and Loprete.

Desiree Steimer '05. *Generation of a recombinant murine herpesvirus containing the Epstein-Barr virus interleukin 10 gene.* Bio. 452 with Dr. Gary Lindquester.

Mark Stratton '06. *The role of light and oxygen in controlling phantom midge (Chaoborus) migration.* Bio 452 with Dr. David Kesler

Stanley Vance '05. *Cloning and characterization of a multi-pass membrane protein affecting cell wall integrity in Aspergillus nidulans.* Chem. 452 with Drs. Hill and Loprete.

Joe Vaughan '05. *Research in nutritional additives during the rearing of endangered amphibians.* Memphis Zoo and Bio 451 with Dr. Alan Jaslow

Joe Vaughan '05. *Development of a giant panda fecal pH protocol.* Memphis Zoo and Bio 451 with Dr. Alan Jaslow.

Joe Vaughan '05 and Taylor Brown '07. *Analysis of linkage between cell wall integrity and spore swelling in several mutants of Aspergillus nidulans.* Bio 452 with Drs. Hill and Loprete.

Carolyn Westfall '05. *Live cell imaging of G1 Cyclin localization in S. Cerevisiae.* Bio. 451&452 with Dr. Mary Miller

Melanie Woods '05. *Courtship behavior in the reticulated giraffe.* Bio. 451 with Dr. Tony Becker.



Cover page figures:

At left: Implanted human blastocyst at 10 days. Fig 3-2 from Moore & Persaud. 1993. Before We Are Born. Philadelphia, Saunders.

At right: Glochidium larval stage of a freshwater bivalve.

http://biodidac.bio.uottawa.ca/thumbnails/filedet.htm?File_name=BIVA013B&File_type=GIF