

EVOLUTIONS

A Newsletter of the Department of Biology & Geology

SPRING 2003

Volume 1, Issue 2

Biology Stars

Our department had three students graduating *summa cum laude* in May with perfect 4.0 grade point averages, and we thought that deserved some special recognition!

Pamela Wall, a native of Aiken, South Carolina, transferred to USCA after one year at Newberry College. Pam has worked in the department prepping Genetics labs, and she also works in the lab of Dr. Bill Jackson doing research on HIV, funded by the NIH. Pam was chosen by the faculty as this year's Outstanding Biology Student, and received her award at the Academic Convocation on April 17th. Pam has been accepted into a Ph.D. program in Biomedical Sciences at the Medical College of Georgia and will begin her studies there this Fall. When asked what her favorite biology class had been Pam said, "All of the Biology classes have been great, but I especially loved Dr. Hanlin's Herpetology class because it gave me a chance to get out of the lab. And, I got to know other biology students on the field trips we took that otherwise I probably wouldn't have met."

Ginger (Jones) Hall was raised in Jackson, South Carolina, and began her studies at USCA in 1999 as a Business/History major. Also advised by Dr. Bill Jackson, Ginger has done her senior research work in the lab of Dr. Heather Bennett on laboratory preparations for culture of cephalopod molluscs. Ginger is married to another of our biology majors, Cory Hall, and if you think having a 4.0 gpa is a great accomplishment, imagine doing that AND having a baby in the middle of your final term! Toby Slade Hall made his appearance on February 27, and we congratulate Ginger both as mom and graduate!

William Kanne, a lifelong resident of Aiken, has been advised by Dr. Harry E. Shealy, Jr. during his four years at USCA. Will did his senior research with Dr. Shealy on the occurrence of fire in pine forests in Aiken County. Will particularly enjoyed Dr. Shealy's Seasonal Flora class: "It provoked an interest in plants I didn't have before and I enjoyed the field experience." Will has been admitted to the Medical School at the University of South Carolina in Columbia.

Inside this issue:

Chair's message	2
Fall 2002 Graduates	2
Faculty Focus	3
Part-time Faculty	4
Alumni News	5
Independent Study	5
Alumni Update	6

Important Dates

- Student 499 Presentations-April 4, 18, 25
- Classes end-April 28
- Final exams-May 1-7
- Graduation-May 8
- Maymester-May 12-29
- Summer I-June 3-July 3
- Summer II-July 7-Aug 7

Congratulations May Graduates!

Jason Baxley

Michelle Garvin-*cum laude*

Erin Kough

Carly McKie-*cum laude*

Jamie Wagner

Eric Doman

Ginger Hall-*summa cum laude*William Kanne-*summa cum laude*Leigh Ryan-*cum laude*Pamela Wall-*summa cum laude*

Brandon Fender

Tyrone Hanberry

Lane Matheny

Maggie Shoup-

*magna cum laude***Physiology Search**

The department is currently in the process of conducting a search for a new physiology professor, beginning in the Fall of 2003. This search was necessitated by the resignation of Dr. David Strom, who has been with us since the Fall of 1998.

Dr. Strom has accepted a position as associate professor of pharmacology at Des Moines University, where he will teach students enrolled in an osteopathic medical degree program. He will be greatly missed here at USCA, but we wish him much success in his new endeavor.

SPRING 2003

From the Chair...

Recently someone said nothing ever changes in this department. I was surprised by this. A lot has changed in the department of Biology and Geology over the past five years. I thought others might have the same misconception, and so I wanted to address the issue with you here. I have highlighted these changes under two major areas, Curriculum and Funding.

Curriculum

The past year saw the implementation of a new Biology curriculum. This unit now offers two degree programs: B.S., Biology and B.A., Biology, which you read about in our Fall newsletter

Another area of change is ABIO 499. Students now prepare a departmental research grant form in addition to the Registrar's form prepared by the instructor. Students can be awarded as much as \$250, and in rare cases up to 400\$. All students make oral presentations at the conclusion of our seminar series, after having had the opportunity to observe a variety of professional speakers. A refinement of the Friday afternoon seminar series is the development of a one-credit hour corequisite ABIO 490 which meets before the seminar to prepare students to understand and discuss the topic the seminar speaker will present.

Since the removal of ABIO 110 from the curriculum, General Education students are now enrolled in a variety of classes in addition to ABIO 101 and 102. These include Plant Science, Genetics and Society, and Environmental Life Science. The enrollment of AGLY 201, Integrated Earth Science, has changed significantly since 1996, and is no longer exclusively for Education majors.

A common comment on Senior Exit Surveys when I first became chair was that upper division classes were offered at overlapping times and it was hard for majors to construct their schedules. Since Fall 1999, I have endeavored to construct schedules that honor several principles: 1) Upper Division ABIO classes and labs should be scheduled to avoid conflicts; 2) Faculty members should have one or two days a week free of classes so that they have unbroken intervals of time to conduct research or write; 3) Our schedule should include some common times when we are all available for a department meeting or seminars. By Spring 2000, overlapping times in the schedule were no longer a complaint.

We recognized that our graduates with emphases in environmental areas were less competitive due to a lack of GIS (Geographic Information Systems) experience. In Fall 2002, we hired Tracy McLane from the Geotechnical Services Division of WSRC to teach GIS in the Sciences and Advanced GIS in the Sciences using ARC View software. The results have been rewarding, and we are looking for ways to broaden participation in these classes.

Funding

Since June 1999 the department has spent over \$160,000 in research equipment for student and faculty use in upper division classes and research. Last year we acquired a new autoclave, a -80° C freezer, statistical software and ARC View GIS software, and the "Octagon," a marine invertebrate research facility. Most of the purchases were made possible by foundation or endowment funds.

One result of our investments in departmental equipment infrastructure is that our faculty members have become more competitive for externally funded research grants. Our department has awards from the National Institutes of Health, the National Institute of Environmental Health, the National Wild Turkey Federation, the USDA- Forestry, DOE-SCUREF, NOAA, and the National Science Foundation, among others. These awards support student research and summer stipends and purchase more equipment for use in our unit. They broaden students' experience and result in contact-building presentations at professional meetings.

I hope that this short discussion highlighted some of the exciting "new things" happening in our department. I hope whether you are an alum, a currently enrolled student, a parent, or other friend of our department you will spread the good news about what is happening here. If you have ideas or wish to help, please feel free to share those ideas with me. Thank you.

Allen J. Dennis, chair

Congratulations December Grads!

The following students were awarded a Bachelor of Science Degree in Biology at the Convocation on December 12, 2002:

Deborah Ard
 Summer Garrison
 Derrick Haltiwanger
 Linda Jolley
 Gayle Jones
 Khai Le—*magna cum laude*
 Elizabeth Perrow
 Katina Smith
 April Tomkinson
 Benjamin Watkins

Deborah Ard and Benjamin Watkins have continued on in our department as temporary employees. Deborah Ard is working in the lab of Dr. James Yates as a lab technician. They continue the research on Dr. Yates's NIH project, "Gene regulation of the *bph* cluster." Debbie spends her time in the lab analysing mRNA from the *bph* cluster in bacteria.

Benji Watkins has taken over the lead field technician position on Dr. Hugh Hanlin's US Forest Service and USDA grant entitled "Response of herpetofauna to Carolina Bay restoration: The effect of vegetation composition and structure of adjacent forests on herpetofauna." Benji coordinates data collection at all twelve wetland sites at the Savannah River Site.

Time in the Swamp

Dr. Hugh Hanlin is a self-professed “old timer”. He has been teaching at USCA for the past 23 years. He is also an Adjunct Professor in the Dept. of Forest Resources at Clemson. Earning his B.S. and M.S. in Zoology from Auburn University, and his Ph.D. from Oregon State University in Vertebrate Natural History and Ecology, Dr. Hanlin’s area of expertise is definitely “critters”, with a special love for lizards and snakes. He is a much sought-after advisor and teacher in our department and was awarded the University’s Teaching Excellence Award in 1995. The following story was written by one of Dr. Hanlin’s Herpetology (ABIO 516) students following their trip to the Okefenokee Swamp this Spring.

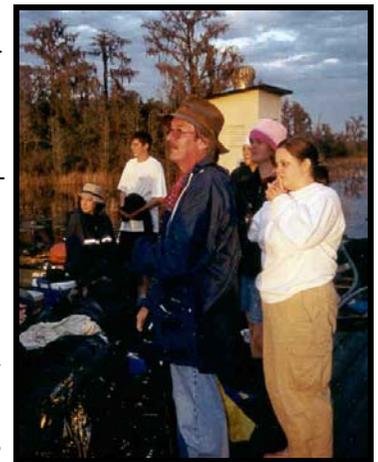
This spring, Dr. Hugh Hanlin took his Herpetology class into the Okefenokee Swamp. Dr. Hanlin makes the excursion every two years, but this trip was particularly special. It marked the 20th year of his adventures in the south Georgia swamp, and the first time that the entire class was able to attend. Former students and other professors joined the group for the trip that extended over Spring Break, but Dr. Hanlin and his students didn’t mind giving up their vacation to spend the time together.

The purpose of the field trip was to encourage students to spot reptiles and amphibians in their natural habitat. Dr. Hanlin also used the opportunity to point out other vertebrate species, such as raccoons, cranes, otters and deer. His face lit up as we

watched Sand Hill cranes performing a mating dance in the distance, and later in the day, Dr. Hanlin recounted how he and Dr. Bennett observed an owl swoop down and consume the day’s meal.

When you spend time with Dr. Hanlin in the field, it becomes obvious that he is in his element. One of his greatest attributes as a teacher is his appreciation for the intrinsic value of our wildlife’s heritage, and his ability to instill that appreciation and respect for nature into his students. Other attributes that make Dr. Hanlin popular and effective teacher are his humor, his compassion for students and his ability to spark a desire to learn in them. His excitement for the field of Biology is contagious, and all of his students eagerly await the opportunity to discover nature with him again on the upcoming trips to Highlands, North Carolina and Edisto, South Carolina.

-Maggie Shoup



Seasonal Flora

Dr. Harry Shealy, the most senior member of the biology faculty, is a devout South Carolinian. Born and raised in Columbia, Dr. Shealy earned his B.S., M.S. and Ph.D. at the University of South Carolina. He spent one year as a post-doctoral fellow at the University of Manitoba in Canada before returning to take a position at USC Aiken in 1973.

Where Dr. Hanlin’s love is for critters, Dr. Shealy’s is for plants. As the department’s resident Botanist, he teaches Plant Science, Principles of Botany, Seasonal Flora, Conservation Biology, and Forest Ecology, as well as Biological Science I. He is teaching his popular field class, Seasonal Flora, for “about the 25th time” this Maymester. Although this class has been offered during one of the longer summer sessions, it has been very successful as a Maymester experience during the past few years. Students find the cooler temperatures much more pleasant for the daily field trips.

During this intense fourteen days, students become familiar with the flora of South Carolina and learn about the community associations that plants form with each other based upon soils, hydrology, temperature, light, and other factors. They also learn basic herbarium techniques for collecting, identifying, and pressing plants in preparation to mount them for inclusion into a herbarium collection.

The class will spend some time in Aiken’s Hitchcock Woods. Dr. Shealy has long been an active member of the Hitchcock Foundation Board, serving as chair from 1989-1993 and currently chair of the Woods Management Committee. Other forays will take them to Heggie’s Rock, Savannah River Bluffs, Congaree Swamp, Steven’s Creek, Landsford Canal State Park, Oconee Station Falls, and Seabrook Island. Dr. Shealy maintains that “The best way, by far, to understand plants and their community relationships is to go where the plants live and see them in their neighborhood.”

Some of Dr. Shealy’s other memberships include the Aiken County Open Land Trust where he is currently serving as president, Historic Aiken Foundation Board, SC Dept. of Natural Resources – Heritage Trust Advisory Board, USC Alumni Council, and USC Libraries Executive Committee. He still enjoys a lively game of tennis and is often seen sporting his signature bow tie!



What Would We Do Without Them?

The course offerings in our department are greatly enhanced by the addition of part-time faculty members who add their expertise to our already talented faculty. This term we have seven "part-timers".

Frank Syms' "real" job is with Bechtel Savannah River as a Principal Geologist in the Geotechnical Engineering Department. After receiving a BS in Geology from USC in 1987, he worked for 2 years in the mining industry doing exploration and mine development in Georgia and Florida. He joined Bechtel at the SRS in 1989 where his work has been primarily in the field of engineering geology. He received a MS in 1997 and PhD in 2002, both from USC where his research focused on engineering geology and subsurface mapping. "I find teaching Geology 101 rewarding and a way to give something back to the science. I try to encourage my students to seek out what they truly love to do and choose a career along that path. I've been lucky in that regard."

Robert Van Pelt is manager of the Geological & Environmental Assessment Group at the Savannah River Site, responsible for geological and engineering support of environmental restoration efforts. He is a member of several learned scientific societies, including the Sigma Xi honor society, and holds degrees from USC-Columbia (B.S. Geology, 1983) and the City University of New York (Ph.D. Earth & Environmental Sciences, 1990). Dr. Van Pelt teaches Introduction to Environmental Geology, Special Topics in Environmental Geology, and Paleontology (including Micropaleontology), and has been a lecturer at USCA since 1992. "Basically, I teach at USCA for the enjoyment of passing on environmental awareness to students who normally would not even consider issues that face us every day, such as the protection of rivers/lakes/oceans, groundwater, air and soil pollution, and the influence of humans on the environment. The majority of the students walk out of the class with information that they can carry into their daily lives."

Lynn Wike has been teaching in the evenings at USCA since fall of '91. He has worked in the Environmental Analysis Section of the Savannah River Technology Center at SRS for the last 14 years. He currently teaches ABIO 102 during the fall semester and ABIO 270 in the spring, but has also taught Ecology, Zoology, Animal Behavior, and Evolution. Dr. Wike has a BA in biology from Millersville University in 1973, an MS in Environmental Biology from Eastern Illinois University in 1981, and a Ph.D. in aquatic ecology from the University of Illinois in 1987. "I teach because I actually really enjoy it. I especially like the evenings because of the non-traditional student clientele which I find to be much more highly motivated students who actively participate to a much greater degree."

Norris O'Dell is a graduate of Emory University (BA) and the Medical College of Georgia (PhD,DMD). Dr. O'Dell retired from the Medical College of Georgia (MCG) in June of 2001 ending a career that spanned three decades at the School of Dentistry. In addition to teaching and research, Dr. O'Dell was the Program Director for Graduate Students in the Department of Oral Biology & Maxillofacial Pathology, and was the Director of Continuing Dental Education. Currently, Dr. O'Dell is teaching Anatomy in our department. "One of the problems of retiring from an academic career is the loss of interaction with young men and women pursuing their own career goals. So, for me, the opportunity to teach here at USCA on a part-time basis affords me the privilege of teaching young people while still having time to pursue other personal goals."

Tracy McLane has been teaching GIS (Geographic Information Systems) in our department since the Fall of 2001. Tracy earned her B.A. degree in International Business at Eckerd College in St. Petersburg, Florida in 1990, and went on for a Master's in Geography at the University of Tennessee-Knoxville (1996). She is employed by Bechtel Savannah River

Company in the Department of Environmental and Geographic Information Services as GIS Coordinator/Program Analyst.

Steve Schaff, new to our department this term, earned his BS in Biology at Creighton University and his MS in Biology at the University of Memphis, studying flood stress physiology in wetland trees. He is now approximately half way through his PhD program at the University of Georgia's Institute of Ecology. He is conducting his dissertation research at the Savannah River Ecology Lab on the temporal constraints associated with the functional goals of bottomland hardwood forest restoration. "Academia is a long term career goal of mine because it seems to stimulate both sides of my brain! Unfortunately, I had not been in the classroom since I left the U. of Memphis, so when the opportunity arose to teach a couple of the General Biology labs at USCA - I jumped on it! As always, I have managed to learn as much from the students in my classes as they have from the labs....for me, that's the allure of education!"

Buck Pridgen joined the staff of USCA in the Spring of 1999 to, as he puts it, "joust the windmill of academia" by teaching Anatomy. Dr. Pridgen was graduated from USC Columbia with a B.S. in Biology in 1965, and then attended Wake Forest University's Bowman Gray School of Medicine and earned his M.D. in 1969. His post graduate work was in Internal Medicine at the Medical College of Georgia, followed by a fellowship in Hematology-Oncology at MCG. Dr. Pridgen was the Emergency Medical Services Director at three hospitals from 1982 until 1998, and in his free time, served on the Aiken County Board of Education, coached Pee-Wee football and was the team physician for Aiken High School. Currently, Dr. Pridgen is a staff physician at University Hospital's Emergency Department in Augusta, Georgia.

ALUMNI NEWS

Danielle Murfee (Dec.2001) Education specialist for Southeastern Natural Sciences Academy. "Through my connections and experience with the professors (full and part-time) at USCA, I have been able to find the job I really wanted. I look forward to working with them again as a graduate student.

Heather Walker (Spring 2002) Research Assistant at the Medical College of Georgia. "I work in the Biochemistry Department for Dr. Latif. Our research is concerned with the effects of Prostaglandins (PGF2alpha) on MLC phosphorylation, IP3 production and contraction in Bovine iris sphincter smooth muscle. New experiments are concerned with ET1 effects on the rabbit

iris. I am planning to attend graduate school at USC in the fall of 2003 to pursue a Masters in Biomedical Science in Vision Science."

Natashia Bush (Fall 1997) is currently a law clerk for the Honorable Charles M. Caldwell in the United States Bankruptcy Court in the Southern District of Ohio.

Lisa Ives Woodell (Fall 1997) is currently attending The School of Medical Technology, Palmetto Baptist Hospital, Columbia, South Carolina, and will take her board exam in January 2003. Since graduation, Lisa also married Keith Woodell in June of 2001.

Shane Boring (Aug. 1996) Environmental consultant in Columbia, South Carolina. After graduating from USCA, Shane attended Rutgers University and earned a MS in Ecology.

Tony Devore (Fall 1996) Geologist for ChemNuclear/Duratech in Barnwell, South Carolina. After transferring from USCA to USC Columbia in 1995, Tony earned a B.S in the fall of 1996. He worked as a staff geologist for ARM Environmental Services until 1999, and then became a hydrologist with SCDHEC underground storage tank program managing corrective action and assessment for over 400 active UST sites, until going to work for ChemNuclear/Duratech.

Spring 2003 Independent Research Projects

Research continues to be an integral part of our department's program. Students pursue independent study projects under the tutelage of faculty members, and those pursuing a B.S. degree are required to complete a senior research project. Listed below are projects for Spring 2003. Those marked with an asterisk * received funding from Departmental or faculty-sponsored grant funds.

Independent Study Projects

Brian Nevius: *Symbiotic nitrogen fixing bacteria linked with Halodule wrightii roots*. Project advisor:, Dr. Garriet Smith.

Carol Journey: *Synthesis and cloning of anti-tat hammerhead ribozyme*. Project advisor, Dr. William Jackson.

Michael Cory Hall: *Resource Competition in plants*. Project advisor, Dr. Andy Dyer.

Melissa Storey : *Cephalopod Mariculture*. Projects advisor, Dr. Heather Bennett.

Jackie Tilsner: *Introduction to Octopus Biology and Culture*. Advisor, Dr. Heather Bennett.

Senior Research Projects

Eric Doman: *The effect of lead competition on Brassica growth*. Advisor, Dr. Andy Dyer. *

Brandon Fender: *Effects of introducing the plasmid pKT230 to Burkholderia LS2 cells*. Advisor, Dr. James Yates. *

Michelle Garvin: *Reproductive Biology of Plethodon dunni*. Advisor, Dr. Heather Bennett. *

Ginger Hall: *Alternative Diets for Cephalopod Molluscs*. Advisor, Dr. Heather Bennett. *

Dawn Hawkins: *The effect of competition on development in Brassica*. Advisor, Dr. Andy Dyer. *

Helena Jantti: *Phytoremediation of lead by Brassica*. Advisor, Dr. Andy Dyer. *

Erin Kough: *Brooding cycles in Sphaerid Clams*. Advisor, Dr. Heather Bennett.

Carly McKie: *Size of juveniles vs adult spaeriid clams*. Advisor, Dr. Heather Bennett.

Beth Moyer: *Teaching kids Ecology*. Advisor, Dr. Harry Shealy.

Leigh Ryan: *Designing, synthesis and cloning of anti-tat hammerhead ribozymes*. Advisor, Dr. William Jackson. *

Margaret Shoup: *Design and cloning of HIV-1 tat ribozymes*. Advisor, Dr. William Jackson. *

Marlon Smith: *Effect of temperature on sprouting nutsedge tubers*. Advisor, Dr. Andy Dyer. *

Pamela Wall: *Analysis of anti-tat hammerhead ribozyme catalytic activity*. Advisor, Dr. William Jackson. *

Tina Welliver: *Transcriptional mapping of bphD gene*. Advisor, Dr. James Yates

University of South Carolina Aiken

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ALUMNI UPDATE

We would love to include information in future issues about where our graduates are and what they are doing. Please take a moment to send this form to: EVOLUTIONS, Dept of Biology & Geology, USC Aiken, 471 University Parkway, Aiken, SC 29801, or e-mail the information to carolc@usca.edu.

Name _____ Year graduated _____

Current Address _____

Current position or program of study _____

What news would you like to share with USCA and other former students? _____

You can also update your information online at: <http://www.usca.edu/alumni>

SEMINAR SERIES

In an effort to improve our Friday Seminar Series, we hope to create an endowment that will allow us to enhance our current series. Attending the seminar series is a requirement for our Senior Research students, but the lectures are free and open to the public. The current schedule is available on our website at <http://www.usca.edu/biogen>.

Enclosed is my contribution of \$ _____ (Please make checks payable to the Aiken Partnership with Biology Seminar Fund on the memo line). You can double your gift if you or your spouse is employed by a company having a "Matching Gift Program." Please enclose your company's matching gift form, available from your Human Resources Office.

Send to: EVOLUTIONS, Dept of Biology & Geology, USC Aiken, 471 University Parkway, Aiken, SC 29801