Our department welcomed two new faculty members during the 2011-12 academic year. Dr. Nathan Hancock joined us in August 2011, filling the position left vacant by the retirement of Dr. James Yates, and Dr. Virginia Shervette was hired in a position funded by a DOE grant for the new degree concentration in Environmental Remediation and Restoration.

Dr. Hancock was raised in Winslow, Arizona, and attended the University of Arizona-Tucson where he earned a Bachelor of Science degree in Plant Science. His Ph.D. in Biochemistry was completed at the University of Missouri-Columbia. He then went on to do post-doctoral work at the University of Georgia before joining our faculty last Fall.

Dr. Hancock muses that it might seem a little unusual he chose the field of plant science, growing up as he did in the high desert, but his dad, a building contractor, always had a garden, and his grandfather had a small farm outside of town. He gave young Nathan an acre of land to grow vegetables and he loved gardening. There were no farmers' markets in town, so he would advertise in the local paper when he would be at his parents’ carwash, and friends and neighbors would come to buy his produce. One (continued on p. 6)
From The Chair:

by Dr. William Jackson

Success in the academic arena is something for which we all strive. The nature of success, the way in which we measure success and then disseminate it to others, depends on our point of view. For parents, success may range from getting their child through college with a degree to seeing their child blossom into an adult. For students, success may be tied to classroom grades, graduation, acceptance into a post-baccalaureate program, or obtaining that first real job in the field in which they majored. Of course, classroom success is a relative measure: whether a grade is a “good” one really depends on who is making it! As faculty members we measure success in a number of ways that include not only many of the things described above, but also in attaining our professional goals, primarily through our research. With that, let me share with you some of the things that I think are good indicators of the success of the USCA Department of Biology and Geology:

• Since 1999, 15% to 25% of our graduates have been accepted into post-baccalaureate programs including medical, dental, veterinary, graduate, pharmacy, and law;
• 40% of this group have gone on to pursue a graduate degree at schools that include Emory University, Johns Hopkins University, the University of Alabama Birmingham, the University of South Carolina, and Georgia Health Sciences University;
• Since the inception of the University of South Carolina’s Magellan Scholars program in 2006, 42 USCA students have won this prestigious award and 14 (33%) have been in the Department of Biology and Geology. In fact, USCA students have been awarded 55% of all non-USC Columbia awards (76).
• Our students have not only won numerous state and national awards for their research presentations, a number of them have gone on to have their work published as a co-author with their USCA biology research mentor; and
• Last year alone, Department of Biology and Geology faculty members published seven research papers in peer-reviewed journals, gave nine presentations at state and national meetings, and were awarded grants totaling more than $1.38 million.

You will not be surprised to learn that I believe the success of our students is tied directly to our outstanding faculty, who are dedicated to educating our students both in the classroom and in the research lab. We firmly believe that the only way to really learn science is to be actively involved in the scientific process, with faculty and students working together as a team. Our best students take this to heart and as a result have reaped the rewards as evidenced by the many successes described. It’s pretty corny, but we really do love what we do. Here is to our continued success!

Alex Jureka's poster, entitled "Short Interfering RNAs Successfully Down-Regulate the HIV-1 Transactivator of Transcription in a Transient Luciferase Assay," won the silver medal at USCA's Research Day on April 6, 2012. His oral presentation at the South Carolina Academy of Science meeting hosted by USC Aiken on April 14th, "Analysis of hammerhead ribozyme-mediated down-regulation of the HIV-1 transactivator of transcription," was awarded the SCAS President's Award for Outstanding Undergraduate Research. Congratulations to Alex and his research mentor, Dr. Bill Jackson!
Evolutions

Excellence in Teaching

Dr. Michelle Vieyra, an assistant professor of biology since January 2007, was honored this Spring with USCA’s Excellence in Teaching Award. One anatomy student’s nomination letter describes the kind of teacher she is: “Dr. Vieyra’s presence in the classroom was fun and comfortable but we knew she meant business...She commanded the attention of the class. Her greatest strength in my eyes was her love of the subject matter; it was contagious. She made us want to learn more, to get it right, and to always make a better grade. But ultimately she wanted us to succeed. She did everything in her power to help us understand the material and recognize how important a solid knowledge base was. She was able to instill academic integrity in each and every one of us. For me, I took away an appreciation for knowledge.”

Dr. Vieyra has been teaching anatomy every semester since she began at USCA and has also developed two new courses, Animal Behavior and Animal Nutrition, especially popular with our students interested in veterinary school. She has also taught two Honors seminars, Human Physiology, Senior Seminar, and she taught Animal Behavior this past Spring as a Writing Intensive course. In the Fall she will teach two sections of Critical Inquiry to incoming freshmen. She has mentored 30 students in independent study courses, and four of her students have been named Magellan scholars. Dr. Vieyra describes her teaching philosophy as being “built upon a foundation of four principles: 1) teach students how to learn, 2) be enthusiastic, 3) take an interest in each student as a person and scholar, and 4) push for excellence.” She presents the material in a variety of ways to accommodate different learning styles and puts together course packs which incorporate study guides and lab materials to aid the students. She says she never tires of teaching the same material to a new group of students each semester, and that her favorite part of teaching is interacting with the students.

Her passion for teaching has led her to research on such topics as the benefits of the undergraduate research experience and issues of plagiarism in science student writing. She has also attended conferences that focus on undergraduate education and is seeking grant funding to enhance the educational experience for our students. She was genuinely surprised to receive this award, but it is clear from her letters of recommendation and classroom performance that her students and the HAS committee deemed her worthy! Congratulations, Dr. Vieyra!

Dr. Andy Dyer earned a gold medal in the 200 yard breast stroke at the 2012 Masters National meet in Greensboro, North Carolina in May 2012.


Chancellor Hallman, Michelle Vieyra, and Roberto Aragon, SGA President

Faculty Activities (con’t from p. 5)


Dr. Andy Dyer earned a gold medal in the 200 yard breast stroke at the 2012 Masters National meet in Greensboro, North Carolina in May 2012.
My Magellan

The department is proud to announce that five more of our students have been named Magellan scholars and one received a new Magellan mini-grant in the 2011-12 academic year. Each of them describes what his or her project entails:

Through a process of surveys, interviews and writing samples I hope to determine the recent high school graduate’s perceptions of source evaluation, use and citation. I will have about 1,000 first semester freshman attending USC and USC Aiken complete a short survey during the first month of fall semester classes. I will then ask up to 75 of those students to turn in a sample research paper on one specific topic so I can determine the participant’s aptitude for source evaluation, use and citation. 30 of those participants will be asked to complete an interview with me where I will further assess the participant’s aptitude and perceptions on source evaluation and citation based on their writing sample. Hopefully, with the information gained by this process, I will be able to find areas of instruction within high school science classrooms that are not meeting the standards of introductory college biology research assignments.

Brittany Cheeks, mentor Dr. Vieyra

Apoptosis is an active process of programmed cell death which may occur naturally or be induced by a number of infectious agents, including HIV. In either case, apoptosis occurs following activation of a number of pro-apoptotic genes. My project involves selectively inducing apoptosis in HIV infected cells by over-expression of two pro-apoptotic genes belonging to the Bcl-2 family of proteins: Bax and tBid. These two proteins were chosen because of their significant role in the apoptotic pathway. By selectively inducing apoptosis, this research could lead to a therapy resulting in the elimination of infected cells in HIV-1 patients.

Priscilla Simon, mentor Dr. Jackson

My project involves collecting three species of commonly consumed fishes from impaired watersheds in South Carolina. These fish include warmouth (Lepomis gulosus), redbreast sunfish (Lepomis auritus), and chain pickerel (Esox niger). I am collecting these fish from local sites monthly using a combination of sampling techniques including electroshocking, experimental gillnetting, and seining. From the fish caught, I will investigate the concentration of mercury and assess if an increase in those concentrations correlate with negative impacts on fish health.

Brandy Bossle, mentor Dr. Shervette

The Human Immunodeficiency Virus type 1 (HIV-1) encoded trans-activator of transcription (tat) plays a crucial role in the up regulation of viral transcription. Due to its pivotal importance in viral replication, antiviral RNA reagents that specifically target and cleave tat messenger RNA (mRNA) should effectively inhibit HIV-1’s ability to replicate. My interest involves two specific kinds of RNA reagents, namely short interfering RNAs (siRNAs) and hammerhead ribozymes. Previously four anti-tat siRNAs and three anti-tat ribozymes have been cloned individually into the retroviral vector, pSUPER. retro.neo+GFP. The first phase of testing for these antiviral RNA reagents will be to use a transient tat-dependent luciferase assay to determine whether these reagents are active against tat. The second phase of testing for these reagents will be to directly measure tat down-regulation through HIV-1 tat specific Western blots. The final phase of testing will include an HIV-1 replication assay to see if the siRNAs and ribozymes effectively suppress HIV-1 replication. This project may lead to gene therapy applications for people infected with HIV-1 by specifically cleaving Tat mRNA, possibly causing complete inhibition of HIV-1 replication without damage to the host cells.

Alex Jureka, mentor Dr. Jackson

(Con’t p. 8)
Matthew Baker was chosen by the faculty as this year’s Geology Student of the Year. Matt was born in Saudi Arabia where his adventurous parents were both working as respiratory therapists. His family moved to North Augusta when he was in middle school when his father took a teaching position in the Respiratory Therapy Department at MCG.

After high school Matt spent a year at Clemson and another year and a half at USC Aiken majoring in communications. He then enlisted in the Coast Guard and spent the next seven years as a Marine Science technician in places like Alaska, New Orleans, New Jersey, and St. Louis. He worked to ensure safety and security at oil and chemical facilities and helped to facilitate the clean-up of oil spills, most notably in New Orleans. He married Anastasia in 2008 and their son, Nathaniel, was born in 2009.

In 2010 Matt returned to USCA on the GI bill as a biology major. He was enrolled in Dr. Dennis’ Physical Geology class his first semester back, and he became very interested in tying biology and geology together in his studies. He has since completed Paleontology, Southern Appalachian Geology, South Carolina Coastal Geology, and three Independent Study classes with Dr. Dennis. “His infectious enthusiasm and hard work have paid off in each class he has enrolled in,” says Dr. Dennis. You will read elsewhere in this newsletter about the project he has been pursuing as a Magellan Scholar. Matt will graduate in December with a biology major and geology minor and plans to attend graduate school in Earth and Environmental Sciences.

Nineteen biology majors were inducted as charter members into a new TriBeta Biological Honor Society at USC Aiken in April with Dr. Andy Dyer as advisor.
year he calculated the income for all his labors and determined that he made about 50 cents an hour! He and his four younger sisters also all worked with their dad during the summers, which taught him many useful construction skills he carries with him today. As an undecided major at the University of Arizona, he took a Plant Science class the first semester and saw his future. “I watched my professor and said to myself, ‘I could do that job!’ I always thought I would be a teacher,” Dr. Hancock remembers. After his first year of college, he went on a two-year mission for the Church of Jesus Christ of Latter Day Saints in the Manchester and Liverpool areas of England. After returning to the university he decided on a Plant Science major.

When it came time to look at graduate schools, he focused on the Midwest where there would be much more agriculture than in Arizona. He chose the University of Missouri because their biochemistry department was home to several scientists working with plant biochemistry. There he worked in the lab of Dr. Bruce McClure, studying the proteins that control pollination using *Nicotiana alata* (flowering tobacco). His first post-doctoral position at the University of Georgia was in the lab of Dr. Susan Wessler where he began working with transposons, or jumping genes, looking to understand the mechanism of *mPing* transposition in rice. During a second post-doc, also at Georgia, *mPing* was inserted into soybeans as a gene discovery tool to identify the genes associated with certain traits (e.g. seed quality, yield, and drought tolerance). Dr. Hancock was a teaching assistant in graduate school, and during both graduate school and the post-doc years he mentored undergraduate and graduate students. He worked to gain the experience needed to develop a project he could take with him into his own academic career.

Here at USC Aiken Dr. Hancock currently teaches ABIO 121 Biological Science I and ABIO 541 Biochemistry. He has set up his lab to work in a twofold manner using both a traditional plant breeding approach and a molecular approach. You see evidence of the first behind the Science Building where a small field of several varieties of beans is thriving and can find Dr. Hancock and his students putting the second into effect as they analyze DNA from the beans he is growing. He is currently working with tepary beans, which originate in the desert southwest, focusing on what makes them so drought tolerant and working to improve their quality and yield.

He is very happy with the academic atmosphere in the department where he can both teach and continue his research. When asked about the best experience in his first year he answered, “Having one of the students who works in my lab, Ashley Strother, who is only a freshman, present a poster at the South Carolina Academy of Sciences meeting. The work of several other students contributed to the poster as well.” Dr. Hancock was also instrumental, in collaboration with Dr. Andy Dyer and other members of the department, in obtaining an ASPIRE III grant to build a new, research-grade greenhouse on campus. Plans are in progress to construct the greenhouse on a site near the soccer fields. So it is easy to see that Dr. Hancock arrived here ready to work and has accomplished great things in his first year with us!

He and his wife, Alyn, have four children. If you read the Aiken paper, you may have seen that Madi, their oldest daughter, was the winner of the Elementary Science Fair with a project on determining which sugar is used by yeast most efficiently. Home remodeling and gardening (no surprise there) are his favorite pastimes, and he and his family are currently renovating the kitchen of their home. We are most happy to have him in the department and his family in Aiken!
Dr. Virginia Shervette joined the faculty in January 2012 as an assistant professor of biology in a position funded by a grant from the Department of Energy to support the new concentration in Environmental Remediation and Restoration. She was born to a military family in El Paso, Texas, but spent most of her early years in the Augusta area as her dad was stationed at the Eisenhower Medical Center at Ft. Gordon. She became interested in marine science in the seventh grade after reading a novel about dolphins, and her interest in things marine has never wavered. She studied environmental science, biology, and Spanish while an undergraduate at Mercer University. She did a summer internship at Timacuan Ecological and Historic Preserve in Jacksonville, Florida, where she conducted a wading bird survey, worked with the wildlife and marsh exhibits, and translated old Spanish documents. She also had the opportunity to take a course in tropical conservation biology in Costa Rica offered by a visiting professor at Mercer.

Dr. Shervette worked with Americorp for a year after her graduation from Mercer, setting up an after-school and summer program for students in downtown Augusta. She chose the University of Southern Mississippi for her Master’s degree because of the research opportunities in the marine environment afforded by the Gulf Coast Research Lab. She worked on crab and fish interactions in the estuarine environment, which expanded her interests to fisheries science. Inspired by a friend from Ecuador, she took the year following completion of her Master’s degree to work and travel to Ecuador. During her first year as a Ph.D. student at Texas A&M, she put together grants that would fund her work on estuarine habitats in Ecuador. Her advisor, Dr. Frances Gelwick, was, in Dr. Shervette’s words, “Super-supportive and enthusiastic…she encouraged my interests and let me run with it.” Her dissertation combined her work on estuarine habitats on the Gulf Coast and in Ecuador. She also worked as a teaching assistant and had opportunities to mentor both undergraduate and graduate students as she pursued her Ph.D.

Dr. Shervette then took a post-doctoral position with the South Carolina Department of Natural Resources. Her work centered on the importance of oyster habitats for fish and invertebrates in South Carolina marshes. After ten months in that position, she was hired as a Research Assistant Professor at USC’s Baruch Institute. Here her focus was on coastal zone management and anthropogenic impacts on estuarine ecosystems. She also taught undergraduate and graduate courses in Marine Science and Environmental Health Sciences. She was mentor to two Magellan scholars on the Columbia campus, and she initiated a collaboration with Dr. Michele Harmon on our campus involving projects being done by a Magellan scholar each of them was mentoring. This introduced her to the work being done on our campus, leading her to apply for our position. “I was looking for a permanent, tenure-track position where I could establish my own lab,” said Dr. Shervette, “and it had the added benefit of being close to home.” She has two sons, Rali and McKinney, and a beagle-mix dog named Charlotte.

Now, a few months later, she has worked hard to establish her lab, complete with retrofitting a small shed behind the Science Building (which was built to house octopi a few years ago) into an aquaria system for both freshwater and saltwater fishes. Research in her Fish/Fisheries Conservation Lab will examine ecosystem, community, and species responses to anthropogenic impacts in aquatic systems along the watershed gradient including freshwater, estuarine, and marine environments, as well as investigate issues relating to human dimensions of fisheries management including benefits and risks associated with (con’t on p. 10)
Dr. Garriet Smith, Professor of Biology at USC Aiken since 1982, has been awarded the prestigious 2012 South Carolina Governor's Award for Excellence in Research at a Predominantly Undergraduate Institution. This award was presented to Dr. Smith at the South Carolina Academy of Science meeting hosted by USCA in April, and he was honored by Governor Nikki Haley at a ceremony in the Governor's Office on July 18th.

In his nomination letter, Smith's colleague Dr. Derek Zelmer said, "Dr. Smith’s record of scholarship and grantsmanship would be considered to be excellent at a research-oriented university, and is truly outstanding given that the Department of Biology and Geology at the University of South Carolina Aiken has never had a graduate program, and requires 12 contact hours of teaching from its faculty every semester."

Dr. Smith has published widely and prolifically in the fields of microbiology and coral reef disease where he is considered a pioneer in identifying coral diseases and their causes. He has had four co-authored papers in each of the premier journals *Science* and *Nature* and been a co-principal investigator on grants from agencies such as NSF, NOAA, DOE, and the World Bank. Former student Dr. Kim Ritchie, now Senior Scientist and Manager of the Marine Microbiology Program at the Mote Marine Laboratory, says of her mentor, "Dr. Smith has raised the focus of USC Aiken to International levels with his research program. As often goes unappreciated at home universities, Dr. Smith is an international icon, well known among marine ecologists and at the top of his field of coral reef microbiology." We are very proud that this well-deserved honor has come to our own Dr. Smith!

**My Magellan** (con't from p. 4)

We were able to use the mineral separations facilities in the lab of Dr. David Barbeau at USC Columbia to prepare a zircon separate for each of the metaconglomerate and metasandstone collection sites. Dr. Dennis and I then travelled to the University of Arizona in Tucson to use the Arizona Laserchron Center to collect and measure U/Pb data on zircon grains to calculate ages of those grains. The data we collected led us to reject the hypothesis that these rocks formed during a Snowball Earth event. Instead it looks like these rocks formed much later as the Carolina arc rifted from the Amazon craton to form the Rheic Ocean.

Powders are being prepared from collected limestone and dolomite samples, and these will be analyzed for carbon and oxygen isotopes in the lab of Dr. R.C. Thunell and Eric Tappa at USC Columbia. Using these analyses, I will prepare a carbon isotope profile for the Kings Mountain area marbles to compare to published Middle and Late Cambrian profiles.

My Magellan scholarship has allowed me to learn and explore parts of geology in ways that are not always possible in a conventional classroom setting. It has broadened my interest and understanding of geology in ways that I could not have imagined before starting my research project. I look forward to using the knowledge and skills that I have acquired from this project in a graduate studies program after I graduate from USC Aiken.
Outstanding Biology Student of the Year Priscilla Simon is a rising senior born and raised in Aiken. She attended Aiken High and chose USC Aiken for her college career because she had heard great things about it from family and friends, it was convenient and affordable, and it would allow her to stay connected to her family. She has lived on campus since her freshman year, but being in Aiken meant she did not have to miss such important events as the birth of nieces and nephews. She arrived not sure of her major, though she was interested in science and math. She decided to go to the biology session during orientation, and after hearing Dr. Jackson and Dr. Dyer speak about the programs available in biology, her decision was made! She loves living on campus and is active in Pacer Spirit and Baptist Collegiate Ministries. She is also a member of TriBeta, a new biology honor society instituted in the Spring.

Priscilla began working in Dr. Jackson's lab in her sophomore year and finds the research most rewarding. She has especially enjoyed the experiences of participating in Research Day and the South Carolina Academy of Science meetings. The poster she and Alex Jureka presented in last year's meeting was selected as best poster in the Cell & Molecular Biology section, and this year Priscilla took home the honors for best oral presentation in the Cell & Molecular session with a talk entitled "Comparative Study of HIV-1 Induced Apoptosis by Expression of Pro-apoptotic BAX and TBID." You will read about Priscilla's Magellan Scholar project on page 4. She will graduate in May 2013 and hopes to attend graduate school in the southeast.

Magellen Mini-Grant

HIV-1 encodes the virion infectivity factor (Vif), a small protein that causes degradation of a host antiviral protein tasked with preventing replication of retroviruses. During HIV infection, this host protein causes numerous mutations in the viruses DNA rendering the virus inactive and preventing infection. A promising way to combat HIV could involve inhibiting vif function, which would allow host cells to inactivate HIV and prevent infection. My project focuses on using hammerhead ribozymes, which are small catalytic RNAs, to inhibit Vif expression. I have completed the cloning of three ribozymes targeted to the HIV Vif and am beginning to test the effectiveness of these reagents to reduce or suppress HIV Vif expression. I will be testing these ribozymes in a number of ways. My first series of tests, called cleavage assays, will allow me to determine if these ribozymes actually degrade Vif mRNA in the predicted manner. I will then use Western blots to measure the actual reduction of Vif protein in cells. The final step will be to do an HIV replication assay to determine the ability of each ribozyme to reduce HIV replication.
Newest Alumni

May-August graduates in attendance at the Senior Brunch: 
1-r Amy Johann, Brittney Small, Ben Hutto, Ashton Hamilton, Holly Pinks, and Devay Dandy

Alumni News

Vanessa Guy Ethridge (2004) earned a Bachelor of Science in Nursing from Duke University in December 2011 and is employed at Johnston Medical Center in Smithfield, NC.

Frank Spradley (2006) received a Ph.D. in Cell Biology & Anatomy from Georgia Health Sciences University in May 2012.

Connie Arthur (2006) received a Ph.D. in Biochemistry from Emory University in May 2012.

Brandon Hall (2007) received a Ph.D. in Pharmacology from Georgia Health Sciences University in December 2011.

Elizabeth Brooke Harrison (2007) graduated from Georgia Health Sciences University School of Dental Medicine with a DMD degree in May 2012.

Anesha Maxwell (2008) received her M.D. degree from the Medical University of South Carolina in May 2012.

Amanda (Gerolstein) Wilkinson (2008) received a M.S. in biochemistry & molecular biology from Johns Hopkins University in 2011.


Fish and other seafood consumption. She already has a Magellan scholar on our campus, and she received funding under USC’s ASPIRE I program to purchase an electrofischer system to attach to her boat, which will make her sampling trips much more efficient. She is also one of the collaborators with Dr. Hancock, Dr. Dyer, and Dr. Harmon on our new greenhouse project, so it is easy to see she has made good use of her time. We are happy to welcome her to our department!

Alumni Update Online

Did you know?
You can update your address and let us know what you’ve been doing since graduation online! Just go to http://web.usca.edu/biology/alumni.dot. We’d love to share your news!
Research continues to be an integral part of our department’s program. Students pursue independent study projects under the tutelage of faculty members. Those pursuing a B.S. degree are required to complete a senior research project. Listed below are projects for Fall 2011 and Spring 2012.

**Fall 2011 Senior Research Projects**

Justin Barrett: *Fungi associated with Caribbean gorgonians.* Advisor: Dr. Garriet Smith.

Bradleigh Birchmore: *The effect of nutrient patches on the placement of reproductive tubers by 'Cyperus esculentus'*. Advisor: Dr. Andy Dyer.

Brittney Crawford: *Olfactory behavior and learning in fruit flies.* Advisor: Dr. Michelle Vieyra.

Arcelie Nicole Creswell: *The toxicity of recycled landscaping products to terrestrial invertebrates.* Advisor: Dr. Michele Harmon.

Deanna Dubose: *The influence of growing season length on germination suppression in 'Aegilops triuncialis'*. Advisor: Dr. Andy Dyer.

Jarod Frick: *Monitoring water quality within a contaminated second-order stream system.* Advisor: Mr. Bradley Reinhart.

Samantha Holladay: *Monitoring pollution in Horse Creek in Aiken County, SC.* Advisor: Dr. Michele Harmon.

Adam Kays: *Seasonal changes in benthic invertebrate and fish communities in the Edisto River.* Advisor: Dr. Derek Zelmer.

Joseph Moody: *Predatory avoidance in burrowing snakes.* Advisor: Dr. Michelle Vieyra.

Katie Poole: *Bacteria association with Caribbean gorgonians.* Advisor: Dr. Garriet Smith.


Rebecca Scheffler: *The toxicity of recycled landscaping products to aquatic invertebrates.* Advisor: Dr. Michele Harmon.

Peyton Stilp: *Monitoring trace element concentrations within a second-order stream system.* Advisor: Mr. Bradley Reinhart.

**Spring 2012 Senior Research Projects**

Amanda Abernathy: *Pollution source identification in Sand River in Aiken County, SC.* Advisor: Dr. Michele Harmon.

Tyler Ard: *Causes of human mortality between urban and rural counties in three southern states.* Advisor: Dr. Andy Dyer.

Samantha Briggs: *Seasonal behaviors of captive Caribbean flamingos.* Advisor: Dr. Michelle Vieyra.


Eric Grande: *Seasonal fish and parasite community dynamics in the Edisto River.* Advisor: Dr. Derek Zelmer.

Ashton Hamilton: *Germination variation in a California annual grass along a precipitation gradient.* Advisor: Dr. Andy Dyer.

Jordan Hart: *Seasonal changes in benthic invertebrates in a backwater stream.* Advisor: Dr. Derek Zelmer.

Benjamin Hutto: *Monitoring pollution in Horse Creek in Aiken County, SC.* Advisor: Dr. Michele Harmon.

Amy Johann: *Characterize the effect of the Rdr2 gene on transposon behavior.* Advisor: Dr. Nathan Hancock.

Brad Miano: *The effect of depth of burial and seed size on emergence of 'Aegilops triuncialis'.* Advisor: Dr. Andy Dyer.

Jessica Moment: *Determining odors that are natural attractants and repellents to fruit fly larvae.* Advisor: Dr. Michelle Vieyra.

Carlos Parada: *Nesting behavior of wood ducks(Aix sponsa) in SC.* Advisor: Mr. Bradley Reinhart.

Holly Pinks: *Determining natural fruit fly attractants, repellents and neutral odors.* Advisor: Dr. Michelle Vieyra.

Ryan Shealy: *Germline and somatic mutations in human breast cancers.* Advisor: Dr. Stephanie Muga

Brittany Small: *Characterize transposase fusion proteins in yeast.* Advisor: Dr. Nathan Hancock.

Breann Staubs: *Variation in seed germination in populations of 'Aegilops triuncialis'.* Advisor: Dr. Andy Dyer.

Amanda Steffan: *The development of giraffe social behaviors in a captive environment.* Advisor: Dr. Michelle Vieyra.

Reginald Washington: *Spatial heterogeneity in trematode infections of 'Helisoma trivolvis'.* Advisor: Dr. Derek Zelmer.
Alumni Focus

Dr. Kim Ritchie graduated from USCA with a degree in biology in 1994. Here, in her own words, is her story: I always knew I wanted to study biology, from the time I was small. I grew up on a farm in Walterboro, SC with many animals. My father is a forester, and my uncle managed wildlife refuges in SC. They were (and still are) major influences.

USCA is a great local school. I was extremely fortunate to get my undergraduate education here. There are so many great teachers at USCA who have impacted many generations of scientists: Hugh Hanlin, Jeff Priest, Jim Yates. My favorite all time teacher was John Westbrook. He was the reason I studied genetics for my Ph.D. I became fascinated with DNA replication because of him. He made it such an adventure. Because of this my dissertation topic (done at UNC Chapel Hill) was DNA replication at the ends of eukaryotic chromosomes.

But I did my main undergraduate research project at USC Aiken in the lab of Garriet Smith, who is a great research mentor. We studied coral microbiology at a time when no one else was doing this kind of research. It has since become one of the fastest growing fields in coral reef ecology. This is due, to a great extent, to Dr. Smith’s insights.

Because of the success of this research I went back into coral reef microbiology after my Ph.D., and this is where I am today. I did post-doctoral fellowships at the Smithsonian Tropical Research Institute in Panama and Scripps Institution of Oceanography in San Diego CA. For the past 9 years I have been studying bacterial symbionts of corals and am Senior Scientist and Manager of the Marine Microbiology Program at Mote Marine Laboratory in Sarasota, Florida. www.mote.org

Here additionally work on other projects including antibiotic producing bacterial symbionts of sharks and rays, microbial dynamics of toxic algal blooms and climate change effects on coral reef organisms.

I have two girls (who were raised at USC Aiken!!) who are now all grown up. Emily is a CPA and just received a Masters in Accounting from Wake Forest and Jillian is a childhood development student at UNC Charlotte.

I have had over 60 student interns of my own, many of whom have gone into Ph.D. programs in coral reef biology. I love to paddleboard and paddlesurf (my newest thing), but mentoring students and watching them develop into scientists may be my favorite past time of all. And THIS is due, in large part, to the great teachers and mentors I had at USC Aiken. I want to be able to provide opportunities similar to those I received at USCA.