If you happen to see a bike parked at the bike rack outside the west end of the Science Building, it most likely belongs to the newest member of the Biology and Geology faculty, Dr. April DeLaurier. Dr. DeLaurier joined our faculty in August, following the retirement of Dr. Harry Shealy (see Spring/Summer 2013 Evolutions).

Although she was born in Ohio, April’s parents moved to Toronto when she was very young, where her father became a professor of aerospace engineering at the University of Toronto. She grew up in Toronto and attended the University of Toronto for her undergraduate studies, majoring in archeology, with a focus on physical bioarcheology. “I have always been fascinated by skeletons,” Dr. DeLaurier admits. “One of my first jobs at sixteen was digging up a mid-19th century cemetery to move the remains.”

She went on to the University of Western Ontario for a master’s degree in bioarcheology. Realizing that her interest in skeletons was more biological than archeological, she went on to pursue a Ph.D. in biochemistry at University College London in England. Here she worked on a cat model and wrote her thesis on “The etiopathogenesis of feline osteoclastic resorptive lesions” under the direction of Dr. J.S. Price and Prof. M.A. Horton.

She remained in London for the next four years at the National Institute for Medical Research doing post-doctoral research in the Division of Developmental Biology, this time on a mouse model, studying the development of mouse limb muscle, tendon, and bone.

Then came the transition to zebrafish and the U.S. Her interest in studying bone formation in the zebrafish model led her to another Postdoctoral Research position at the Institute of Neuroscience, University of Oregon in Eugene. “Zebrafish are such a great model to study,” says Dr. DeLaurier. “You can actually watch the development processes in-vivo in the embryo.” In particular, she

(Con't on page 3)
From The Chair:

by Dr. William Jackson

It is difficult to believe that it has been twelve years since we published the first edition of Evolutions. That year, 2002, saw the implementation of our new Bachelor of Arts degree and the awarding of three National Institutes of Health research grants to Jim Yates, David Strom, and myself. Since that time, we have hired eight new biologists who have brought their own unique perspectives and expertise to the department. Our ability to attract a strong, diverse faculty has allowed us to create a high quality learning environment that offers a wide variety of courses and provides a broad range of undergraduate research opportunities to our students. This has, in turn, strengthened our undergraduate research program; the success of which may be judged not only by the ever increasing number of students who are working in our laboratories throughout the year, but also by the participation of these students at all levels of research from writing grants to support their work to presenting their results at state, regional, and national meetings. The most recent examples of these successes can be seen in the pages of this newsletter.

Arguably, the past 12 years have been our most productive in terms of the success of our faculty and students. These successes can be measured by (1) the increased number of successful grants to support our various research programs, (2) the increased number of students who participate in quality research programs, (3) the increased number of students who are admitted into excellent graduate programs, and (4) the increased number of students who are admitted into professional schools (dental, medical, and veterinary medicine). While the success of our program is grounded in the content of our courses, that success is strengthened by the undergraduate research experience, which requires students to not only apply knowledge gained in the classroom, but also challenges them to think critically and move beyond their comfort zone to discover things they did not know existed.

The successes of our students have been, in no small way, facilitated by a group of extremely hard working faculty members who love their science, are excited about sharing it with our students, and are excellent mentors both in the classroom and the research laboratory. For those who have graduated and therefore already experienced our undergraduate research program firsthand, I suspect you will agree that it was one of the most challenging and exciting times of your college experience. I believe you would also agree that it was the most rewarding! For our current students who have not yet stepped up to the challenge, consider your research options carefully, speak with those faculty members whose projects you find most interesting, and get started. The undergraduate research experience will become an invaluable part of your biology education, and more often than not, will set you apart from others. In this regard, over the past year our students have had numerous successes: a Ronald McNair Scholar, three Magellan Scholars, numerous student research awards, and the astounding precedent of having five biology graduates accepted into veterinary programs. Congratulations to all of our students on their outstanding accomplishments and to our faculty who continue to make it possible.

Center for Research Excellence

The first Center for Research Excellence Connections grants were awarded to students this Spring: Ashton Celec, Department of Exercise and Sports Science, Mentor: Dr. Brian Parr, Objective and subjective assessment of exercise intensity of a polo match; Alexis Harvin, Department of Biology and Geology, Mentor: Dr. Virginia Shervette, Age, growth, and reproduction of southern kingfish (Menticirrhus americanus); Brittany Jowers, Department of Biology and Geology, Mentor: Dr. Virginia Shervette, Accurate techniques for age and growth determination of Balistes capriscus; Melissa Lane, School of Nursing, Mentors: Drs. Thayer McGahee and Stephanie Muga, The effects of antioxidant consumption on the frequency of student illness; Chris Leaphart, Department of Biology and Geology, Mentor: Dr. Derek Zelmer, The Life cycle and host specificity of Haematoloechus floedae. Each student received a grant of $500 for their project.
concentrates on craniofacial development, watching how the skull and jaw form and following the genetic pathways to decode abnormalities. This work could lead to a better understanding of congenital diseases like cleft palate in humans.

While at Oregon, she mentored several undergraduate students and served as an adjunct lecturer. “I always thought I would end up a professor,” she says. “I really like getting students hooked on development, and I wanted a place with a good balance between teaching and research.” Both she and the department think she has found that place at USCA! She has hit the ground running, setting up an extensive zebrafish housing facility in her lab and getting students involved. She is growing her stocks of fish from lines obtained from Oregon. She currently has about 200 fish, but at full capacity will house 5,000! The transgenic lines glow green in the skeletal cells, allowing the researchers to watch how the bones are formed and how they develop. “It’s a very dynamic four-dimensional way to study growth,” she summarizes.

Dr. DeLaurier has already convened a meeting at USCA of other zebrafish researchers in the area, both from Georgia Regents University and USC Columbia. “The zebrafish community is very close-knit and collaborative,” she says. “That’s one of the things I really like about using the zebrafish model.” There are core facilities at both of the larger universities that offer some equipment Dr. DeLaurier does not have yet for her lab, most notably a confocal microscope. There is an annual worldwide zebrafish conference that she has attended several times. She is already an established scholar in the field, with eighteen co-authored publications, a book chapter, and numerous presentations to her credit. One of her students was awarded a Mini-Magellan grant this year, and she has been awarded both a RISE (Research Incentive for Summer Engagement) and an ASPIRE I grant for the coming year to support her work.

And in her “spare” time, April enjoys running, biking, and other outdoor activities like camping and hiking. She took a week-long bike trip in the Oregon desert just before making the trip to Aiken last August. Oh, and she likes to knit as well. She is a woman of many talents and we are proud to call her a member of the Department of Biology and Geology.

Green fluorescent protein (GFP) expression in bone forming cells (osteoblasts) during development of the opercle bone of a 4 day post-fertilization zebrafish larva

Dr. DeLaurier watches Rachel Roberts express eggs from a female zebrafish
The department is proud to announce that three more of our students have been named Magellan scholars in the 2013-14 academic year. Each of them describes what his or her project entails:

**Infrapopulation Structure of Fascioloides magna in White-Tailed Deer (Odocoileus virginianus) in the Western Piedmont Region of South Carolina.**

My Magellan scholar project examined the infrapopulation structure of a parasite infecting the white-tailed deer in our area. *Fascioloides magna* is a large helminth parasitic fluke native to North America, commonly found in the livers of white-tailed deer where it can cause a high degree of pathology to the host. These parasites infect the deer on a seasonal basis, creating distinguishable cohorts of flukes that can be identified by their sizes and mass. One common pattern in helminth infections in vertebrate hosts is the “crowding effect”, where competition for resources produces a negative correlation between adult fluke size and the abundance of the flukes. By examining the livers of deer from the western piedmont region of South Carolina, I was able to extract individual flukes and then measure their mass, length and widths. I used the relationships between these measurements to distinguish cohorts and then analyzed each cohort for evidence of the crowding effect. While identification of distinct cohorts was successful, my results indicated no evidence of the crowding effect in the *F. magna* infections of White-Tailed deer in the western piedmont region of South Carolina.

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**Is there a dose dependent effect of Caffeine on cognitive performance or neuronal activation?**

Caffeine use is incredibly popular, and it has been previously shown that short term memory and reaction times can be improved with the ingestion of less than 100mg of caffeine (similar to a cup of coffee). However, too much caffeine can have many negative effects including bouts of nausea, gastrointestinal upset, and a host of long term cardiovascular issues. My Magellan project is to look at the effects of different doses of caffeine on cognitive performance and neuronal activation to see if ingesting more than 100mg of caffeine is beneficial or not. I use a newer optical imaging technology called the fNIR (functional Near-Infrared) to pick up cerebral blood flow changes that occur in the prefrontal cortex due to increased energy demands. Participants come in for two separate sessions, and ingest either 100mg of caffeine, 200mg of caffeine, or a placebo and perform a series of reaction and memory tasks while the fNIR is placed on their forehead to record the blood flow changes. After 60 participants have been run, I will compare the results of each treatment group and analyze the results for statistical significance.

**Targeted Transposon Mutagenesis Using the Cas9/CRISPR System**

Transposable elements are mobile pieces of DNA that move throughout the genome of a cell through a cut-and-paste mechanism. The transposon used in this project, mPing, is mobilized by two proteins, ORF1 and Transposase, encoded by the autonomous transposons, Ping and Pong. This element preferentially inserts in gene-rich regions and has high transposition activity, making it a great tool for disrupting genes to determine gene function. The goal for my Magellan project is to modify the ORF1 and Transposase proteins to produce targeted insertion of mPing. If the transposon’s insertion can be targeted to specific sequences in the genome, specialized mutagenesis applications could be performed. This specialized or targeted mutagenesis could enable plant researchers to specifically target genes to turn off in order to engineer desirable plant phenotypes. To determine if targeted insertion of mPing is possible, I will add a GAL4 DNA binding domain to the N-terminus or C-terminus of the ORF1 and Transposase proteins and screen for increased insertions of mPing into a target sequence when the modified proteins are expressed.
Geology Student Of The Year

Patrick Woodell, a twenty year veteran of the United States Army, has been chosen by the faculty as this year's Outstanding Student in Geology. Patrick began his studies at USCA in the Fall of 2011 after retiring from the army, and has chosen to pursue a biology degree with a concentration in Environmental Restoration and Remediation, which requires upper level geology classes as the cognate. He expects to graduate in December 2014. He has demonstrated excellence in both biology and geology classes and earned the respect of his classmates and professors for his enthusiasm, dedication, and leadership.

Patrick had a strong interest in being a biologist in high school in Chesapeake, VA, where he grew up, but the outbreak of Desert Storm just as he was graduating prompted him to join the army instead. "I wanted to serve my country, but I expected to serve for two years and sixteen weeks. It turned into twenty years instead!" he says. He spent five years in the Infantry and then was offered the opportunity to train as a Medical Lab Technician. He met his wife, Melinda, during that training in San Antonio, Texas. He served his next fifteen years in that capacity, traveling the world and living on four continents.

Patrick's training in microbiology and immunohematology served him well in his biology classes, but his favorite classes have been field-oriented classes like Seasonal Flora with Dr. Shealy, Vertebrate Zoology with Dr. Hanlin, and also Microbial Ecology with Dr. Smith. "After so many years in the lab, I wanted to be outside!" Patrick explained. His senior research on copper toxicity in the Edisto River with Dr. Harmon also took him out into the field to collect samples at several different locations along the river.

And now, living near Aiken in Edgefield County, he and Melinda, who is a nurse at Ft. Gordon, have two sons, Patrick, Jr. (13) and Peter (10), who aspire to be a computer scientist and a herpetologist! We congratulate Patrick on his very successful career in the army and at USCA, and wish him all the best in his future endeavors.

Recent Faculty Activities

RISE (Research Incentive for Summer Engagement) awards:
April DeLaurier, Making a transgenic reporter line using species-homologous promoters for the cathepsin K gene to study how osteoclasts shape the developing zebrafish skeleton

ASPIRE I grants:
April DeLaurier, Understanding the role of Histone deacetylase-4 (Hdac4) in zebrafish craniofacial development
Nathan Hancock, Developing a Phaseolus acutifolius Mutagenesis Resource For Discovery of Drought Related Genes

Selected Publications:
Student Awards

South Carolina Academy of Science Annual Meeting awards for outstanding undergraduate research:

Claudia Fulmer, Molecular Biology Session, The Cellular Effects of HIV-1 TAT-Dependent Expression of Pro-apoptotic TBID and BAX, mentor Dr. William Jackson.

USCA Research Day:

Emily Webb, Gold medal, oral presentations, Sciences session one, Measuring the effect of anti-HIV tat siRNAs on HIV replication, mentor Dr. William Jackson.

Claudia Fulmer, Bronze medal, oral presentations, Sciences session one, The effect of pro-apoptotic proteins tBid and Bax on cells expressing HIV-1 Tat, mentor Dr. William Jackson.

Breanna Marshall, Silver medal, oral presentations, Sciences session two, The Effects of Sugar Consumption on Body Fat and Fasting Glucose Levels in Rats, mentor Dr. Michelle Vieyra.

Rachel Roberts, Bronze medal, oral presentations, Sciences session two, The Effect of a High Sucrose Diet on Cognition in Rats, mentor Dr. Michelle Vieyra.

David Gilbert, Silver Medal, Posters, Determining the Role of Target Site Duplication Sequences on the Transposition of Miniature Inverted Repeat Transposable Elements, mentor Dr. Nathan Hancock.

Daymond Parilla, Honorable mention, Posters, Identifying Sequences Responsible for the High Transposition Rate of Tourist MITE, mentor Dr. Nathan Hancock.

USC Discovery Day:

Chris Leaphart, First Place, STEM morning session II, Effects of Haematoloechus Infection on the Functional Response of Libellulid Odonate Naiads, mentor Dr. Derek Zelmer.

Rachel Roberts, First Place, STEM afternoon session II, The Effect of a High Sucrose Diet on Cognition in Rats, mentor Dr. Michelle Vieyra.

David Gilbert, Posters: Biology & Biomedical Sciences I, First place, Determining the Role of Target Site Duplication Sequences on the Transposition of MITEs, mentor Dr. Nathan Hancock.
Student Awards, continued

Crystal Ryan, Posters: Biology & Biomedical Sciences II, First place, Cloning a Retroviral Vector to Express Anti-HIV RNAs, mentor Dr. William Jackson.

Claudia Fulmer, Posters: Biology & Biomedical Sciences II, Second place, The Effect of Pro-apoptotic Proteins tBid and Bax on Cells Expressing HIV-1 Tat, mentor Dr. William Jackson.

Southeast Regional Society of Plant Biologists Annual Meeting, Lexington, KY:

Ashley Strother, Poster Session, Third Place, Targeted insertion of the transposable element, mPing, by manipulation of transposase proteins, mentor Dr. Nathan Hancock.

Other News

Rising junior Daymond Parrilla has been named a McNair Scholar by the University of South Carolina. The Ronald E. McNair Post-baccalaureate Achievement Program prepares promising undergraduates for graduate education by involving them in research and other scholarly activities. The goal of the program is to increase the number of Ph.D. recipients among individuals who are first-generation/low-income students and who are from groups underrepresented in graduate education. The program includes a six-week summer research component, faculty mentoring, and research experiences.

Georgia Regents University STAR Program (Student Training and Research)

Last summer Rachel Roberts, then a rising senior, was chosen to participate in GRU’s STAR program, and this summer Helen Morris, also a rising senior, has been selected to be a Summer STAR. The program is designed to provide biomedical research experience for undergraduate students with a sincere desire to pursue a graduate education in biomedical sciences. During the course of the nine-week program, STARs actively participate in a biomedical research project under the guidance of a GRU faculty member. In addition, STAR participants attend workshops, discussion groups and laboratory demonstrations that expose them to a broad range of biomedical research techniques, approaches and laboratory experiences available at Georgia Regents University. The Summer STAR program provides excellent preparation and relevant experience for students planning to pursue a Ph.D. or M.D./Ph.D. in the biomedical sciences. Rachel will begin a Ph.D. program at GRU in Fall 2014.

Welcome to the newest member of the Departmental family, Jonathan Joseph Hancock, born on May 4th, who joins Lia, Lily, Charlie, and Madi. Congratulations to Dr. Hancock, Alyn, and the whole family!
The Year of the Future Veterinarians

It has been a remarkable year for the department's pre-veterinary students. A record number of five of our 2013-14 graduates have been accepted to vet schools, and we could not be prouder of them!

December 2013 graduates Wynter Koger and Jessica Lee are headed to Mississippi State University and University of Georgia Veterinary schools, respectively.

Wynter, who has a mini-farm near Windsor, SC with chickens, pheasants, quail, pigs, rabbits, dogs, and cats, says she decided she wanted to be a vet in high school when her cat was diagnosed with feline leukemia. "There wasn't really much known about the disease, and I decided then and there it was something I wanted to pursue," she remembers. She was offered one of the five contract positions for South Carolina residents at Mississippi State, and is very excited about their program. She is interested in the combined D.V.M./Ph.D. program offered at Mississippi and plans to prepare for a mixed large and small animal practice. Her boyfriend, Aiken County Sheriff's Deputy Justin Gantt, will remain on the farm to care for the animals, but Wynter is taking a couple of them with her for company!

Jessica Lee, filling one of the seventeen contract spots for South Carolina residents at UGA, had all but given up on her lifelong dream of going to vet school when her son JT was born seven years ago. She grew up on a farm and trained standardbred racehorses."When I got into USCA I realized that I could not tell my son that he could be whatever he wants to be without doing it myself. So I went for it," Jessica explains. She credits her professors at USCA for their support, caring, and encouragement to help her fulfill her life's ambition of becoming a vet.

May 2014 graduates Breanna Marshall (see Biology Student of the Year, p. 9) and Aubrey Shealy are also headed to the University of Georgia's vet school in contract spots. Aubrey credits his first interest in vet school to a visit by a local vet (mother of one of his classmates) in the first grade. She talked about the Iditarod Sled Dog Race in Alaska and they took a field trip to her clinic. "My grandma has always encouraged me, too," Aubrey says. "She wanted to be a vet herself and has encouraged me every step of the way." Aubrey was raised with dogs, cats, birds (one pet parrot in particular), turtles, and rabbits, and is also interested in a mixed small and large animal practice. He has worked at his hometown Batesburg/Leesville Animal Hospital for the past five years.

And lastly, Andy Emerson will matriculate at Tuskegee School of Veterinary Medicine in Tuskegee, Alabama.

Congratulations to all of these students! It speaks very well of the preparation they have received here at USCA, and we look forward to following their careers in veterinary medicine.
Breanna Marshall cannot remember ever wanting to be anything but a veterinarian, and upon her May graduation summa cum laude from USCA, she is ready and eager to begin pursuit of her veterinary degree at the University of Georgia in August. Breanna was born in Lexington, SC, but with her dad in the Marine Corp, she lived several places, including Hawaii, growing up. Her family had dogs, German Shepards and shepard mixes, and she rode horses recreationally. She attended Chapin High School and chose USCA because of the small-school atmosphere and the Honors Program.

Breanna was selected by the faculty as this year's Outstanding Student in Biology for good reason. Her work in the classroom has been outstanding, she was a Magellan scholar working with a group in the lab of Dr. Michelle Vieyra studying the effects of a high sugar diet in rats, she was a founding member and this year served as president of the TriBeta Biological Honor Society, an Honors student, and she also worked for the department prepping labs, most notably the microbiology labs.

When asked what her favorite classes were, she enthusiastically replied, "All of them!" But when pressed she not surprisingly singled out Animal Behavior and Animal Nutrition with Dr. Vierya, who also taught her Honors 101 seminar, Animal Physiology and Cancer Biology with Dr. Muga, and Dr. Jackson's Genetics, Advanced Cell & Molecular Biology, and Immunology. Come to think of it, that is getting close to all of them! She summed it up by saying, "I love it here! I'm so glad I came here. The faculty all know you, even if you only took one class with them."

In her laser-like pursuit of veterinary studies, Breanna has also worked at the Dutch Fork Animal Hospital in Irmo for the past four years as a veterinary assistant during summers and vacations, and also one or two week-ends a month. She greatly admires all the vets there and found the experience gained there to be invaluable.

Breanna's enthusiasm for USC Aiken rubbed off on her sister, Sydney, who is a freshman this year pursuing a nursing degree. The sisters are even rooming together! We congratulate Breanna on a job well done here at USC Aiken, and wish her every success in the future as a veterinarian.
Evolutions

Newest Alumni

10

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/alumni/update-your-record.dot.

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May-August graduates in attendance at the Senior Brunch:

l-r Front row, April Patterson, Aubrey Shealy, Rachel Roberts, Sondra Heath, Samana Mehdi

Back row, Burt Croft, Paul Thomas, Chris Leaphart, Breanna Marshall, Porsha Martin, Kayla Fettro

Alumni News

A recent baby shower honoring Vanessa Guy Etheridge was the occasion for a mini-reunion for 2003 grads, Pam Wall Steen, Liza Perrow Petty, Vanessa (2004), and chemistry major April Ward Kirch. Vanessa and John Etheridge's son, Tyrus, was born on May 18, 2014.

Yianne Kritzas (2006) received a DMD degree in May 2014 from MUSC Dental School. On a Navy scholarship, he begins a year-long fellowship in Norfolk, VA.

Cari Fritz-French Kessing (2007) received a Ph.D. in Immunology from Emory University in May 2014 and has begun postdoctoral research in Dr. Lydie Trautmann’s Lab at the Vaccine and Gene Therapy Institute in Port St. Lucie, FL. She is also a visiting professor of Immunology at Trinity School of Medicine in St. Vincent. She married David Kessing from Aiken in June 2013. He is currently serving in the U.S. Army.

Theresa Ramos (2008) received a Ph.D. in Microbiology from the University of Alabama Birmingham in 2013 and is also doing postdoctoral research in that department.

Garrett Webster (2008) received a M.D. degree from the University of South Carolina School of Medicine in May 2014 and will serve his residency in medicine and opthamology at the University of Texas Medical School in Houston.

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/alumni/update-your-record.dot.
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 2013 and Spring 2014.

Fall 2013 Senior Research Projects

Chevy Augustine: *Age and Growth in Queen Triggerfish (Balistes Verte)*. Dr. Virginia Shervette.
Dylan Carpenter: *Using the HIV-1 promoter/enhancer to induce cell death*. Dr. William Jackson.
Barbara Corley: *Mercury Bioaccumulation in Gray triggerfish*. Dr. Virginia Shervette.
Wynter Koger: *The effects of a high sugar diet on anxiety and stress in rats*. Dr. Michelle Vieyra.
Chris Leaphart: *Effects of Haematoloechus infection on the functional response of odonate naiads feeding on ostracods*. Dr. Derek Zelmer.
Jessica Lee: *The effects of a high sugar diet on depression and activity levels in rats*. Dr. Michelle Vieyra.
Breanna Marshall: *The effects of a high sugar diet on obesity, blood glucose and triglyceride levels in rats*. Dr. Michelle Vieyra.
Sarah Ray: *Copper and zinc toxicity in blackwater streams on ceriodaphnia dubia*. Dr. Michele Harmon.
Rachel Roberts: *The effects of a high sugar diet on short and long term memory in rats*. Dr. Michelle Vieyra.
Aubrey Shealy: *Effects of parasitism on the feeding response of predators*. Dr. Derek Zelmer.

Spring 2014 Senior Research Projects

Cortney Adams: *Age and Growth in Gray Triggerfish*. Dr. Virginia Shervette.
Annette Borja: *Mercury Bioaccumulation in Reef Fish*. Dr. Virginia Shervette.
Kayla Fettro: *Water quality in tributaries to Sand River in Aiken County, SC*. Dr. Michele Harmon.
Claudia Fulmer: *The use of pro-apoptotic genes to induce cell death in cells expressing HIV-1 tat*. Dr. William Jackson.
Samana Mehdi: *Engineering constructs to test the function of tissue-specific promoters on zebrafish craniofacial development*. Dr. April DeLaurier.
Crystal Ryan: *Design and cloning an anti-tat hammerhead ribozyme*. Dr. William Jackson.
Colin Schaufler: *Population interactions of Fasciolodes magna in white-tailed deer (Odocoileus virginianus) in western Piedmont*. Dr. Derek Zelmer.
Paul Thomas: *A comparison of two aging structures in longnose gar (Lepisosteus osseus)*. Dr. Virginia Shervette.
Patrick Woodell: *Copper toxicity in the Edisto River*. Dr. Michele Harmon.

In the Spring of 2013, a new course was introduced to offer another option for our majors to gain research experience - BIOL 498 Research Design, Implementation, and Analysis. It is required of those earning a Bachelor of Arts degree in biology. Those pursuing a Bachelor of Science degree can choose either BIOL 498 or 490/499 to fulfill this requirement. Students in both classes attend our weekly Friday afternoon seminars. Dr. Andy Dyer, the instructor for BIOL 498, describes the content of this class: "This course is designed to offer an in-class research experience to graduating seniors who are not engaged in laboratory research. The course has two objectives: the first is to learn the important basics of experimental design, and the second is to apply that information. To accomplish the second goal, we use the death certificate database from Ancestry.com to test hypotheses related to mortality patterns in South Carolina from 1915 to 1960. We ask questions about types and numbers of infectious diseases, cardiovascular disease and cancer; we compare data between years, urban and rural counties, men and women, racial groups, and especially age groups. After gaining expertise reading doctor’s handwriting, we review hundreds to thousands of death certificates, compile and analyze the data, produce graphs, look up background literature, and finally produce a research poster. With this course, all of our seniors have had an opportunity to produce and defend a supervised research project before they graduate from the Department of Biology & Geology."
Please tell me a little about where you are from and what contributed to your interest in biology.

I grew up in the CSRA. First in Augusta, and then my family moved to South Carolina when my mom fell in love with an old house for sale. Although it is difficult to pin down when I first developed an interest in biology, I think it initially began by listening to my mom talk about her work as a nurse. It planted a seed that I might go into the medical field one day. I then took a wonderful Biology II class in high school where I built on that initial interest in biology and continued considering a career in medicine. My lifetime interest in the field of biology was solidified after I started at USCA. I was blessed to have Dr. Hanlin for one of my introductory biology courses. If Dr. Hanlin can’t get you excited about the field of biology, I question whether anyone can!

Why did you choose USC Aiken and biology as a major?

I wanted to attend a college or university where I would be able to have direct interaction with my professors, instead of being buried in a class of hundreds of students, and that economically made sense to attend. Once I was awarded a Chancellor’s full tuition scholarship by USCA, my decision to attend USCA was pretty much confirmed. Though I initially started out with a different major (still in the science field) at USCA, I switched to biology with the intention that it would serve as a foundation for graduate school in the medical field.

How did you choose law for your career?

While I have always thought the practice of law would be interesting, when I initially came to USCA my plans were to pursue a career in medicine. After a few years of study, I began to question whether medical school was the right choice for me. I took some time off from school, during which I worked and traveled, to allow myself some time to reevaluate my career plans. It was during this time that I chose to go into law. I returned to USCA to complete my undergraduate degree in biology, which served as the foundation for my current practice in patent law.

What were your favorite classes or experiences at USCA and what professors inspired you the most?

I was truly blessed with the variety of biology courses and the different professors I had at USCA. If I had to name a favorite course, I would probably say the herpetology course taken with Dr. Hanlin, during which we canoed the Okefenokee swamp. Never in my life would I have imagined that I would dive for a snake, instead of jump away from it! Dr. Jackson and Dr. Dyer also each played pivotal roles in my education, including working in Dr. Jackson’s lab and Dr. Dyer teaching me the art of scientific writing. Last, but certainly not least, Dr. Yates passed on some much appreciated advice to prepare me for the environment of law school (including a complimentary tennis lesson, just in case).

Tell us about your path since leaving USCA – law school and what you are doing now.

After graduating from USCA, I attended law school at the College of William & Mary’s Marshall-Wythe School of Law in Williamsburg, Virginia. Through my classes and experiences there, as well as my summer internships, I ultimately decided to pursue a career practicing patent law. After graduation, I began as an associate with Cooley Godward LLP (now Cooley LLP) in Reston, VA. I help our clients protect and enforce their intellectual property rights, as well as navigate the intellectual property rights of others. My practice initially focused primarily on the medical device industry, but has been expanded to include commercial products, green technologies and electronic devices, among other industries. One of the perks of practicing patent law is being able to learn about new innovations in a variety of industries, well in advance of these advancements being made public. It’s inspiring to be surrounded by such ingenuity.

Where are you living now and is there any family news you would like to share?

I now live in Augusta, GA with my wonderful husband, Chip, our two-year-old daughter, and Moya, our Bajenji dog. We are also blessed to be expecting our second child in July. This year has been exciting as we help our daughter explore new things like gardening, bugs and airplanes. Maybe she too will develop a love for science! Though living in Augusta, I continue to practice patent law with Cooley LLP.

Editor’s note: Maggie Shoup Fischofer graduated Magna cum laude with a Bachelor of Science degree in biology and a minor in business in May 2003.