Dr. Hugh Hanlin, a legendary professor of biology at USC Aiken since 1980, retired at the end of June 2015. His thirty-five years of teaching, field trips, and research projects leave an indelible mark on this university and community, as his scores of students have carried his love and enthusiasm for science out into the world.

Hugh grew up in Sheffield, Alabama, one of the “Tri-Cities” of Sheffield, Muscle Shoals, and Tuscumbia, where one town ran into another like Clearwater, Langley, and Bath on the Aiken-Augusta Highway. His playground was the Tennessee River, where he came by his love for “critters” exploring Jackson Hollow and the surrounding areas. “It was a different era, when kids could run free, as long as you were home for dinner,” he remembers. He and his elder brother, George, grew up doing just that.

The growing music scene was a big influence as well. Most people will have heard of Fame studios in Muscle Shoals, but Hugh recalls the first recording studios were actually in Sheffield. At that time Percy Sledge was an orderly at the local hospital and a friend of the Hanlins’ housekeeper. “Percy would come over for pimento cheese sandwiches. He actually recorded ‘When a Man Loves a Woman’ in Sheffield!” Hugh had the opportunity to become acquainted with many legendary musicians, and he loved the special Muscle Shoals sound, a mix between country and soul. His mother was a teacher at Sheffield High School and taught many of these boys who would go on to fame in the recording studios, among them The Swampers. Charles Rose, founding member of the Muscle Shoals Horns, was a childhood friend of Hugh's and river companion. By the time Hugh went to college, there were a dozen recording studios in the area attracting musicians from far and wide.

(Con’t on page 3)
From The Chair:  
**by Dr. William Jackson**

In 1982, I was a junior biology major at USC Aiken and decided to enroll in a new course taught by a recently hired biologist in the department. That course was Comparative Vertebrate Anatomy and the new biologist, of course, was Hugh Hanlin. Although not yet the cantankerous, loveable Hugh Hanlin, the signs of things to come were already present. Those of us in that class found Dr. Hanlin to be a shoot-from-the-hip, demandingly thorough, and completely entertaining teacher whose great enthusiasm for the subject carried us through the minefield that is comparative anatomy. I graduated soon afterwards and went on to do other things, among which was obtaining a graduate degree in immunology, an area that places molecular/cellular function within the environment of the entire living system. This personally satisfying combination was initially cultivated by Dr. Hanlin during that Comparative Anatomy class. I have since heard him state many times that students studying molecular biology should know the context within which the molecular processes function, a connection that I have tried to instill in my students. Page forward a few years to my next encounter with Dr. Hanlin. It was 1997 and I was the newly hired biologist in the department. Hugh at once became a valued colleague and friend, who never hesitated, when asked, to give advice to a new Assistant Professor. Now, with Hugh’s retirement, we can look back at a USC Aiken career that spanned more than 40 years of change; however, for Dr. Hanlin two things never changed: his non-wavering support for good teaching and his admonitions that new faculty should be, first and foremost, good teachers. To date, our department has been molded by a line of good teachers, not the least of whom was Hugh Hanlin.

A second faculty member is also leaving the department, although not due to retirement. Dr. Stephanie Muga recently accepted a new position at Midlands Technical College and taught her final course at USC Aiken this past summer. Stephanie, who was initially hired to teach anatomy and physiology, had been with us since 2007. Her oncology expertise also allowed us to revive Cancer Biology, a once-popular course that had not been taught in some time. Additionally, she was instrumental in helping convert our pre-nursing offerings to the A&P format that we currently employ. We wish Stephanie the best of luck in her new position.

We are excited to have two new biology faculty members joining our department in the coming fall semester. Dr. Kristina Ramstad earned her PhD in Organismal Biology and Ecology from the University of Montana Missoula, and is interested in genetic effects on population persistence and applied conservation management. She is coming to us most recently from a postdoctoral fellowship in New Zealand where she studied genetic bottleneck effects in two kiwi populations. Dr. Ramstad will teach introductory biology, vertebrate biology, and conservation biology. Dr. Suchreet Mander earned her PhD in Cellular Biology and Anatomy from Georgia Regents University where she focused on the role of autophagy in hormonally-treated breast cancer cells; and recently completed a post-doctoral fellowship in oral biology at GRU. Dr. Mander will teach anatomy/physiology and cancer biology.

I am pleased to announce that we have recently been approved to offer a new biology degree – a Bachelor of Science with a concentration in Molecular Biology, beginning fall 2015. The curriculum is based on our successful concentration in Environmental Remediation and Restoration, in that it allows students the option to formalize their area of study within a specific area, in this case molecular biology. Those interested in this new degree program should speak with their advisor.
He was also influenced by the congregational acapella singing in the Church of Christ, where he was raised, as well as the ever-present radio of his housekeeper, Evelyn. He and George often went with her to her church. Why, you may be asking yourself, all this talk about music? If you know Hugh at all, you know how much he enjoys music, especially the lesser known singer/songwriters who make their living writing songs and traveling the country performing at small, local venues and giving house concerts. His huge cd collection was tragically lost in a house fire, but he is rebuilding it, supporting those artists by buying their cds and attending as many concerts as he possibly can.

But back to biology. By the time Hugh reached high school, he could name all the critters up and down the river. His dad, a postman, loved nature and never discouraged Hugh’s curiosity and exploration. And his mother, an exceptional woman from southern Illinois, had attended Southern Illinois University and then gone on for a master’s degree in history and English at Peabody College in Nashville. Hugh attended Auburn University with the intention of becoming a veterinarian. Then in his last undergraduate year he took the field classes—herpetology, vertebrate zoology, ornithology—and came to the conclusion that he “liked snakes and salamanders better than Pekinese and Poodles!” He stayed at Auburn for a master’s degree in zoology with a minor in botany. With his teaching assistantship, he taught eight different classes in addition to his field work on the natural history of the greater siren, an aquatic salamander. “I never thought I wanted to be a teacher after watching my mother’s struggles and hard work,” Hugh explained, “but I found teaching so rewarding. I loved watching the lights come on when they ‘got it’.”

Next stop, Oregon State University in Corvallis, Oregon. Again a question: why did this Alabama boy head to the great northwest for his Ph.D. studies in herpetology? He quickly made that clear by explaining that there are two areas of the country for salamanders—the southeast and the northwest—so he chose to explore new ground in the latter. He also served as a teaching assistant at Oregon State while spending his week-ends traveling the roads from northern California into Washington and the Cascades in Oregon, studying variations in the population of the Dunn’s salamander, a lungless salamander. These studies were best conducted during the wet, winter months. “Believe me,” Hugh says laughing, “I know how to camp in the rain!” He loved Oregon and might have stayed had it not been for his wife’s desire to move back closer to home. Also a Sheffield native, they had married while Hugh was at Auburn. Hugh found a position as an assistant professor of biology at Union College in Kentucky. “I packed up a dog, a canary, a bag of snakes, and a pregnant wife into the cab of a U-Haul and headed back east,” he says with a shake of his head. Their oldest son, Neal, was born in Kentucky.

A year and a half later, Hugh applied for a one-year sabbatical leave position here at USC Aiken teaching introductory biology and anatomy and physiology. He was the successful candidate for a tenure-track position the next year, and the rest, as they say, is history! He soon expanded the course offerings of the department to include Comparative Anatomy, Herpetology, and Vertebrate Zoology. “This job was just what I wanted,” Hugh says. “It was primarily a teaching institution and I loved teaching. There were very limited research opportunities in the early days. And the department was small enough that I knew
The department is proud to announce that eight more of our students have been named Magellan scholars in the 2014-15 academic year. Five others were awarded Mini-Magellan grants to fund their research projects as well. Magellan scholars are awarded up to $3,000 to fund their research, and the mini-Magellan awards $1,000. Congratulations to these students and their research mentors.

David Gilbert, Mentor: Nathan Hancock
Characterizing the mechanism of replicative transposition of the MITE mPing

Khadijah Jihad, Mentor: April DeLaurier
Understanding the function of components of the PHF21A complex using the CRISPR-Cas system of targeted mutagenesis in zebrafish

Joshua King, Mentor: Michele Harmon
Using Dissolved Organic Matter from an Agricultural Product, Borregro HA-1, to Decrease the Bioavailability of Copper to the Invertebrate Indicator Organisms, Daphnia ambigua and Ceriodaphnia dubia

Erin McLaughlin, Mentor: William Jackson
Inducing expression of a fusion gene in an HIV-1-dependent lentiviral vector

Daymond Parrilla, Mentor: Nathan Hancock
Identifying the sequences responsible for the high transposition rate of a MITE transposon

Christina Thomas, Mentor: Michelle Vieyra
The Effect of Monosaccharides and Artificial Sweeteners on Bone Density in Sprague-Dawley Rats

Sandra Urquiza, Mentor: Michelle Vieyra
Synergistic effect between caffeine and sucrose on cognitive performance and neuronal activation

Emily Webb, Junior, Mentor: William Jackson
Determining the effect down-regulating an essential HIV regulatory protein has on HIV replication

Jennifer Deily, Mentor: William Jackson
Optimization of the retroviral vector pLGN for use in anti-HIV studies.

Austin Kaiser, Mentor: Michelle Vieyra
The Effects of Exercise, High-Sugar Diet, and Chronic Stress on Depressive Symptoms, BDNF and Cortical Density

Brianna Snelling, Mentor: April DeLaurier
Designing constructs for labeling osteoclasts to study bone resorption in zebrafish

Kayce Vanpelt, Mentor: April DeLaurier
Identifying the gene underlying a jaw mutation in zebrafish

Madelyn Wasden, Mentor: April DeLaurier
Optimizing In Vitro Fertilization Procedures in Zebrafish
Glicinia Castro of Luanda, Angola is the 2015 Geology Student of the Year. Glicinia earned a diploma in the physical and biological sciences from Complex Escolar Sao Domingo in 2011, where her interest in geology began. Following a year of full-time study at Universidade Antonio Agostinho Meto Faculdade de Ciencias, Glicinia applied for and was awarded a scholarship from Sonangol, the state oil company of Angola. She spent the 2013-14 academic year at the University of Alberta in Edmonton and the summer at the University of North Dakota studying English.

Glicinia has been with us at USC Aiken this past year and was enrolled in both physical and historical geology classes with Dr. Allen Dennis. She has demonstrated her expertise in aulacogens, thermal maturation of organic-rich source rocks, Mesozoic geology of the North American Cordillera, and Snowball Earth. She will owe Sonangol ten years of service after completing her Bachelor’s degree in Petroleum Geology, which she intends to do at the University of Oklahoma beginning in Fall 2015. Her ultimate goal is to earn a Ph.D.

Glicinia grew up in a blended family as the youngest of 9 brothers and sisters. Her siblings have degrees in mechanical engineering, economics, business, communications, and English from universities in Angola, South Africa, Portugal and the UK. Glicinia is goal-driven: She decided what she wanted to do, and did what she needed to accomplish that. She came to North America to study because she believed it would help prepare her to be the best she could be. Good luck Glicinia in your future studies and work.
Student Awards

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

Ashley Strother, 1st place, Molecular Biology Oral Session and Outstanding Female Scientist, Targeted insertion of the transposable element, mPing, mentor Dr. Nathan Hancock.

David Gilbert, 2nd place, Molecular Biology Oral Session, Precise Repair of mPing excision sites is facilitated by target site duplication derived microhomology, mentor Dr. Nathan Hancock.

Madelyn Wasden, 1st place, Molecular Biology Poster Session, Optimizing in vitro fertilization procedures in zebrafish, mentor Dr. April DeLaurier.

Khadijah Jihad, 2nd place, Molecular Biology Poster Session, Using the CRISPR/CAS9 system to understand the function of the PHF21A complex in Danio rerio craniofacial development, mentor Dr. April DeLaurier.

Sandra Urquiza, 1st place, Math/Computer Science/Physics/Astronomy Poster Session, Synergistic effect between caffeine and sugar on cognitive performance, mentor Dr. Michelle Vieyra.

Christina Thomas, 2nd place, Math/CompSci/Physics/Astronomy Poster Session, The effects of chronic stress, exercise, and sugar consumption on body weight and fat percentage in rats, mentor Dr. Michelle Vieyra.

USCA Research Day:

Ashley Strother and Courtney Burckhalter, Gold medal, oral presentations, Sciences session, (see above title for Ashley); Optimizing Germinal Trans-position of mPing in Arabidopsis thaliana (Courtney), mentor Dr. Nathan Hancock.

Helen Morris, Silver medal, Science oral, The dose dependent effects of caffeine on cognitive performance and neuronal activation, mentor Dr. Michelle Vieyra.

David Gilbert, Bronze Medal, Science oral, Precise repair of mPing excision sites is facilitated by TSD microhomology, mentor Dr. Nathan Hancock.

Helen Morris

Christina Thomas and Heather Jones, Bronze medal, posters, (see previous title), mentor Dr. Michelle Vieyra.

USC Discovery Day, USC Columbia:

Jennifer Deily, 1st place, STEM B Poster Session, Optimization of a retroviral vector to express cGFP, mentor Dr. William Jackson.

Marilyn Mason, Gold Medal, posters, The efficiency of humic substances in the remediation of bacterial contamination, mentor Dr. Garriet Smith.

Christina Thomas and Heather Jones, Bronze medal, posters, (see previous title), mentor Dr. Michelle Vieyra.

Honorable mention, Posters, Brittney Adams, Autumn Busbee, and Brianna Snelling.

Jennifer Deily
Student Awards, continued
Courtney Burckhalter, 1st place, STEM A Oral Session (previous title).

Helen Morris, 2nd place, STEM A Oral Session (previous title).


Kayce Van Pelt, 2nd place, Biology & Biomedical Sciences Poster Session B, mentor Dr. Michelle Vieyra.

Southeast Regional Society of Developmental Biologists Annual Meeting, Clemson University:

David Gilbert, 2nd place Poster session (previous title).

Summer Internships
Daymond Parilla, a rising senior, is participating in The Leadership Alliance Summer Research - Early Identification Program (SR-EIP) at John Hopkins University in Summer 2015. This program provides undergraduates with training and mentoring in the principles underlying the conduct of research and prepares them to pursue competitive applications to graduate school as well as providing a gateway to ongoing resources, mentoring and professional networks to support all participants along their chosen career path.

Emily Webb, also a rising senior, is participating in the Summer Undergraduate Research Program (SURP) of the Graduate School of Biomedical Sciences (GSBS) at the University of Texas Medical Branch (UTMB) in Galvaston, Texas. This program is designed to provide stimulating hands-on research experience for undergraduate students considering graduate education in biomedical sciences.

Joshua King and Marilyn Mason (see prev page) are both participating in an NSF-funded REU (Research Experiences for Undergraduates) program in Radioecology at the Savannah River Ecology Lab in Aiken. The program will provide the only hands-on training opportunity in radioecology for undergraduates in the world by engaging students in field and laboratory studies. Marilyn is being mentored by Dr. Virginia Shervette at USCA who is a co-PI on the grant.
Distinguished Undergraduate Research Mentor

The surprised look on his face was priceless when Ms. Julie Morris, Director of the Office of Undergraduate Research on the Columbia campus, took the podium at the conclusion of our Research Day awards to present Dr. William Jackson the system-wide Distinguished Undergraduate Research Mentor award. This prestigious award is completely student-driven and is determined through student nominations from current undergraduates and recent graduates. Dr. Jackson is only the second faculty member on Aiken's campus to be recognized in this way. His lab group of seven ranging from sophomores to seniors nominated him and were almost all on hand to delight in this achievement for their tireless mentor.

Since beginning his career at USC Aiken, Dr. Jackson has mentored 83 undergraduates in his research lab, sending many of them on to graduate and professional schools where they are very successful because of the preparation they received right here in the Jackson lab. At last count there were 10 PhDs, 3 MDs, 2 ODs, 2 DVMs, 2 PharmDs, 3 DMDs, 1 JD, 2 PAs, and 5 Master's degrees from such institutions as Johns Hopkins University, University of Alabama at Birmingham, University of North Carolina, MCG/Georgia Regents University, and University of Tennessee, among the Jackson Lab graduates.

According to Dr. Jackson's website, "Our main area of research is in the use of antisense reagents to target and inhibit the function of various HIV-1 genes. Our primary targets are the two HIV-1 regulatory genes tat (trans-activator) and rev (regulator of viral protein expression); however, we are also interested in the effects of inhibiting expression of the virion infectivity factor, vif." This work clearly attracts many students, eager to learn the skills to help them make a difference in our world.

One student nomination letter demonstrates clearly why Dr. Jackson was chosen for this award: "Dr. Jackson has impacted my research experience in numerous ways...he allocates his time for one on one mentoring in the lab. He is patient in explaining complex concepts and demonstrating advanced techniques. He has emphasized the importance of researching the topics with which you want to become familiar...Dr. Jackson emphasizes being able to discuss your research, whether in a presentation or one on one with another person. He consistently provides useful and tactful advice for improving as scientists and students. He encourages us to be self-motivated, determined, and realistically optimistic. His unwavering commitment to students is evident through his immense dedication of time, patience, and high expectations. He successfully communicates his passion for science, teaching, and students at all times."

The department also congratulates Dr. Jackson on this recognition of his many years of excellent undergraduate research mentoring.
Biology Student of the Year

Ashley Strother, this year's Biology Student of the Year, is from Graniteville and attended Westminter High School in Augusta. She began her college career at the College of Charleston and then enrolled at USCA in the Spring of 2012. "I have always loved science," Ashley explained, "and I knew I liked research. I was in Dr. Hancock's BIOL 121 class my first semester here and he had us fill out cards with our interests. He asked me to join his lab, and as soon as I got in the lab, I loved it!" Ashley spent the next seven semesters in Dr. Hancock's lab, as well as working in the summers.

To fund her research project on developing a novel mechanism for targeted mutagenesis, Ashley applied for and was awarded the Magellan Scholarship. She has represented the university well as she presented her work at 11 scientific conferences, including first place awards at USC Discovery Day, USCA Research Day, and the South Carolina Academy of Sciences and a second place award at the American Society of Plant Biologists Southern Section meeting. Her research and presentation skills recently culminated in her receiving the Outstanding Female Scientist award at the annual meeting of the South Carolina Academy of Sciences.

Her progress towards her goals will continue as Ashley is planning to pursue graduate studies with a focus on infectious diseases. We are very proud of Ashley and look forward to her continued success.
It Takes a Family

Ed's family

We all rely on our families, sometimes more than others. Our students are no exception, and perhaps especially for our non-traditional students who often have families and other responsibilities, the support and encouragement of those family members can make the difference in completing their degree at USC Aiken.

This year our department is particular proud of one of our August graduates, Major Edward J. Gladd, 71, U.S. Army retired. Ed has been taking courses part-time in our department for the past ten years, and completed the requirements for a Bachelor of Science degree in biology with a concentration in Environmental Restoration and Remediation this summer.

Ed is no stranger to higher education. Born and raised in Florida in an Air Force family, he joined the Army just out of high school and served for three years. He then used the G.I. bill to earn an Associates degree and a B.A. in Slavic Studies at Florida State University. He was commissioned as an officer in the Army and sent to Vietnam as an infantry platoon leader. He also earned a Masters degree in Public Administration through the University Without Walls program instituted by the Kennedy administration. Twenty years and 19 moves later, Ed retired out of Ft. Gordon. He became a licensed funeral director and ran a livery service for several years before returning to school at USCA in 2005.

Ed's wife Dianne also attended USCA for a completion four-year nursing degree and then went on for a Master's degree in adult nursing at MCG. Ed is understandably proud to say, "My wife and 5 kids graduated from nine colleges in eleven years!"

Ed's family, friends, and colleagues have all been very supportive and proud of his love and determination for learning. Ed and Dianne are planning to take a trip out west this summer before he settles down to volunteering in some aspect of environmental conservation. Ed sums up, "Dianne and I hope to leave a legacy to our nine grandchildren about the importance of higher education and environmental protection."

Congratulations to Ed....and his family!

Sandra Urquiza was accompanied by daughter Isobelle and her parents

Jennifer Jackson with husband Derek and daughters Shelby and Syndey
every major. I was the only one teaching 102 (now 122), so I taught them all.”

He became the director of the University Science and Technology Enrichment Program (USTEP) in 1981 and served in that capacity for the next sixteen years. This program provided enrichment opportunities for academically talented women and minority high school students which would expose them to the sciences and interest them in pursuing these fields in college. He also went on the road with his bags of critters, visiting schools, scout troupes and the like, educating them about the reptiles and amphibians he loved so much.

More intense research opportunities began arising in the early 1990s with grants from the Department of Energy and later the US Forest Service at the Savannah River Site. He was asked to provide long-term monitoring to evaluate the recovery of various locations, such as Lost Lake and Penn Branch. Sampling the herpetofauna was a good measuring stick for the health of these areas, and undergraduates and graduate students from Clemson served as his technicians. He became an Adjunct Associate Professor in the Department of Forestry and Natural Resources at Clemson in 1995, holding that position until his retirement.

Two more sons were born in Aiken, Carey and Ryan, who rounded out the family. Hugh was instrumental in the development of the Aiken and later Aiken-Augusta Swim League, with all the boys swimmers. They grew up attending all kinds of concerts with their “Pap”, too.

At one time or another, Hugh was the recipient of almost every award the University offered: Teaching Excellence, Community Service, Scholarly Activity, Alumni Award, and he served on and chaired a plethora of committees. He also served on the Highlands Biological Field Station Advisory Board for thirty years.

The Dr. Hanlin field trips are also famous among the biology majors. He began taking his herpetology classes to the Okefenokee Swamp during Spring Break in 1983, with week-end trips to the Highlands Biological Field Station in Highlands, North Carolina, and to Edisto Island. His vertebrate zoo classes also enjoyed trips to Highlands and Edisto. He loved getting the students outdoors, collecting specimens and seeing the critters in their native habitats.

After this long and storied career, when asked what the best thing about it all was, he said without hesitation, “The relationships built with the students. Some only lasted for a semester, but some have become life-long friends.” (see Alumni Profile article for an example) It will not be the same in the Biology/Geology Department without Dr. Hanlin’s colorful personality, dedication, and exuberant teaching (“gotta shake those pom-poms!”), but we wish him a happy and fulfilling retirement, filled with lots of fishing and concerts and, yes, maybe raising those chickens he keeps talking about!
Newest Alumni

May-August graduates in attendance at the Senior Brunch:
1-r Front row, Breanna Allen, Alexis Harvin, Courtney Burckhalter, Jennifer Jackson, Khadijah Jihad
Back row, Ed Gladd, Larry Shealy, Ashley Strother, Jennifer Deily, Sandra Urquiza, Jose Marrara, Lance Swiger

Alumni News

Priscilla Simon (2013) was married to Edward Redd on June 6, 2015 at Couchton Baptist Church. Priscilla is a third year graduate student at GRU.

Christin Noe (2009) earned a PharmD degree from South University School of Pharmacy, Columbia, SC, June 2015.

Brandy Bossle (2013) is currently an Industrial Hygienist at The EI Group, Inc., in Greenville, SC. EI is an environmental, health and safety (EHS) consulting firm that protects the health and safety of today’s workforce. She is a licensed Asbestos Building Inspector and a licensed Asbestos Air Monitor, performing Indoor Air Quality assessments, Noise Dosimetry surveys and Lead testing.

Theresa Ramos (2008), a post-doctoral researcher at the University of Alabama Birmingham in the Department of Microbiology, and her lab PI Dr. Scott Barnum, have developed a new test for bacterial meningitis which will identify the disease in as little as 20 minutes. This is a huge step forward for diagnosing the disease and will be particularly advantageous in developing countries where diagnosis and treatment are particularly difficult. [Approximately one million people in the U.S. are tested each year, with about 4100 cases diagnosed, 500 of which are fatal (CDC).]

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 2014 and Spring 2015.

### Fall 2014 Senior Research Projects

- Alaina Bodie: *Investigating Fecal Coliform Pollution in Horse Creek, Aiken, S.C.* Dr. Michele Harmon.
- Samantha DiMaria: *The influence of soil nutrients on competitive interactions between timothy grass and alfalfa.* Dr. Andy Dyer.
- Alexis Harvis: *Mercury Bioaccumulation in commonly consumed sportfish from coastal South Carolina.* Dr. Virginia Shervette.
- Nicole Howle: *Testing for adaptive phenotypic plasticity in Cyperus esculentus using soil nutrient patches.* Dr. Andy Dyer.
- Brandon Jarosz: *Advanced Topics Fish Biology.* Dr. Virginia Shervette.
- Brittany Jowers: *Accurate techniques for Age and Growth determination of Balistes capriscus.* Dr. Virginia Shervette.
- Lola King: *Histopathology of Posthodiplostomum minimum infection in the liver of centrarchids.* Dr. Derek Zelmer.
- Katelyn Leffel: *The effects of soil and water stress on phenology of Brassica rapa.* Dr. Andy Dyer.
- Stephanie Strawbridge: *Population Variation in Seed Ecology of Aegilops triuncialis.* Dr. Andy Dyer.
- Lance Swiger: *Phytoremediation of heavy metals.* Dr. Michele Harmon.

### Spring 2015 Senior Research Projects

- Autumn Busbee: *Genetic Analysis of mPing Transposition in Mimulus.* Dr. Nathan Hancock.
- Dorothy Clemons-Erby: *Age estimation in a deepwater snapper species from Puerto Rico.* Dr. Virginia Shervette.
- Jeremy Hargis: *Mercury bioaccumulation in crayfish (Procambarus acutus) in a coal burning site.* Brad Reinhart.
- Jennifer Jackson: *Competition intensity between and within genotypes in the invasive grass, Aegilops triuncialis.* Dr. Andy Dyer.
- Khadijah Jihad: *Understanding the function of components of the PHF21A complex using CRISPR-Cas9.* Dr. April DeLaurier.
- Amanda Jones: *Competition intensity between and within genotypes in the invasive grass, Aegilops triuncialis.* Dr. Andy Dyer.
- Larry Shealy: *Competition intensity between and within genotypes in the invasive grass, Aegilops triuncialis.* Dr. Andy Dyer.
- Ashley Strother: *Targeted insertion of mPing using CRISPER/CAS9.* Dr. Nathan Hancock.
- Sandra Urquiza: *The effects of caffeine and sugar on cognitive performance and neuron activation.* Dr. Michelle Vieyra.

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."
Linda Orebaugh ('85) and Guy Eargle ('84) are a perfect example of former students who became lifelong friends with Hugh Hanlin. They were among his first students at USCA in the early 1980s. Linda is from Aiken, her dad was a research chemist at SRS, and her mom, Lilo, worked in the Registrar's office at USCA. Guy hailed from Couchton. They both described coming to USCA as just a natural choice for them. They met during Linda's freshman year, and both being biology majors, their initial courtship took place in Science Club outings, Dr. Hanlin classes and field trips, and the rest, as the saying goes, is history.

Guy spent his growing up years outside much as Dr. Hanlin had, fishing, hunting, and camping. He began his studies in civil engineering, but took a Biology course and was hooked. Guy remembers biology and chemistry classes as his favorites, "In the beginning, fellow classmates Bill Jackson (our current chair!), Ricky Seigler and I enjoyed the soothing tones of calling in katydids at Dr Spooner's house and climbing the granite outcropping of Heggie's Rock."

Guy worked in the department prepping labs and also for a startup company, Environmental & Chemical Sciences (ECS) (aka Normandeau/Thermo Scientific) while in school. He explains, "I found myself stretched a little thin for student time and the comparative anatomy grades began to suffer. I sought help from my current advisor, Hugh Hanlin, who, after listening to my troubles, handed me 5 dollars, told me to stop whining, straighten up and fly right, and pay my tuition! I came to understand what extended families are about and that even college professors are people too."

Following graduation he worked as a staff biologist, conducting capture/recapture studies on the Savannah River Site before going back to school at Medical College of Virginia for a Master of Science degree to pursue a professional career as a Certified Industrial Hygienist. He currently heads up the Department of Industrial Hygiene at the Naval Health Clinic in Charleston.

Linda took David Mascaro's drawing and painting classes in high school and became interested in pursuing a career in medical illustration. "My first professor in Biology was Dr. Hanlin," Linda recalls, "He taught narratively, describing anatomy, morphology and physiology from cradle to grave. To learn it, I had to absorb the 'story' so I recorded each lecture and transcribed to notes each night. It was a very challenging class and I loved it. I knew then, for the first time in my life that I had the aptitude and the perseverance to do anything I put my mind to. Dr. Hanlin inspired me, encouraged me to do well. I went on to get my Bachelor of Science degree in biology at USC and MS in medical illustration at the Medical College of Georgia studying under my mentor David Mascaro. I know for a fact that I would have never been prepared for gross anatomy and the rigor of the medical school curriculum if I had not been challenged to think to learn, a true gift Dr. Hanlin gave me."

Linda also worked for ECS sorting ichthyoplankton and later for the Savannah River Ecology Lab as a draftsman throughout college. Upon graduating from USC she studied fine art at the Reilly League of Artists in White Plains, New York. She worked for many years at MediVisuals creating demonstrative evidence for medical malpractice litigation. She now works as a graphic artist for the Department of the Navy’s Engineering and Information Technology Command, Space and Naval Warfare Systems Center Atlantic. "I loved medical illustrating for litigation but I now love contributing what I can to our nation and our Warfighters," she says.

Guy and Linda have continued to go on field trips with Dr. Hanlin's classes ever since they graduated. You can find them in the middle of the front row of the Okefenokee picture on page 10. Their two children, Sidney and Cecilia, have grown up on those trips right alongside the three Hanlin boys. "Hugh and his boys have helped us raise them," Linda adds. Sidney is a welder and Cecilia has just completed her freshman year at USCA. "Now that's an alumni giving back to the institution," Guy says proudly!