

PLEASE DO NOT PRINT THIS.

ADVENTURES IN DENTISTRY: SUMMER WORK IN NJ AND PERU

This summer SU student **Krystal Donaldson** (shown right) spent six weeks at the University Medical and Dental School of New Jersey and almost two weeks in Peru. To read about her amazing experiences see p. 8. Krystal will be giving two presentations to discuss her experiences:

Tuesday Oct. 9, 2012, 3:30pm - 4:30pm in GUC 234, Pocomoke Room, (SMDEP only) sponsored by Multicultural Student Services

Thursday, Nov 1, 2012 at 7pm in HS 209, (includes information about Peru and SMDEP) sponsored by Health Profession Advising Program



ANNOUNCEMENTS AND AWARDS

SU Biology invites alumni to a Meet and Greet Social on Homecoming Weekend, October 13th from 10 am to noon in Henson Science Hall Room 243. Enjoy light refreshments, tour the facilities, and meet former Professors and some new ones.

Calling all BIO Grads!

We invite graduates of the SU Biology Program to participate in a special seminar designed to showcase the careers and research of our alum. Current students (especially freshmen) will greatly benefit from hearing what YOU have to share about what to expect after graduating from the program. The seminar day and time is Friday Oct 12 @ 4pm, so if you will be in town for Homecoming (that weekend), this would be a wonderful opportunity for you to connect with current students and faculty. Please contact Dr. Judith Stribling (jmstribling@salisbury.edu) as soon as possible, if you are interested in giving a talk.

The Fall 2012 Biology and Chemistry Seminar Series:

http://faculty.salisbury.edu/~kxhunter/biology_seminars.html

Alyssa Gabriel, grad, has been working as a research assistant this summer at Smithsonian Environmental Research Center, on research funded by NOAA and by NSF, assisting with water quality analyses and also investigating sources and fates of nitrogen inputs to the Bay.

Mallory Hagadorn was awarded the [Davenport-Hopkins Biology Scholarship](#) during Spring 2012.

Amber Metallo, 2012 grad, has been accepted to the MS program at Nova Southeastern University Oceanographic Center in Florida.

Emily Powell, 2012 grad, has been accepted to the MS program at Nova Southeastern University Oceanographic Center in Florida.

Alan Walker, 2012 grad, is starting the Masters Program at the Robert Wood Johnson Medical School in New Jersey for Physiology and Integrative Biology.

Relay for Life of Salisbury University: May 4, 2012

The SU Biology Team raised over \$1800 for the Relay for Life of SU last spring. Thank you to everyone who supported us! We will be starting a new team soon so check back if you want to join!

Insect Night at SU



In August, Dr. Price's lab hosted an Insect Night at SU for the Brownies Troop 1140. They held live insects, examined beetles and butterflies under the microscope, and heard about all of the cool research that we were working on this summer.

(Front) Brownies Troop 1140; (Back left to right): Dr. Price, Simone Nemes, Jennifer Shaughney, Elizabeth Rentz, and Mallory Hagadorn.

Biology 435: Evolutionary Biology: Debate between Faculty and Students

During Spring 2012, Biology 435 had a unique assignment as part of the evolution and society part of the course. Many times students are asked questions about evolution from family and friends and this assignment was used to address these real-life events. The class had to debate evolution with some of the Biology Faculty. The Biology Faculty took the anti-evolution position and the class had the pro-evolution position. The faculty were a rough crew (Dr. Emmert, Dr. Price, Dr. Taylor, Dr. Gutberlet, and Dr. Hunter as moderator). The class had to respond to challenges made by the "Rough Crew" and the goal was to use science and data to counter responses. This event had a great tone of respect and scientific integrity. Many thanks to the students and faculty for participating in this unique assignment. The students involved in the discussion were the following: Bottom row, Christian Kramer, Heidi Stoltenberg, Lalissee Geleta, Lauren Hensley; Middle Row, Porshia Butler, Brian Lynch, Erik Springer, Zakiya Kent, Kyle Wilhite, Kelsey Mitchell, Kaitlyn Milman, Sean James (standing); Top Row, Alyssa Gabriel, Dr. Elizabeth Emmert, Dr. Ryan Taylor, Dr. Dana Price, Dr. Ron Gutberlet, and Simone Nemes.



SABER: The Society for the Advancement of Biology Education Research

Every once in a while in science, a new movement takes off. Such is the case with Biology Education Research—the application of hypothesis driven research to the study of how students learn (or fail to learn) in the biology classroom. This approach began in physics thirty years ago, crossed over into chemistry a decade later, and is now beginning to flourish in biology, as demonstrated by the convening of the second annual SABER meeting at the University of Minnesota in Minneapolis in July. About 160 researchers—including graduate students and post-docs—presented data from their classrooms covering a range of topics. How successfully do students break through common misconceptions about genetics and evolution? Do students retain more content when they are tested using lower-level (memorization-based) or higher-level (critical thinking) questions? Do group projects and group exams increase learning gains? Great insights can come from applying the scientific method to teaching and learning in biology. The resounding refrain from the SABER meeting was: “Show me the data!”

--Kim Quillin

<http://saber-biologyeducationresearch.wikispaces.com/>

(website still under development)

Join the Delmarva Discovery Center for a Feathered Fiesta

September 22nd 2012, 10:00 AM–4:00 PM

Activities during the day include, live bird displays, crafts and games, face painting, a guided bird walk, owl pellet dissections, and carvers and artists. For more information please call 410-957-9933.

Chesapeake Wildfowl Expo

The Ward Museum of Wildfowl Art, Salisbury University, hosts the 15th annual Chesapeake Wildfowl Expo Friday-Saturday, October 12-13. This event pays tribute to old decoys while encouraging the carving of new ones. The museum, located on Schumaker Pond, provides the setting for this annual celebration of waterfowling events, which are an important part of the Delmarva Peninsula's history. Admission to the museum and event are free. For more information visit the Ward Museum Web site, www.wardmuseum.org, or call 410-742-4988, ext. 106.

OPPORTUNITIES

International Society for the Study of Women's Sexual Health: Prize Essay Contest

E-mail: info@isswsh.org; Web Site: <http://www.isswsh.org/>

For this award an abstract must be submitted. A prize of \$500 will be given at the discretion of the awards committee for the best submission in each of the following categories: Biologic Basic Science, Psychologic Basic Science, Biologic Clinical, and Psychologic Clinical. Deadline: 10/31/2012

Hertz (Fannie and John) Foundation: Graduate Fellowship Awards

E-mail: askhertz@hertzfoundation.org;

Web Site: <http://www.hertzfoundation.org/dx/fellowships/application.aspx>

The sponsor provides fellowships for graduate work leading to award of the Ph.D. degree in applications of the applied physical, biological and engineering sciences. Deadline: 11/02/2012

**National Consortium for Graduate Degrees for Minorities in Eng. & Science, Inc.
Graduate Education for Minorities (GEM) Fellowship Program**

E-mail: info@gemfellowship.org; Web Site: <http://www.gemfellowship.org/gem-fellowship/apply>

The National GEM Consortium's graduate engineering and science fellowship programs provide opportunities for under-represented minority students to obtain M.S. degrees in engineering and Ph.D. degrees in engineering and the natural and physical sciences through a program of paid summer internships and graduate financial assistance. For early consideration, applicants may complete their applications by October 1, 2012. Otherwise, the application deadline is November 15, 2012.

Parks & People Foundation Part-time Lead and Assistant Environmental Educator Position

Website: <http://www.parksandpeople.org/about/employment/>

Seeking experienced and enthusiastic Lead and Assistant Environmental Educators for their after-school, grades K-8 Environmental Education (EE) programs for Baltimore city youth. Programs are designed to improve academic skills in math, science and literacy while also providing meaningful experiences in nature and exposure to green careers. To apply, please send resume and 2 references to Desiree Shelley at desiree.shelley@parksandpeople.org

American Society for Pharmacology and Experimental Therapeutics

Graduate Student Best Abstract Award

E-mail: paperawards@aspet.org; Web Site: <http://www.aspet.org/awards/>

The American Society for Pharmacology and Experimental Therapeutics (ASPET) gives an award to a graduate student for the best abstract piece on experimental biology submitted to the ASPET Experimental Biology meeting. Deadline: 11/14/2012. Applicants must be a member of ASPET.

American Society for Pharmacology and Experimental Therapeutics

Drug Discovery and Development Young Investigator Award

E-mail: paperawards@aspet.org; Web Site: <http://www.aspet.org/awards/>

The American Society for Pharmacology and Experimental Therapeutics (ASPET) give an award to a young scientist (student, postdoctoral) for the best abstract submitted to Experimental Biology. Applicants do not need to hold a PhD or MD. Deadline: 11/14/2012

Mayo Graduate School: Molecular Pharmacology and Experimental Therapeutics Ph.D.

E-mail: phd.training@mayo.edu; Web Site: <http://www.mayo.edu/mgs/mpet.html>

Program URL: <http://www.mayo.edu/mgs/phd-admissions.html>

The Molecular Pharmacology & Experimental Therapeutics (MPET) curriculum is a visionary, comprehensive, and didactic program tailored specifically to students' needs and designed to train students to: Integrate across scientific disciplines; Perform cutting-edge, discovery-oriented research; Further the understanding of human biology; Enhance patient care through the development of novel disease therapies. The MPET curriculum is immediately applicable to the best possible biomedical research, drug discovery, genetics exploration, and cancer and biology therapy, all directly applicable to the challenges of patient care in the 21st century. Deadline: 12/01/2012

DEADLINE NOTE. The application fee is \$30. The most qualified applicants are invited to interview.

BIOLOGY INTERNSHIPS – a GREAT way to get experience in your area of interest (or find out if it really IS your area of interest)! For environmental/outdoor/veterinary internships, Dr. Stribling will be coordinating again for the winter term, and then Dr. Elizabeth Emmert is taking over this internship coordination beginning in Spring 2013. Contact either of them for more information!

Here's an impressive summary of one Biology major's experience this summer:

Over the summer I spent six weeks in Africa, with four of the weeks in South Africa and two of them in Mozambique. While in South Africa we did field research in the Thanda Big Five Game Reserve. This research entailed four bird point counts before 9:30 am and two 1 hectare square habitat assessments. For the bird point counts we stood in our assigned navigational direction and for ten minutes identified all the birds in that direction, where they were, what they were doing, and how far away they were. For the habitat assessments, there were 20 little 5m squares within each hectare and two teams. The tree team would identify every tree within the 5m square as well as assess any damage that had been caused to the tree, specifically looking for elephant damage. The second team would carefully measure to each individual square within the hectare starting from the middle and navigating using a map. Next they would measure out and mark each square creating a transect line diagonally down the middle. Along the transect line grass height and volume was measured, as well as any woody touches that occurred along the line from various plants. This research was amazing because we had the opportunity to help the local people by providing them with crucial information on the elephant damage in their reserve and help them to manage their elephant population, increasing tourism. The teams assembled in our group became the leaders of this project, and it gave me excellent experience working in the field. It was perfect for my field of study because I was able to have exposure to the large animals I hope to work with in the future while also getting hands on experience being a field researcher.

In Mozambique, a completely different kind of research was going on. The research was studying the effects of ecotourism on the coral reefs. In order to prepare for the research we were open water scuba certified up to 18m. We learned open water skills and were also tested on the local coral and fish species, where I acquired my additional PIC cards for Underwater Naturalist and Fish and Coral Expert. Diving on the African reef was one of the greatest experiences of my biological career because it was completely different than anything that I have studied before. The research required two dives per day. On the first dive, a transect line down the reef was measured and the coral was photographed along the transect line every 10m for 50m. On the second dive stereo video equipment was used to film the reef for four minute transects with 12 transects per reef. The fish on the video were then analyzed, identified, and measured carefully in each transect. What's cool about this research is that it provides local people with information on the effect they are having on the reef as well as suggestions about how to protect the reef while also sharing it with tourists that come from all over the world. Once again we were helping local people through zoological/marine biology based science. I really want to use zoological science to help communities of people because I love zoology and I really love serving people and this research has helped me see that I can do both. I was able to still do field research and gain that experience, but it also got me out of my comfort zone and opened me up to a completely different world under the water.

Article by: Rebecca Wanner



Biology 399: International Field Studies – Coral Reef Biology in Honduras

Coral Reef Biology is a winter term course that runs for two weeks in January. The program is designed to give SU biology students an opportunity to study the fish, corals, plants, and invertebrates associated with a Caribbean tropical reef. The class meets for the first week at Salisbury University where students read and discuss peer-reviewed research articles on key topics in tropical marine biology. The second week of the course takes place on the island of Roatan, part of the Bay Islands of Honduras in the Caribbean Sea.

Our host institution is the Roatan Institute for Marine Science (RIMS) located at Anthony's Key Resort (<http://www.anthonyskey.com>). Founded in 1989, RIMS is on the northwest coast of Roatan where over 30 miles of fringing and barrier reefs, seagrass beds, mangroves and shoreline are home to an abundance of life. A protected area known as the Sandy Bay Marine Reserve immediately surrounds the resort. At RIMS, students have lectures, slide presentations, and lab activities, but most of our time is spent in the water SCUBA diving or snorkeling, observing and interacting with the myriads of coral reef life forms in their natural environment. Students also have the opportunity to learn about the care, maintenance, training and research of the semi-captive bottlenose dolphins (*Tursiops truncatus*) housed there.

Students stay in wooden/screened bungalows at the water's edge, and have access to all resort amenities including kayaks, the full-service dive shop, underwater photo center and medical clinic equipped with a hyperbaric chamber. The RIMS is equipped with a classroom, lab and field equipment, dive gear lockers, and our class is assigned a state-of-the-art dive boat with a professional captain and dive master for the week. Every day we travel to different dive sites as we explore and learn about this amazing ecosystem. A student's performance in the class is judged based on a presentation, quizzes, enthusiastic participation, a field project, and a final exam. The prerequisites for this class are: permission from the instructor, previous biology courses, good swimming ability, and Open Water Diver certification. Scuba Diving is offered at SU (PHEC 210) or you can take it wherever you choose, but all check-out dives must be completed prior to taking BIOL 399 - Coral Reef Biology. If you would like to participate in the January 2014 Coral Reef Biology course, please contact Dr. Ann Barse (AMBARSE@salisbury.edu) As soon as possible.



The Economics of Biodiversity in Costa Rica (Biology 105-901)

The winter program “The Economics of Biodiversity in Costa Rica” runs for 11 days in January. The tentative dates for 2013 are Jan 7 – 17. The program is designed to give students the opportunity to experience the impressive biodiversity of Costa Rica and study firsthand the impacts of ecotourism. Starting in Tortuguero—nesting ground of sea turtles—we will begin to explore the many different habitats of Costa Rica. A visit to La Selva Biological Station will acquaint students with research happening in real time. In Monteverde students will experience the rain forest canopy via zip lines and hanging bridges. In Manuel Antonio National Park we will find an amazing variety of plants and animals against a backdrop of beaches and forested bluffs. Before returning to San Jose we will stop in Sarchi, a town known for artisans and local crafts.



This course is designed to help both biology majors and non-majors appreciate the biodiversity of the planet using Costa Rica as an example. The emphasis will be on the methods used to conserve biodiversity while developing the economy. We will examine the methods used on the ground in Costa Rica by visiting national parks, research, agricultural and cultural facilities. Students will develop an understanding of how complex conservation can be. Students will develop or sharpen their skills of scientific observation through guided activities and time on their own to observe. They will maintain a Journal, answering directed prompts as well as recording their own impressions of the day’s activities. In addition to science, the course will include large measures of language, culture, art, history, and a general appreciation for Costa Rica and her people. There will be assigned reading to be completed before traveling to Costa Rica and a paper due after we return from the field. The readings and paper assignment will be posted on the course website and discussed in country.



TRAVEL and PRESENTATIONS

Featured Student Krystal Donaldson is a Junior Biology Major at SU.

This summer I spent 6 weeks participating in the **Summer Medical and Dental Education Program** (<http://www.SMDEP.org>) held at the University Medical and Dental School of New Jersey (UMDNJ). During the course of the program I also took classes in Physics, Organic Chemistry, and Anatomy and Physiology where we dissected cadavers. My main interest in the program was dentistry, and two hands-on Dental Scholars days, where approximately 26 students were able to use dental equipment and learn more about the dental field. There were various speakers that would visit to tell us about their specialty and answer our questions. This year UMDNJ hosted approximately 80 medical and dental scholars. Another SU Biology student Georgette Ndamukong also participated in the program. It was a great experience!

Photo right: Krystal, Rosa Chaviano- Moran, DMD, Assistant Dean for Admissions and Student Recruitment, and Nadine Darwiche.



Featured Student Krystal Donaldson (continued)

My second trip this summer was an 11-day trip to Peru for a **Medical Missions Trip**. I got involved with a local group comprised of various churches in the Salisbury region. We made up a U.S. team of 11 individuals. We flew to Chiclayo, Peru where we were grouped with 20 Peruvian natives comprised of translators, a dentist, a gynecologist, an optometrist, nurses and two general physicians among other individuals. The team went to an indigenous village in the mountains of Uyurpampa, Peru to set up a clinic and serve the villages of that region. We served 500 people in a five-day span; offering free dental check up, gynecology, optometry, general health care and we were able to supply them with free medication. In addition, I was able to assist the dentist with the 82 patients he saw in the dental office; more specifically, assisting with 82 extractions and 19 consultations.

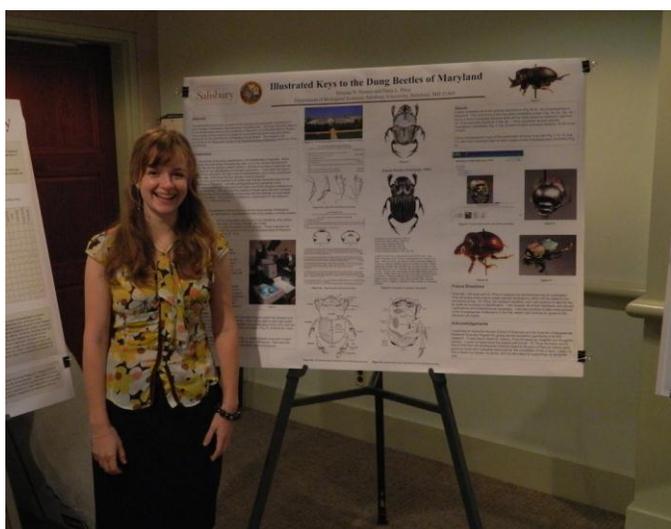
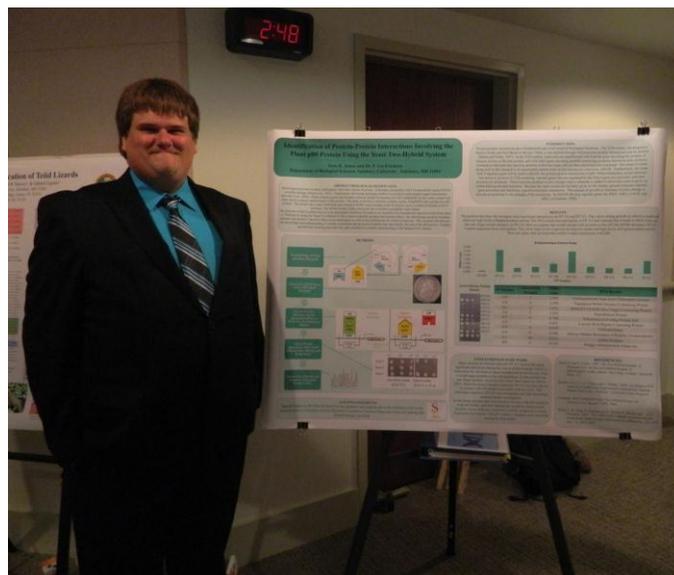


Guerrieri Undergraduate Summer Research Symposium



Mallory Hagadorn (left), Anne M. Estes,
and Dana L. Price
Title: Not All Dung is Created Equal

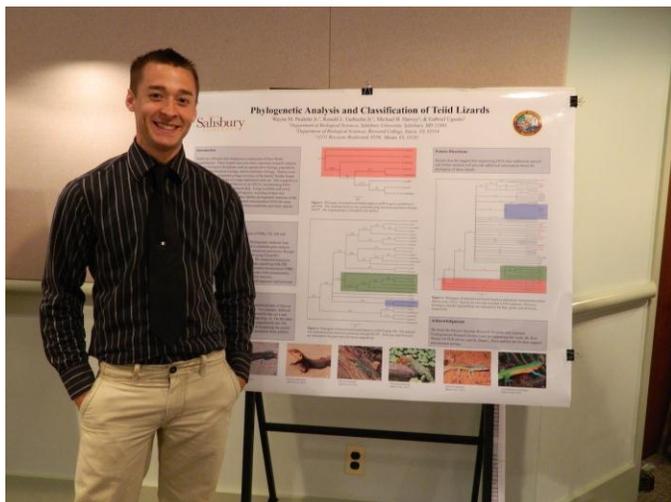
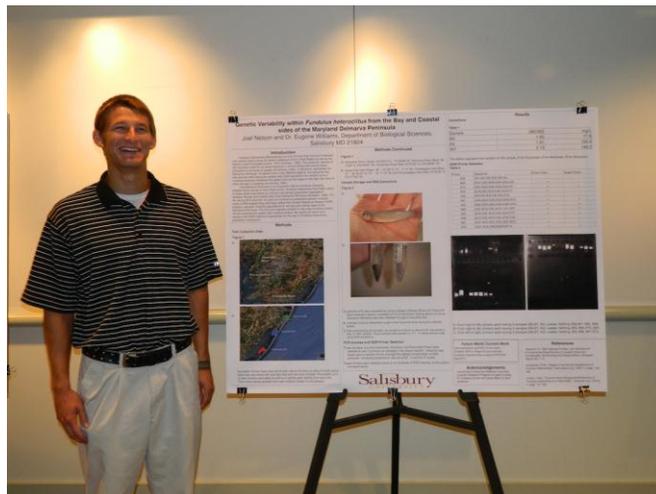
Sean R. James (right) and Dr. Les F. Erickson
Title: Identification of Protein-Protein Interactions
Involving the Plant p80 Protein Using the Yeast
Two-Hybrid System



Simone N. Nemes (left) and Dana L. Price
Title: Illustrated Keys to the Dung Beetles of
Maryland

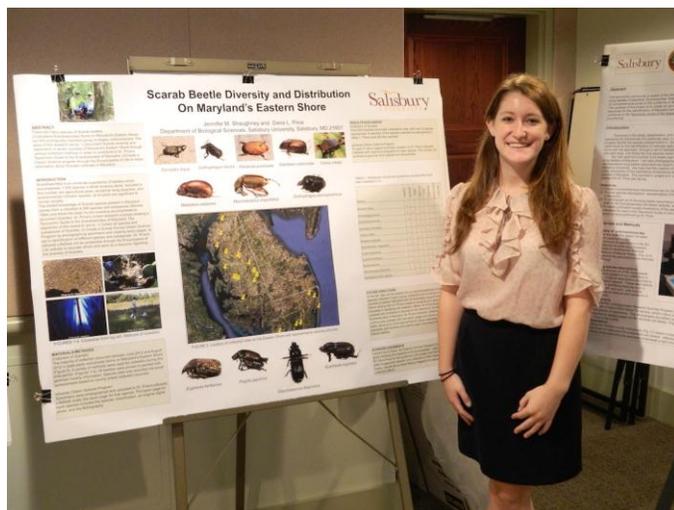
Guerrieri Undergraduate Summer Research Symposium (continued)

Joel Nelson (right) and Dr. Eugene Williams
Title: Genetic Variability within *Fundulus heteroclitus* from the Bay and Coastal sides of the Maryland Delmarva Peninsula



Wayne M. Paulette, Jr. (left), Ronald L. Gutberlet, Jr., Michael B. Harvey, and Gabriel Ugueto
Title: Phylogenetic Analysis and Classification of Teiid Lizards

Jennifer Shaughney (right) and Dana L. Price
Title: Scarab Beetle Diversity and Distribution on Maryland's Eastern Shore



Tanzania: Peace Corps in 1966 Revisited in 2012

Dr. Richard Hunter (retired SU Biology Faculty) spent two years (1966–1968) in the Peace Corps teaching in Tukuyu, Tanzania at Ndembela Primary School. This summer Dr. Kim Hunter took him back to Tanzania to celebrate the college graduation of their youngest daughter Eve. They took a safari into northern Tanzania to experience Serengeti National Park, and for biologists this was an amazing adventure. The Hunters also visited traditional Maasai villages outside of Arusha. Tukuyu is in southern Tanzania and they were able to tour the school where Dr. Richard Hunter taught school. He taught in English and in Swahili. He encourages biologists of all ages to consider volunteering for the Peace Corps and traveling to Africa.

A side trip included a boat ride to Zanzibar, an island off the coast of Tanzania, from Dar Es Salaam. They were able to see the endemic Red Colobus Monkey, large land snail, and take a spice farm tour. The Hunters continued their African travels to visit Zambia.



All photos were taken by Dr.s Richard and Kimberly Hunter.



American Society for Microbiology

Dr. Emmert attended the American Society for Microbiology (ASM) Conference for Undergraduate Educators in San Mateo, CA in June, and she gave a plenary lecture on ASM Laboratory Biosafety Guidelines at that conference.

Dr. Emmert presented a poster at the ASM General Meeting in June in San Francisco (the 2 meetings were back to back). The poster title was “Methods for Preservation of Sweet Sorghum Juice for Bioethanol Production”. Poster authors were E.A.B. Emmert, V.D. Kutch, M.P. Carpenter, and A.T. Ditzel.

1st Congress of Evolutionary Biology – Ottawa, Canada

Members of the Hunter and Taylor Lab presented posters at the International Evolution Meeting in July 2012. Two posters were presented and the titles and authors are listed below.

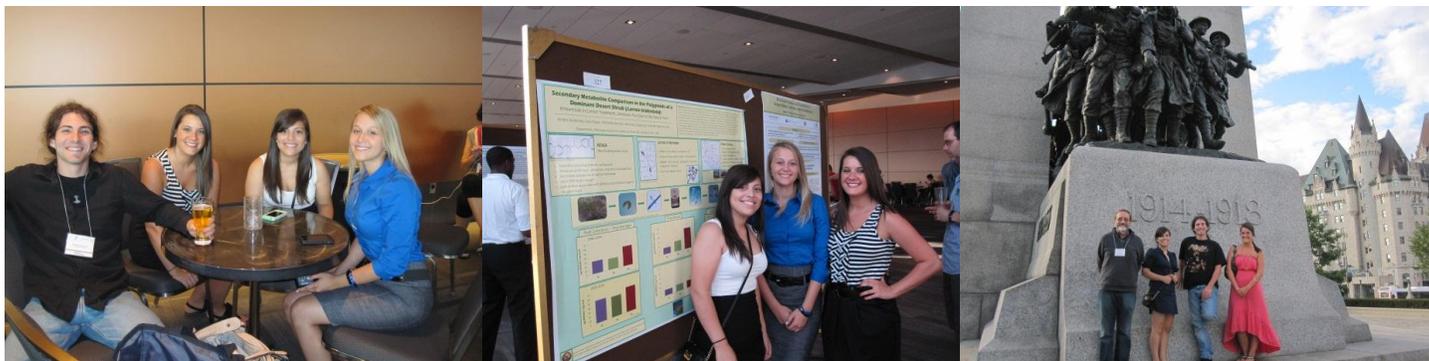
“Secondary Metabolite Comparison in the Polyploids of a Dominant Desert Shrub (*Larrea tridentata*)”

Authors: Kristin Zuravnsky, Sara Mayes*, Michelle Herrera*, Amanda Coppinger*, and Kimberly Hunter (* Undergraduate students)

Michelle Herrera received a travel grant from the Evolution Society supporting diversity students.

“Genes, Frogs, and Sexy Calls: Examining Sexual Selection through Genetic Variation and Female Mate Choice in *Pseudacris crucifer*”

Authors: Matt Del Grosso*, Kelsey Mitchell*, Kyle Wilhite, Ryan Taylor, and Kimberly Hunter



Dr. Ellen Lawler's travels to Montana, Wyoming and Utah

In July, Dr. Lawler traveled to Montana, Wyoming, and Utah, visiting Yellowstone, Grand Teton and Glacier National Parks as well as a number of wildlife refuges and national monuments. The scenery was spectacular and she saw many species of mammals, birds, and plants. A real highlight was watching a Gray Wolf being chased by 3 female Elk at dusk in the beautiful Hayden Valley section of Yellowstone. Other mammals included both Grizzly and Black Bear, Bison, Pronghorn, Coyote, two marmot, four rabbit and eight squirrel species. She observed over a hundred birds including Prairie and Peregrine Falcons, Golden and Bald Eagles, Dusky and Sharp-Tailed Grouse, White Pelican and Sandhill Crane. A great trip to a wonderful part of the country.



Above: Glacier National Park: **Top right:** Elk in Yellowstone: **Middle right:** Marmot in Glacier National Park: and **Bottom right:** White Pelicans at Bear River.

ALUMNI

Laura Fletcher, 2009 grad, was accepted into the College of Veterinary Medicine at Western University of Health Sciences.

Amy Hafez, 2010 grad, has just completed her Masters Degree in the Hopkins Molecular Microbiology and Immunology program and will be starting her Ph.D. at Duke this fall in the Molecular Genetics and Microbiology program (School of Medicine).

If you have announcements to add or general comments regarding the Newsletter, please email dlprice@salisbury.edu.

Editor: Dr. Dana Price

Coeditor: Dr. Ronald Gutberlet