

PLEASE DO NOT PRINT THIS.

DR. GENE WILLIAMS 2012-2013 FULBRIGHT SCHOLAR

The Fulbright Program is the flagship international educational exchange program sponsored by the U.S. government. It is designed to increase mutual understanding between the people of the United States and the people of other countries. Dr. Williams is only the second Henson faculty member to win a Fulbright Scholarship, which is one of the most distinguished awards a faculty member can earn. **For more information about Dr. William's Fulbright Plans go to Pg. 5.**



ANNOUNCEMENTS AND AWARDS

2012 Tri Beta Inductees

Amanda M. Biederman, Nicke A. Boyd, Rebecca L. Brannock, Amanda A. Chapo, Amanda J. Coppinger, Matthew A. Custer, Kathy Dunning, Alyssa A. Gabriel, Lalissee N. Geleta, Meryam S. Gharbi, Mallory A. Hagadorn, Meagan M. Jezek, Katlin M. Kundratic, Amanda D. Mathis, Brittany L. Peed, Kimberley N. Russell, Michelle L. Schreiber, Sean C. Singh, Eleanor Siri, Courtney M. Smith, Lynsey A. Spring, Brittany A. Stoner, Emily G. Thorpe, Rebecca C. Wanner, and Michael C. Woolford

For more information about Tri Beta: <http://www.salisbury.edu/biology/students/bbbhome.htm>



Dr. Les Erickson received a National Science Foundation, Research Opportunity Award to support his upcoming sabbatical research at Virginia Tech. The research will identify protein:protein interactions involved in hormone and stress signaling in plants.

Lindsey Fuller was accepted into the Doctor of Pharmacy program at UMES.

Alyssa Gabriel has a summer research position in Dr. Thomas Jordan's lab at the Smithsonian Environmental Research Center.

Vincent Lubetski has been accepted to the Philadelphia College of Osteopathic Medicine.

Tracy Lind was featured in the February 2012, Maryland Coastal Bays Program Newsletter. Tracy helped MCBP maintain Atlantic white cedars at the Lizard Hill property. Located off of Cemetery Road this old mine reclamation project is now a spectacular sand seepage wetland property. They are anxious to see what wildlife will reclaim this as home this spring.



Stephen Rigoulot has been accepted into the plant molecular science graduate program at Virginia Tech. Stephen is currently conducting research in Dr. L. Erickson's lab on grapevine genetics and in Dr. P. Erickson's lab on RNAi in *C. elegans*.

Kimberley Russell has been accepted to an MS program at Towson University, and she will be studying forested wetland restoration.

Carolyn Weiss has been accepted into Stony Brook's Marine Conservation Master's Program and wait listed for Duke's Coastal Management program.

Relay for Life of Salisbury University: May 4, 2012

The SU Biology Team is participating in Relay for Life of SU on May 4, 2012. In the past two years we have raised over \$4000. This year the students have been working hard to raise money and awareness. If you would like to join our team (SU Biology) or make a donation, please go to the following link: [Welcome To SU Biology's Page!](#) and click on "Sign Up".



Mallory Hagadorn, Aisha Ullah, and David Ortiz (SU Biology Team) selling hot dogs at the ACME in Easton. All proceeds are donated to Relay for Life of SU.

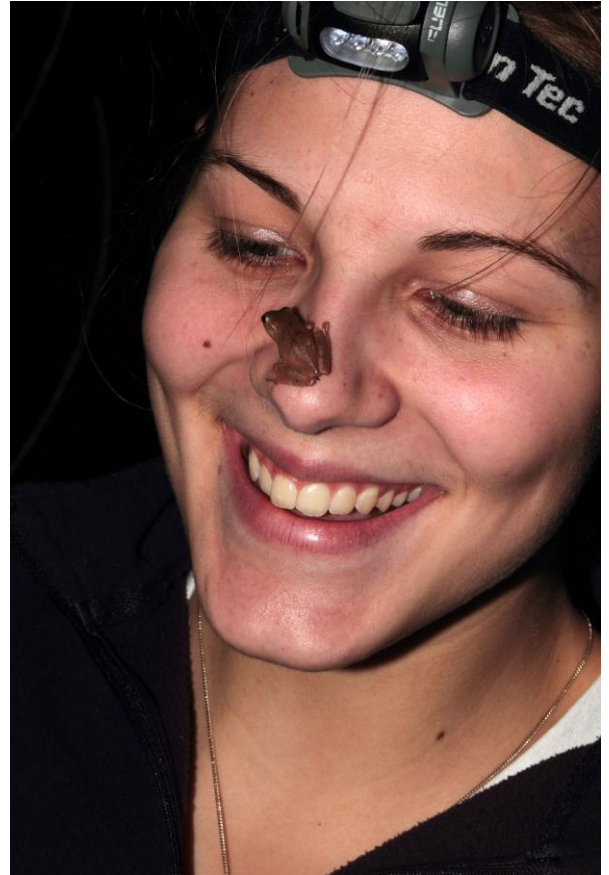
Featured Students Kelsey Mitchell and Kyle Wilhite

In the Taylor lab we study acoustic communication using spring peeper frogs (*Pseudacris crucifer*) as a model organism. In the courtship behavior of spring peepers, males vocalize at a pond while females evaluate these advertisement calls before choosing a mate. In many anuran species, females exhibit strong preferences for specific characteristics of male calls (e.g. frequency and call duration), however, relatively little is known about female preferences in *P. crucifer*. Spring peepers range throughout the eastern United States, and we studied populations in Maryland and Louisiana to determine if regional variation exists in male call properties and female preferences for call properties.



Spring Peeper
(*Pseudacris crucifer*)

Kelsey Mitchell



During winter break, we traveled to Louisiana to collect data for comparison to our Maryland population. On our way down we were able to camp at state parks and enjoy the outdoors before fieldwork started. Once in Louisiana, a typical night would start around 7 p.m. and we would drive to our field site, a small swamp, in Butte La Rose, Louisiana. One of the best aspects of this field site was its diversity of herp (reptile and amphibian) life. On one night in the field we observed 11 different species of herps including alligators, amphiuma, turtle and numerous frog, toad and snake species. We recorded male calls and collected peeper pairs in amplexus (a male and female mating) to obtain females for call preference testing. Most nights we returned to our lab (the Taylor's garage) around 10:30 p.m. where we began phonotaxis experiments, or choice tests for female's preferences for male call characteristics.



Peepers in amplexus

Featured Students Kelsey Mitchell and Kyle Wilhite continued



Enjoying the outdoors



Kelsey and Kyle

We found that MD and LA calls are statistically different, providing evidence that regional variation in male calls exists across the range of spring peepers. Our results from phonotaxis showed no female preference for any call variations. Since not all of our results were expected, our research in Louisiana encouraged us to ask further questions and continue this line of research, which will most certainly include another great trip to the south to grasp a better understanding of this species. The trip to LA not only allowed us to address some of our research questions but we were also able to appreciate the benefits of our growing lab at SU.

Back at SU, the Taylor lab recently purchased a semi-anechoic chamber to make phonotaxis experiments more controllable, allowing for more efficient and thorough research. With the chamber we are able to fine-tune light levels and utilize IR lights and camera equipment to digitally record females' movements. An advanced Ethovision program analyzes these video recordings and measures female movements including latency, speed, and overall path to her choice. The changes to the lab this semester have been exciting and in the fall we look forward to more changes as we welcome two new graduate students. We anticipate these additions (equipment and personnel) will make research a little smoother so long as the weather and frogs cooperate.



Article by Kelsey Mitchell and Kyle Wilhite.

Dr. Gene Williams 2012–2013 Fulbright Scholar



2010 Iceland Group



Holar University

Temperature has pervasive effects on biological systems at all levels of organization. From molecules to cells, and organisms to ecosystems, no aspect of life can escape the influence of temperature. Since the beginning, life on Earth has had to face the fact that environmental conditions, including temperature, are perpetually variable. Changing environmental temperature is an implacable physical factor constraining the life history of all organisms.

A hallmark response of organisms to a change in the temperature of their environment is the restructuring of the membranes of their cells. My main research focus has been on the ability of fish to carry out this restructuring. I have mainly been concerned with short-term responses, that is, those restructuring events that occur minutes to weeks after exposure to a novel environmental temperature. One of my goals in seeking a Fulbright Fellowship is to expand what is known about fish and temperature change to include very long-term responses (years, generations, centuries). While doing so I can provide my colleagues at Hólar University College (HUC) with new tools to help them with their work. They are interested in similarly long-term responses of fish. They study how the long-term exposures to novel physical environments contribute to the evolution of new fish species. Our two research goals are very different, but they share many elements that make our collaboration innovative. We can tackle two entirely different scientific questions using the same animals and environmental settings.

My proposal describes a novel project in which all parties benefit by teaching each other and learning from each other. Iceland is the ideal setting for this work (because of the unique fish there) and my research plan and teaching contributions intermesh nicely with those of my colleagues at HUC. My project includes several components, including: 1) undergraduate and graduate teaching in the US and Iceland, 2) a six week research project using molecular biology techniques to explore the ability of individuals from specific populations of Arctic char and three-spined sticklebacks (species of fish) to respond to changing water temperature (i.e., by expressing the enzymes that restructure cell membranes), and 3) a second six-week research project that will focus on the research being conducted by the students and faculty of HUC and other universities in Iceland.

OPPORTUNITIES

Bigelow Laboratory for Ocean Sciences: Maureen D. Keller Undergraduate Scholarship

E-mail: kellerscholarship@bigelow.org; Program URL: <http://www.bigelow.org/education/scholarships/>

The sponsor offers this \$1000 scholarship for residents of Maine who are high school seniors or college freshman at the time of application enrolled in a college/university program for the academic year following the award. Applicants must intend to major in the biological or earth sciences and have a minimum GPA of 3.0 on a 4.0 scale. The scholar may spend the funds on any aspect of education. Deadline(s): 05/25/2012

Bermuda Institute of Ocean Sciences:

Undergraduate Fellowships in Marine Science, Oceanography, and Global Climate Change

E-mail: education@bios.edu; Program URL: <http://www.bios.edu/education/reu.html>

The Bermuda Institute of Ocean Sciences has received National Science Foundation Research Experiences for Undergraduates (REU) funding to support 4-8 fellowships for undergraduate student research at BIOS during the 2012 fall semester. Deadline: 05/30/2012

Directorate for Education and Human Resources/NSF: Research Experiences for Undergraduates

Web Site: <http://www07.grants.gov/search/search.do?oppId=48795&mode=VIEW>

Program URL: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517

The program supports active research participation by undergraduate students in any of the areas of research funded by the National Science Foundation. Deadline(s): 06/01/2012

National Inventors Hall of Fame: Collegiate Inventors Competition

E-mail: collegiate@invent.org; Web Site: <http://www.invent.org/collegiate/>

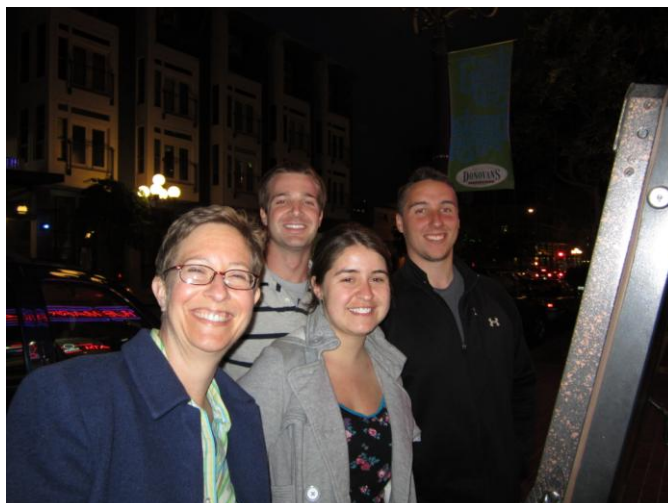
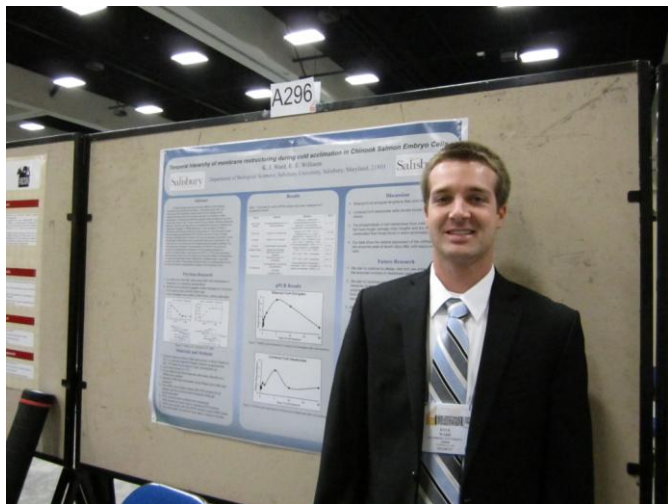
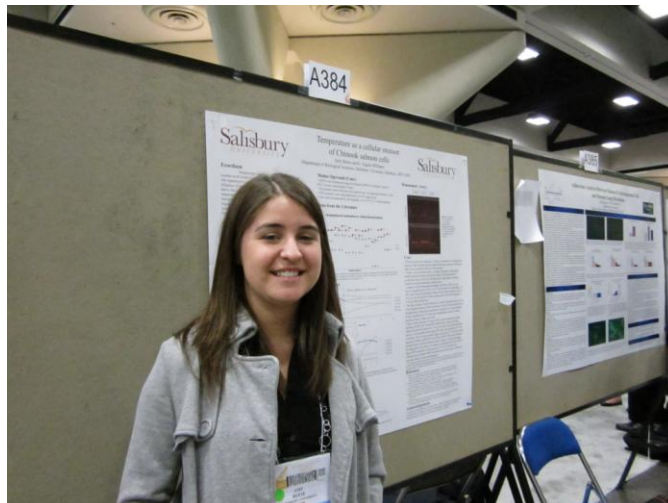
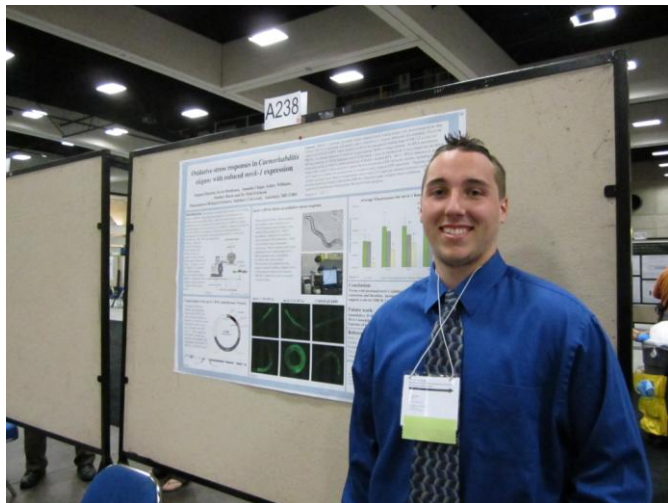
The Collegiate Inventors Competition recognizes student inventors whose research and inventions will change our future. Deadline: 06/15/2012

TRAVEL and PRESENTATIONS



Capitol Science 2012. Students and faculty from SU's Department of Biological Sciences participated in the biennial scientific lollapalooza known as CapSci' 12 in Washington, D.C. on April 1. Hosted by the Washington Academy of Sciences, the conference includes members from all of the Affiliated Societies of the WAS. Three SU Biology students presented talks.

2012 annual meeting of the American Society of Biochemistry and Molecular Biology
Undergraduate student Steve Rigoulot (top left) and graduate students Amy Reese and Kyle Ward presented the results of their research at the 2012 annual meeting of the American Society of Biochemistry and Molecular Biology in San Diego, CA. Drs. Erickson and Williams also attended.



Sara Mayes, Amanda Coppinger, Kristin Zuravnsky, and Michelle Herrera will be presenting a poster at Evolution 2012 in Ottawa, Canada. They will be presenting their work on the chemical nordihydroguaiaretic acid in *Larrea tridentata* from greenhouse and field collected plants.

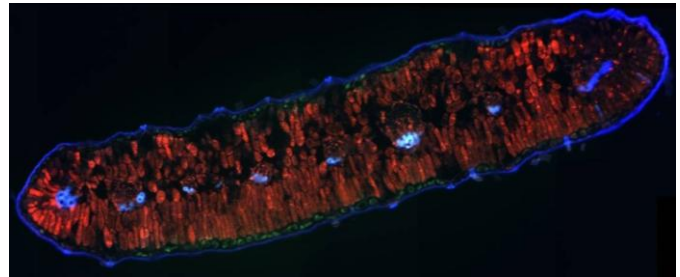
Michelle Herrera received an *Undergraduate Diversity at Evolution 2012* Travel Award from the Evolution Society. This grant covers her entire meeting cost.



Mallory Hagadorn, Elizabeth Rentz and Dr. Dana Price attended the Ecological Society of American Mid-Atlantic Conference in Blacksburg, VA, in April 2012. Elizabeth Rentz presented a poster, “Species Diversity and Succession of Dung Beetles to Horse Dung on Assateague Island”. Elizabeth’s travel was supported by a Graduate Research Travel Grant (Salisbury University).

Kimberley Russell presented a poster, “A Multi-year Comparison of Water Quality of the Wicomico River”, at the regional Atlantic Estuarine Research Society conference in Cape May, NJ, in March.

Kristin Zuravnsky (4+1 grad student) and Michelle Herrera (junior biology major) went to West Virginia University during Spring Break 2012. They were collaborating with Dr. Scott Bowdridge in the Animal Science Department. Dr. Bowdridge is Dr. Hunter’s brother. Kristin and Michelle learned how to use a high tech fluorescent microscope to take pictures of *Larrea tridentata* (creosote bush).



Salisbury University Student Research Conference, April 27, 2012

A Shrimp’s Tail

Amanda Achey

Faculty Mentor Dr. Les Erickson

Fingerprinting the Federally Endangered Species *Ptilimnium nodosum*

Matthew Bellacicco & Zakiya Kent

Faculty Mentor Dr. Kimberly Hunter

Using RNAi to Study Epigenetic Involvement in Oxidative Stress Using *C. elegans* as a Model Organism

Sarah Blondeaux

Faculty Mentor Dr. Patti Erickson

Sweet Sorghum Juice Preservation as a Source of Renewable Fuel

Michael Carpenter, Victoria Kutch, Courtney McCarthy & Megan Lehan

Faculty Mentor Dr. Elizabeth Emmert

Salisbury University Student Research Conference continued

Analyzing the Response to Oxidative Stress in *Caenorhabditis elegans* with Reduced mrck-1 Gene Expression

Amanda Chapo & Ashley Williams

Faculty Mentor Dr. Patti Erickson

Medicine and Health in Ancient Rome

Chelsea Chmel

Faculty Mentor Dr. Barbara Pollock

Genes, Frogs, and Sexy Calls: Exploring Sexual Selection Through Genetic Variation and Female Call Preferences

Matt Del Grosso

Faculty Mentor Dr. Kimberly Hunter

Quick Guide to Scarabaeoidea of Maryland

Mallory Hagadorn

Faculty Mentor Dr. Dana Price

Glowing Plants: Viral Expression of Jellyfish GFP Gene Enhanced by and RNAi Suppressor

Vincent Lubetski

Faculty Mentor Dr. Les Erickson

Analysis of the Nordihydroguaiaretic Acid Concentration in Field Collected *Larrea tridentata* Samples from 2010–2011

Sara Mayes, Amanda Coppinger, Michelle Herrera & Kristin Zuravnsky

Faculty Mentor Dr. Kimberly Hunter

The Effects of Temperature on the Expression and Activity of Catalase and Superoxide Dismutase in Chinook Salmon Embryo Cells

Kristin McAleer

Faculty Mentor Dr. Eugene Williams

Has Lead Shot Affected Lead Levels in Sediment Cores Taken from Deal Island Wildlife Management Area?

Amber Metallo

Faculty Mentor Dr. Judith Stribling

The Stability of Nordihydroguaiaretic Acid and Protective Effects against UVB Irradiation and Temperature in *Arabidopsis thaliana*

Jesse Miller

Faculty Mentor Dr. Patti Erickson

Salisbury University Student Research Conference continued

What Women Want: Sexual Selection and Female Mate Choice in the Spring Peeper (*Pseudacris crucifer*)

Kelsey Mitchell

Faculty Mentor Dr. Ryan Taylor

Creating a Dichotomous Key for the Scarabaeinae (Dung Beetle Species) of Maryland

Simone Nemes

Faculty Mentor Dr. Dana Price

Change in Dung Beetle Composition Across Seven Forests of Eastern Maryland

David Ortiz

Faculty Mentor Dr. Dana Price

Effects of Varying Nitrogen and Water Levels on the Early Stages of Sweet Sorghum (*Sorghum bicolor*, var. *della*) Development

Luke Raab

Faculty Mentor Dr. Samuel Geleta

Analyzing the Effects of PPFM on Grapevine Rooting

Stephen Rigoulot & Jason Vinciguerra

Faculty Mentor Dr. Les Erickson

The Expression of Enzymes Involved in the Temperature-Induced Remodeling of Membrane Phospholipids in Chinook Salmon cells

Aurielle Rowe

Faculty Mentor Dr. Eugene Williams

A Multi-Year Comparison of Water Quality of the Wicomico River

Kimberly Russell

Faculty Mentor Dr. Judith Stribling

Survival Times for *Enterococcus* spp. In Sterile and Non-Sterile Bay Water

Ashley Sherbert, Kayla Alogna, Vince Lubetski & Jonne Woodard

Faculty Mentor Dr. Mark Frana

Temperature Effects on Enzymes of the Cellular Membrane in *Fundulus heteroclitus*

Gina Sorce

Faculty Mentor Dr. Eugene Williams

Use of *Bdellovibrio bacteriovorus* to Control Bacterial Infections in the Model Host *Galleria mellonella*

Aisha Ullah & Sarah Marcellino

Faculty Mentor Dr. Elizabeth Emmert

Salisbury University Student Research Conference continued

Using Simple Sequence Repeats and Molecular Fingerprinting Techniques to Characterize Delmarva Grapevine Varieties

Jason Vinciguerra & Stephen Rigoulot

Faculty Mentor Dr. Les Erickson

The Antibiotic and Antitumor Properties of Coral

Kelly Vosburg

Faculty Mentor Dr. Barbara Pollock

Assessing Ecological Risks of Pharmaceuticals in the Environment

Jonne Woodard

Faculty Mentor Dr. Judith Stribling

Biology 210 Field Trip to Assateague

In April, SU Biology 210 students and faculty visited Assateague Island. They had an opportunity to observe various terrestrial and aquatic habitats and identify different organisms in salt marshes and maritime forests. In addition, students enjoyed canoe rides and seining for invertebrates and fish.



Biology 210 Field Trip to Assateague continued



PUBLICATIONS (SU undergraduate*)

Price, D.L., L.M. Brenneman*, and R.E. Johnston*. 2012. Dung Beetle Communities of Eastern Maryland. *Proceedings of the Entomological Society of Washington* 114(1): 142–151.

ALUMNI

Jason Boos, Dec 2011 grad, was just hired as a Biologist at Wildlife International, an environmental consulting firm in Easton, MD.

Laura Fletcher, May 2009 grad, was admitted to the Veterinary School at Western University of Health Sciences in Pomona California

Laura Hundy, 2010 grad, will be attending University of Louisiana at Lafayette with a guaranteed 3 year graduate research assistantship funded by Louisiana Sea Grant.

Kayla Pennerman, 2011 grad, is pursuing her PhD at Virginia Tech in Plant Pathology.

Ryan Protzko, 2010 grad, will start working toward a PhD at UC-Berkeley in Molecular and Cellular Biology.

Emily Seldomridge, 2007 grad, successfully defended her PhD on April 2 (University of Maryland, Geology Department) and will be accepting a 3-year postdoc at Texas Tech University. She was also awarded a Fulbright Fellowship to study in Hamburg, Germany.

Brittney Uhland, 2011 grad, will be attending the University of Georgia, School of Veterinary Medicine beginning this fall.

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

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