

Happy Holidays!



Biology Welcomes President Charles Wight



Salisbury University's new President, **Dr. Charles (Chuck) Wight**, visits the Department. From left. Myra Dickey, Mollie Jewell, Lauren DeLong, Mariah Passwaters-Stamper, Chuck Wight and Colin Dunham. Organized by the irrepressible Sandy Ramses (Biology Program Management Specialist).

Halloween '18



Biology Alumni



Erin McCool. Since graduating from Salisbury in 1998, I have pursued a career in environmental education. The world is facing complex environmental issues and the field of environmental communications and education is evolving to meet those demands and prepare citizens to face these challenges. My inspiration for environmental education was fostered during my time at Salisbury through experiences inside and outside the classroom. The professors and staff at SSU supported my love for the outdoors and provided me with inspiration to carve out a career in this field. This began with my freshman orientation trip to Acadia and continued throughout my undergraduate career where I learned about science through experiences in nature. As an undergraduate in the biology program, my coursework often took place in the field, in the wetlands across the Eastern Shore and Chesapeake Bay. Today as a professional in the field of environmental education I point to these authentic experiences as good examples of how to teach science. I am not necessarily a "science brain" by nature but applying complex topics like chemistry to an investigation of the Chesapeake Bay helped me to gain better cognitive understanding of science concepts. Today we refer to this as a "growth mindset" and teachers strive to provide authentic purpose to students in science and STEM. My extracurricular experiences with the Bike Club took me on adventures regionally and in Florida and through mentorship with older students and faculty, I began to understand the importance of outdoor experiences to engaging people in environmental issues.

I spent 14 years working in the Conservation Education Department at Philadelphia Zoo, where I learned to work with live animals and create programs that inspire action on behalf of the wildlife around the globe. At the Zoo we design programs to spark inspiration through meaningful experiences with live animals and inspire guests to take action to protect wildlife. I left my job there as the Director of Outreach, Overnights and Camps to join Riverbend in 2016. At Riverbend, I work to partner with schools in our region to advance nature-based STEM (using nature as a platform to teach complex science, technology, engineering and math concepts) and environmental education. Experts predict that by the year 2020, there will be 10 billion people on earth. We must find new ways to support human health, food systems and economies in the face of huge challenges like climate change. It is critical that students today graduate with the skills in STEM and essential skills like innovation, critical thinking and communication to solve these problems. To achieve this at Riverbend, I work to develop student experiences and teacher professional development to transform science classrooms. We use our 300 square ft aquaponics greenhouse and educational curriculum to engage students in complex environmental subjects and STEM.

I graduated from Salisbury in 1998 with a degree in Biology, where most of my coursework focused on environmental topics. My work is interdisciplinary and a strong foundation in science is critical but so is knowledge of education, communications, fundraising and leadership. Since SSU, I have earned a graduate certificate in Environmental Communications at Duke University and I am currently pursuing a Masters in Environmental Studies from University of Pennsylvania. I have been married for 9 years and reside in Collegeville, PA with my husband, two children and a crazy dog. I still enjoy spending time outdoors hiking, running and spending time with my family

The Department of Chemistry and Biochemistry

Seminar Series

Presents a Seminar Titled:

***“Biophysical Characterization of Caspase-3-Cleaved Par-4
(cl-Par-4) and its Role in Cisplatin Treatment of Cancer”***



Presented by:

Ms. Andrea Korell
Chemistry Doctoral Student
Advisor: Dr. Steven Pascal
Old Dominion University

Prostate apoptosis response-4 (Par-4) is a 38 kDa tumor suppressor protein that functions in cancer cell apoptosis. Par-4 down-regulation is often observed in cancer while up-regulation is characteristic of neurodegenerative conditions such as Alzheimer's disease. Full length Par-4 is mostly disordered and does not form a well-defined three-dimensional structure. Cleavage of Par-4 by caspase-3 activates tumor suppression via formation of an approximately 24 kDa fragment (cl-Par-4) that enters the nucleus and inhibits pro-survival genes. This nuclear fragment has a selective for apoptosis induction in cancer cells (SAC) domain with nuclear localization signal (NLS2) and the C-terminal coiled-coil domain with a leucine zipper (Figure 1).

We are investigating the structure of the cl-Par-4 fragment using biophysical techniques including circular dichroism (CD) spectroscopy, dynamic light scattering (DLS), size exclusion chromatography with multi-angle light scattering (SEC-MALS), and intrinsic tyrosine fluorescence. Our results show conformational instability and aggregation under physiological conditions, which can be reversed via manipulation of pH or ionic environment. I will discuss the physiological relevance of these environments and their relationship to human disease pathogenesis.

In addition, the chemotherapeutic drug cisplatin and cl-Par-4 have been shown to act synergistically in their anti-tumor activity. Our results reveal a direct interaction between cl-Par-4 and cisplatin and suggest a structural basis for their functional synergism in cancer cell apoptosis. We will test this further via mutagenesis and biophysical characterization.



Figure 1. Block diagram of caspase-3-cleaved Par-4 (cl-Par-4)

Tuesday, October 16, 2018 @ 12:30 p.m. in Eng. & Comp. Sci. 1202

Biology alumna **Andrea Korell** is a doctoral student in the Department of Chemistry and Biochemistry at Old Dominion University, Norfolk, Virginia.

Our Students



Graduate student, **Anthony LaBarck**, received a grant of \$5,164.00 from the Salisbury University Green Fund to support his project: *Describing bacterial and fungal communities in the Salisbury University Arboretum: Does management practice effect the micro/mycobiota of a landscape?*

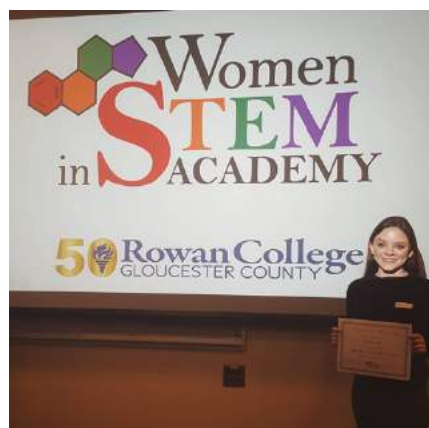


The Defense Rests!



On November 15, **Marissa Moran** successfully defended her thesis "Identification and Life Cycle Elucidation of *Himastha quissetensis* Miller and Northup, 1926 (Stunkard, 1938) (Trematoda: Echinostomatoidea) Using Morphological and Molecular Techniques." From left, Marissa, Reva Shayne (Biology Alumna), Dr. Ann Barse (advisor) and Dr. Anna Philips (Smithsonian National Museum of National History).

An Honor Received

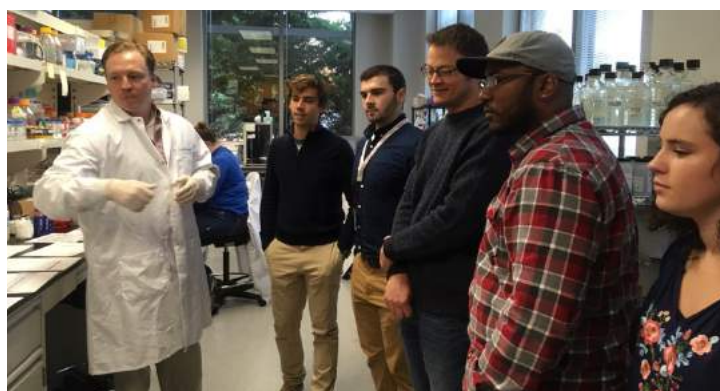


In October, graduate student **Marissa Moran** was inducted into the Women in STEM Academy at Rowan College at Gloucester County (Sewell, NJ). The Women in STEM Academy supports, promotes, and inspires female students interested in pursuing a STEM degree. Marissa attended this college as a freshman and was nominated by her former biology professor, Dr. Susan Glenn.

Biology Students visit the J. Craig Venter Institute



Students from Contemporary Genetics, Modern Molecular Biology, and Bioinformatics classes visited the J. Craig Venter Institute in Rockville, MD in October. Back (left to right) Lauren DeLong, Myra Dickey, Patti Erickson, Mollie Jewell, Mariah Passwaters-Stamper, Brandon Norman & Erica Monterio; Front: Anthony LaBarck & Collin Dunnam



JCVI scientist David Parmiter explains transformation associated recombination (TAR) cloning and plasmid assembly in yeast, while Anthony Labarck, Collin Dunnam, Philip Anderson, Brandon Norman, and Myra Dickey observe.



Dr. Roshan D'Souza (right) discusses synthetic biology involving bacteriophages (left to right) Collin Dunnam, Mariah Passwaters-Stamper, Myra Dickey, Lauren DeLong, Mollie Jewell, Erica Monterio, Brandon Norman, Anthony Labarck, and Philip Anderson



Back at SU, Students in Contemporary Genetics (Biol440) are very excited about the new, Minlon nanopore DNA sequencer

History of Zoos class (BIOL 105) Visits the Virginia and National Zoos



On October 13, **Mary Gunther** took her History of Zoos Class to the Virginia Zoo. Ms. Gunther was assisted by Rosalind Ludovici who graciously volunteered to drive one of the vans. The students got a bonus in the form of a baby giraffe born that same morning! On November 10th the class braved the first really cold day of the year and ventured to the National Zoo in Washington, D.C. The sun came out and the animals were surprising active. The students were able to observe training demonstration with orangutans and elephants. A fine time was had by all!



Our Faculty

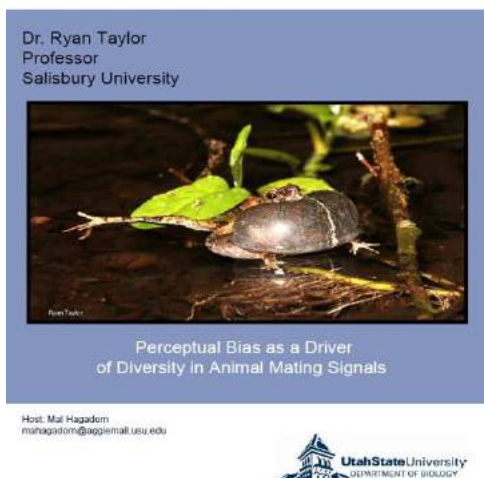
Dr. Eric Liebgold



SU student Karsin Bachran with a Spotted Turtle

Eric Liebgold (Biology) & Tami Ransom (Environmental Studies) received a \$17,500 Research Conservation Needs Award from the U.S. Fish & Wildlife Service to continue their lab's work with endangered Spotted Turtles.

Dr. Ryan Taylor



Dr. Ryan Taylor was invited to give a Departmental Seminar at Utah State University (USU) in November. He was invited by a former MS student, **Mallory Hagadorn**. Mallory did her MS research on dung beetles under the supervision of Dr. Dana Price. At USU, Mallory is a PhD student in the lab of Dr. Karen Kapheim where she is investigating social behaviors in Hymenopteran insects. Dr. Kapheim has been very impressed with students from SU. Matt Del Grosso, a former SU student and member of the Taylor-Hunter Lab, was a PhD student with Dr. Kapheim until his untimely death. It is great that Biology students maintain their connection with the SU Biology Department.

News from the Taylor-Hunter Lab

Drs. Taylor and Hunter submitted a NSF grant in early December. This grant represents a continued collaboration between Dr. Mike Ryan at UT Austin and Dr. Rachel Page at the Smithsonian Tropical Research Institute.

Rosalind Ludovici, a MS student in the Taylor-Hunter, lab passed her comprehensive exams this semester. In addition, our new MS student, **Derek Coss**, wrote a Graduate Research and Presentation Grant from Salisbury University to have new robofrogs built. He received the grant and just this week received seven new robofrogs.

Publications

Emeritus Professor, **Dr. Bill Grogan**, reached a milestone last year; 145 peer-reviewed publications. Bill is the most published professor in the history of the Department!

143. Ronderos, M. M., G. R. Spinelli and **W. L. Grogan, Jr.** 2017. The Neotropical species of the predaceous midge genus *Austrohelea* Wirth & Grogan. *Zootaxa* 4276(2): 255-269.

144. Huerta, H. and **W. L. Grogan, Jr.** 2017. New species and new records of predaceous midges in the genera, *Schizonyxhelea* Clastrier and *Stilobezzia* Kieffer from Mexico (Diptera: Ceratopogonidae). *Zootaxa* 4294: 401-418.

145. **Grogan, W. L., Jr.**, F. G. Howarth and L. J. Hribar. 2017. The Afrotropical biting midge, *Forcipomyia* (*Forcipomyia*) *biannulata* established in the United States (Diptera: Ceratopogonidae). *Bishop Museum Occasional Papers* 119: 29-37.



Association of Zoos and Aquariums Annual Conference in Seattle, WA



Mary Gunther attended the Annual AZA (Association of Zoos and Aquariums) conference in Seattle WA. She was in Seattle September 22-28. Mary was a speaker on a panel on school Field Trips to zoos where she represented the college level as well as presenting at the poster session on the same topic. The highlight for Mary was visiting the Point Defiance Zoo and Aquarium and Northwest Animal Trek in Tacoma and the Seattle Aquarium and Woodland Park Zoo in Seattle – two zoos, an aquarium and wildlife park all in a few short days.



Bee Campus USA



Salisbury University is one of 58 educational institutions in the nation to be certified as an affiliate of the Bee Campus USA program, designed to marshal the strengths of educational campuses for the benefit of pollinators. Salisbury University joins more than a hundred other cities and campuses across the country united in improving their landscapes for pollinators. The SU Bee Campus USA Affiliate Committee included **Drs. Stephen Gehrich & Chris Briand** from Biology.

Exciting Classes!

MARY GUNTHER AND ERIC LIEBGOLD ARE OFFERING THEIR
BIODIVERSITY PROGRAM IN WINTER 2020. SPREAD THE WORD TO ANY
STUDENT YOU THINK MIGHT BE INTERESTED!

COSTA RICA
WINTER TERM 2020
BIODIVERSITY STUDIES



OPEN TO ALL MAJORS!

New BIOL 105 Topics in Biology Class



Mary Gunther has a new course being offered for the first time in Spring 2019. *The History of Spice* will look at the development of the spice trade, the environmental impact of this industry, focus on two case study flavorings (vanilla and pepper), and look at current practices involving these plants. Spread the word to your students looking for a unique Gen ED!

Alumni Connection



SU BIOLOGY ALUMNI

Stay Connected !

We want to hear from you! Please let us know where you are living and what you are doing! We would love to hear from you. In the future we plan to have an Alumni Connection section in our newsletter.

Send information to: Sandra Ramses, Program Management Specialist
SHRAMSES@SALISBURY.EDU

Your Editorial Team

Dr. Chris Briand (editor) & Dr. Philip
Anderson (co-editor).
Send any contributions to
chbriand@salisbury.edu



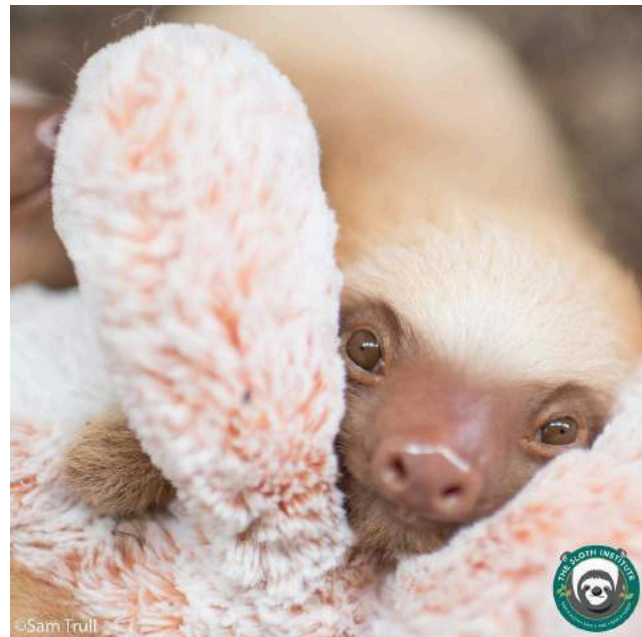
Featured Charity



October 20, 2018 was International Sloth Day!



Biology student Mariah Passwaters-Stamps posing with a wild sloth on the Costa Rica BIOL 299 course.



<http://www.theslothinstitutecostarica.org>