



There is always something blooming in the SU Arboretum; *Helleborus*, the Lenten rose.

Our Students



Khadija Bhatti (left), Yadanar ThanNaing (center left), Madison Jermain (center right), and Peter Kim (right), Biology BS candidates, present their work to the Department of Biological Sciences. Along with Ryan Joyce (Chemistry BS candidate, not shown) and Brendan Wille (Biology BS 2019, not shown), the students have been working with their faculty mentor, Michael Carter, for two years to identify a newly discovered mode of L-ascorbate (vitamin C) cycling in nature via the bacterium *Ralstonia eutropha* H16. The students presented their work as a part of the Department's weekly seminar series that features presentations by science researchers and professionals on Thursdays during the Fall and Spring terms. A report of their work was accepted for publication in the Journal of the American Chemical Society.

L-Ascorbate (Vitamin C), is a primary antioxidant produced by plants and animals but is not produced by bacteria. L-Ascorbate is especially highly concentrated in plant leaves, which makes L-ascorbate a highly abundant environmental nutrient source for organisms that grow on or near plants and for organisms that decompose plant matter. *Ralstonia eutropha* H16 is a free-living nonpathogenic soil bacterium that is commonly studied for its metabolic versatility and its ability to produce biodegradable plastic as a nutrient storage compound. Identifying the *R. eutropha* strategy for L-ascorbate degradation provided insight into environmental nutrient cycling, filled metabolic knowledge gaps that might contribute to optimizing bioplastic production, and identified two biochemical reactions that have never been previously observed.

The Defense Rests – The Verdict, Graduation!



This November, Eaqan Chaudhry successfully defended his Masters' thesis "Pond for four: Habitat usage, dietary niche overlap and potential partitioning between the endangered Spotted Turtle (*Clemmys guttata*) and other turtle species" Eaqan starting working in the Liebgold/Ransom lab on spotted turtles as an undergrad and has put in many hours in the field and lab studying the challenges facing this endangered species on the Delmarva Peninsula. Eaqan's thesis and presentation provides us with a unique look at Spotted Turtles, finding that turtles not only face habitat loss and other threats, but also competes with more common turtle species. Eaqan is currently applying to graduate schools to pursue his PhD as he works on sending out his research to publish it in a scientific journal.

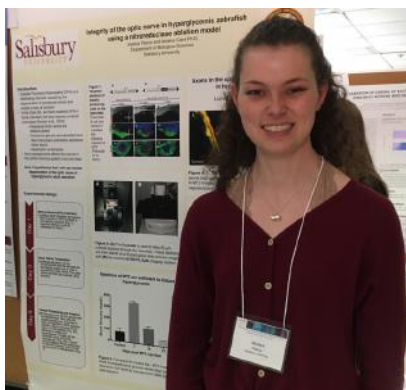


This November, Hannah Small successfully defended her Masters' thesis "Abundance estimation and the effects of habitat on state-endangered Eastern tiger salamanders (*Ambystoma tigrinum tigrinum*) in Maryland and Delaware" Hannah came to the Liebgold lab with a wide range of field herpetology and wildlife experiences and developed a very relevant study looking at wildlife management of the state-endangered Eastern Tiger Salamander. Hannah's thesis and presentation investigated different methods used to study this species as well as analyzing how habitat influences numbers of tiger salamanders. After graduation, Hannah will be working for the Delaware Fish and Wildlife Division as she also works to send out her research for publication.

Undergraduate Research Symposium in the Chemical & Biological Sciences, UMBC (October)



SU Biology Department attended the Undergraduate Research Symposium in the Chemical and Biological Sciences at UMBC in October. Two students from Dr. Jessica Clark's laboratory competed in the poster competition.



Jessica Pierce presented "Integrity of the optic nerve in hyperglycemic zebrafish using a nitroreductase ablation model". Jessica Pierce has also been nominated by the University for a Goldwater Fellowship.



Sheridan Sargent (left) presented "Peripheral nerve regeneration following hyperglycemic induction in *Danio rerio*."

American Society for Biochemistry & Molecular Biology (ASBMB) Student Chapter SU



ASBMB members join students from Dr. Patti Erickson's Contemporary Genetics course on a tour of the J. Craig Venter Institute's research laboratory in Rockville, MD. Left to right: Dr. Roshan D'Souza, Collin Dunnam, Aayza Awan, Autumn Moore, Allison Nalesnik, Tim Moran, Trevor Johnson, Brianna Esker, Anthony LaBarck, and Gabi Voithofer.



Just in time for Thanksgiving: American Society for Biochemistry and Molecular Biology (ASBMB) student chapter members Khadija Bhatti (left) and Peter Kim (middle) help raise funds delivering customized 'turkey gram' thank you notes from students to SU faculty and staff.

ASBMB student chapter provides hands-on DNA necklace outreach activity for
Wicomico County's STEM Saturday in November



Chapter members (back row, left to right) Nicole Hammond, Colin Cassidy, Gabi Voithofer, Jessica Pierce, Allison Nalesnik and Jeremie Rose Barbarosa (far right, front row) showed students how to make necklaces using DNA isolated from strawberry cells.



Colin Cassidy helps students transfer DNA into tubes, while Allison Nalesnik (back, middle) and Jeremie Rose Barbarosa (back, right) prepare reagents.



Ilex verticillata, the winterberry
at [Salisbury University](#).



COURTNEY (NICOLE) HAMMOND: S/R to Germany
Biology Major, ENVR Minor, Earth Science Minor, Honors College

NALESNIK, ALLISON: ETA to Poland
Biology Major, Chem Minor, Honors College

LYDIA NARUM: ETA to Slovakia
Biology Major, English Minor, Athletic Coaching Minor

GABRIELLE VOITHOEFER: S/R to Poland
Biology Major, Psych Major, Pre-Med, Chem minor, Honors College

Bailee Wathen



Bailee Wathen will graduate from SU in May of 2020. Bailee came to SU with one career goal in mind, to become a Dentist. Through hard work, persistence, and a dedication to learning about what it takes to become a Dentist she is well on her way to achieving her goal. To date, Bailee has been accepted to two Dental Programs, The School of Dental Medicine at the University of Pittsburg and the University of Maryland School of Dentistry. This past year Bailee served as the President of SU's chapter of the Undergraduate Student National Dental Association (USNDA), which is administered through the Biology Department. The goal of the USNDA is promote careers in Dentistry and to offer students guidance on how they can achieve that goal. Bailee serves as a role model to others in the organization demonstrating the SU provides a quality undergraduate education with the resources necessary for students to be strong competitors as they apply to various Professional Schools.

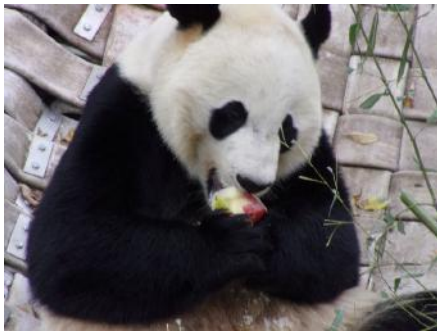


Camellias blooming in November
at [Salisbury University](#).

History of Zoos class visits the National Zoo



On Saturday October 26, Mary Gunther's BIOL 105 History of Zoos, visited the National Zoo in Washington, D.C. as part of a required field trip for the class. As with their trip to the Virginia Zoo, students applied what they are learning in class to look at the exhibits and identify types of barriers, enrichment items, as well as education and conservation programs at the zoo. For their final project each student has to design an exhibit for an animal of their choosing so this trip was also away for them to see what makes a good exhibit and apply that knowledge to their projects.



**SMITHSONIAN'S NATIONAL ZOO
& CONSERVATION BIOLOGY INSTITUTE**

Our Faculty

Green Fund Grant – Salisbury University Speaks for the Birds – and not just Sea Gulls



Dr. Jeremy Corfield, Dr. Eric Liebgold, Bill Wolff (Art Department) & **Mary Gunther**, together with a number of SU undergraduate students, received a SU Green Fund grant for their project entitled “Salisbury University speaks for the birds – and not just sea gulls” The project aims to make SU a bird-friendly campus that strives to work towards bird conservation awareness. The project will focus on 2 main goals. 1: To make SU a better home for birds, by providing habitat, food, water, cover, & places to raise their young while also reducing dangers, like window collisions. 2: To educating our students about the problems faced by birds & what they can do to be proactive in bird conservation. Working towards these goals, students will be installing nest boxes & feeders around campus that are equipped with cameras, identifying windows that are of a high risk for bird collisions, & also installing signs around campus that will highlight bird ecology, behavior, local diversity & importantly conservation issues. Over the last few weeks 5 screech owl boxes have been installed around campus, boxes were made by SU students and faculty.

In Memory of Loren Moriarty...



Visiting SU from San Jose, CA in July. From left: Victor Mirel, Sam Geleta, **Loren Moriarty**, Chris Briand, and Patti Erickson



Loren and her husband Tom (SU English Professor, 2002-2014) at Assateague Island (July, 2019).

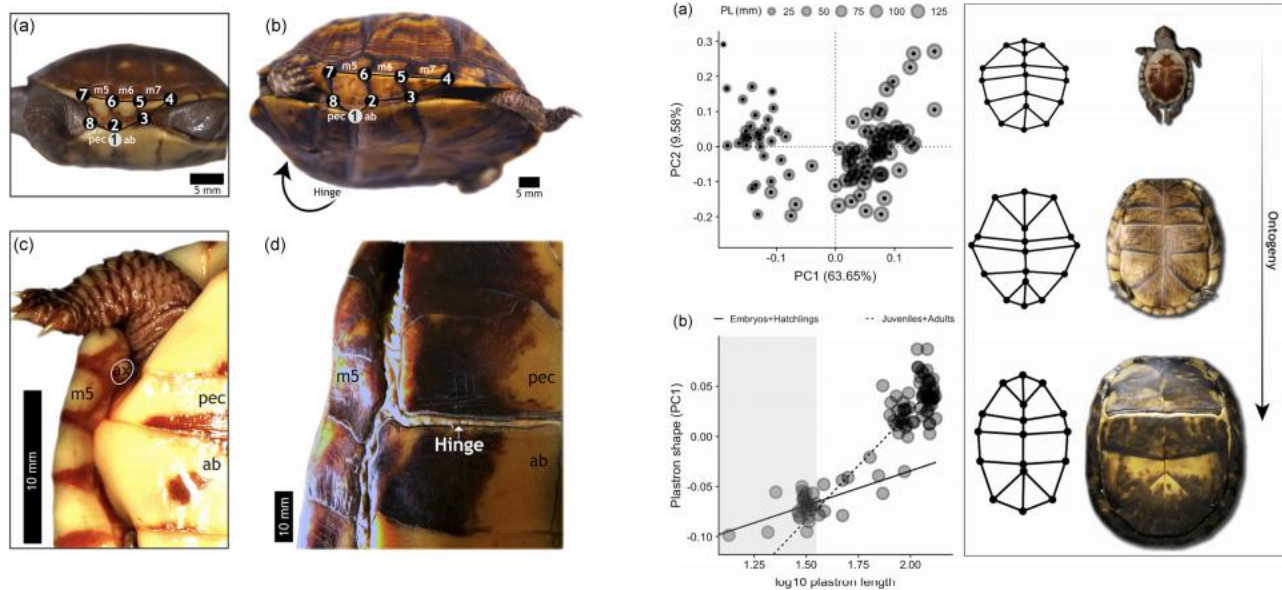
It's with great sadness that we share the passing of Loren Moriarty, who was an excellent teacher, colleague, and friend. Loren was deeply involved in the Biology department, teaching and coordinating Anatomy and Physiology labs from 2002-2014.

Publications

Andrews TC, **Auerbach AJJ**, and Grant, EF. 2019. Exploring the Relationship between Teacher Knowledge and Active-Learning Implementation in Large College Biology Courses. CBE – Life Sciences Education 18 (4)
<https://www.lifescied.org/doi/10.1187/cbe.19-01-0010>

Our study investigated the teaching knowledge instructors used when planning, implementing, and reflecting on active-learning lessons in large courses. We used a pre-instruction interview, video footage of a target class session, and a post-instruction interview using clips from the target class to elicit the teaching knowledge participants used. We then conducted qualitative content analysis to describe and contrast teaching knowledge employed by instructors implementing learning that required students to generate their own understandings (i.e., generative instruction) and learning largely focused on activity and recall (i.e., active instruction). Participants engaging in generative instruction exhibited teaching knowledge distinct from that of participants focused on activity. *Those using generative instruction drew on **pedagogical knowledge** to design lessons focused on students generating reasoning; integrated pedagogical content knowledge and pedagogical knowledge to plan lessons to target student difficulties; and created opportunities to develop new pedagogical content knowledge while teaching.*

Cordero GA, Stearns S, Quinteros K, **Berns CM**, Binz SM and Janzen F. 2019. The postembryonic transformation of the shell in emydine box turtles. Evolution & Development.e12307.



Biology Holiday Party!



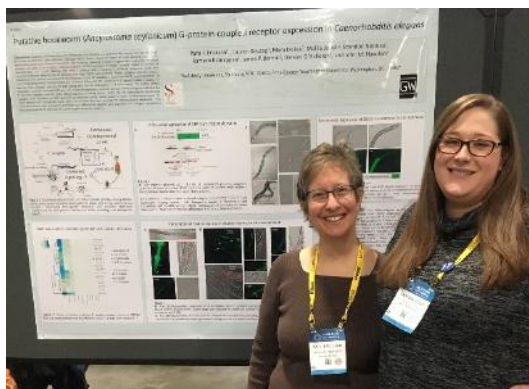
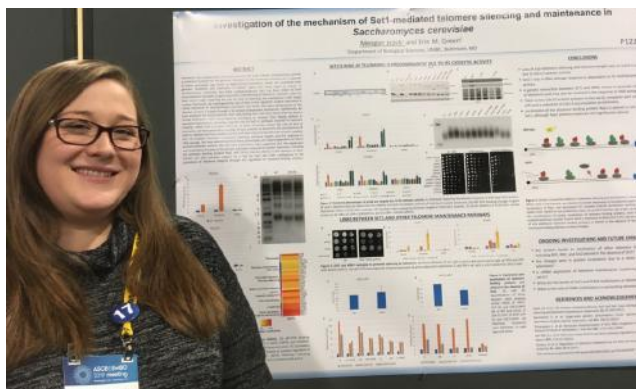
Biology Alumni

Meagan Jezek



Biology Alumna Meagan Jezek (BS, 2014) is completing her PhD, exploring epigenetics in the Department of Biological Sciences, at UMBC. Meagan also attended the UMBC research symposium in October and has been presenting her dissertation work at national conferences.

Meagan Jezek (left) and Dr. Patti Erickson (right).



Meagan took a break from sharing her telomere silencing data to visit Dr. Patti Erickson's poster at the American Society for Cell Biology (ASCB) annual conference in Washington, DC this December.

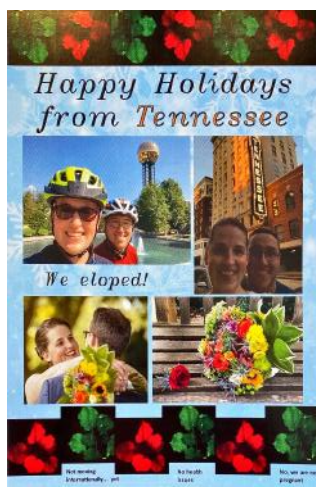


Dr. Stephen Rigoulot



Biology alumnus Stephen Rigoulot and his partner Kerry visited his alma mater over Thanksgiving break. Left to right: Dr. Les Erickson, Dr. Steve Rigoulot, Dr. Patti Erickson, and Kerry Rigoulot.

Stephen Rigoulot, formerly of Snow Hill, MD, received his BS in Biology in 2012 from Salisbury University, where he worked in the Erickson lab studying the positive effect of probiotic bacteria on grapevine root growth. After SU, he was accepted into the Translational Plant Sciences graduate program at Virginia Tech where he received his PhD in 2017. Currently, he is a team leader for a US Defense project at the University of Tennessee Institute of Agriculture. His research project, entitled "Phytosensors 2.0", focuses on creating genetically-engineered plants that can detect dangerous stimuli such as explosives, hazardous chemicals, and radiation. His responsibilities in this project include the management of project timelines for numerous milestones and deliverables, providing scientific leadership to research scientists who work on the project, and acting as a communication conduit between his team, collaborators, and funding agencies.



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 Editor



Dr. Chris Briand

Send any contributions to chbriand@salisbury.edu

Help save Koalas and other Australian Wildlife impacted by Bushfires!



Fires in Australia have decimated wildlife. Please consider donating to the [Kangaroo Island Wildlife Park](#):

"We are working around the clock with a highly experienced, qualified and dedicated team of volunteers including qualified vets, vet nurses and wildlife carers to rescue, rehabilitate and care for all of the animals coming in from the bushfires."

Adelaide and Hills Koala Rescue: Donate [here](#)

Currumbin Wildlife Hospital: Donate [here](#)

Mallacoota Wildlife Shelter Fire Relief Fund: Donate [here](#)

Port Macquarie Koala Hospital: Donate [here](#)

WIRES, Wildlife Rescue: Donate [here](#)