



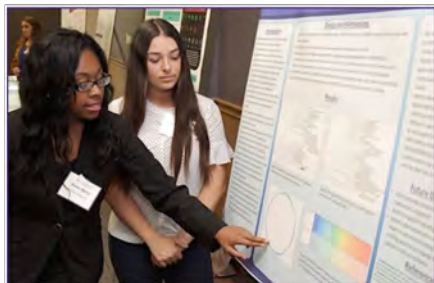
As discoverers of a new species of worm, J. Antonio Baeza and his lab had the honor of naming it for the scientific community and held a naming contest. The result - *Carcinonemertes conanobrieni* - due to the resemblance to Conan O'Brien!

# Biological Sciences YEAR IN REVIEW

## BIOLOGICAL SCIENCES FROM MOLECULES TO ECOSYSTEMS

*This past year was a very good one for the Department of Biological Sciences! Your generous contributions provided valuable support to microbiology and biological sciences undergraduates and graduate students in so many ways. Thank you.*

*Take a look at just a few of our 2017 highlights and accomplishments...  
Happy New Year and Go Tigers!*



### 9th Annual CBASS Symposium

The Clemson Biological Sciences Annual Student Symposium (CBASS) is a research symposium run by students for students. It is an annual conference that provides a low-pressure, professional atmosphere for Clemson undergrad and graduate students to present research related to the life sciences. Students from departments across campus come together to share scientific experiences, discoveries, and ambitions. CBASS had around 200 participants this year that saw 41

posters and 13 lightning talks by masters and doctoral students.



Local HS students spend a day in the field analyzing water quality with grad student mentors as part of the WOW project. Results of the research were presented at CBASS!

### UNDERGRADUATE ENROLLMENT

Our majors are among the most popular at Clemson, accounting for slightly less than 10% of the undergraduate student body.

Undergraduate enrollment in Biological Sciences and Microbiology rose over the past nine years to a current high of 1720 students!

### Micro major wins Goldwater Scholarship and Astronaut Scholar Award

Caitlin Seluzicki wins the Goldwater Scholarship, the premiere undergraduate award in the fields of mathematics, natural sciences and engineering, as well as the Astronaut Scholar Award based on her research under biological sciences assistant professor, David Feliciano. Feliciano's lab studies how neural stem cells direct brain growth. Seluzicki plans to pursue a PhD degree in developmental neuroscience.



Caitlin at her summer internship at the Marine Biological Laboratory in Woods Hole, Massachusetts.

### CONTACT BIOLOGICAL SCIENCES

[clemson.edu/science/departments/biosci/](http://clemson.edu/science/departments/biosci/)  
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**Recent doctoral grad uncovers link between environmental toxicants and lipid metabolism**

Namrata Sengupta studied environmental health using *Daphnia magna*, water fleas, as a model system. Her research indicated that certain toxicants can disrupt fatty acid maturation by altering the level of lipids present in the species. Published in May 2017 in *PLOS ONE*, these findings take a step toward understanding how a specific pathway, sphingomyelin metabolism, affects development. Biological sciences professor, William Baldwin, was Sengupta’s advisor and co-author of the study.



Namrata Sengupta



Kaitlyn Hanley is interviewed by the BBC.

**BioSci grad featured in PBS and BBC specials**

Kaitlyn Hanley studies American pikas in the Beartooth Mountains northeast of Yellowstone National Park. During the summer of 2016, her first summer in the field, Hanley received the opportunity to be featured as a science expert on the plight of pikas facing climate change for both the BBC and PBS nature films. The PBS interview aired in the United States on July 5 as part of the film “Great Yellowstone Thaw.”

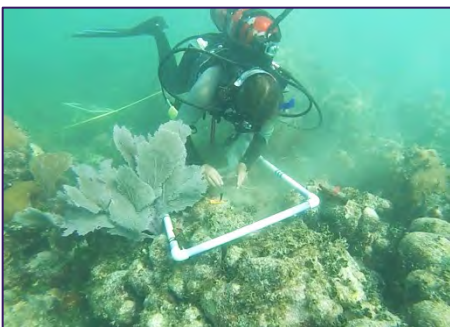
**Fulbright Scholars**

In April, four CU students were selected to receive the prestigious Fulbright U.S. Student Program grants; two others named semifinalists. The program provides grants for scholars to live and study abroad on designed research projects or English teaching assistants. BioSci major, Danielle Gill, was awarded a teaching assistantship in Argentina, and will

enter a PhD program in Sao Paulo, Brazil to study infectious diseases.

**Clemson scientists, students leading Hurricane Irma relief efforts**

Clemson researchers – led by biological sciences associate professor Michael Childress and PhD candidate Kylie Smith – paid close attention to Hurricane Irma’s devastation in the Florida Keys and led efforts to solicit help for the area. The Childress lab has been conducting research in the Keys for the past 25 years. In October, Smith led a team of divers to video and re-census their reef sites while Childress and student volunteers assisted with restoration efforts at the Keys Marine Lab.



**New College of Science names founding dean**

Cynthia Y. Young, vice provost for Faculty Excellence and UCF Global at the University of Central Florida, was chosen to lead the College of Science as its founding dean. A professor of mathematics, Young began work in August.



Clemson University reorganized its colleges in July, increasing their number from five to seven. The new College of Science brings together five departments: biological sciences, chemistry, genetics and biochemistry, mathematical sciences and physics and astronomy.

**Recent BioSci faculty hires:**

**Kara Powder**  
Assistant Professor



Powder came to Clemson from a NIH-funded postdoc at the University of Massachusetts Amherst

where she studied craniofacial variation in cichlid fishes. Her research goals are to understand how changes in DNA sequence and development produce the diverse animals seen in nature. Powder teaches Developmental Biology, a Senior Seminar in Genomics, and Evolutionary Developmental Biology.

**Samantha Price**  
Assistant Professor



Price joins us from the University of California, Davis where she was a Postdoctoral Researcher

in the department of evolution and ecology. Her research aims to identify repeating themes and general principles governing the evolution of biodiversity. Price teaches a Senior Seminar in Evolutionary Medicine and a Creative Inquiry, "FishShapes: exploring the evolution of body form diversity across fishes."

#### Christopher Parkinson Professor



Parkinson was a professor in the department of biology at the University of Central Florida and now holds a joint appointment in BioSci and the Dept. of Forestry and Environmental Conservation. His research focuses on the study of evolutionary processes including speciation, trait evolution, and biogeography by utilizing phylogenetic reconstruction. The Parkinson lab uses venomous snakes, particularly pitvipers, as a model to understand these processes.

#### First Dr. Alfred P. Wheeler Scholarship awarded

The Wheeler endowment was established in 2013 in honor of professor Alfred "Hap" Wheeler, department chair of biological sciences from 2002 to 2013. Two biological sciences seniors - Maddie Eastman and Haley Krachman - received the first disbursement. Eastman plans to begin physical therapy school in the fall and Krachman plans to begin medical school this summer.



Margaret Ptacek, Michael Childress, Maddie Eastman, Alfred "Hap" Wheeler, Haley Krachman, present biosci chair Bob Cohen, and Dean Cynthia Young.

#### Scientist receives NIH grant to trace how arsenic disrupts developing cells

BioSci professor, Lisa Bain, was awarded a \$366,371 grant from the National Institutes of Health to probe how arsenic exposure affects cell differentiation, the process by which cells change during development. Over a three-year period, Bain and several graduate students will trace how lab-raised cell cultures respond to just seven parts per billion of arsenic.



Dana Szymkowicz, Sarah Coleman, Kaleigh Sims, and professor Lisa Bain will team up to research arsenic's effects on developing children.

#### Biology Merit Exam enters 39<sup>th</sup> year!

BioSci annually conducts the Biology Merit Exam (BME) to recognize and promote outstanding achievement in the biological sciences among middle and high school students. Students attending the BME have an opportunity to test their knowledge with the exam, get acquainted with university life, tour our campus, explore museums, win awards, and attend science activities and exhibits as part of the BioScience Expo.



High school students take part in a mini genetics lab in the CU Life Sciences Outreach Center (Jordan Hall) after the Biology Merit Exam.

#### ONLINE MASTER OF SCIENCE

Did you know BioSci offers an online Master's in Biological Sciences designed specifically for teachers and other science educators? This program is in a fully distance learning format with lectures available 24/7.

[www.clemson.edu/science/departments/biosci/](http://www.clemson.edu/science/departments/biosci/)

#### Pathogens research center completes first year of \$10.5 million NIH grant

Leslie Temesvari of Clemson's Eukaryotic Pathogens Innovation Center (EPIC) is the lead investigator on the COBRE grant from the National Institutes of Health. This is only the second COBRE award in Clemson's history and reflects many years of scientific leadership by EPIC co-founder Temesvari. The grant provides funds to study pathogens responsible for some of the developing world's most devastating diseases, including amoebic dysentery, African sleeping sickness and fungal meningitis.



#### BY THE NUMBERS...

- In 2016-17, our faculty and lecturers delivered over 43,236 student credit hours of instruction!
- Research faculty had over a million dollars of research expenditures, most associated with grants from the National Science Foundation and National Institutes of Health.
- In 2016-17, our faculty published over 60 articles in peer-reviewed journals, with 9 articles in press and 28 in review.
- In addition to our own majors, we teach more than 3000 students annually from other majors, many of whom select our courses to fulfill their Natural Science and Science, Technology, and Society curriculum requirements.
- We have 45 doctoral and 296 Master's students; many of the latter are enrolled in our online Master's program for K-12 science teachers.

### 2<sup>nd</sup> Annual BioSci Retreat

In August, more than 60 biological sciences faculty, graduate students and postdocs gathered in Asheville, NC for our annual retreat.

Faculty presented their research during four conference sessions spanning 2 days. Valuable scientific discussions continued through session breaks and into the evening when graduate students and postdocs presented research posters. BioSci's newest graduate students were in attendance and appreciated the opportunity to learn about the research going on across the department and to make connections with faculty and fellow graduate students.



### Annual Kickball Game

The graduate students once again came away with a victory during our kickball game held each fall pitting department faculty/staff/postdocs/anybody-we-can-scrounge-up against the graduate students.



### BIOLOGICAL SCIENCES

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