Department of
BIOLOGICAL SCIENCES
Clemson® University

Saara J. DeWalt, Chair

Note from the Chair

We are gearing up to welcome one of the largest classes yet for the 2021-22 year on August 18 with 500-plus new biological sciences majors and 40-plus new microbiology majors. Summer never seems long enough to recharge our teaching batteries and get our research done, but here we go!

This edition of our newsletter looks back on some of the successes of BioSci faculty, staff and students from last academic year. Not pictured are the award winners of our departmental “Gumby” awards given out last December to those who showed extra flexibility and going “above and beyond.” Gumby was a bendable and poseable green toy that was popular in the ’70s. We are so proud of the resilience, nimbleness and positive attitude everyone displayed last year. Really, everyone deserves an award!

In particular, we celebrate the 356 B.A. and B.S. students, eight on-campus M.S., 86 online M.S., and three Ph.D. students who graduated between December 2020 and August 2021 — just a few days ago. We are so proud of all they accomplished during a really difficult year.

This summer, I enjoyed being a part of an event celebrating contributions made by women leaders in Science and specifically a large gift made to the School of Mathematics and Statistical Sciences by a math alumna. It was called Celebrating Clemson's Trailblazers: Female Leaders in Math and Science. In the recording, you can see Shaoni Dasgupta (Biological Sciences ’21) and me talking about our experiences at Clemson and specifically what I’m trying to do to recruit and retain top faculty talent.

Thank you for all you do to support our students, faculty and staff. Take care.

Best regards,
Saara

Please visit our Facebook page or follow us on Twitter or Instagram for weekly news about our students, alumni, faculty and staff. Email us with any questions/comments/suggestions at BiolSci@clemson.edu.

Give to Biological Sciences

Top row, from left: Tokea “Kea” Payton, Ph.D. student in biological sciences; Professor Xiuping Jiang; Professor Margaret Ptacek; Senior Lecturer Krista Rudolph; Dean Cynthia Young with Building Manager Mike Moore; Assistant Professor Kara Powder and Senior Lecturer Christine Minor.

Bottom row, from left: Tristan Schramer, M.S. student in biological sciences; Cierra Sullivan, Ph.D.student in biological sciences; Charles Henry, junior microbiology major; Harrison “Chris” Moss, a senior majoring in microbiology and genetics.

Biological Sciences faculty, staff and students honored with spring awards, fellowships

Clemson University Spring 2021 Awards

- Dr. Margaret Ptacek — professor in Biological Sciences, Thomas Green Clemson Award for Excellence
- Dr. Krista Rudolph — senior lecturer in Biological Sciences, Alumni Master Teacher Award
- Tokea “Kea” Payton, Ph.D. student in Biological Sciences, Phil and Mary Bradley Graduate Student Award for Mentoring in Creative Inquiry

College of Science Spring 2021 Awards

- Mike Moore, building manager, Outstanding Staff Member Award and member of the Outstanding Team Award (Science building managers)
- Chris Minor, senior lecturer, Excellence in Teaching Award
- Kara Powder, assistant professor, Excellence in Student Engagement Award

Department of Biological Sciences Spring 2021 Awards

- View the complete list of the undergraduate and graduate students receiving departmental awards.

Graduate students Cierra Sullivan (Ph.D. in biological sciences) and Tristan Schramer (M.S. in biological sciences) were awarded 2021 NSF Graduate Research Fellowships and undergraduate Harrison “Chris” Moss (microbiology and genetics) received an honorable mention. Moss also received an American Scandinavian Fellowship and will conduct research in Sweden for a year before enrolling at the Johns Hopkins School of Medicine.

Charles Henry, junior microbiology major, was honored with the Blue Key Academic and Leadership Award.

Kori Hays, senior biological sciences major, in a “Something Fishy” production; graduate student Randi Sims, M.S. biological sciences, teaches undergraduates to transplant coral in the Florida Keys; associate professor Barbara Campbell in her lab in the Life Sciences Building.

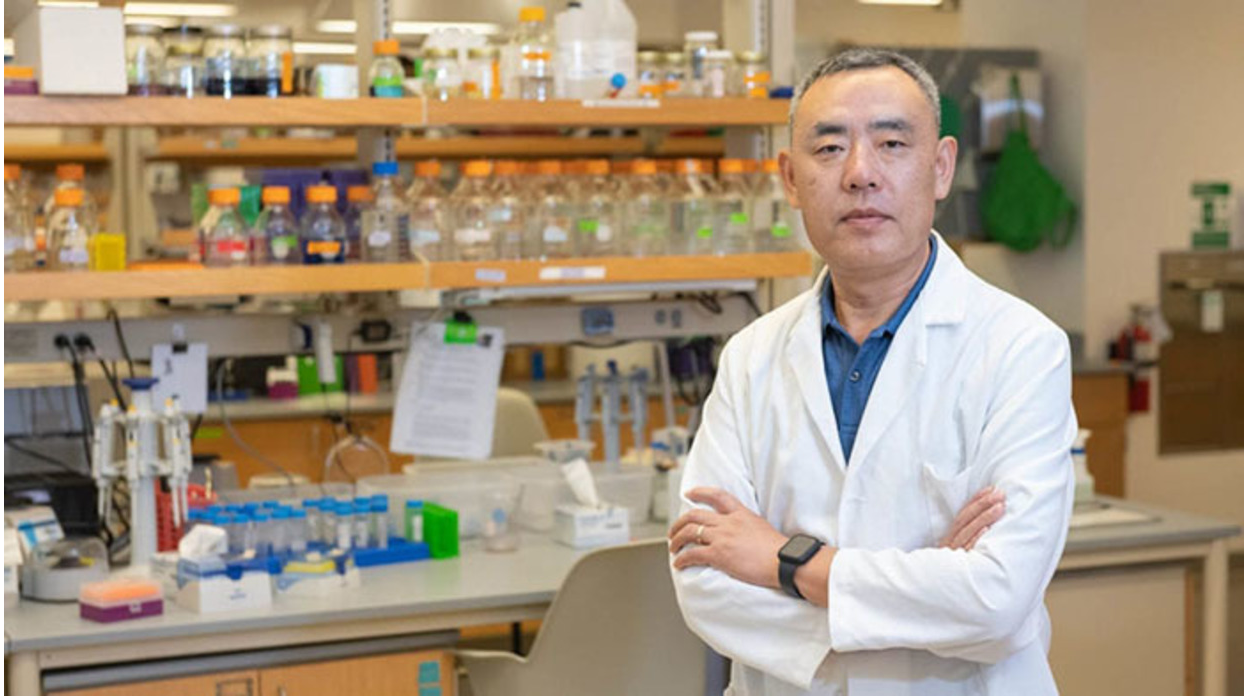
Research, teaching and outreach are playing important roles in improving ocean health

Ocean health is a growing concern — and for good reason. The ocean covers over 70 percent of the Earth’s surface and produces more than half the world’s oxygen. It is home to more than 238,000 identified marine species and potentially hundreds of thousands yet undiscovered.

Research, teaching and outreach efforts underway in the Department of Biological Sciences are playing a critical role in understanding and communicating the importance of healthy oceans.

- Barbara Campbell’s collaborative research revealed the significance of bacteriophages and the crucial role they play in creating a healthy marine ecosystem.
- Graduate student Randi Sims in Michael Childress’ lab found experiential learning can increase student engagement and understanding of climate change, and ocean literacy communication can create a sense of belonging in science-oriented fields.
- Michael Childress' research found K-5 students who attended “Something Very Fishy” showed improvement in understanding two ocean literacy principles: the oceans support a diversity of life and ecosystems, and oceans and humans are connected in their actions and consequences.

Read more about our efforts to improve ocean health.



Yanzhang (Charlie) Wei's research centers on activating the body's natural killer cells to kill breast cancer cells.

Natural killers: Using the body's cells to target breast cancer

A study by Yanzhang (Charlie) Wei, a professor in the Department of Biological Sciences, lays the groundwork for possible new immunotherapy for the world's most commonly diagnosed cancer

It sounds like a plot from a Quentin Tarantino movie — something sets off natural killers and sends them on a killing spree.

But instead of characters in a movie, these natural killers are part of the human immune system and their targets are breast cancer tumor cells. The triggers are fusion proteins developed by Clemson University researchers that link the two together.

"The idea is to use this bifunctional protein to bridge the natural killer cells and breast cancer tumor cells," said Wei. "If the two cells are brought close enough together through this receptor ligand connection, the natural killer cells can release what I call killing machinery to have the tumor cells killed."

It's a novel approach to developing breast cancer-specific immunotherapy and could lead to new treatment options for the world's most common cancer.

Read more about this research on immunotherapy.

More on Biological Sciences…

- **Margaret Ptacek** spearheaded the effort to form the Clemson University Virtual Tutor Corps for children of faculty and staff this year and is continuing it into this year.
- **Julia George** is part of an international team of researchers that published a paper in the prestigious journal Nature updating their efforts to produce high-quality genome sequences for all the Earth's nearly 72,000 vertebrate species.
- Research from **Chris Parkinson**'s lab finds snake venom complexity is driven by prey diet.

- **Spencer Taylor** ('13 Biological Sciences) is a stand-up comedian and writer on the sitcom *mixed-ish* and loves to make people laugh.
- A New York Times essay featured research by **Felicia Sanders** (2000 M Zoology) that seeks to understand why so many whimbrels gather on Deveaux Bank and what makes this South Carolina island vital to their migration.
- **Dory Askins** ('17 Biological Sciences) has been named a recipient of this year's Roaring10 awards by the Clemson Young Alumni Council.

Give to Biological Sciences

Find out more about the Department of Biological Sciences