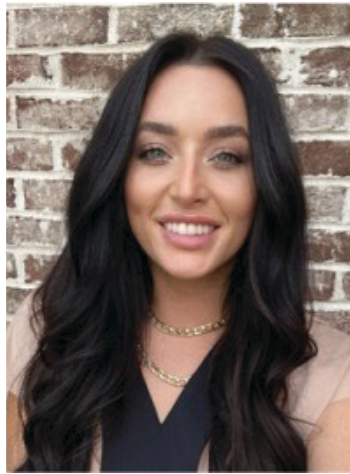


## Emily Webb is awarded an SC-INBRE Pilot Project Grant

### SCINBRE

South Carolina IDeA Networks of Biomedical Research Excellence

Dr. Emily Webb was recent awarded an SC-INBRE Pilot Project Grant to support her research into the spread of vector-borne illnesses. The project, entitled "Integrating Environmental Surveillance for Early Detection and Prevention of Arboviral Disease Outbreaks" was funded as part of USCB's newly established statewide partnership with the SC-INBRE program, which is affiliated with the National Institutes of Health



*Dr. Emily Webb, assistant professor at USCB*

in Washington, D.C. Dr. Webb started as a tenure-track professor at USCB in fall of 2024, after a year here as a visiting professor. She previously completed her research studying the molecular biology of interactions between alphaviruses in transgenic mosquitoes (*Aedes aegypti*), which are a common disease vector in the Caribbean and the southeastern U.S. This grant is a wonderful first step in beginning local research in the lowcountry area that will engage students and gather crucial preliminary data for successful future grant applications that have real impacts on the molecular aspects of disease vectors that impact human health.

## Ryan Hanscom joins the Natural Sciences faculty at USCB



*Dr. Ryan Hanscom, assistant professor at USCB*

Dr. Ryan Hanscom moved to our region this summer to get a head start on his new position as an assistant professor of biology at USCB. His research focuses on aspects of animal behavior and its impact on vertebrate natural history. Dr. Hanscom considers himself a broadly trained behavioral ecologist with a strong focus on herpetology (frogs, salamanders, lizards, turtles

and snakes), and natural history of other small vertebrates. He earned his undergraduate degree (B.S. in Biology) from Framingham State University (2017), his M.S. from Tennessee Tech (2020), and most recently completed his Ph.D. in Evolutionary Biology through the joint doctoral program at San Diego State University and University of California--Riverside (2025). His research marries next-generation biologging tools and observation to answer classic questions in ecology. By utilizing miniature accelerometers (as found in the average smart phone) and temperature loggers, he can uncover how changing climate and the resulting thermal landscapes shape animal behavior, both at the individual and population levels.

Dr. Hanscom's goal is to train the next wave of field biologists through immersive, data-driven projects using high-level statistical approaches on the behavioral

ecology of reptiles and mammals along the South Carolina coast. He came this summer to lead the Maymester field course in ecology of the salt marshes and has begun preliminary work investigating populations of small vertebrates on Pritchards Island.



*Dr. Ryan Hanscom, assistant professor at USCB*

## Message from the Chairs:

When fall semester was approaching, we were predicting a great turnout for the STEM fields as we have a 12% increase in freshman enrollment for the biology degree and similar deposits for Computational Science from last year. We had record recruitment in fall 2024 at USCB and ended up with having nearly 300 student (new and returning) in the biology program, alone.

We had spring graduation with 53 students across the STEM disciplines marching on May 2nd. Combined with last winter graduates for a total of 73 STEM graduates for this academic year.

*Dr. Mercer Brugler,  
Chair of Natural Sciences*

*Dr. Brian Canada,  
Chair of Computer Science  
and Mathematics*



# Research highlights form Pritchards Island

## Plant survey – Dr. Kathryn Madden



Pritchards Island, like other barrier islands, is a prime example of dynamic landscapes shaped by extreme environmental pressures, making them ideal for exploring coastal succession. The plant communities are the first to signal shifts in sand, salinity, and resources due to wind, water, energy, and human activity. Pritchards Island provides a unique and exciting opportunity to measure the rate and



nature of ecological responses to such ongoing changes. Surveying the plant communities offers us clues about the island itself and the resilience of these critical landscapes. Studying Pritchards Island plant communities helps reveal stability in an otherwise changing environment, as some plants thrive; others give way amid constant pressure and change.

These initial surveys on Pritchards Island involve a species inventory along several transects, or linear sampling path that cross different regions, to assess plant community composition. These run north to south from high tide wrack line, across the dunes, giving way to extensive salt marshes, ending just inside the maritime forest. These surveys will serve to establish a current baseline for future comparisons and collaborative studies.

## Herpetological Study – Dr. Ryan Hanscom

Dr. Hanscom's research group is studying the ecology of terrestrial vertebrates (non-avian) on Pritchards Island using next-generation natural history technology, such as accelerometers, magnetometers, and miniaturized GPS units. They are focusing on eastern diamondback rattlesnakes (*Crotalus adamanteus*), marsh rice rats (*Oryzomys palustris*), and diamondback terrapins (*Malaclemys terrapin*) to quantify fine-scale behavior and movement. They have also set up an intensive camera trap study and conducting small mammal trapping to monitor the broader community. This

research is in collaboration with Chris Kehrer (Port Royal Sound Foundation) and Jake Zadik's (Bray's Island) on-going project surveying the herpetofauna (reptiles and amphibians) that began before Dr. Hanscom's arrival. They employ drift fences (which corral migrating animals to be photographed), coverboards (as artificial refuges) and



Georgia College & State University professor Dominic DeSantis and grad students visit Pritchards Island.



Ms. Loren Quintana setting a camera trap station

head-count surveys of Diamondback Terrapins. The Hanscom lab is also launching a Snake Fungal Disease study in collaboration with Coastal Carolina University and Georgia College & State University to compare barrier island and inland rattlesnake behavior. They work also involves researchers from Marshall University and SCDNR to further understand eastern diamondback population connectivity in the Lowcountry.



# BEACH FRONT MUD BAR ANALYSIS

*Dr. Joe Staton and Dr. Chris Hintz*

In late June, Dr. Joe Staton and Dr. Chris Hintz (Savannah State University [SSU]) traveled to Pritchards Island, SC, and Wassaw Island, GA, to collect core samples of the barrier island beach fronts in an attempt to characterize their relative ages. Mud banks on fore beaches are created in the past as the mud of back-island marshes that become covered as the natural shifting of the barrier islands recede over time, only to then re-emerge on the fronts of beaches, a timeline that is not well known. We have successfully mapped the changes in the shoreline using recent Lidar data merged with historical aerial photography from as early as the late 1920s, but longer term knowledge of coastal changes are relatively unknown.

Assisted by Ms. Monet Murphy, grad student, SSU) and Ms. Sophia



*Drs. Chris Hintz and Joe Staton coring on Pritchards with Capt. Tyler Hassig observing*

Elliott (technician, SSU), they were able to sample and process two 4-inch cores from each island for subsequent analyses in late June.



*Drs. Joe Staton and Chris Hintz assisting Graduate student Ms. Monét Murphy in core sampling*

## Tye Pettay awarded SC EPSCoR Major Equipment grant

Dr. Tye Pettay was awarded through SC EPSCoR Major Equipment Program a grant application for "Acquisition of Fluorometric Equipment to Expand Educational and Applied Research Experiences at USC Beaufort." This grant will purchase a Lab Single Turnover Fluorometry (LabSTAF) unit, which can estimate primary production (= the combination of carbon containing molecules from carbon precursors into complex biomolecules) of microalgae using physiological data derived from chlorophyll fluorescence. By measuring the fluorescence spectrum of Chlorophyll-a, the LabSTAF provides a non-invasive and safe method to measure photosynthesis, which makes it perfect



for high throughput estimates of primary productivity and optimal for research conducted with undergraduate students. The classic method for estimating primary productivity involved incubation of algal containing water samples with radio-labelled precursors ( $^{14}\text{C}$ ) and measuring the rate of their incorporation by the algal sample. The method relies on radioactive chemicals and fraught with possible unintended artifacts. The new equipment eliminates the need for radioactive chemicals and provides a method to quickly assess samples using a high-throughput process that estimates productivity, making it optimal for research conducted with little risk to faculty and undergraduate researchers on the water quality of the local rivers and estuaries.

# Natural Sciences welcomes two new teaching faculty



Dr. William "Will" Eubanks

The Department of Natural Sciences is excited to welcome two new teaching faculty for the fall semester. Dr. William "Will" Eubanks joins us as our newest instructor of Chemistry this fall. Dr. Eubanks recently completed his Ph.D. studying organometallic chemistry at the University of Nevada, Reno. He received his bachelor's of science in Chemistry from University of Kentucky in 2019. Dr. Eubanks grew up in Marietta, Georgia, where earned the rank of Eagle Scout and avidly participated in marching band. Dr.

Eubanks brings his experience and passion for teaching general, organic, and inorganic chemistry to USCB. Welcome, Dr. Eubanks!



Dr. Keith Dunn

Dr. Keith Dunn will join us as a full-time Visiting Professor of Physics this fall. Dr. Dunn is not exactly "new" to USCB, as he successfully joined us last year teaching part time. Dr. Dunn spent his recent career as a Professor of Physics and Chemistry at Millsaps College in Alabama. He completed his Ph.D. at Indiana University Bloomington and started his academic career in South Carolina, completing his bachelor's of science in Chemistry at Erskine College in Due West, S.C. He most recently served as the Interim

President for Millsaps College before relocating to the Lowcountry.

## Publications, Grants and Presentations: SCHOOL of SCIENCE and MATHEMATICS

### PUBLICATIONS:

Jett, C. C., & Jones Williams, M. (2025). Facilitating Black Students' Career Development in the Mathematical Sciences: A Closer Look at Two HBCUs. PRIMUS, 35(2), 135–151.  
<https://doi.org/10.1080/10511970.2025.2456807>

Strebler, M., Grisnik, M., White, M. and Hanscom, R.J., 2025. Herpetofauna of Catoosa Wildlife Management Area and species-area relationships of reptiles and amphibians across Tennessee, USA. Herpetological Conservation and Biology, 20(1), pp.158-166

### GRANTS:

SC INBRE grant application IDeA Network -- ~\$550,000 (summer 2025)

NOAA IOOS/SECOORA IRA Grant Awarded: (\$495,000). "Inflation Reduction Act: Sharing Passive Acoustic Monitoring Data from the Estuarine Soundscape Observatory Network in the Southeast (ESONS) with the IOOS Association". PI – Eric Montie.

2023/2025 Pritchards Island Research Grant (\$10,000.00). "Marine Worms *Amphitrite ornata* and *Lepidasthenia commensalis*: Investigation of the Relationship Between Chemical Ecology and Commensalism. Awarded to PI Prof. Edward L. D'Antonio.

Port Royal Sound Foundation (2025): (\$15,000). "Bottlenose Dolphin Monitoring in the Port Royal Sound Area (PRSA)". PI – Eric Montie.

Pritchard's Island Initiative (2025): (\$15,000). "Expanding Bottlenose Dolphin Monitoring to the Tidal Creeks and Inlets of Pritchards Island". PI – Eric Montie.

NOAA IOOS/SECOORA Bipartisan Infrastructure Law (BIL) Funding (2025-2028). (Total subaward \$70,000). "Infrastructure Needs for the Estuarine Soundscape Observatory Network in the Southeast (ESONS)". PI – Eric Montie (USCB).

SC Sea Grant (\$160,000) - "Determining bacteria and turbidity sources to inform management and outreach across the Edisto Island Watershed", 2024 to 2026, DT Pettay is co-PI, Lead PI and co-PI are Clemson University Baruch Institute collaborators. (First USCB funding from Sea Grant)

### PRESENTATIONS:

Hanscom, R.J., Hill, J.L., Higham, T. Sukumaran, J., and Clark, R.W. 2025. Exploring the intersection of behavior and physiology in *Crotalus viridis* across their range through biologging. Biology of Pitvipers 5. Rodeo, NM, USA.