



Derrick Muhammad (left), principal of Johnson High School, helps SkIO scientists hoist an imaging device into the water.

Johnson High School educators join cruise on the R/V Savannah

In late June, several dozen miles off the Southeast Georgia coast, a group of Sol C. Johnson High School (JHS) educators stood inside the R/V Savannah, looking over the shoulder of a University of Georgia Skidaway Institute of Oceanography (SkIO) scientist, trying to help him spot various plankton in images quickly flashing across a computer screen.

The images were being taken live – five times per second, to be exact – by a high-definition camera device being pulled behind SkIO’s 104-foot research vessel. Just moments before, the device had been assisted into the water by Derrick Muhammad, JHS principal.

Invited by SkIO scientists Adam Greer and Marc Frischer, Muhammad, along with four additional JHS educators, spent just over 24 hours on the ship, learning about the process of collecting oceanographic data with the ultimate goal of relaying insights back to their students and using their experience to develop future lesson plans.

“For the UGA Skidaway Institute of Oceanography to partner with Johnson High School has been a blessing,” said Muhammad. “We are very energized to take this information back to our students at Johnson to get them excited.”

Both parties foresee the partnership growing.

“Through our conversations with the teachers, we definitely could see new ideas percolating about how these experiences and data we collected could be incorporated into science curricula,” added Greer, the chief scientist on the cruise.

The JHS educators first arrived at the SkIO dock around 7:40 a.m. on Thursday, June 27, 20 minutes before departure time.

As the R/V Savannah chugged down the Wilmington River, heading out into

the Atlantic Ocean, the educators took a seat in the ship’s conference room, where Frischer and Greer gave a lesson on microorganisms in the local waters that serve as the foundation of the marine food web.

After traveling roughly 29 miles offshore, the R/V Savannah reached water with a depth of 25 meters, and the educators followed the scientists to the back of the vessel, where they deployed multiple scientific instruments, including one that collected water jam-packed with the plankton the SkIO scientists had introduced in their presentation. This device is a net which gets dragged through the water from the side of the vessel. It operates similarly to a fish trawl, but for smaller animals.

After pulling up the samples, the SkIO scientists led the JHS educators to the vessel’s lab room where they had the opportunity to examine the just-collected living organisms, as they swam in beakers placed on a lab bench.

Once the R/V Savannah reached waters roughly 45 meters deep, the SkIO scientists, with Muhammad’s help, deployed the imaging device. While pulled behind the ship, traveling around 3 mph, the device sloped up and down through the water column, taking images of the various plankton passing through the device’s cameras.

Inside the vessel, the JHS educators glued their eyes to a computer screen displaying the images as PhD student Patrick Duffy went through and explained the image processing steps.

All of these details will be shared with students in the International Baccalaureate (IB) Diploma Program at JHS.

The full list of JHS educators who joined the cruise includes science teacher Aasha Beard, IB coordinator Amanda Fanelli, science teacher Camilo Gamboa, science teacher Carlton Middleton and Principal Derrick Muhammad.

The full list of SkIO scientists who joined the cruise includes PhD student Patrick Duffy, co-chief scientist Marc Frischer, chief scientist Adam Greer, master’s student Grace Mann and scientist Anita Minnifield.



Educators from Johnson High School join those from SkIO on the R/V Savannah.

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Skidaway Campus | NOTES

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SkIO welcomes Nicholas Foukal to faculty

The University of Georgia Skidaway Institute of Oceanography (SkIO) is proud to welcome physical oceanographer Nicholas Foukal to its faculty. Foukal began his role as an assistant professor on August 1, 2024.

Foukal was previously at the Woods Hole Oceanographic Institution (WHOI), where he served as an assistant scientist in the Department of Physical Oceanography.

“I am excited to join the faculty at Skidaway,” said Foukal. “In many ways, I will be continuing what I began at WHOI and will keep the positive momentum going that I had built there on the research front. But in other ways, this will be a new chapter in my career as I begin a new role in a university setting and put more emphasis on teaching and mentoring alongside my research.”

Foukal received his doctorate in earth and ocean sciences from Duke University, his master’s in oceanography from the University of Maine, and his bachelor’s in engineering sciences modified with economics from Dartmouth College.

“I am pleased to welcome Dr. Foukal to the faculty of the UGA Skidaway Institute of Oceanography,” said SkIO Director Clark Alexander. “His research on high-latitude current systems brings exciting, new expertise to the institute and expands the opportunities for interdisciplinary science.”

Foukal’s research focuses on ocean circulation, including where, when and how the ocean stores and transports its heat. The movement of the water within the ocean is important, as it helps regulate the Earth’s climate, influences weather patterns, impacts the health of marine ecosystems and more.

Foukal has studied the Atlantic Meridional Overturning Circulation, the Gulf Stream, the dynamics of the subpolar gyre, and, most recently, how fresh water from Greenland, the Arctic and the Labrador Shelf off eastern Canada impacts the North Atlantic circulation.

His work off the southern coast of Greenland involved deploying surface drifters, which are small floating devices equipped with GPS trackers, to follow the movement of the meltwater coming off the country’s coast. Most recently, Foukal deployed surface drifters, along with moorings, which are instruments anchored to the ocean floor and collect speed and direction data, on the Labrador Shelf, aiming to understand water circulating from the eastern coast of Canada.

Foukal will continue this work in his position at SkIO. He will also teach undergraduate and graduate courses within the UGA Franklin College of Arts and Sciences’ Department of Marine Science.



Foukal (center) working on Greenland’s southern coast.



Foukal’s research focuses on ocean circulation, including where, when and how the ocean stores and transports its heat. (Photo by David Garczynski)

Associates of Skidaway Institute

The Associates of Skidaway Institute (ASI) is part of the University of Georgia Foundation, a 501(c)3 tax-exempt organization. ASI provides a broad range of support for the research and education activities on the campus of the University of Georgia (UGA) Skidaway Institute of Oceanography.

The institutions and organizations represented on campus include:

- UGA Skidaway Institute of Oceanography
- UGA Marine Extension and Georgia Sea Grant
- NOAA Gray’s Reef National Marine Sanctuary
- Georgia Southern University
- Savannah State University
- The Nature Conservancy
- Georgia Institute of Technology
- Georgia Department of Natural Resources

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Natalie Cohen named 2024 Simons Early Career Investigator

By Emily Tingle (Originally published by @UGAResearch)



Assistant Professor Natalie Cohen was named a 2024 Simons Early Career Investigator. Her research in biological oceanography focuses, among other things, on how microbial communities interact with their chemical environment across depths of the ocean.

University of Georgia Skidaway Institute of Oceanography (SkIO) scientist Natalie Cohen has been named a 2024 Simons Early Career Investigator. The three-year grant provides \$810,000 to fund her work tracking shifts in phytoplankton physiology along continental shelf ecosystems.

A researcher in biological oceanography, Cohen is interested in how microbial communities interact with their chemical environment across depths of the ocean, and how they contribute to ocean ecology and biogeochemistry. Microbial organisms like phytoplankton play a critical role in ocean carbon cycling by serving as a foundation for the marine food web and transporting carbon to deeper layers of the ocean.

“We have a continental shelf right here off the coast of Georgia that’s relatively underexplored, and we call that area the South Atlantic Bight,” Cohen said. “That’s one of the regions I’m interested in sampling.”

Collaborating with colleagues at SkIO, Cohen will gather data from the continental shelves of the South Atlantic Bight and Gulf of Mexico. This will help her compare species that live in different ocean layers and examine their adaptations for surviving in distinct chemical environments.

“I’m extremely humbled and grateful to receive this award. My previous NSF grants have helped give me the training and provided equipment to start doing the research that my lab now carries out,” Cohen said. “I also acknowledge the University and the Institute. They supported me the first three years before my research grants were funded and maintained the equipment needed for my research program.”

SkIO recently obtained new equipment needed for Cohen’s projects, including an Attune CytPix flow cytometer for counting and photographing cells with fluorescent properties, and a fluid-imaging instrument, FlowCam, which allows researchers to take images of microorganisms in large volumes of water. The FlowCam is being used by the Cohen Lab to monitor aquatic ecosystem health locally in the Skidaway River Estuary. Other vital equipment include a clean room where the Cohen Lab is able to conduct trace metal clean culture experiments and specialized incubators used to grow organisms at their appropriate native temperatures.

Cohen advises multiple graduate students and looks forward to being able to use this award to help them as well.

“My hope is that these new projects serve as a stepping stone for my trainees, providing additional training opportunities and resources. Ultimately my role is to ensure they’re able to address exciting scientific questions, advance their careers, and find jobs that they’re interested in following graduate school,” Cohen said.

SkIO faculty advise 5 new graduate students

University of Georgia Skidaway Institute of Oceanography (SkIO) faculty are serving as advisors for five new graduate students who started fall semester 2024. Three students are based at the SkIO campus, and two are at the main UGA campus in Athens.

Alyssa Fritz
Doctoral student
Faculty: Marc Frischer
SkIO Campus

Isaac Stone
Master’s student
Faculty: Sara Rivero-Calle
UGA Main Campus

Abby Swierz
Master’s student
Faculty: Adam Greer
UGA Main Campus

Gabrielle Tutelo
Doctoral student
Faculty: Jay Brandes
SkIO Campus

Nele Weigt
Doctoral student
Faculty: Adam Greer
SkIO Campus

SkIO hosts Semester at Skidaway undergraduate students

The University of Georgia Skidaway Institute of Oceanography (SkIO) is proud to host seven undergraduate students participating in the 2024 Semester at Skidaway Field Study program.

Each fall, Semester at Skidaway, designed for undergraduates enrolled in UGA’s B.S. in ocean science degree program, places students on the Georgia coast for a unique, hands-on learning experience.

Students take courses on the SkIO campus taught by SkIO faculty members, participate in field trips to scientifically and culturally relevant locations, explore the coastal area on SkIO’s fleet of small vessels, and cruise on the R/V Savannah for an overnight research expedition.



Jackson Vassy (left), Madison Neely (center) and Lia Wagner (far right) chat during the Semester at Skidaway welcome event on Friday, August 16, 2024.

UGA course connects students with Georgia’s coastal seafood heritage

By Emily Kenworthy

On the Jekyll Island pier, Addison Simmons, a rising junior at the University of Georgia, hauls up her crab net, hoping to see a flash of blue. Her excitement builds with the realization that she’s caught a female blue crab.

With help from Lisa Gentit, a marine resource specialist at UGA Marine Extension and Georgia Sea Grant, she learns how to carefully remove the crab from her net. Gentit points out some of the crab’s distinctive features, like the bright red pinchers that indicate it’s female, before releasing it back into the estuary.

Simmons is one of 11 UGA undergrads exploring the Lowcountry, documenting and celebrating the relationships between people and seafood as part of a service-learning domestic field study course at UGA entitled “Writing and Community at the Georgia Coast.”

Domestic field studies integrate place-based learning across diverse U.S. locations, and service-learning courses address community needs through partnerships with local organizations and institutions. With these partnerships, students learn new topics through the lens of those who live and work in the community.

This course was developed through a collaboration between the UGA Office of Instruction and UGA Public Service and Outreach, connecting the Office of Service-Learning, the Domestic Field Study program, and Marine Extension and Georgia Sea Grant. Course instructor Elizabeth Davis spearheaded the initiative following her participation in the first Domestic Field Study Fellows cohort.

“It’s been incredible. This is what I imagined—learning firsthand what goes on in these communities, what they’re like, what their concerns are,” says Davis, who coordinates the Interdisciplinary Writing Certificate program at UGA’s Franklin College of Arts and Sciences. “Concerns vary from place to place, yet they are all connected by some very strong threads.”

Davis developed the concept after teaming up with faculty at Marine Extension and Georgia Sea Grant. The organization’s long history of working with Georgia’s fishing communities made it an ideal partner for connecting students with people whose lives revolve around safe, sustainable seafood.

During the first half of the trip, the students stayed at South Carolina’s historic Penn Center, immersing themselves in the cultural tapestry of the Gullah Geechee community and gaining insights into its historical significance along the Georgia coast.

The second half took them to various UGA coastal campuses, including Marine Extension and Georgia Sea Grant’s facilities on Skidaway Island and in Brunswick, as well as UGA’s Marine Institute on Sapelo Island. They explored the saltmarsh, which is vital to seafood like fish, crabs and shrimp. They participated in activities like crabbing and seining, where they learned how to identify marine life and experience seafood harvesting firsthand.

The students also engaged with coastal residents with links to seafood—from harvesters and aquaculturists to chefs and conservationists—who shared their expertise and experiences.

“These opportunities to immerse are key to service-learning,” says Davis. “Understanding what a community is asking you to help them with, as writers, you really need to be on the ground.”

Students learned about Marine Extension and Georgia Sea Grant’s work to bring sustainable oyster aquaculture to Georgia and help commercial fishermen navigate changes to the industry.

Laura and Perry Solomon, owners of Tybee Oyster Company, spoke with the class about challenges they faced launching the first floating cage oyster farm in the



Addison Simmons takes part in catch-and-release crabbing as part of an immersive, hands-on field study on the coast.

Skidaway Marine Science Day

Date: Oct. 12, 10 a.m. - 3 p.m.
Location: UGA Skidaway Marine Science campus

Join us for Skidaway Marine Science Day, a can’t-miss event for all ages. The campus-wide open house will be presented by UGA Marine Extension and Georgia Sea Grant, UGA Skidaway Institute of Oceanography and Gray’s Reef National Marine Sanctuary. As part of Skidaway Marine Science Day, the UGA Aquarium will be open to visitors with no admission fee. Visitors will also be able to explore the aquarium’s newest exhibit, an immersive, 3D display focused on living shorelines, which are created using natural materials like oysters and plants to help stabilize shorelines. Marine Extension and Georgia Sea Grant’s Shellfish Research Lab will provide hands-on activities and educational information about sustainable aquaculture and oyster restoration, and Gray’s Reef National Marine Sanctuary’s 52-foot Research Vessel Gannet will be available for tours! Environmental organizations and coastal researchers will present a variety of exhibits and hands-on activities for people of all ages on the bluff adjacent to the aquarium. All activities at Skidaway Marine Science Day are free. Don’t miss out on this exciting event celebrating Georgia’s unique coastal environment!

state. They credited Marine Extension and Georgia Sea Grant’s Shellfish Research Lab, which produces and sells oyster seed and advises shellfish farmers on best practices for growing shellfish, with helping them navigate the oyster farming process.

The students also toured City Market Dock in Brunswick, a seafood business that operates one of the few remaining commercial fish houses where fishermen can offload their catch. Bruce Collins, fish house manager, discussed issues facing the commercial industry, including competition with imported shrimp, rising fuel costs and a diminishing workforce.

In between activities, students spent time in reflective writing workshops, developing pieces inspired by their experiences.

By the end of the course, the students had crafted insightful texts illuminating the resilience and interconnectedness of coastal communities. Perhaps even more exciting for Davis was seeing the transformative impact of experiential learning on the students and the special bond they cultivated during the trip.

“I hope they take away the community that they formed here as a group, and the realization that you form communities wherever you go throughout life,” says Davis.



Students in a service-learning domestic field study course at UGA explore the salt marsh on Jekyll Island, learning about the benefits of this habitat to a variety of marine species.