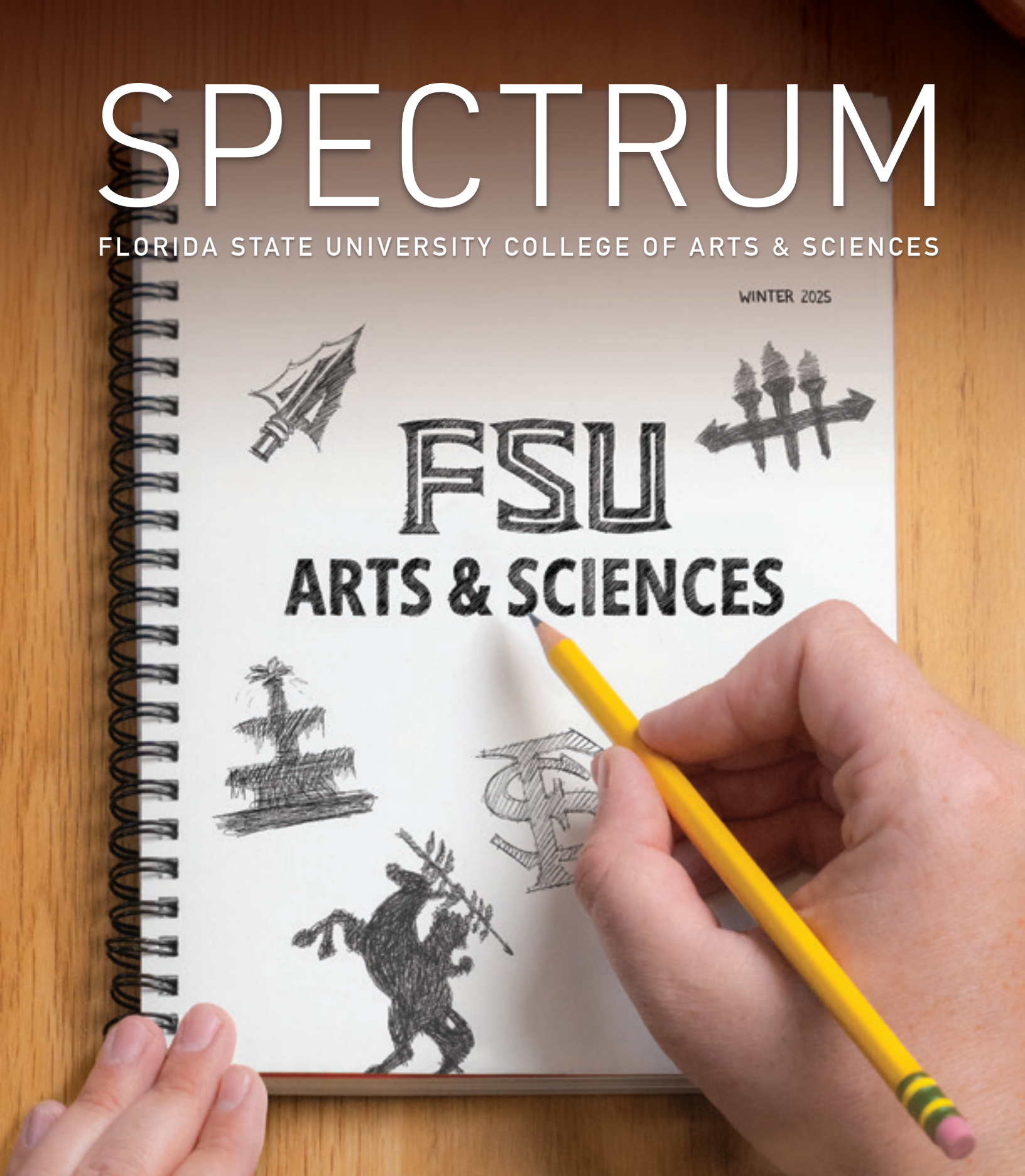
SPECTRUM

FLORIDA STATE UNIVERSITY COLLEGE OF ARTS & SCIENCES



From the Dean

Welcome to the Winter 2025 edition of Spectrum magazine, the alumni publication of Florida State University's College of Arts and Sciences. I am pleased to share some of the year's top activities and accomplishments as we reflect on an energetic 2024 and look ahead to 2025.

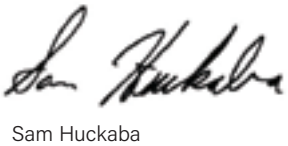
We had another banner year of first-year undergraduate recruitment, welcoming over 6,000 this fall sourced from over 76,000 applications. The class of 2028 features students from all 50 states, 48 countries, all 67 Florida counties, and over 2,800 U.S. high schools. Many have chosen majors that are part of A&S. Combined with another year of steady recruitment at the graduate level, FSU enrollment peaked at 44,308 students with over 10,600 of them calling the college home.

As expected from a Carnegie-classified Research I University, faculty and student research is front and center at FSU. Several dozen A&S undergraduates participated in the Undergraduate Research Opportunity Program, UROP, while 20 early career A&S students participated in the President's Showcase of Undergraduate Research Excellence held in October. Faculty, in addition to robust publishing activity, earned prestigious external recognitions for research, including two book awards, 10 career accomplishment honors — six for junior faculty and four senior — and seven major fellowships.

The FSU Reserve Officer Training Corps units continued to shine with performances that ranked near the top of comparable programs across the Southeast and help prepare the next generation of our nation's military leaders. We were pleased to make possible the purchase and installation of a flight simulator (see back cover) to enrich training of Air Force cadets, and we look forward to completion of a new rappelling tower that will enhance Army cadets' military skills preparation.

This issue of Spectrum highlights the accomplishments of our high-achieving alumni, faculty, and students and includes an inside look at the Florida Center for Reading Research, an interdisciplinary research institute that supports literacy education. I hope you enjoy these stories, and I invite you to explore the exclusive multimedia content in the digital edition.

Thank you, as always, for being part of the Arts and Sciences family.



Sam Huckaba
Dean, College of Arts and Sciences

SPECTRUM
FLORIDA STATE UNIVERSITY COLLEGE OF ARTS & SCIENCES

FEATURES

6
Alumni Alight
From our bonds with each other to the ways planet Earth unites us all, Arts and Sciences alumni illuminate life's interconnections.

16
Student Success
Graduate students and undergraduate researchers accumulate unique experiences at home and abroad in pursuit of scholarly excellence.

24
Faculty Forays
Researchers tackle some of today's top challenges with work spanning artificial intelligence, social media, literacy and more.

On the cover
This fall, Florida State University launched a new logo for use across its operations — from grant applications, letterhead, nametags, email signatures and business cards to signage, FSU buses and advertising. Seen here is an artist's interpretation of the logo development alongside drawings representing earlier elements and iconography of FSU's visual identity. Photo by Devin Bittner. Photo illustration by Marc Thomas.

Real estate gifts yield real benefits for you and FSU

Real estate can provide sound investment opportunities through the course of one's lifetime, but you may not know that investment can also provide owners the ability to establish a legacy in FSU's College of Arts and Sciences.

When you make an outright gift of property held for more than a year to FSU, you qualify for an income tax deduction equal to the property's full fair market value. The deduction lets you reduce the cost of making the gift and frees up cash that otherwise would have been used to pay taxes. By gifting a property to FSU, you also reduce capital gains tax on the property's appreciation. Further, the transfer is not subject to a gift tax, and your gift reduces your taxable estate.

If you like the advantages a gift of real estate offers but wish to continue living in your personal residence, you can transfer a personal residence or farm to FSU but keep the right to occupy — or rent out — the home for your lifetime. You continue to pay real estate taxes, maintenance fees, and insurance on the property. Although FSU would not take possession of the residence until after your lifetime, since your gift cannot be revoked, you qualify for a federal income tax charitable deduction for a portion of your home's value.

Generally, FSU would sell the property upon receipt, but there may be instances where the university retains it as an income-producing asset. Rental income from the property may be used to fund an endowment in the program or department of your choice.

For more information about making a gift of real estate, or for general questions about giving to FSU, contact Nancy Smilowitz, the college's assistant dean for development and alumni affairs, at 850.294.1034 or nsmilowitz@fsu.edu.

** The information in this article is not intended as legal or tax advice. For such advice, consult an attorney or tax adviser.*

Nole Notes

The top news from around the college

Scott Evans. Courtesy photo by Emily Hughes. Artistic rendering of what scientists believe Quaestio simpsonorum looked like. Artwork by Walker Weyland.

Geologist discovers one of Earth's earliest animals in Australian outback

A new discovery by assistant professor of geology Scott Evans and a multi-institution team of paleontologists has identified an early marine animal from around 555 million years ago. The fossils, discovered in Nilpena Ediacara National Park preserve in Australia's south outback area, help answer how life evolved on Earth.

Researchers said *Quaestio simpsonorum* is the first animal to show definitive left-right asymmetry, an important sign of evolutionary development. *Quaestio*, pronounced "kways-tee-oh," behaved like a small marine Roomba vacuum, consuming nutrients from microscopic algae, bacteria, and other organisms as it moved along the seafloor. The collection of microbes formed an organic mat, like a layer of slime filled with nutrients on the seafloor, which formed a particular texture preserved in the rock slabs that make up the park's fossil beds. Researchers discovered distinct *Quaestio* impressions along with evidence of its trails — known as trace fossils — in this fossilized mat texture.

The team's findings were published in the journal Evolution & Development.

FSU linguist awarded NSF grant to study, preserve Indigenous Quechua language

Associate professor of linguistics and Spanish Antje Muntendam received a three-year, $326,292 National Science Foundation grant for her project, "Linguistic outcomes of language contact: The production and perception of intonation." This research explores the impacts of the Spanish language on Quechua, an Indigenous and endangered language that originated in Peru and is still spoken there as well as in Argentina, Bolivia, Chile, Colombia and Ecuador.

Antje Muntendam

"This grant is one of the most prestigious in my field, recognizing the value and impact of my research, and it will significantly enhance my body of work," Muntendam said. "It also acknowledges the importance of studying Indigenous languages and involving underrepresented communities in linguistic research."

Muntendam also serves as an affiliate faculty member of FSU's Native American and Indigenous Studies Center, which launched in 2023 and unites research from academics across diverse disciplines within the university including art, art history, music, modern languages and linguistics, religion, history, archaeology, geography and anthropology.

For the project, Muntendam is examining the production and perception of questions in both Quechua and Spanish and exploring how the languages' different intonation strategies interact in the spoken language of bilingual people. Intonation — the melody of a sentence that corresponds to changes in pitch, such as high or low tones, that may cause changes in meaning — is a key, yet relatively understudied, aspect of linguistics.

FSU research improves hurricane intensity forecasting

A new collaboration between researchers in South Korea and FSU is improving hurricane forecasting by incorporating the effects of sea spray into the models that predict hurricane behavior. The work was published in Environmental Research Letters.

Mark Bourassa

"We know forecasts predicting hurricane tracks are pretty good most of the time, but the intensity forecasts have traditionally not been as accurate, and we're trying to figure out why," said Mark Bourassa, a professor in the FSU Department of Earth, Ocean and Atmospheric Science and paper co-author.

As hurricanes churn through the ocean, wind and waves at the surface disperse droplets of water into the air, known as sea spray. As these droplets of warm water evaporate, they cool while releasing heat and moisture into the atmosphere near the ocean surface. The heat lifts more moisture-laden air, a process that powers hurricanes.

The researchers looked at data from probes dropped by hurricane hunter airplanes and found there was a lot more thermal energy being transferred from the ocean into the air than they expected. That pointed to a potentially overlooked feature that was influencing storm intensity. Once the team incorporated data showing how sea spray changes the flow of heat and moisture in a storm, it found that intensity forecasts were remarkably better than they were when the same model was run without that single change.

Future research motivated by this paper could focus on rapid intensification of storms, Bourassa said, helping to add another piece to the complicated puzzle that is hurricane forecasting.

Physicist earns prestigious American Physical Society award

Laura Reina, FSU Distinguished Research Professor and Joseph F. Owens Endowed Professor in the Department of Physics, is the recipient of the 2024 Jesse W. Beams Award from the Southeastern Section of the American Physical Society, a scientific organization committed to advancing physics and creating a professional community for physicists. This award recognizes Reina's career achievements that have helped drive the field of physics forward for decades.

The Jesse W. Beams Research Award, first presented in 1973 to former FSU professor Earle Plyler, was established to recognize significant or meritorious research in physics carried out in the southeastern U.S. The award honors physicists for innovations that yielded precise theoretical predictions used in tests of the Standard Model at hadron colliders.

Reina is a member of the FSU High Energy Physics group, which uses both theoretical and experimental methods to investigate elementary particles and their interactions. She is also a member of the Large Hadron Collider Higgs Working Group at the European Organization for Nuclear Research, or CERN, the world's largest particle physics laboratory and the host of the largest and highest-energy particle accelerator.

Laura Reina

Ronald E. Doel

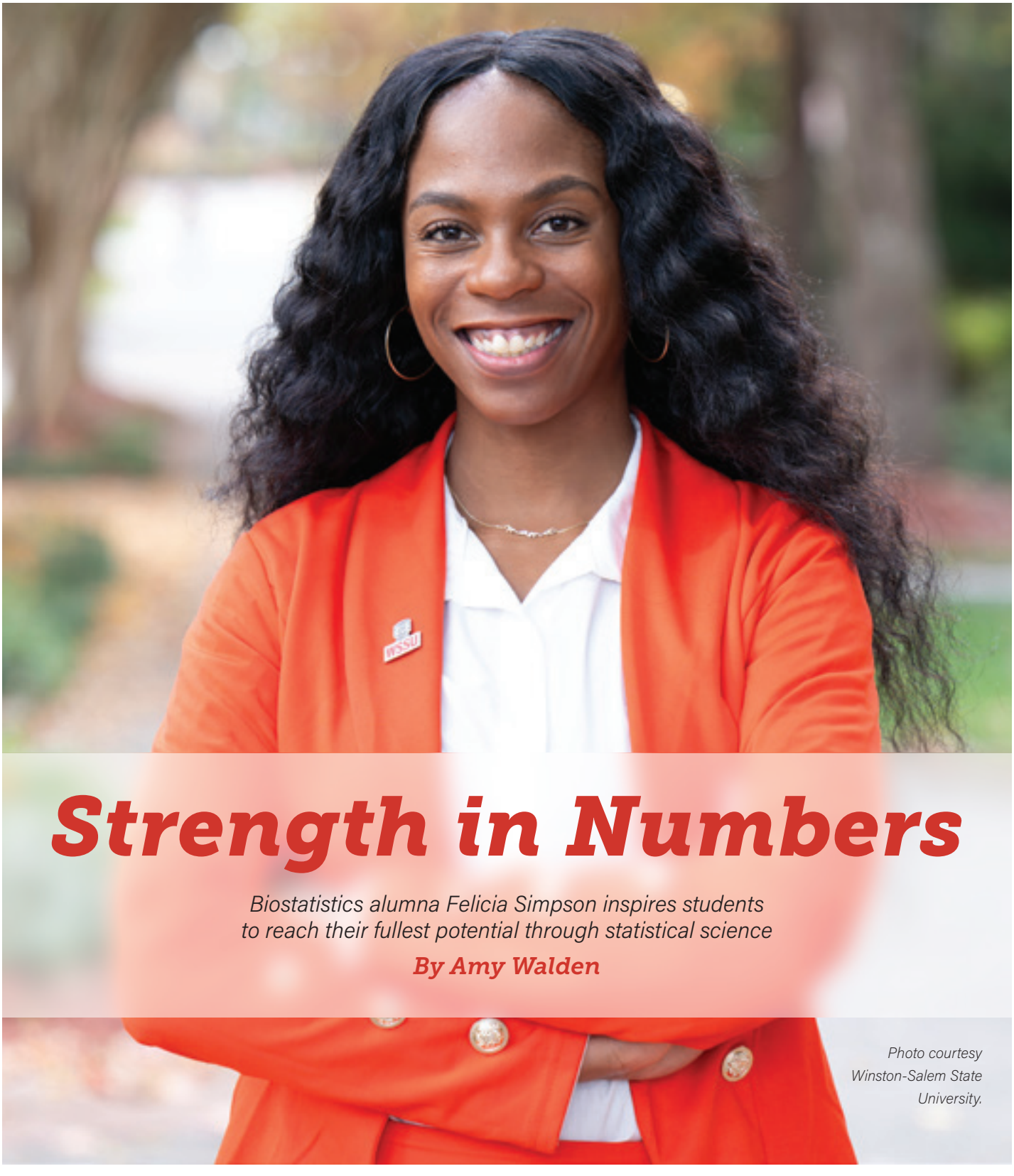
Science historian awarded Smithsonian Institution fellowship to study impact of Cold War-era national security concerns on Earth science research

Associate professor of history Ronald E. Doel received the Charles A. Lindbergh Chair in Aerospace History fellowship from the Smithsonian Institution's National Air and Space Museum, the preeminent American institution for commemorating flight while collecting, preserving and presenting the history, science and technology of aviation and space exploration.

Doel has been onsite at NASM in Washington, D.C., since August finishing his book, "Cold War Planet," which covers the period between the end of World War II in 1945 through the dissolution of the Soviet Union in 1991.

This competitive 12-month fellowship is open to senior scholars with distinguished records of publication who are writing, or anticipate writing, books about aerospace history, broadly defined. This is the third time Doel has been selected for a fellowship with the institution — he held a predoctoral Guggenheim Fellowship from 1987 until 1989 and a postdoctoral fellowship from 1993 until 1995.

For full details on these stories and more, visit artsandsciences.fsu.edu/news.



Strength in Numbers

Biostatistics alumna Felicia Simpson inspires students to reach their fullest potential through statistical science

By Amy Walden

Photo courtesy Winston-Salem State University.

Felicia Simpson's mother and aunt always encouraged her to dream big and pursue education beyond high school. The Albany, Georgia native considered majoring in nursing — she knew she wanted a career helping others — as she began her study at Albany State University, but math and technology were determined to have a say.

"During my first year at ASU, I took a mathematics course taught by a professor named Dr. Zephyrinus Okonkwo," Simpson said. "His love and excitement for mathematics sparked something that made me realize my own passion for it."

As she was completing her bachelor's in mathematics and weighing options for graduate school, Okonkwo suggested considering a biostatistics program. The prospect resonated with Simpson, who had lost her mother unexpectedly to a stroke just a few years earlier.

"I had no idea what biostatistics was, so I started to research programs because the idea of combining my love for mathematics and helping people was intriguing," she said. "Losing my mother at such a young age made me want to study biostatistics to understand health disparities from a statistical point of view."

While her research focus was set, Simpson also hoped to find a graduate school with a supportive and inclusive environment like she had experienced at ASU, one of the nation's historically Black colleges and universities. She applied to several programs but found her perfect fit at Florida State University.

"I decided to attend FSU after visiting the Department of Statistics and meeting with various faculty, including then-chair Dr. Daniel McGee," Simpson said. "He was so warm and welcoming and took the time to answer all my questions. The faculty appeared very student-centered and engaged in interesting research."

When Simpson earned her Ph.D. in biostatistics from FSU in 2015, Okonkwo was in the audience cheering as McGee draped the doctoral hood over her shoulders.

"What I love most about being a biostatistician is the impact of the work we do. It is exciting to develop statistical methodologies to address health-related questions arising from data and to identify risk factors for various types of diseases."
— Felicia Simpson

"Now that I am retired and look back over my career as a professor, I remember Felicia as one of my students who has made my own professional career worthwhile," McGee said. "Her desire to succeed began long before she attended FSU. She was fortunate to have a mother who encouraged and impressed upon her that she could accomplish whatever she chose to do."

After graduation, Simpson accepted a position as a mathematical statistician for the U.S. Food and Drug Administration's Center for Drug Evaluation and Research and took on an adjunct professor role at Maryland's Montgomery College. Simpson loved working with students and decided to transition to academia, receiving an offer to join the faculty at one of the nation's top HBCUs, Winston-Salem State University.

Simpson was promoted from assistant to associate professor and, in 2023, received the Winston-Salem State University Joseph Patterson Master Teacher Award. The same year, she was appointed chair of WSSU's Department of Mathematics.

"It is so rewarding to introduce students to the world of statistics and biostatistics," Simpson said. "It is a wonderful feeling to watch students I have taught over the years grow in their abilities to analyze and interpret statistical data and become confident in themselves."

Research has also remained a focal point for Simpson, who recently received the HBCU-Undergraduate Program Research Initiation Award, supported by the National Science Foundation, to identify latent frailty profiles in African-American adults with diabetes. The project also provides hands-on training and research experiences to undergraduates.

"What I love most about being a biostatistician is the impact of the work we do," she said. "It is exciting to develop statistical methodologies to address health-related questions arising from data and to identify risk factors for various types of diseases."

Also in 2023, Simpson received the Annie T. Randall Innovator Award from the American Statistical Association in recognition of her cutting-edge statistical research in gerontology, the study of aging processes and individuals, and her role in expanding opportunities for students from underrepresented communities to enter careers in statistics.

Today, Simpson is an active member of the ASA and the Eastern North American Region of the International Biometric Society. She has also served on the ASA Committee on Minorities in Statistics and as co-chair for the ENAR Fostering Diversity in Biostatistics Workshop where she met her husband, Sean, a fellow biostatistician and professor at the Wake Forest University School of Medicine. The couple now shares a four-year-old daughter, Sophia, whom Simpson calls the light of their lives.

As Simpson sets her sights on the future, she aims to help her students realize and unlock their own potential, just as her mother, professors and advisers did for her.

"I hope to inspire others to never give up on their dreams," Simpson said.

Eye in the Sky

Three-time meteorology alumnus Andrew Hazelton flies through hurricanes to collect data for forecasting models

By Devin Bittner

From May to November, Floridians find themselves scrutinizing a hurricane cone of uncertainty at least once. As a storm approaches and the state and its citizens prepare for landfall, key decisions depend on critical data from inside the storm captured by some of the field's bravest researchers — the hurricane hunters.

A satellite image of Hurricane Michael. Photo courtesy NOAA.

Florida State University alumnus and native Floridian Andrew Hazelton is among those who fly back and forth through hurricane eyewalls, at 10,000 feet high, collecting data to improve the National Oceanic and Atmospheric Administration's Hurricane Analysis and Forecast System, a next-generation hurricane modeling technology that he helped develop.

"HAFS is one of several models the National Hurricane Center uses when monitoring a storm in the Atlantic, and it has provided more accurate forecasts for recent hurricanes," said Hazelton, who presently works in Miami as a physical scientist with the National Weather Service Environmental Modeling Center. "The model shows promise in predicting track and intensity, storm size, storm surge, tornadoes and other effects. HAFS also managed to predict the rapid intensification in Hurricanes Helene and Milton in the 2024 season."

For some scientists, the prospect of being tossed around inside the fury of a hurricane is a hard pass, but for Hazelton, a three-time FSU meteorology alumnus, it's how the job gets done. Satellite data informing models like HAFS only gets his team so far — radar imagery of the storm from an airplane in real time gives researchers and forecasters a snapshot of the storm at its current state, letting them measure specific data points and add these to the forecast model.

"There's nothing like being in the eye of a storm," Hazelton marveled. "Most of our research is done on screens, but when you see the scale of these clouds all around you and realize what a massive force of nature you're dealing with — it's remarkable."

Hazelton has worked on forecast models since he started at FSU as a freshman in 2009, and he went on to earn a bachelor's degree in 2011, a master's in 2013 and a doctorate in 2016. He first studied forecast errors in NOAA's Geophysical Fluid Dynamics Laboratory hurricane model before later investigating the structure of a hurricane's inner core, or its eye, and how that informs hurricane intensity predictions using the Weather Research and Forecasting model.

Andrew Hazelton. Photo by Devin Bittner.

Robert Hart, Sunkist Professor of Meteorology and chair of the FSU Department of Earth, Ocean and Atmospheric Science, worked with Hazelton throughout his time at the university and served as his doctoral adviser. During FSU's 2024 Homecoming festivities, Hazelton received the Reubin O'D. Askew Young Alumni Award, a recognition for which Hart and two distinguished external colleagues nominated him. The award is the highest honor bestowed upon young alumni by the FSU Alumni Association.

"When I met Andy, I immediately noticed his creativity, incredible work ethic and energy, and kind heart; he would help everyone in the world, if he found the time," Hart said. "He's been flying into hurricanes for the past six years, and this comes with inherent risk. But it's about collecting data needed to protect the public, and his work has an enormous impact on forecasts. He's doing it for us all."

Hazelton began postdoctoral research in 2016 with a collaborative program between Princeton University and the Geophysical Fluid Dynamics Laboratory. There, he helped build the prototype hurricane model that became the foundation of HAFS.

Through his work at the University of Miami Cooperative Institute for Marine and Atmospheric Studies and the Hurricane Research Division at NOAA's Atlantic Oceanographic and Meteorological Laboratory, Hazelton continued developing the HAFS model alongside NOAA scientists and partners from several universities. After years of development, HAFS came fully online for the 2023 hurricane season.

"When HAFS became officially operational, it was a big milestone," he said. "Now that we've reached this plateau, it's time to take the next steps in continuing to develop this model not only for operations but also for research."

Currently, Hazelton is also a physical scientist with NOAA's Environmental Modeling Center where, in addition to his work on HAFS, he's improving accuracy of the GFS model and expanding the scope of his research from Atlantic cyclones to storms in all the world's oceans.

"Our goal at NOAA is to protect lives and property through our forecasts," Hazelton said. "In 2004, my family endured hurricanes Charlie, Francis, and Jean within a few months of each other. Growing up in Florida and experiencing hurricanes motivated me to create better forecasts that people can use to more accurately understand possible impacts. It means a lot that my work impacts so many lives."

Situational Awareness

Two-time psychology alumna Anastasia Makhanova advances interpersonal relationship research through FSU-forged connections

By Kendall Cooper

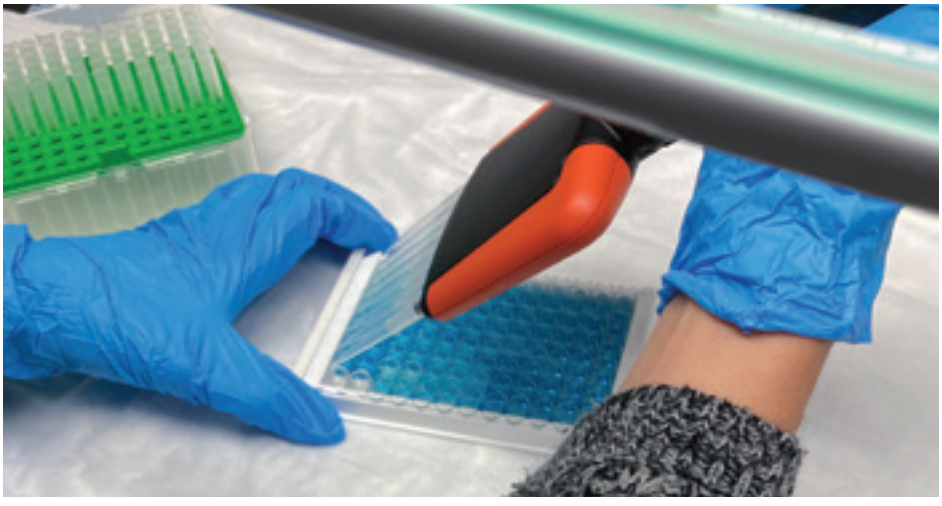
As Anastasia Makhanova stood in front of her mentors and peers awaiting recognition, she was both nervous and excited. This was not her doctoral hooding ceremony — that was still a full year away. She had just concluded her presentation at Florida State University's Psychology Graduate Research Day, sharing her research into the genetic underpinnings of maintaining romantic relationships. The outcome: She won first place.

"That was a big moment," said Makhanova, a social psychologist who earned a master's degree and doctorate from FSU in 2016 and 2019, respectively. "I was excited to showcase our collaborative and interdisciplinary work, and winning in 2018 showed the department recognized its importance. I spent five years training in multiple labs and conducting in-depth studies, so the recognition meant a lot to me."

Now, as an assistant professor of psychology at the University of Arkansas, Makhanova focuses on how individuals perceive others in their social environments, investigating different situations and interactions among people from varied socioeconomic backgrounds and professions. She has also continued to rely on connections she formed as a graduate student with researchers both in and outside of the Department of Psychology, many of whom are now collaborators.

"She is a true FSU success story and a rising star in the field," said psychology professor Jon Maner, one of Makhanova's primary mentors during her time at FSU and a co-investigator on her latest grant. "I have been fortunate to watch her transition from a budding graduate student, to a thriving assistant professor, to a highly successful scholar with a long and bright career ahead of her."

Last fall, Makhanova was awarded a $3,392,987 National Institutes of Health grant to determine if patients may be subject to bias in receiving treatment if health care providers themselves are under the weather or fearful of becoming sick. Over five years, Makhanova will lead a team of interdisciplinary researchers from UA, FSU, the University of Texas at San Antonio, the University of Arkansas for Medical Sciences, the University of New Mexico, and Loma Linda University in evaluating if adverse situational conditions cause subtle differences in physician behavior, potentially impacting patient outcomes and treatment bias.



Anastasia Makhanova conducts a hormone assay, a lab test quantifying specific hormone levels. Photo by Marius Unnvik.

Three of her co-Is, including Maner, professor of psychology Ashby Plant, and assistant professor of anthropology Eric Shattuck, are from FSU.

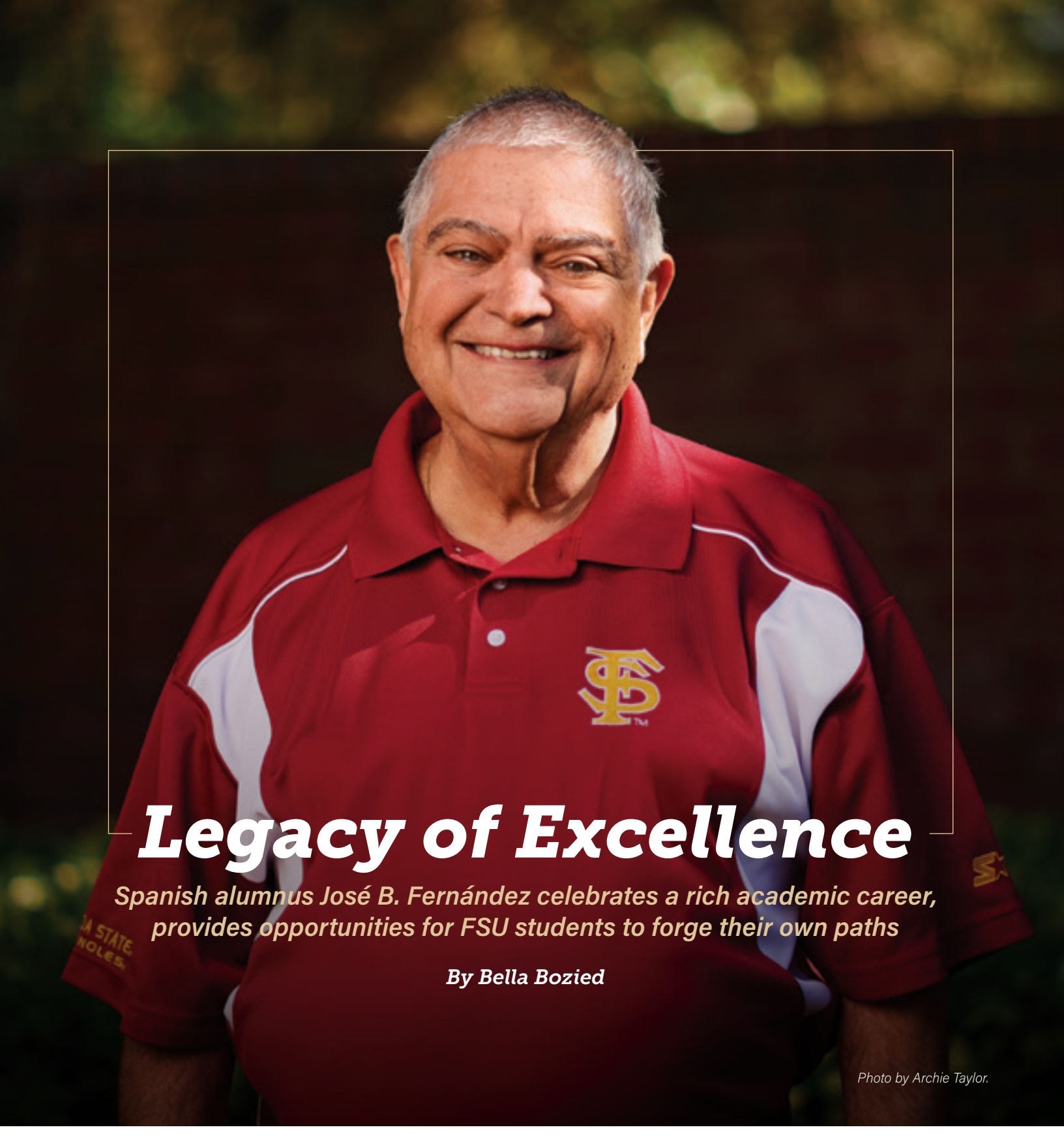
"My research highlights the importance of situational context," Makhanova said. "Our research on physician bias demonstrates that all doctors — not just some — are more vulnerable to biased decision-making in certain contexts such as feeling sick, trying to avoid becoming sick, and feeling stress and burnout."

Alongside professor of psychology Lisa Eckel and senior research associate Larissa Nikonova, Makhanova learned unique skills at FSU that allow her to measure these specific contexts via hormone assays, or lab tests that quantify specific hormone levels. Her previous National Science Foundation-funded research and this new NIH-funded project involve using these skills to examine links between prejudice and immune system markers of acute inflammation, such as pro-inflammatory cytokines — proteins that communicate threats to the immune system — like interleukin-6.

"In graduate school, I was an independent scholar with training wheels," Makhanova said. "Not many researchers can say they do their own hormone assays, and not many programs allow grad students to get that training. FSU showed me how to get from the samples to the numbers, which gave me a better understanding of the research process then and now allows me to offer better training opportunities to my students."

In addition to the NIH-funded work, Makhanova's research interests also include understanding how different biological processes can affect the way people navigate their interpersonal social networks. She originally began this work at FSU alongside professor of psychology Jim McNulty, and together they studied how people perceive their romantic partners during conflict, seeking answers to why some couples endure conflict and periods of transition better than other couples. She recently completed data collection for a new line of research that will examine how biological and hormonal processes influence romantic partners' perceptions of each other when they become parents.

"Although I graduated almost six years ago, my continued communication and collaboration with former mentors is a testament to the benefit of my training at FSU," Makhanova said. "Now as an independent scholar, I still feel like we work really well together, and I want them on my team."



Legacy of Excellence

Spanish alumnus José B. Fernández celebrates a rich academic career, provides opportunities for FSU students to forge their own paths

By Bella Bozied

Photo by Archie Taylor.

Generations of Florida State University students have endured the chaos of campus traffic before 8 a.m. classes, but few of them have been lucky enough to skip it by catching a ride from the university's president.

José B. Fernández, a three-time FSU graduate with a bachelor's in Spanish and history, a master's in Spanish, and a doctorate in Spanish with a minor in history from the Department of Modern Languages and Linguistics and Department of History, is one of a kind.

"Where else except FSU would the president, J. Stanley Marshall during my time, be willing to offer a student a ride?" Fernández said. "That's the embodiment of FSU. Faculty and administrators are very approachable, and there's always interaction among the community."

While he didn't know it at the time, this experience imprinted on Fernández the type of leader he wanted to become: a mentor admired for his enthusiasm, dedication and collegiality.

Fernández went on to a 45-year academic career as a preeminent scholar of Hispanic languages and history, from which he retired in 2018. Starting in 1998, he held four separate administrative roles at the University of Central Florida where he also became the university's first Hispanic dean and led UCF's College of Arts and Humanities for a decade. In addition to his administration, teaching, and mentorship, Fernández authored more than 13 books, 40 articles and co-authored 14 textbooks.

He was honored by his alma mater in 2022 as an FSU Alumni Association Grad Made Good — a program that recognizes notable alumni who have made exceptional contributions in their chosen field or community.

"This honor is thanks to everyone I've encountered in my personal life and career, especially at FSU," Fernández said. "FSU helped me develop my social life, career opportunities, and most notably, my confidence. If you had asked me about an award like this when I was a student, I would've said no way, José!"

Upon Fernández's doctoral graduation in 1973, Jerrell Shofner, the late two-time FSU alumnus and eminent scholar of Florida history, encouraged him to join the Florida Historical Society, the state's oldest cultural organization dedicated to preserving Florida's past. Fernández served on the organization's board of directors for 20 years and as vice president for two before becoming the organization's first Hispanic president in 2006.

> *"This honor is thanks to everyone I've encountered in my personal life and career... FSU helped me develop my social life, career opportunities, and most notably, my confidence. If you had asked me about an award like this when I was a student, I would've said no way, José!"*
> — *José B. Fernández*

While working with FHS, in 1992, Fernández was elected to the board of directors of Recovering the Hispanic Literary Heritage of the U.S., an over $20 million international program aimed at locating, preserving, and disseminating the nation's Hispanic culture, sponsored by the Rockefeller Foundation, among others. There, he concentrated on bringing to light nearly 300 years' worth of U.S. Latino history and literature.

"He's one of the most hard-working and productive scholars and teachers in Spanish studies," said Nicolás Kanellos, professor of Hispanic studies at the University of Houston, Texas, and founder and director of the Recovering Hispanic Literary Heritage project who recruited Fernández. "His passion for knowledge, especially regarding colonial Hispanic culture in the making of the United States, is incomparable. He's an innovative and critical thinker who's inspired hundreds of scholars across the country to explore the paths he's pioneered."

With a distinguished career in full swing, in 2008, Fernández was appointed by then-President George W. Bush to the 23-member commission for the creation of the Smithsonian National Museum of the American Latino and was reappointed by former President Barack Obama in 2009. Fernández examined Spanish colonial letters and was on the governance committee comparing benefits and drawbacks of various museum model details.

"Like in all my work I, along with my fellow commission members, helped to illuminate the entire U.S. experience, including Hispanic history, to display the all-encompassing American story," he said. "The commission was a symbol of respect and how you can accomplish much more by cooperating."

Fernández is also a fan of paying forward the encouragement he received that led him to strive for his goals in life. In 2024, he established the Dr. Dorothy L. Hoffman Endowment for Excellence Scholarship to benefit FSU master's and doctoral students studying Spanish. The scholarship honors the late FSU professor and department chair and carries on her legacy of student support.

"When someone has been good to you, you should give that good right back — three times as much," Fernández said, reflecting on advice from his grandfather who inspired him to study history. "It's never about the accolades — it's about the people who help you realize those accolades are a possibility."

Game Time

ESPN journalist and English alumnus Jeremy Willis combines sports passion with a commitment to mentorship

By Bella Bozied

Jeremy Willis gets paid to watch football. As an ESPN senior editor, the Florida State University alumnus details the statistics, the personalities, the upsets, and every other exciting aspect of college football happening on and off the field for millions of readers across the world.

"Landing the ESPN job amplified my voice at a whole new level while allowing me to tell stories that people are passionate about," Willis said. "Whether a family has followed a team for years or someone is just learning the rules of the game, everyone has a different reason to enjoy the game, and that's what makes it special."

After completing his bachelor's at FSU in 2004 with double majors in English and sports management from the Department of English and the then-College of Health and Human Sciences, Willis got his foot in the door at ESPN. He went on to hold various roles at the network, ranging from associate news manager to senior

Photo by Franny Kovelman.

NFL editor. As part of his current role as editor for the company's college football coverage, he also oversees ESPN+, the network's premium streaming service, which amplifies college football recruitment and transfer portal news.

"Jeremy is a thoughtful writer who leads with heart," said Heather Burns, ESPN senior deputy editor. "He's passionate about making sure the next generation has all the tools they need to continue the important work of journalism. His curiosity about the world makes him exactly the kind of person you want on your team."

Before writing for the world's largest sports network, Willis got his start during his freshman year with the Florida Flambeau, which merged with FSView in 1998 to become FSU's official student-run newspaper. He also worked as an equipment manager for FSU Football during the Bobby Bowden dynasty, traveling with the team and covering games and the local Tallahassee police beat for FSView when he wasn't doing players' and coaches' gameday laundry and building lifelong connections.

"My writing roles taught me how to talk to people that do different jobs," Willis said. "The trust people put in you to treat them fairly and report accurately is important, as is building the relationships that elicit trust. These skills carried over into my sports management classes and involvement with the team and eventually my career with ESPN, as it all came back to talking to people. Having people genuinely believe in you and your ideas is valuable, and I wanted to return the favor and provide that feeling to future journalists."

Due to ESPN's on-site work regulations, it was at first logistically tricky for Willis, who lived in Connecticut at the time, to connect with FSU students and supply active mentorship. However, through the proliferation of accessible technology, including the Zoom boom that came out of the COVID-19 pandemic, Willis was able to share his expertise through FSUshadow, a one-day job shadowing experience facilitated by the FSU Career Center where students gain firsthand experience in the career field of their choice and have the chance to network with potential employers.

"As an alumnus, attending career-oriented virtual events and being a part of the FSUshadow Program truly flipped a switch for me," Willis said. "Working with students and getting to see their zeal for FSU reignited my passion for the university. I now organize panels with colleagues from all over ESPN, including production, multimedia television, finance, and communications to give students an inside look at what it's like to work for a major media network."

In summer 2023, Willis was invited to join the FSU National Board of Directors, which works to ensure the success of the FSU Alumni Association by approving annual budgets, setting policies, and supporting FSU's Strategic Plan by providing input, guidance, oversight and expertise for the association's operations. As one of 24 directors, he utilizes his current and past FSU experiences to provide a unique perspective to the association's chief governing body.

"FSU is a community, and everyone has a responsibility to that," Willis said. "As alumni, we should continue supporting this community and ensure that the next generation of students, in this well-bound institution that gave us all so much, has similar resources and opportunities."

Clockwise from top: Jeremy Willis on signing day; at the 2011 BCS National Championship game; with fellow FSU alumni at the 2024 FSU-Georgia Tech football game in Ireland; and on a tour of the dive lab at FSU Panama City. Courtesy photos.

Courtesy photo.

Educational Exchange

Undergraduate Kate Alonso combines languages, philosophy to prepare for a career in international human rights advocacy

By Carly Nelson

Although conversing in Indonesian is now second-nature for Kate Alonso, it was just a few months ago that her vocabulary was limited to hello, goodbye, please, and thank you in the language, also known as Bahasa Indonesia.

The Florida State University senior has been abroad studying in Malang, Indonesia, since August where she is pursuing her passion for international human rights through a Boren Scholarship, a nationally competitive language opportunity administered by the National Security Education Program to expand the number of Americans studying and mastering foreign languages critical to U.S. national security and economic prosperity.

Boren Awards, named for former Oklahoma governor and three-term senator David L. Boren, provide up to $25,000 for U.S. undergrads to study languages not commonly taught and in regions that tend to be omitted from traditional study-abroad programs.

Alonso is earning dual degrees in philosophy, under the Department of Philosophy, and International Affairs in the College of Social Sciences and Public Policy with a minor in French from the Department of Modern Languages and Linguistics.

"I'm able to use my philosophy background and apply ethics to how international human rights treaties, refugee treaties and international laws are created," she said. "Utilizing applicable ethics on an international scale allows us to figure out what benefits the international community the most, not just from one perspective."

Alonso's range of studies allows her to investigate these needs across various perspectives. Before heading to Indonesia, she completed FSU's Center for Global Engagement Global Citizenship Certificate — which prepares individuals for the global workforce — and CGE's Global Noles program where she mentored exchange students as they became acclimated to life at FSU. Alonso has also studied Arabic and completed the U.S. Intelligence Certificate with the Askew School of Public Administration.

"Seeing the international framework in our Tallahassee community was amazing," she said. "FSU has so many international students and intercultural and culturally diverse communities on campus. You can experience so many facets of the world without leaving Leon County."

Thanks to courses and CGE programs, Alonso felt she was well-prepared for international study and, with help from Jesse Wieland, associate director of FSU's Office of National Fellowships, she secured funding to support her study abroad.

> *"Although pursuing what you love isn't always easy, your love for it makes all the difference. I'm grateful and excited to continue doing what I love — helping people and crossing multicultural bridges..."*
> *— Kate Alonso*

"Kate is one of the most thoughtful, kind, and creative applicants I've worked with in nearly 10 years with ONF," Wieland said. "She has a genuine passion to become the type of ambassador America needs abroad, one that is patient, tactful and people-oriented."

Alonso's current trip isn't her first to Indonesia — she spent summer 2023 interning with Asia Justice and Rights, a human-rights organization in Jakarta, supported by a fellowship grant from FSU's Center for the Advancement of Human Rights. Hoping to return to Indonesia upon that internship's completion, Alonso applied for the Boren Scholarship through the Regional Flagship Languages Initiative, a program separate from the Boren Awards that allows Boren applicants to study abroad in specific regions.

"Working on human-rights research solidified my interest in international human rights," Alonso said. "Although Southeast Asia has always been at the forefront of my interests, it's difficult to find some information in the U.S. After I learned about the Southeast Asian Flagship Languages Initiative program, I had to apply."

Alonso began the RFLI program in summer 2024 at the University of Wisconsin-Madison and took two months of Bahasa Indonesia language classes before traveling more than 9,000 miles to live with a host family and study at the State University of Malang.

"We're in the classroom five days a week from 8 a.m. to noon. From 2-4 p.m., we have extracurricular classes, culture classes and meetings with language partners — it's super immersive," Alonso said. "I originally stumbled over my words, but now I'm comfortable holding conversations covering anything from personal interests to current news."

While abroad, Alonso earned a scholarship extension to become an Independent Boren Scholar and design her own spring studies program after completing the predesigned flagship program. She plans to continue studying at the State University of Malang through April 2025 and then has her eyes set on graduate school and a career in international relations.

"I'm so thankful my love of languages has brought me here, and I know it's not where my love will stop," Alonso said. "Although pursuing what you love isn't always easy, your love for it makes all the difference. I'm grateful and excited to continue doing what I love — helping people and crossing multicultural bridges — when I leave Malang."

Scientific Policy

Physics, political science undergraduate Jack Folwell combines interests to enhance connection among research, legislation and communities

By Lillian Gonda

Photo by Bill Lax, FSU Photography Services.

Life can be a puzzle. The twists, turns, and unknowns make it an unpredictable path, and fitting seemingly unrelated pieces together is exactly what animates senior Jack Folwell about his journey at Florida State University.

"The idea of having a puzzle before me that I have to solve, like the Rubik's Cubes I solved as a kid, is so exciting," Folwell said. "I like to be challenged, so when I got to FSU, I needed to get involved with everything I could."

Folwell is currently pursing dual degrees in physical science and political science through the Department of Physics in the College of Arts and Sciences and the Department of Political Science through the College of Social Sciences and Public Policy, an extension of his two favorite subjects in high school.

Soon after arriving in Tallahassee in 2021, the Jacksonville native became interested in participating in FSU's Student Government Association where he saw an opportunity to combine his studies with real-life applications to bridge public and policy that could yield real benefits on a community level.

SGA is an on-campus organization that helps students gain real-world experience in politics and develop leadership skills. It is composed of executive, legislative, and judicial branches, as well as a senate, multiple class councils, an elections office, and other entities with which students can become involved.

"This is the first time in my life that I was able to combine my science policy and political interests, and I realized this could have an impact," Folwell said. "I knew I wanted to help people, but I couldn't figure out how. Getting involved in SGA pointed me in the right direction and confirmed my career path."

As SGA policy director, Folwell assisted in writing bills and managing crises, among other duties. Helping administer SGA's legislative affairs activities solidified his plans for a career where he could help people via policies and politics. Throughout his term, from July 2023 to April 2024, Folwell networked, made important connections, and watched his own passion for the field grow.

"Jack's dedication to excellence and service sets him apart, and he has made a lasting impact through his advocacy work in student government," said Andy Johnson, program director for Student Governance and Advocacy in the Department of Student Engagement. "Beyond his technical skills and policy expertise, Jack is a person of high character who genuinely cares about making a positive difference."

In his work, Folwell emphasizes the importance of cultivating spaces where scientific knowledge and political policy can come together to help individuals better understand how legislation is created and how the findings of significant scientific research can be translated into policy. His Undergraduate Research Opportunity Program project, "Information Literacy Skills and Beliefs," gave Folwell insights into how individuals process information accessed via the internet and best practices in determining what is true and what is false information.

"We need politicians who understand how to design policy based on scientific evidence and for the general public to understand how scientific discoveries are made," Folwell said. "There was a lot of confusion from the pandemic that has continued, and people don't realize that scientific discoveries are happening all the time and on a rolling basis — with a lot of them being a long time coming."

Along with positions combining politics and science, Folwell has also held the role of Presidential Scholar. The Presidential Scholars program is the university's premier undergraduate merit scholarship program, and scholars are selected to inspire leadership, service, character, and wisdom in fellow students throughout their undergraduate years. The scholarship also supports awardees financially and provides a sizeable stipend for educational enrichment opportunities such as studying or conducting research abroad.

"Coming into college, a daunting task is finding your social group," Folwell said. "This program helped me find like-minded, driven friends early on in my freshman year and set me up for success. Presidential Scholars really gave me a home base."

Folwell, who is presently finishing his broad-curriculum study abroad program in Valencia, Spain through FSU International Programs, plans to graduate in 2025 and looks forward to applying the tools he gained at FSU in a career in political and scientific policy.

"In the future, I hope to help citizens become more knowledgeable about policies affecting them on every level and about relevant scientific research," he said. "I want to help people trust what scientists are saying, and bridging the connections among science, politics, and the public is my main goal."

Jack Folwell while studying abroad in Valencia, Spain, in 2024. Courtesy photo.

Culturing Conservation

Biological science doctoral candidate Morgan Hawkins works to restore shellfish populations via aquaculture research

By Kendall Cooper

Standing in a gently rocking boat anchored in St. George Sound, an estuary in the Apalachicola Bay system tucked between St. George Island and the Florida Panhandle mainland, Morgan Hawkins steadies herself while gently prying open a scallop's shell.

This bay scallop, one of 60 she is in the process of collecting as part of a study at Florida State University's Coastal and Marine Laboratory to identify biological differences between hatchery-raised and wild-origin scallops, contains a cluster of bright orange eggs, signaling a mass spawn is imminent.

After arriving back at the FSUCML dock in St. Teresa, Hawkins places the specimens in holding tanks where they will be kept in stable conditions to prolong a spawning attempt. The study's goals also include determining any limitations present when using cultured scallops in population restoration.

Photo by Devin Bittner.

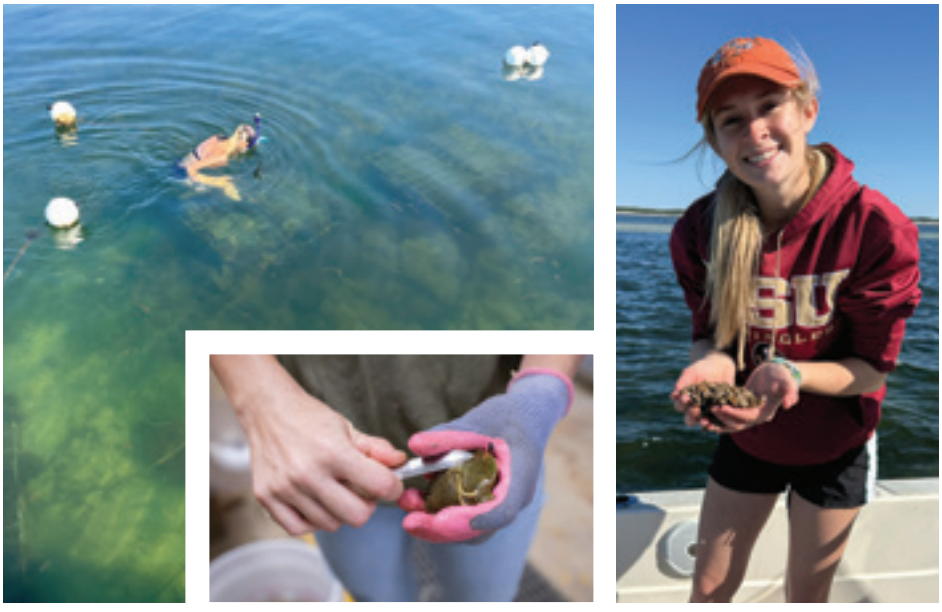
On her way out for the night, Hawkins checks on the scallops one last time and sees spawning has already begun. Acting quickly, she separates each scallop into its own individual container so she can also collect their floating gametes — scallops reproduce by releasing both eggs and sperm cells. Fertilized eggs develop into swimming larvae known as veligers, which metamorphose into juvenile scallops within two weeks.

"For my research, I get to witness life under the microscope," Hawkins said. "After I grab their gametes, I combine eggs and sperm. Then I watch the scallops grow from a virtually invisible creature to an adult that fits in your palm. It is super rewarding, and I get a kick out of it every time."

Hawkins, a fourth-year doctoral student studying ecology and evolutionary biology through the Department of Biological Science, used a mass spawning event from two years ago as the basis of her dissertation research, which explores releasing hatchery-raised shellfish into the wild to restore the collapsed scallop populations in local seagrass beds. Her work falls under FSUCML's broader Apalachicola Bay System Initiative, a program conducting research to inform sustainable management and restoration methods to aid regulation by the Florida Fish and Wildlife Conservation Commission.

"Morgan's focus on bay scallops is an inspired choice that distinguishes her work within our oyster-focused shellfish hatchery," said Joel Trexler, FSUCML director and professor of biological science. "She has now established bay scallops as an additional hatchery priority for FSUCML that will likely continue beyond her time at the lab, expanding the positive impact FSUCML can have for those who harvest scallops."

As an estuary, or a mix of saltwater and freshwater, Apalachicola Bay is an ecological nursery where many animals reproduce and grow. Shellfish thrive in estuaries, and wild oyster harvesting was a staple of the local economy for over a century until the ecosystem collapsed. A multi-year drought and the 2010 Deepwater



Scenes from Morgan Hawkins' aquaculture research. Clockwise from left: Courtesy photo; photo by Bailey Kilroy; photo by Kendall Cooper.

Horizon oil spill were among major contributors to the collapse. After the oil spill, fishery managers declared open season on oysters, trying to remove as many shellfish from the water as possible before the oil crept in. While this worked in the short-term, Apalachicola Bay was declared a commercial fishery disaster in 2013. The oyster fishery's five-year closure will be lifted in December 2025.

"Shellfish are like the Brita filters of our waterways, and it is a cascading effect once they are lost from the ecosystem," Hawkins said. "Because we let the oyster population decline so severely, we are seeing effects in other species, too, such as stone crabs. You often find stone crabs hiding under structures created when oysters settle onto surfaces like rocks and wooden pilings."

Hawkins' research seeks to improve hatchery methods that maximize the chance for hatchery-raised shellfish to survive once released into the environment. Funded by the Florida Department of Agriculture and Consumer Services' Aquaculture Review Council, her first project focuses on increasing rates of survival and settlement for scallops, oysters and clams. During their larval stage, she added a commercial probiotic typically used in shrimp farming into the larval culture water, significantly enhancing the oysters' growth and survival. Hawkins will present her findings at the National Shellfisheries Association's annual conference in March 2025.

Her second and current research project aims to identify subtle biological differences between hatchery-raised and wild scallops, which could potentially impair the former's eventual adaptation to natural habitats. As the final endeavor for her doctoral program, Hawkins will release hatchery-raised scallops into the wild and observe them over 10 months.

"Morgan works extremely hard and is dedicated to her research, which she views as a personal vocation," said Sandra Brooke, FSUCML research faculty and Hawkins' doctoral adviser. "She has the potential to make significant contributions to marine science and conservation during her career as well as be an effective role model and ambassador for women in STEM."

After graduation, Hawkins hopes to establish her own conservation research and development mariculture center, using her research expertise to support her entrepreneurial goals.

Photo by Devin Bittner.

Beyond the Page

Doctoral student Vince Omni explores African-American history, joy, and resilience through award-winning narratives

By Carolina Ortega-Martinez

To many, a coffee shop is just a spot to grab a quick drink or catch up with friends. For Vince Omni, a Florida State University creative writing doctoral student, these caffeinated havens are creative enclaves where stories brew alongside espressos and lattes.

Omni can usually be found tucked into a quiet corner, his face wreathed in the steam of a hot beverage while he crafts a lesson plan or drafts pages of his as-yet-untitled dissertation novel.

Spending hours in these java joints, Omni noticed few of his fellow customers looked like him — his desire for representation inspired the creation of a fictional café where Black and brown communities could feel a sense of belonging. In his award-winning story, "The Diaspora Café," published in the summer 2024 issue of the Michigan Quarterly Review, Omni reflects on the importance of inclusive community spaces and addresses the impact of gentrification on communities of color.

"The economic instability I experienced as a child forced my family to live a very nomadic life," he said. "That's why stories like 'Diaspora Café,' stories about displacement and belonging, are so important to me."

Omni spent part of that childhood in Denver, Colorado's historic Five Points neighborhood, a culturally significant area now impacted by redevelopment.

Five Points also serves as the setting for "Café" where Chidi, the story's protagonist, navigates ethical dilemmas that arise when the reality of financial insecurity conflicts with the responsibility one feels to their own family and to their community: Should Chidi sell her family's café to a faceless chain or sacrifice to protect its legacy? The story earned MQR's 2024 Jesmyn Ward Prize in Fiction.

"Gentrification is a complex issue that requires a systemic solution — one that doesn't displace African-American communities from their homes while others profit from new prosperity," Omni said. "I hope readers find something to connect with in the story whether it's the characters, plot or setting."

The depth and nuance of Omni's work reflects the breadth of his life experience. After earning a bachelor's in English from St. Olaf College in Minnesota in 1996, he worked 20 years as a teacher, instructional coach, journalist, and project coordinator for education nonprofits. During this time, he discovered a passion for writing fiction.

He resumed his studies in 2017 and received his master's in creative writing from the University of Kansas in 2020 where he worked for KU's History of Black Writing research center. Omni came to FSU in August 2020 to pursue a doctorate through the Department of English, and he specializes in African-American literary and cultural studies.

For his work, Omni has earned multiple fellowships including the 2020 McKnight Doctoral Fellowship, administered by the Florida Education Fund, which supports scholars from underrepresented communities with up to five years of funding.

"Vince came in as a talented writer with diverse interests, and he's continued to cultivate those here," said Ravi Howard, an assistant professor of English and Omni's adviser. "The McKnight Fellowship has been vital to his research on African-American literature by bringing the fellows together annually to share their work while offering professional and financial resources. This support encourages students of color to pursue their studies in Florida."

Omni's untitled novel follows Demita Jo, a fictional former Black Panther in 1970s Louisiana, as she rebuilds her life while confronting past pressures and wrestling with how to address her family's needs while holding on to her own principles. The book's opening chapter earned the Margaret Walker Memorial Prize in Fiction from the College Language Association in 2019.

"Vince brings his peers along in his writing journey, sharing his process from draft to publication, giving students a chance to see how ideas develop and how peer support helps bring those ideas to life," Howard said.

Through SoulClap: A Black Joy Journal, a digital platform Omni co-founded with his wife and FSU alumna Chris Omni, Ph.D., he hopes to emphasize positive, uplifting experiences to reshape perceptions and promote a more nuanced understanding of Black identity. SoulClap shares stories from Black communities that celebrate joy, resilience and creativity.

"While challenges are part of the African-American experience, they're not the whole story," Omni said, "Often, the narrative focuses only on struggle, but moments of joy, strength, and triumph also deserve recognition. Our goal is to shift the lens from a focus on hardship to one that celebrates the richness and resilience of the African-American experience."

"While challenges are part of the African-American experience, they're not the whole story. Often, the narrative focuses only on struggle, but moments of joy, strength, and triumph also deserve recognition. Our goal is to shift the lens from a focus on hardship to one that celebrates the richness and resilience of the African-American experience." — Vince Omni

Social Distortion

Distinguished Research Professor Pamela Keel is a leader in the field of eating disorders research

By Amy Walden

Sharing selfies from a beach vacation on Instagram can start out feeling like a fun treat but the activity — which invites comments on everything from the sunset to their body — can leave a person wishing they'd logged off instead.

Photo by Devin Bittner.

The research explains why: A 2020 study in the International Journal of Eating Disorders revealed a "consistent and direct" link between posting photos to social media and experiencing negative thoughts about weight and shape, urges to exercise and restrict food intake, and increased anxiety.

For the researcher behind that study, Florida State University Distinguished Research Professor Pamela Keel, these findings are among the brushstrokes in her life's work of painting a clearer picture of eating disorders — serious psychiatric illnesses with a mortality rate second only to opiate addiction.

Keel, who hails from North Carolina, first took an elective course on eating disorders as a sophomore anthropology major at Harvard University.

"I was struck by the severity and prevalence of eating disorders and by how little was known about why they developed or how to treat them," she said.

After graduating summa cum laude, Keel transitioned to clinical psychology and earned her Ph.D. from the University of Minnesota in 1998. She completed an internship at Duke University Medical Center before spending the first decade of her career conducting research as faculty at both Harvard and the University of Iowa.

Keel joined FSU's Clinical Psychology Program in 2008 as the program was building upon research strengths in the FSU Program in Neuroscience on the biological bases of dysregulated behavior. Since then, she has received multiple grants from the National Institutes of Health for her continued research on the nosology, biology, epidemiology, and longitudinal study of bulimic syndromes, which can include periods of binging and purging behavior.

"One of my current projects examines how biological consequences of weight loss contribute to problems controlling food intake and excessive eating — factors that could explain why it is difficult for people to maintain weight loss and contribute to the severity and maintenance of binge eating," Keel said. "Another examines eating disorders and associated risk factors in women and men in cohorts recruited in 1982, 1992, 2002, and 2012, and follows each cohort every 10 years. This project is providing the first picture of trajectory and predictors of eating disorders across adult development in women and men from different generations including baby boomers, Generation X and millennials."

In 2002, Keel was the first to identify and characterize purging disorder — when individuals vomit or misuse laxatives or other medications after normal food intake to control weight or shape. The disorder affects more than two million females and nearly half-a-million males in the U.S. over their lifetime and is now detailed in the the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, the professional reference on mental health and brain-related conditions guiding all research and clinical care in the U.S.

"Having the opportunity to advance science — to identify the next question that should be answered, secure funding to conduct research, get that answer, and share new information that no one had before — is an incredible privilege," Keel said.

Alongside research, Keel is dedicated to mentorship. In her lab, the Eating Behaviors Research Clinic at FSU, students conduct their own translational research on eating disorders, including biological and psychological factors that contribute to binge eating and purging behaviors, and cultural factors that influence eating disorders and body image.

Clinical psychology graduate student Alejandra Medina Fernandez began following Keel's research as an undergraduate and jumped at the opportunity to take part in research for the NIH-funded longitudinal study.

"The lab environment is highly collaborative and supportive, and working alongside other graduate students and research assistants has enriched my learning experience," Medina Fernandez said. "I deeply value Dr. Keel's commitment to her student's professional development. She genuinely wants us to succeed, and this is evident in every discussion and interaction we have."

Keel, a fellow of the Academy for Eating Disorders, Association for Psychological Science, and American Psychological Association, has served as president of both the Eating Disorders Research Society and Academy for Eating Disorders. She has also received several awards for mentorship.

"Dr. Keel is a world-renowned expert on eating disorders and her knowledge on this topic is vast; thus, she is able to really help students think critically and design studies to increase their significance and impact," said Lindsay Bodell, a 2015 alumna of Keel's lab who leads her own nationally funded eating disorders research and mentors doctoral students as an assistant professor at Western University in London, Ontario, Canada. "Her passion and dedication to her mentees is truly admirable, and I am very thankful to have been able to learn from the best."

Ready to learn more about Keel's research into social media and eating disorders? Check out her interview on Nole Edge, the official podcast of the FSU College of Arts and Sciences.

Photo by McKenzie Harris.

Advancing AI

Applied mathematician Feng Bao develops artificial intelligence models to improve Earth, climate science

By McKenzie Harris

Artificial intelligence plays a key role in our daily lives, from car GPS technology to iPhone's Siri to Google search result overviews. For scientists, though, AI isn't just about answering a simple question — its capabilities enable them to unlock new avenues to analyze the complex phenomena underlying Earth's climate.

Existing AI systems can predict weather events, map deforestation, track icebergs and their melt rates, identify pollution and more. While Siri can't halt a hurricane in its tracks, what if AI could be used to mitigate the ramifications of these natural disasters?

Feng Bao, the Timothy Gannon Endowed Associate Professor in Florida State University's Department of Mathematics, is currently developing privacy-preserving and energy-efficient AI models that tackle a range of public-facing climate issues and assist in the preservation of collected green energy such as wind, wave and solar power.

"I'm looking to solve pressing problems facing scientists and the general public," Bao said. "By creating foundation models, which are machine learning models that can be used across a wide range of applications because they're trained on broad data, we're building a key component of AI and can assist scientists in a number of ways."

Bao is currently leading six major projects funded by the Department of Energy as well as the National Science Foundation, all focused on developing AI models to improve science. Funding for some of these initiatives is directed by the White House's executive order for the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, which supports work to develop foundation models for science and privacy-preserving AI technologies.

Under one $5.4 million DOE grant, Bao is working with meteorologists, environmental scientists, computer scientists, engineers, physicists, material scientists, and scholars across six research institutions to develop models for scientists to use in their research. He's currently creating a model that improves accuracy of hurricane and intensity forecasts, a pressing issue in light of the extremely active 2024 Atlantic hurricane season, and models that inform preparations about securing and storing renewable energy, which can become difficult to use or inaccessible in certain weather conditions.

"Just knowing the math isn't enough to tackle issues this big," Bao said. "We need a large, interdisciplinary team to work together and combine our areas of expertise. We're also working with community partners and researchers at places like the National Oceanic and Atmospheric Administration, as well as meteorological agencies in countries around the world, to understand exactly what different communities need."

> *"Almost every scientific, engineering, or technology theory can be traced back to a math theory. I hope to serve as a bridge between abstract math concepts and the science and engineering used to solve real-world problems."*
>
> *— Feng Bao*

Bao, who earned his bachelor's degree in mathematics from Zhejiang University in Hangzhou, China, before receiving his doctorate in mathematics from Auburn University, came to FSU as an assistant professor in 2018. He's also the first FSU mathematics faculty member to have earned a National Science Foundation Faculty Early Career Development Program Award, or CAREER Award, which he received in 2022 for his work in designing efficient algorithms.

"Feng contributes to fostering a culture based on determination and the pursuit of excellence," said Ettore Aldrovandi, Department of Mathematics chair. "He brings in a culture of 'big science,' which brings us closer to other STEM departments. As an excellent applied mathematician, he has a unique ability in building and coordinating large research projects that integrate contributions from many students he mentors."

In this culture of big science, it's essential for Bao to work side-by-side with other researchers to ensure the models are trained on accurate data and approach problems from different perspectives.

Conventional models ingest massive amounts of information, including observational data such as temperature, wind speed, air pressure, and other points measured on the ground and in the air by meteorological instruments. However, the data doesn't change the way the model itself works. A dynamic model, like Bao creates, adapts to continuously solve new problems as it takes in new, relevant data. Developing dynamic — generative — models allows scientists to make predictions for exact geographic locations in a certain set of atmospheric conditions and account for estimated conditions, both of which are necessary to forecasting impending weather events.

If a model predicts a natural disaster, like a hurricane, based on real-time, local data, both emergency responders and citizens can have more time to prepare. Bao's models will also be scaled for use in supercomputers, which further optimize the models and allow for wider use, in national laboratories around the U.S. including Oak Ridge National Laboratory where Bao worked as a postdoctoral researcher from 2014 to 2016.

"Math is the basis of so much science, and it's a common ground for collaboration," Bao said. "Almost every scientific, engineering, or technology theory can be traced back to a math theory. I hope to serve as a bridge between abstract math concepts and the science and engineering used to solve real-world problems."

Crucial Context

Anthropologist Choeeta Chakrabarti examines how societal structures can impact health outcomes in marginalized communities

By Dena Reddick

Not all anthropologists spend their careers excavating ancient remains and searching for remnants of histories and peoples past. Medical anthropologists like Choeeta Chakrabarti work in the present, stepping into hospitals, rural villages, and even private homes to investigate the social and biological elements that influence a population's wellness.

Chakrabarti, an assistant professor in the Florida State University Department of Anthropology, works to connect the dots between social inequality and health outcomes among some of India's most marginalized communities. In her research, she explores how human health is influenced by a complex interplay of physiological, cultural and environmental factors.

Photo by Devin Bittner.

"We have a tendency to think of health as a result of individual choices, such as unhealthy eating habits or not taking vitamins," Chakrabarti said. "We put the blame on individuals without recognizing that, beyond biology, there are social structures in place that influence health outcomes. You need that perspective to address the root causes of health issues."

Following a lifelong interest in medicine, health and people, Chakrabarti received her bachelor's in biotechnology from Osmania University and her master's in sociology from the University of Hyderabad, both in India, before completing her doctorate in cultural anthropology at the University of Florida in 2018. She joined FSU in 2020 as teaching faculty and became an assistant professor of anthropology in 2023.

"One of my core missions is to ensure that marginalized communities are seen and heard and that their struggles are addressed with the respect and dignity they deserve," Chakrabarti said. "I spent three months immersed within the Dalit manual scavenging community in Dharavi, Mumbai, India, an area considered Asia's largest slum.

"Dalits are a group formerly known as 'The Untouchables;' they exist outside the traditional caste system, occupying the lowest and most marginalized stratum of Indian society. Untouchability is no longer practiced in such overt ways, particularly in urban areas. However, it persists in more insidious forms where discriminatory practices continue, but caste is no longer explicitly acknowledged as the cause."

Chakrabarti studied manual scavengers, individuals who clean up human waste, often bare-handed. For women, this can involve emptying outdoor toilets, known as dry latrines, into baskets, which they carry for long distances balanced on their heads. For men, the work is more physically dangerous and routinely involves entering septic tanks without personal protective equipment — often without clothes — to remove clogs, exposing them to risks such as suffocation from toxic gases.

Construction of dry latrines and employment of manual scavengers was banned in India in 1993, and several laws have since expanded and strengthened the ban, the most recent being in 2013. Dalits are born into the caste system with untouchable status that condemns them to the most degrading jobs, including manual scavenging. The work reinforces their exclusion and perpetuates their untouchability, trapping them in a cycle of discrimination.

Chakrabarti's time with this community involved both understanding the harsh realities of their work and getting to know them as individuals. This research was conducted in collaboration with Safai Karmachari Andolan, a grassroots organization dedicated to eradicating manual scavenging and rehabilitating those engaged in this work. In interviews, she queried about their personal stories, when and how they fell in love, and childhood dreams, conveying their humanity alongside their struggles.

"I find fieldwork and the opportunity to engage directly with communities incredibly fulfilling," she said. "It's not easy because you witness challenges firsthand that take a toll on you and force you to confront your privilege and its implications in comparison to the people you're working with. It helps to ground your research in reality — it's humbling and rewarding."

Preliminary results from Chakrabarti's work in Dharavi show correlation between loneliness and alcohol consumption among Dalits who worked as manual scavengers. Chakrabarti paired psychometric evaluations assessing depression, anxiety, alcoholism, and loneliness with cortisol testing and saliva and hair analyses to examine the physical toll scavenging takes on immune function and health. This biomarker research is conducted in collaboration with K. Ann Horsburgh, a biological anthropologist and associate professor also in the FSU Department of Anthropology.

"Choeeta's curiosity is bottomless," said Mark McCoy, professor of anthropology and department chair. "She's interested in everything. That, combined with her empathy, makes her an outstanding researcher and someone who excites students to learn more about the world."

Back at FSU, Chakrabarti teaches topics ranging from the history of anthropology to gender-based violence, and she hopes her students walk away with a desire to learn more and convey the humanity of the people and histories they encounter, something that carries into her own work.

"My work allows me to amplify voices of communities that are usually silenced," Chakrabarti said. "It may take decades for a systemic change, but I know I'm advocating for and working toward a solution today."

Choeeta Chakrabarti works with a subject in the field during her time with the Dalit community in Dharavi, Mumbai, India. Courtesy photo.

Photo by Devin Bittner.

Risk & Reward

Chemist Rob Schurko embraces uncertainty and reaps the rewards in research and in life

By Bella Bozied

Some people are content to color inside the lines throughout their lives. Others, like Rob Schurko, can't imagine a life without game-changing leaps of faith.

"When I received a job offer from Florida State University in 2019, it was an incredible opportunity but a huge risk; you never know if things will work out, especially when moving to a different country," said Schurko, a professor in the Department of Chemistry and Biochemistry and director of the Nuclear Magnetic Resonance and Magnetic Resonance Imaging Facility at the FSU-headquartered National High Magnetic Field Laboratory.

"This decision was for the best. Sometimes I still pinch myself when walking around the lab. The sheer amounts of research opportunities, instrumentation, and great intellects at FSU and the MagLab were a welcoming addition to such a drastic life change — especially through the COVID-19 pandemic years," he continued.

Schurko, who was born in Winnipeg, Manitoba, Canada, was aware of FSU and the MagLab long before 2019. During his nearly two decades as a professor of chemistry at the University of Windsor in Ontario, he was able to travel and use the MagLab's open-access facilities in his research into elements around the periodic table, including the platinum group elements. PGEs — iridium, osmium, palladium, rhodium and ruthenium — are some of the most rare and expensive elements on Earth and are used in numerous applications ranging from transportation to smartphone technology to medical devices to chemotherapy treatments to defense systems.

Moving to the U.S. may have been among Schurko's most recent calculated risks, but it wasn't the first. He was a first-generation college graduate when he earned bachelor's and master's degrees in chemistry from the University of Manitoba in 1992 and 1994 and when he completed his doctorate in chemistry at Dalhousie University in Nova Scotia in 1998. Although he struggled early on, his perseverance paid off — Schurko fell in love with research after a professor allowed him to observe magnetic resonance imaging techniques.

> *"In order to succeed, you have to take chances and try to the best of your abilities, but you also have to be prepared to fail... There's no time wasted if you learn something and understand what you can do better the next time around."*
> *— Rob Schurko*

"Since then, my life's work has been focused on giving people who study organic, hybrid, and other materials the chance to see them from the perspective of the individual elements that compose them," he said. "My work analyzes the molecular structure of platinum group elements and finds paths to so-called replacement metals that can be used in their place. Because PGEs are so rare and expensive, finding replacements may enhance the accessibility and cost-effectiveness of new advanced materials."

As director of the NMR facility, Schurko headed creation of the MagLab's Summer School on Solid-State NMR Spectroscopy, a full-circle moment — he attended a similar program as a student in Canada that showed him the strength of science and contributed to his research interests. The program coordinates tours, workshops, and lectures for upper-level undergraduate and graduate students, primarily from undergraduate institutions, historically Black colleges and universities, and Hispanic-serving institutions, in order to expose them to the high caliber work done at a national laboratory.

Running concurrently with the acclaimed MagLab User Summer School, which is geared toward advanced graduate students, postdoctoral associates, and early career investigators who wish to gain practical measurement experience, this newer program allows students with limited research experience the opportunity to learn about NMR, experimental setups, dynamic nuclear polarization and more. The first official session will be offered in May 2025.

The flip-side of Schurko's love for research is his investment in teaching, including an emphasis on the importance of helping students connect to scientific subjects and build a strong, foundational understanding that will pay dividends as they continue their studies.

"I use digital animations to teach concepts of thermodynamics, quantum mechanics, molecular and atomic spectroscopy, and NMR," Schurko said. "Demonstrations like this can bring to life what seem to be mundane chemical phenomena described by complex mathematics."

His dedication to communicating the importance of science and the context of his research is something noticed and appreciated by both Schurko's students and his colleagues.

"I've always noticed Dr. Schurko's high level of clarity in both presentation and communication," said Wei Yang, chemistry department chair. "He's a great addition in any setting, and his calmness is an impressive yet overlooked trait for anyone in a leadership role."

While he admits to sometimes feeling the pressure of holding three roles, Schurko said he deeply appreciates the differing perspectives these positions give him and the benefits of taking that risk six years ago.

"In order to succeed, you have to take chances and try to the best of your abilities, but you also have to be prepared to fail," Schurko said. "When something doesn't work out, it's best to learn from it to make things better down the road. There's no time wasted if you learn something and understand what you can do better the next time around."

Lifetime Literacy

Florida Center for Reading Research creates evidence-based reading resources to improve learning outcomes in the state and around the world

By Devin Bittner and McKenzie Harris

From street signs to instructions, letters to text messages, novels to textbooks — reading is how humans learn, communicate, and engage with the world around us. However, it's no secret that this crucial skill can sometimes be challenging for people of all ages.

According to the National Center for Education Statistics, approximately 21 percent of Americans are unable to read or write, and only 46 percent of Americans read above a sixth grade-level. If a student's reading acquisition doesn't align with developmental milestones, they may encounter lifelong reading problems that have the potential to affect every aspect of their lives. Fortunately, Florida State University researchers are working every day to change the landscape of literacy.

FSU is home to the Florida Center for Reading Research, a world-class interdisciplinary research organization established in 2002 by the Florida Legislature and Governor's Office. FCRR faculty and staff combine research and outreach to improve learning outcomes for people of all ages, all around the world.

"FCRR's mission is to integrate research, innovation, and engagement to make reading accessible for all," said FCRR director Nicole Patton-Terry, also the Olive and Manuel Bordas Professor of Education in the FSU Anne Spencer Daves College of Education, Health, and Human Sciences. "Our researchers focus on how reading skills develop in different kinds of learners, which informs the interventions we develop for use in schools. Other researchers explore assessment tools to better understand how students are performing and suggest ways for families and teachers to engage with children."

By partnering with the Florida Department of Education and its Just Read, Florida! Office, FCRR innovations have been implemented in classrooms across the state and shared nationwide. FCRR researchers also collaborate with international literacy scholars, working to improve reading, literacy, and language outcomes for all learners.

"In 2019, we began a partnership with Leon County Schools called ReadUp that focuses on early learning, reading achievement, students with disabilities, and college and career pathways, which has facilitated robust interaction and engagement with our local schools," Patton-Terry said. "Through a DOE partnership, we've trained over 4,000 teachers, coaches, and principals throughout Florida since 2021 on evidence-based practices associated with reading instruction and intervention in schools. It's important that our resources are shared at different levels to ensure that our research isn't locked up at the university — it's truly helping people out in the world."

Among these resources are over 350 student center activities for reading centers in classrooms, digital applications that assess children's learning, resources for parents about what to look for to help their children with reading, and intervention tools for students who need more support.

To develop this diverse array of resources, FCRR leverages strengths across disciplines within the College of Arts and Sciences, the College of Social Work, the College of Communication and Information, and Patton-Terry's home college, with each area offering a unique perspective to improve reading education. Assistant professor of psychology Rasheda Haughbrook uses her background in contextual influences like environment and genetics to study how these factors impact reading, learning and academic achievement.

"There's a whole science of reading occurring at FCRR that most people are unaware of — everything that goes into teaching how to read, understanding how children learn to read, and making instructional materials available to educators," Haughbrook said. "As a parent, I use this research to inform how I interact with my children and teach them. As a community member, I often share FCRR resources with other families."

Haughbrook earned her master's from FSU in 2015 and doctorate in 2020, both in developmental psychology. As a graduate trainee, she received statistical training from FCRR associate director and founding member Richard Wagner, also a Robert O. Lawton Distinguished Professor of Psychology.

"Discovering the world of reading achievement was absolutely eye-opening," Haughbrook said. "Generally, I'm interested in understanding student achievement, and studying reading achievement is an incredible way to understand how environments shape those achievement outcomes for children. I became a reading researcher without intending to, and now, it means everything to me to see real change in local schools stemming from this research."

In addition to serving as a hub for innovative research, FCRR actively shapes promising careers and reading research in remarkable ways through student engagement.

"While successful papers impact the field, their influence dwindles over time," Wagner said. "Inspiring an undergraduate student to have a

"FCRR's mission is to integrate research, innovation, and engagement to make reading accessible for all. Our researchers focus on how reading skills develop in different kinds of learners, which informs the interventions we develop for use in schools."

— Nicole Patton-Terry, FCRR director

Courtesy photo.

career in psychology or a graduate student to become a researcher is the kind of leverage that lasts. FCRR has a great track record of propelling students on these paths to be lifelong contributors to reading research."

Wagner, who worked as a school psychologist after earning his undergraduate degree, was motivated to pursue graduate studies in psychology after seeing what real problems children were facing in school. He earned his Ph.D. in cognitive psychology in 1985 and joined FSU's faculty shortly after. Specializing in phonological processing, dyslexia, and reading acquisition, he played a significant part in the founding of FCRR in 2002.

"FCRR is the best place in the world to study reading research," Wagner said. "Our work encompasses more than studying phenomena; we create outcomes that improve learning conditions for children. That's one of the best things about FCRR — we do research that truly has an impact in the real world."

For some, reading research is a little more personal. Ashley Edwards, an FCRR research faculty member who also started training with the center as a graduate student, is helping people overcome the same obstacles she faced as a child.

"I always struggled with reading as a child, but it wasn't until years later when I took an undergraduate psychology class teaching about dyslexia that I realized I might have dyslexia," Edwards said. "Receiving a diagnosis as an adult empowered me to study dyslexia for my doctoral degree, and because of its preeminence in the field, I knew FCRR was where I wanted to do it."

Edwards earned her doctorate in developmental psychology in 2022 and now studies dyslexia and reading development with the goal of understanding what contributes to reading difficulties and how research can inform reading difficulty screening, prevention, identification and intervention.

"I was picked on for my reading ability in childhood," Edwards said. "Learning that dyslexia stems from a neurobiological cause helped me work through the anxiety and shame I felt around my reading ability. Another part of studying dyslexia is providing the public with information about it — I wasn't diagnosed earlier because I simply misunderstood what it was, and so did my teachers. Educating people on these areas of reading research can help kids like me be identified sooner and receive intervention to remediate some of the difficulties they experience."

For all FCRR faculty and staff, the biggest reward for their work is seeing it make a real difference for their community members.

"I love that we're not staying within our labs and within these halls of science," Haughbrook said. "We're getting out into the community, making partnerships, and giving resources to the people that actually need them. Seeing our research translated into our communities, into our schools, and watching children benefit from the work we do is effective change we're enacting. I'm so grateful to be part of it."

Top: Ashley Edwards works with a graduate student at FCRR. Above: Rasheda Haughbrook hears about undergraduate research in FCRR from a psychology student. Photos by Devin Bittner.

"FCRR is the best place in the world to study reading research. Our work encompasses more than studying phenomena; we create outcomes that improve learning conditions for children. That's one of the best things about FCRR — we do research that truly has an impact in the real world." — *Richard Wagner, FCRR associate director*

By the Numbers

These data points represent key elements of the Florida Center for Reading Research mission.

FCRR conducts research and provides professional learning in every county in Florida

100%

over **10,000** Florida educators and students participated in research with FCRR

$51 million in active grants and contracts

211 FSU faculty and staff workers at FCRR

174 FSU undergraduate and graduate students apprentice at FCRR

Research funding generated in the State of Florida

$1 ⇨ **$8.8**

Information courtesy Florida Center for Reading Research.

FSU | COLLEGE OF ARTS & SCIENCES

Arts and Sciences, Department of Aerospace Studies open Renegade Flight Simulation Center

A new capability launched this fall aims to improve aviation education and training at Florida State University by offering students an advanced flight training experience that also supports career exploration and completion of certificate and aviation licensing requirements.

Photo by Devin Bittner.

The Renegade Flight Simulation Center, which opened in September in the Harpe-Johnson Building, empowers FSU students to acquire Federal Aviation Administration-certified simulated flight hours, introduces students to the world of aviation, and enables civilian aviation students to develop their skills.

Powered by a RedBird MCX flight simulator system, RFSC provides realistic flight training for the Reserve Officer Training Corps units at and around FSU by allowing cadets to develop critical aviation skills imperative to careers as military aviators.

Housed within FSU's College of Arts and Sciences and managed by the Department of Aerospace Studies, RFSC makes FSU the only public Florida university to have an FAA-certified advanced aviation training device. It is open to all FSU students, with a focus on those seeking aviation careers.

See the simulator in action.

SPECTRUM

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