ARISING

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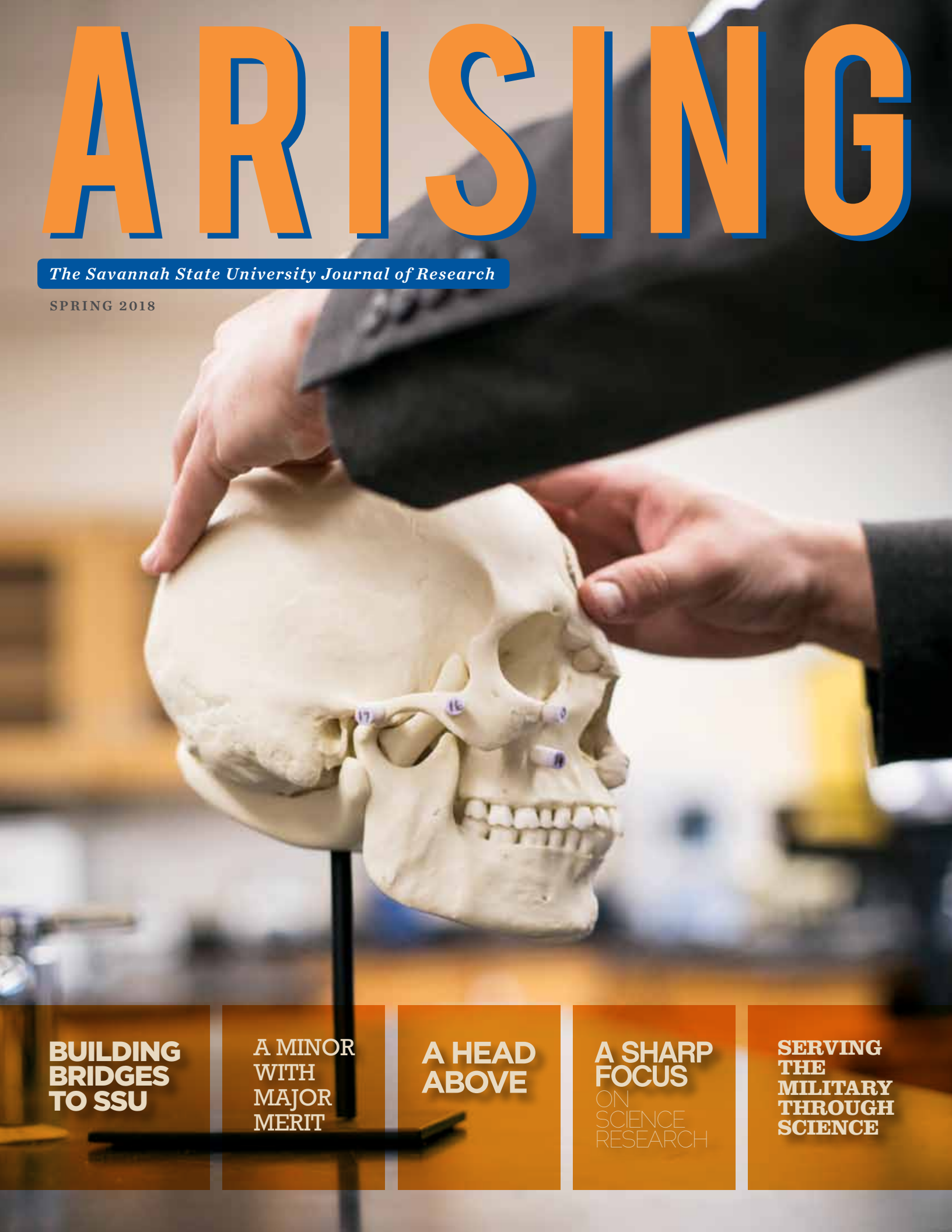

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SAVANNAH STATE UNIVERSITY MISSION

Savannah State University, the oldest public historically black university in the State of Georgia, develops productive members of a global society through high quality instruction, scholarship, research, service and community involvement. The University fosters engaged learning and personal growth in a student-centered environment that celebrates the African American legacy while nurturing a diverse student body. Savannah State University offers graduate and undergraduate studies including nationally accredited programs in the liberal arts, the sciences and the professions.

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On the cover: Assistant Professor of Fine Arts Eric Clark uses oil-based clay to reconstruct a skull as part of a forensic science class that teaches students how to create 3-D renderings of a person's face using elements of science and art. Read more on Page 4.

MESSAGE FROM THE PRESIDENT

We are excited about the research being conducted at Savannah State University. During our Eighth Annual Research Conference on April 24, 130 students representing 13 academic areas presented posters. Thirty-five faculty members participated in the conference. Congratulations to all of them!

The articles you will read in this edition of *Arising* magazine highlight the extraordinary research talent at Savannah State. I am particularly proud of the collaborations that are taking places across departments. In "A Head Above," you will read about a fascinating forensic science collaboration between Karla-Sue Marriott, Ph.D., a professor and coordinator of the forensic science program, and Eric Clark, an assistant professor of fine arts. In "Serving the Military Through Science," you will learn how two faculty members—Kai Shen, Ph.D., an associate professor of chemistry and forensic science, and Sherri Serdikoff, Ph.D., an associate professor of behavior analysis—have come together to conduct research that will benefit current and past members of the U.S. Armed Forces. These collaborations not only give faculty an opportunity to hone their research skills and build their curricula vitae, they also inspire students to look for new and innovative ways to approach their future careers.

The importance of exposing students to multiple disciplines comes full circle in "Building Bridges to SSU." Junior Nicolas Williams was first introduced to the Savannah State campus through his involvement in Coast Camp, a popular pre-college marine sciences summer program. Though Nicolas, now a political science major, is passionate about politics, his experience at Coast Camp continues to influence him today.

I hope this issue of *Arising* will also inspire you to think outside the box.

Sincerely,
Cheryl Davenport Dozier, DSW
President

MESSAGE FROM THE PROVOST

Since arriving on the Savannah State University campus in January, I've been inspired by the passion of the faculty and staff members who engage in grant and research projects across campus. These SSU Tigers are dedicated to impacting their fields, whether it's through scientific discovery, educational enhancement or community service.

In this issue of *Arising*, you'll read about a variety of research and grant programs, from a high-tech confocal microscope that's changing the way faculty and students conduct scientific research to a community outreach program that's preparing middle schoolers for bright futures in college and beyond.

The SSU administration is dedicated to creating an environment in which research can flourish and equipping faculty and staff with the tools they need to succeed when implementing these important grant programs. We also encourage cross-collaboration and are excited to be part of the new STEAM movement, which emphasizes art, in addition to the traditional STEM disciplines of science, technology, engineering and mathematics.

One of the most impressive STEAM initiatives taking place on campus is the collaboration between the forensic science and fine arts departments. Our forensic science students have learned the art of facial reconstruction by spending time honing their skills as sculptors. This fascinating project, which you will read more about in the pages of *Arising*, not only demonstrates the value of teamwork across disciplines, it gives our students skills that will make them invaluable in the workforce.

Full STEAM ahead!

Sincerely,
Michael J. Laney, Ph.D.
Provost and Vice President for Academic Affairs

A HEAD ABOVE

It's only a short stroll from Savannah State University's Hubert Science and Technology buildings to the Kennedy Fine Arts Center. But in many ways, the teaching and learning that take place inside each structure could not be any farther apart. Karla-Sue Marriott, Ph.D., and Eric Clark hope to change that.

Marriott, a professor and interim chair of the chemistry and forensic science department, and Clark, an assistant professor of fine arts, teamed up in the Fall 2016 and Spring 2017 semesters to teach science students the art of facial reconstruction.

During the first semester, Marriott and her students reviewed scientific literature and studied cranial features, depth-marker measurements and the process of creating a full-size three-dimensional rendering of a person's face using only skeletal clues. Clark, whose specialty is sculpture, joined the class in the second semester, teaching the students to build up facial features with oil-based clay.

The two-part course, which received funding from SSU's Title III program, taught students how to successfully identify an individual from skeletal remains when traditional methods fail, but perhaps more importantly, it challenged them to think outside the box.

"I was able to bring a skull to life, giving it a face and a name," says Tyra Deloatch, a senior forensic science major from Colorado Springs, Colo. "To see the transformation was incredible, and the expressions people had when they saw the before and after pictures of the skull felt very rewarding."

For Nikia Mitchell, a senior forensic science major from Loganville, Ga., the experience has been more fulfilling than she ever imagined.

"I gained knowledge in both the science field and art world, and that versatility is a strong quality to possess in any career," says Mitchell, who is currently working on a scholarly article about forensic facial reconstruction with Marriott. "This experience has been challenging but rewarding. I'm excited to share my views and opinions with the scientific community."

While collaborating across disciplines was a new experience for the forensic science students, Clark and Marriott hope that it will inspire them and others to find new and innovative ways to marry the fields of art and science.

Here, the two professors discuss the lack of collaboration between art and science in modern times, how their respective disciplines can benefit from cross-collaboration, and how such partnerships can ultimately benefit their students and society.

Opposite page: Karla-Sue Marriott, Ph.D., and Eric Clark reconstruct a skull using depth markers and oil-based clay.

Clark: There seems to be more of a disconnect between the arts and sciences than ever. (If) you go back 500 years to the Renaissance, (you see) there's not just one area (working alone)—there's no 'this is theirs, this is mine' (mentality). That's a new mindset that still baffles me.

Marriott: Money. Money is what does that. Money tarnishes everything, and then we have a breakdown in ethics. You see scientists writing papers and rushing to conclusions that will not yield products beneficial to society. ... And it's because they're fighting for the money. Any time money is the focus, then there's a high potential for corruption.

Clark: And there's so much money for research.

Marriott: One of the reasons I got interested in art is because I was doing research for research's sake. I had to stop and think about the research project and the value to human beings, and then I started to look at our scientific research in general. There has to be a point where this research translates into a useful product for society. ... Sometimes I think that a lot of research is data mining ... Data is valuable but we have to stop and put the data together, so that in our lifetime or in the next generation's lifetime, we can have a product that's useful.

Clark: That's interesting because I find in art, it's the complete opposite. They think that there's no research to be had, that 'this all comes from inside of me and it's special.' But to really influence your work, you have to be knowledgeable about whatever you're making.

Marriott: We need to step back and appreciate what it is that we're working toward and to actually create something that is meaningful in our lifetime. That's the whole point of bringing something together, marrying it and producing it. Not just me doing my work and (Clark) doing his work, but marrying them in new and different ways, ways that we never thought could come together.

Clark: There's something satisfying about (this joint project), not the immediacy, but something about the tactile quality of it—getting your hands dirty a little bit, getting in there and doing it. I find that a lot of students are apprehensive about it, but (they ultimately do it).

Marriott: With the students, the immediacy of it is a good learning experience as well—the immediacy of seeing the face evolve from the scientific data of building up the face using depth markers and seeing the complete face after one academic year. That worked because they loved to see the product.

Clark: I was really surprised how well the students took to the artistic component (of the project). I found (initially) that students who are not necessarily into the arts couldn't justify it in their minds.

Marriott: There was a little bit of that initially, like 'I can't do this,' but they fell in love with it. □

BUILDING BRIDGES TO SSU

The City of Savannah has a population of 146,763, according to the most recent statistics from the U.S. Census Bureau. Among those 25 and older in the city, only 27.7 percent have a bachelor's degree or higher. Savannah State University is in a unique position to help change that statistic.

"Preparing Savannah-area students for college is a priority at SSU," says President Cheryl Davenport Dozier, DSW. "We offer an array of pre-college programs so that secondary school students can experience what life is like on a college campus, get a feel for a college curriculum and see what their future may look like with a college degree. Our goal is to prepare them for post-secondary education, whether it's here or elsewhere."

SSU has offered pre-college programs to Savannah-area students for decades and continues to create new and innovative programs as needs arise in the community. Several year-long programs target low-income and first-generation middle and high school students in Savannah, among them GEAR UP Georgia and the federally-funded TRIO programs Upward Bound and Educational Talent Search, while academic summer programs such as Coast Camp, STEM 360 and SSU Media High challenge area youth to expand their academic horizons.

Bridging the way to the University by the Sea

Coast Camp is one of the best-kept secrets in Savannah. The Savannah State University pre-college marine sciences summer program, which celebrates its 10th year in 2018, fills up as soon as the first email goes out.

Coast Camp was the brainchild of Dionne Hoskins-Brown, Ph.D., director of National Oceanic and Atmospheric Administration (NOAA) Sponsored Programs at Savannah State University and an associate professor in the marine and environmental sciences department.

Hoskins-Brown recalls being approached by Shinaz Jindani, DSW, a professor of social work in SSU's College of Liberal Arts and Social Sciences, more than a decade ago. Jindani asked her why there wasn't a marine sciences summer program for children in the Savannah area. Hoskins-Brown realized that her colleague had presented her with a fantastic idea, and thus Coast Camp was born.

Initially funded by the NOAA Living Marine Resource Cooperative Science Center and Savannah State University, Coast Camp is a four-week science program that teaches students about the ocean through a hands-on, interactive curriculum. Students between the ages of 7 and 18 learn about marine life on the SSU campus from faculty, students and staff, and explore ocean and marsh ecology through field trips. Generous donations from International Paper have allowed the camp to continue.

For Nicolas Williams, a junior political science major from Savannah, Ga., Coast Camp was a life-changing experience.

"Coast Camp opened my mind to college courses," says Nicolas, a graduate of Savannah Early College High School. "As we were talking about college, making those decisions, improving our character skills, we embarked on the topic of colleges. Since we were at Savannah State, it happened to

Though junior Nicolas Williams is a political science major, his experience at Coast Camp helped foster a lifelong love for marine sciences.

be a part of our discussion. By talking about the history (of SSU) and its uniqueness, it got me thinking about college and attending Savannah State."

Nicolas' twin brother, Gabriel, a student at Georgia Southern University, Armstrong campus, also attended Coast Camp, and credits the program with making him think seriously about college.

"My experience in Coast Camp helped throttle the decision to attend college," Gabriel says.

Coast Camp has also fostered lasting relationships. Both Nicolas and Gabriel continue to keep in touch with Victoria Young, Ph.D., a visiting marine sciences faculty member and Coast Camp's curriculum development director.

"I consider her a mentor," says Nicolas. "She's great at giving advice on leadership and has helped guide me along the way through college, whether giving me advice on opportunities, or just (inviting me) to come to the (marine sciences) dock to relax."

Though Nicolas decided to pursue political science instead of marine sciences, his time at Coast Camp still remains a major influence.

"Throughout my time at Coast Camp, we had conversations about life goals, life lessons, about environmental topics, marine science topics, as well as career goals," says Nicolas, who plans to pursue a graduate degree in public administration and eventually work in politics.

Nicolas says those lessons he learned at Coast Camp about marine life and the environment will follow him into his future.

"I have a passion for studying how politics work, how people work. (In my political career) I want to see how I can incorporate policies and rules for marine biology and (find ways to) educate our children on marine biology," he says. "Anyone can benefit from Coast Camp ... people of all ethnicities, all backgrounds, all (potential college) majors."

Bridging the gap from middle school to college

DeRenne Middle School eighth grader Nikiyah Hayden wants to be a neurosurgeon when she grows up. Her classmate McKenzie Duncan hopes to one day be a gynecologist. Both girls are one step closer to achieving their dreams thanks to the Gaining Early Awareness and Readiness for Undergraduate Potential (GEAR UP) Georgia program.

In October 2016, Georgia received a seven-year, $21 million grant from the U.S. Department of Education to administer the GEAR UP program—the first for the state. An offshoot of the federal GEAR UP program, GEAR UP Georgia seeks to increase the number of Georgia high-need students who obtain a secondary school diploma and are prepared for and succeed in postsecondary education and careers. Seventh grade students at participating schools receive college and career planning, along with support services for six years, including tutoring and academic enrichment, college visits, career planning, leadership and mentoring programs, and financial aid and scholarship workshops.

Savannah State University received $177,036 from GEAR UP Georgia to launch the program in 2017. Led by Principal Investigator Cora Thompson, Ed.D., an assistant professor in the School of Teacher Education (SOTE), and Aja Snowden, SSU's GEAR UP Georgia project coordinator, the program targets students at four Savannah-area schools: DeRenne Middle School, East Broad Street K-8 School, Mercer Middle School and Myers Middle School.

The program will follow the now 8th graders this year and throughout the duration of their high school careers, providing them with supplemental post-secondary preparation and academic and support services. SSU provides specific support in the areas of mathematics, the sciences, literacy and other subjects, through a combination of mentoring, tutoring, summer programs and parent workshops.

The GEAR UP Georgia program has enlisted site coordinators at each school who work closely with the SSU team, and the university, in turn, sends students to work with and mentor the students. Savannah State has also opened its doors for

Eighth graders from DeRenne Middle School, pictured here on the lawn in front of their school, directly benefit from SSU's GEAR UP Georgia program.

the 8th graders to participate in enrichment activities on campus.

In November, the students visited the SSU SOTE Teaching and Learning Lab and participated in hands-on activities with faculty and teacher candidates.

"The students participated in STEM activities and it (provided) real-time field experience for our teacher candidates," Thompson says.

Getting the 8th graders ready for college and careers has been a community-wide effort. Once a month, Thompson and Snowden meet with the Local Coordinating Council (LCC), which includes the school site coordinators, representatives from area companies and school district officials, to brainstorm innovative ways to reach out to the students. One result of those meetings was a career fair at DeRenne Middle School in January in which students met with local colleges and businesses, including Gulfstream Aerospace. Other programs on the agenda include SAT preparation workshops for the students, financial aid literacy workshops for parents and field trips to local companies.

Thompson says the program has been a resounding success, and the students agree.

"My experience with GEAR UP Georgia has been life changing," says Hayden, who along with Duncan, serves as a GEAR UP Georgia student ambassador. "I've gotten in to more activities, I'm doing better with my leadership skills and its making me more open to new things."

Duncan also says that GEAR UP Georgia has been life changing. "Everything is different (now). I'm not as shy as I used to be. I don't have a fear of talking to people anymore. I can do it with ease," she says.

Both Duncan and Hayden say that the experience has made them think about college in a new way, which is precisely what the program aims to achieve.

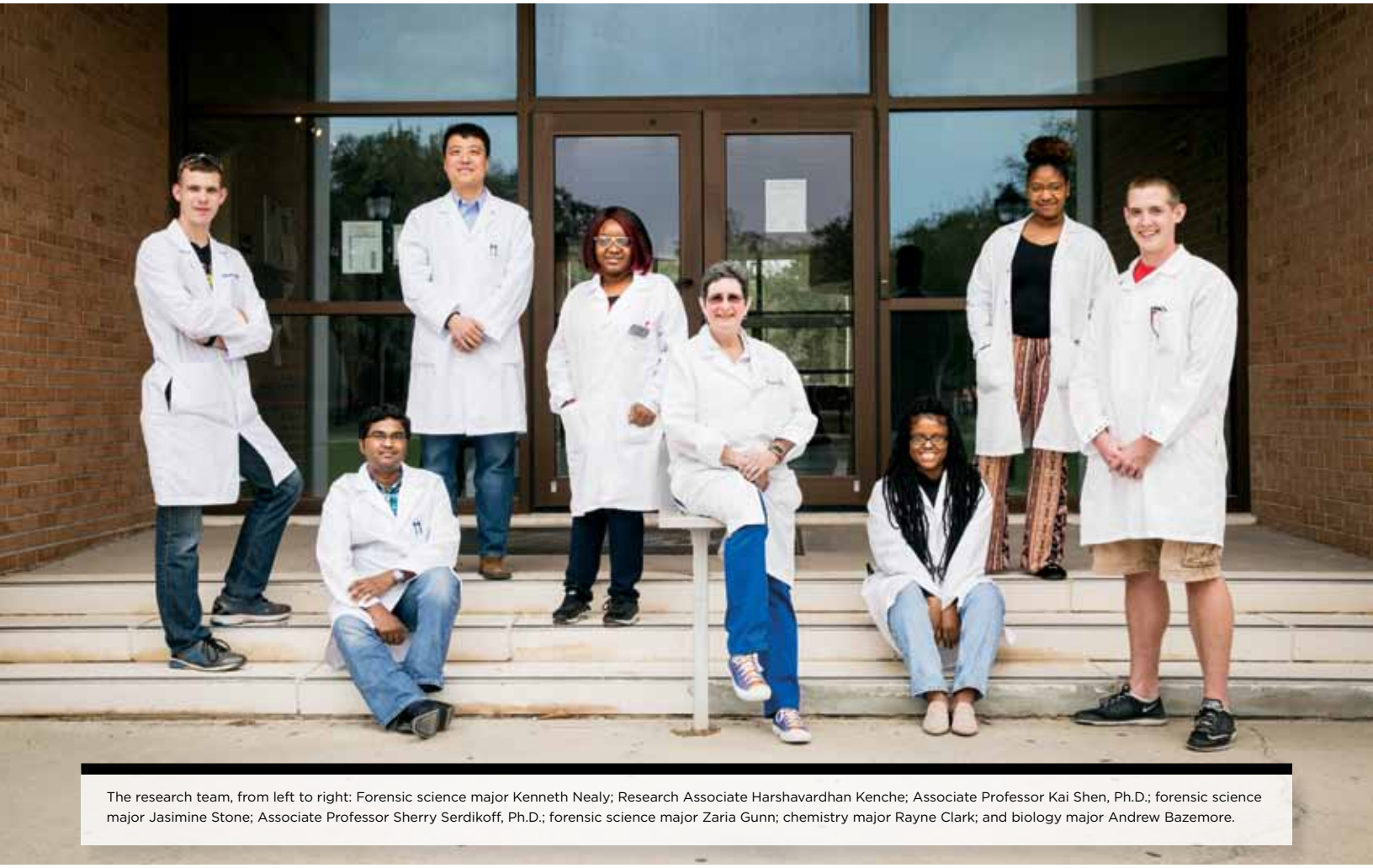
"Eighth grade is a pivotal year," Thompson says. "They're getting ready to move into high school. They need to start thinking about what it is they want to be when they grow up and start thinking about what courses they need to take in order to be successful in college. We're helping build that bridge to a better future." □

Left: DeRenne Middle School 8th graders McKenzie Duncan (left) and Nikiyah Hayden (right) serve as GEAR UP Georgia student ambassadors. Right: SSU's GEAR UP Georgia team of Aja Snowden (left) and Cora Thompson, Ed.D. (right) spend time at each of the four participating schools.

SERVING THE MILITARY THROUGH SCIENCE

A group of faculty and students at Savannah State University may hold the key to serious issues that affect members of the U.S. military and veterans.

SSU has a long history of producing graduates who go on to serve in the military. Senior Cierra Swiney, pictured here, is an NROTC Midshipman Commanding Officer at the university.



The research team, from left to right: Forensic science major Kenneth Nealy; Research Associate Harshavardhan Kenche; Associate Professor Kai Shen, Ph.D.; forensic science major Jasimine Stone; Associate Professor Sherry Serdikoff, Ph.D.; forensic science major Zaria Gunn; chemistry major Rayne Clark; and biology major Andrew Bazemore.

Led by Kai Shen, Ph.D., an associate professor of chemistry and forensic science, the researchers are looking for ways to combat Gulf War Syndrome in veterans and help current members of the U.S. Air Force overcome cockpit fatigue.

Shen is the principal investigator (PI) of the two government-funded grants: "Sigma-1 Receptor Agonists as Novel Therapeutic for Brain Mitochrondrial Dysfunction in Gulf War Syndrome," a three-year, $672,888 grant from the U.S. Department of Defense's Congressionally Directed Medical Research Program, and "Sigma-1 Receptor Agonists as Novel Therapeutic for Circadian Rhythm Disruption-Induced Fatigue," a three-year, $671,465 grant from the Air Force Office of Scientific Research.

"Savannah State University has always been proud of our affiliation with the armed forces. From our AROTC and NROTC programs to our Department of Military Affairs Office and Military and Veterans Resource Center, we take great pride in helping shape the military leaders of tomorrow and offering services to those who have nobly served," says Michael J. Laney, Ph.D., provost and vice president for academic affairs. "Now we have an unparalleled opportunity to use science to help improve the lives of active-duty military and our veterans. I could not be more proud of the work taking place in the science labs of Savannah State."

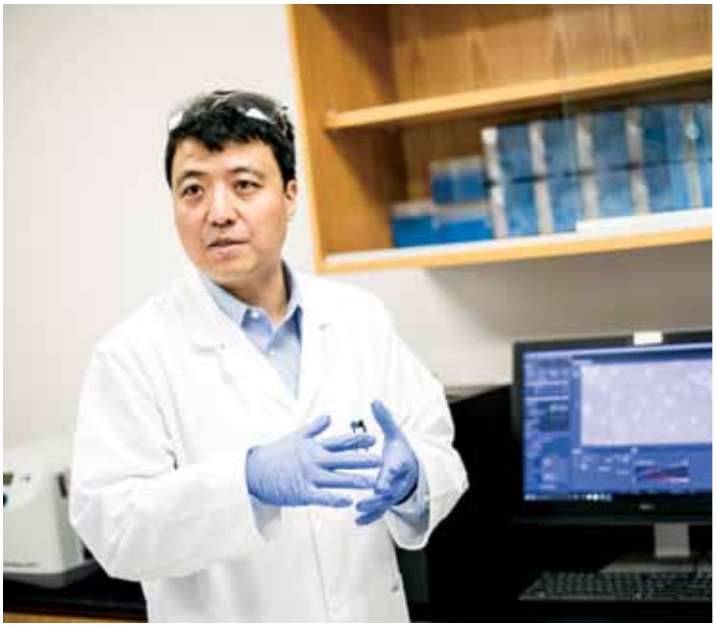
Finding a cure for Gulf War Syndrome

At least 25 percent of U.S. troops deployed during the 1990-91 Gulf War developed Gulf War Syndrome or Illness (GWI), a cluster of chronic symptoms that includes fatigue, cognitive impairment, headaches, joint pain, insomnia, respiratory disorders and other ailments. It is believed that the symptoms—which have persisted in veterans more than two decades after their service in the war—were caused by prolonged exposure to chemical toxicants such as pesticides and anti-nerve gas pills.

"We want to improve the life quality of veterans and help future (soldiers) when they're in combat. I met with several veterans and saw first-hand how (GWI) affects their lifestyle," Shen says.

To assist in his research, Shen has enlisted the help of student researchers, along with experts from multiple disciplines including his Co-PI Meharvan Singh, Ph.D., a neurobiologist at the University of North Texas, Health Science Center; Harshavardhan Kenche, a research associate in the SSU department of chemistry and forensic science; and Sherry L. Serdikoff, Ph.D., an associate professor of behavior analysis in Savannah State's College of Liberal Arts and Social Sciences.

The team is investigating why the chemicals used during the Gulf War caused lasting symptoms, testing the efficacy of commercially available drugs in improving mitochondrial function and cognitive abilities



in the veterans, and finding ways to prevent such exposure-related impairments from happening in the future.

Helping the Air Force combat circadian rhythm disorder

Most people experience fatigue when flying, but for members of the U.S. Air Force, long hours in the cockpit can be dangerous. Circadian rhythm disruption (CRD)—physical, mental and behavioral changes that follow a 24-hour cycle—is considered the greatest contributor to fatigue in cockpits among members of the Air Force. Prolonged CRD in uncontrolled combat can lead to a host of severe fatigue symptoms, including cognitive impairments such as increased reaction time and reduced awareness.

Understanding circadian rhythms has been at the forefront of scientific research in recent years and advances have been made in the field. In 2017, a team of three scientists were awarded the Nobel Prize in Physiology or Medicine for their discoveries of molecular mechanisms controlling circadian rhythms.

"We were inspired by the research of the Nobel prize winners," Shen says.

To better understand CRD, Shen is working with Singh, Kenche, Serdikoff and a team of student researchers to determine the ways in which short-term disturbances of the circadian clock affect cognitive abilities and test the therapeutic efficacy of drugs in relieving CRD-induced cognitive degradation. Shen believes that the right combination of medications could potentially alleviate fatigue and improve cognitive functions.

"This research will contribute significantly to the mission of the Air Force Office of Scientific Research and also have broader impacts (including) improving operational performance and safety of aircrews as well as ground crews" he says.

Bringing animal research back to SSU

Research on both grant projects is already underway, with student researchers studying protein cellular functions using microscopes, spectroscopies and other state-of-the-art equipment and conducting literature research related to GWI and CRD.

For the second phase of both projects, Shen and his team will conduct research in SSU's newly revamped animal laboratory in the Drew Griffin science building. The lab, which adheres to strict safety policies set by the USDA, U.S. Department of Health and Human Services, and U.S. Department of Defense, will house mice that will be exposed to toxins and pharmacological agents that replicate GWI and CRD. Shen and his team will study and perform tests on the mice to find the most effective combination of treatments for both GWI and CRD.

Opening the animal lab and acquiring the resources to run it—both physical resources and brainpower—was a group effort. Shen credits the entire university community with helping prepare the lab for use and is especially appreciative of the contributions of Serdikoff, whose background in animal learning and behavior and behavioral pharmacology has been invaluable to establishing lab protocols.

Serdikoff is grateful for the opportunity and eager to introduce SSU students to the animal lab. "Non-human animal research labs in the behavioral sciences have dried up at primarily undergraduate institutions. To be able to get students that kind of experience will be invaluable as they apply to graduate schools," she says.

Training students to be researchers

At the heart of both grant projects is the lasting impact the experience will have on the students taking part in the groundbreaking

research. To help prepare them for the challenge of such high-level research, Kenche, who plays a critical role in implementing both projects, has shown the students how to operate equipment and taught them proper lab procedures. The experience has been fulfilling for Kenche, a researcher with more than a decade of experience working in biomedical research labs.

"The idea of working with students and helping them learn something that they haven't done before is very exciting to me," Kenche says. "They ask a lot of questions, which shows their interest. It's been a great experience so far."

For the students, some of who receive stipends for their time in the lab, assisting Shen and his colleagues is an opportunity to gain invaluable experience that will help shape their future careers.

"The best part has been the fact that I get to learn how to do things for the first time (and am) hands on. I'm able to do all the things that I see on TV, but this is real life," says Rayne Clark, a junior chemistry major from Pompano Beach, Fla., who is assisting Shen in the lab. "Every time we do something new, it's more and more exciting."

Working on the grant project has been especially meaningful for Kenneth Nealy, a senior forensic science major from Atlanta, Ga, and a member of SSU's NROTC.

"Being in the lab, getting hands on, learning to (use) technology and equipment, and doing different experiments to see how everything works together piece by piece (has been my favorite part of the experience)," says Nealy. "(As a future member of the U.S. Marine Corps), being able to use science to help find a cure for veterans of the Gulf War hit me hard."

Collaborating for a better future

Collaboration has been key in ensuring the successful implementation of both the GWI and CRD grant programs, and Shen is grateful for the university-wide support he's received to help him fund and obtain the necessary resources for both projects. Shen says that everyone across the university has pitched in, from the Office of the President, Division of Business and Finance, Office of Sponsored Research Administration and Physical Plant to the Division of Academic Affairs and his dean, department chair and colleagues in the College of Sciences and Technology.

Inside the labs, students and colleagues have come together from a variety of backgrounds and bring different perspectives and experiences to the table. Serdikoff's time working on the grant projects is entirely voluntary. Kenche is passionate about making sure the students have the best research experience possible. The student assistants give up their free time to spend hours in the lab assisting with research. And Shen works tirelessly to ensure that his research goals are met—not just for the betterment of the men and women, past and present, of the armed forces, but for the entire Savannah State University community.

"President Dozier said that we are one SSU, so we're trying to collaborate, we're trying to improve retention and increase enrollment," Shen says. "We have an obligation to get students involved and prepare them for their future careers." □

Opposite page: Left: Shen explains research techniques to his students. Right: Kenche teaches Clark and Bazemore how to use the microscope to conduct research. **This page:** Left: Under the direction of Kenche, Clark uses the microscope to observe cells. Right: Serdikoff observes as Gunn and Nealy culture cells.

A MINOR WITH MAJOR MERIT

Agegnehu Atena, Ph.D., teaches a Calculus II class. Atena was instrumental in establishing the applied mathematics minor. Opposite page: Atena and scholarship recipient Jamyce Battle discuss her applied mathematics courses.

Jamyce Battle had never considered studying applied mathematics when her calculus professor suggested she minor in the new program at Savannah State University. But as the sophomore computer science major from Atlanta, Ga., learned more about the discipline, she became intrigued.

Today Battle is one of five students receiving a scholarship as part of SSU's Applied Math Research Training and Internship program.

"The program interested me when I was told that I would be researching things that have never been done before. That caught my attention," Battle says.

To be considered for the competitive scholarship, applicants must declare applied mathematics as their minor, maintain a 3.0 grade point average, write an essay and provide letters of recommendation. Selected students receive a $5,400 stipend and $1,025 for conference travel.

The minor in applied mathematics is the latest addition to Savannah State's repertoire of math programs, which also include bachelor of science and master of science degrees in mathematics. A $399,972 grant from the National Science Foundation (NSF) Historically Black Colleges and Universities Undergraduate Program Targeted Infusion Project (HBCU-UP TIP) program enabled the university to launch the minor in August 2017 and offer the complementary scholarship program.

"Applied mathematics is a bridge between pure mathematics and other sciences," says Agegnehu Atena, Ph.D., associate professor of mathematics and the grant's principal investigator (PI), noting that the applied mathematics minor has already attracted 13 students officially, with many more showing interest in the discipline.

While the university has long offered individual courses in applied mathematics, the minor is the first opportunity for students to delve

deeper into the discipline. And though math majors can and do take courses in applied mathematics, the minor program is intended to supplement other areas of study, especially the sciences.

Battle hopes the minor in applied mathematics and the research she's conducting as part of the scholarship program will help her pursue a career in computer technology as an IT director.

"I believe my applied mathematics research will help me in the future," says Battle, who is conducting research with faculty mentors Tilahun Muche, Ph.D., an assistant professor of mathematics, and Alberto De La Cruz, an instructor of computer science technology, in the areas of calculus and linear algebra. "My experience with it will allow me to stand out."

In addition to the creation of the applied mathematics minor and scholarship program, the NSF HBCU-UP TIP grant has enabled the mathematics department to offer professional training and workshops to faculty and graduate students, as well as specialized applied mathematics instruction for local high school teachers.

The ultimate goal of the program is to increase interest and enrollment in mathematics at SSU, strengthen math teaching and learning and develop students' mathematical knowledge and problem solving, help prepare students for STEM careers, and help develop pipelines that will lead students from K-12 into college math programs.

"Savannah State University is leading the way in mathematics education in the area," says SSU President Cheryl Davenport Dozier, DSW. "By adding the minor in applied mathematics and offering a scholarship program in the field, we are creating new avenues for students. This will not only impact our own students as they graduate and pursue graduate degrees and enter the job market, but it will also have a lasting impact on our community as we help shape the next generation of STEM innovators." □

MASTERING A FUTURE IN STEM

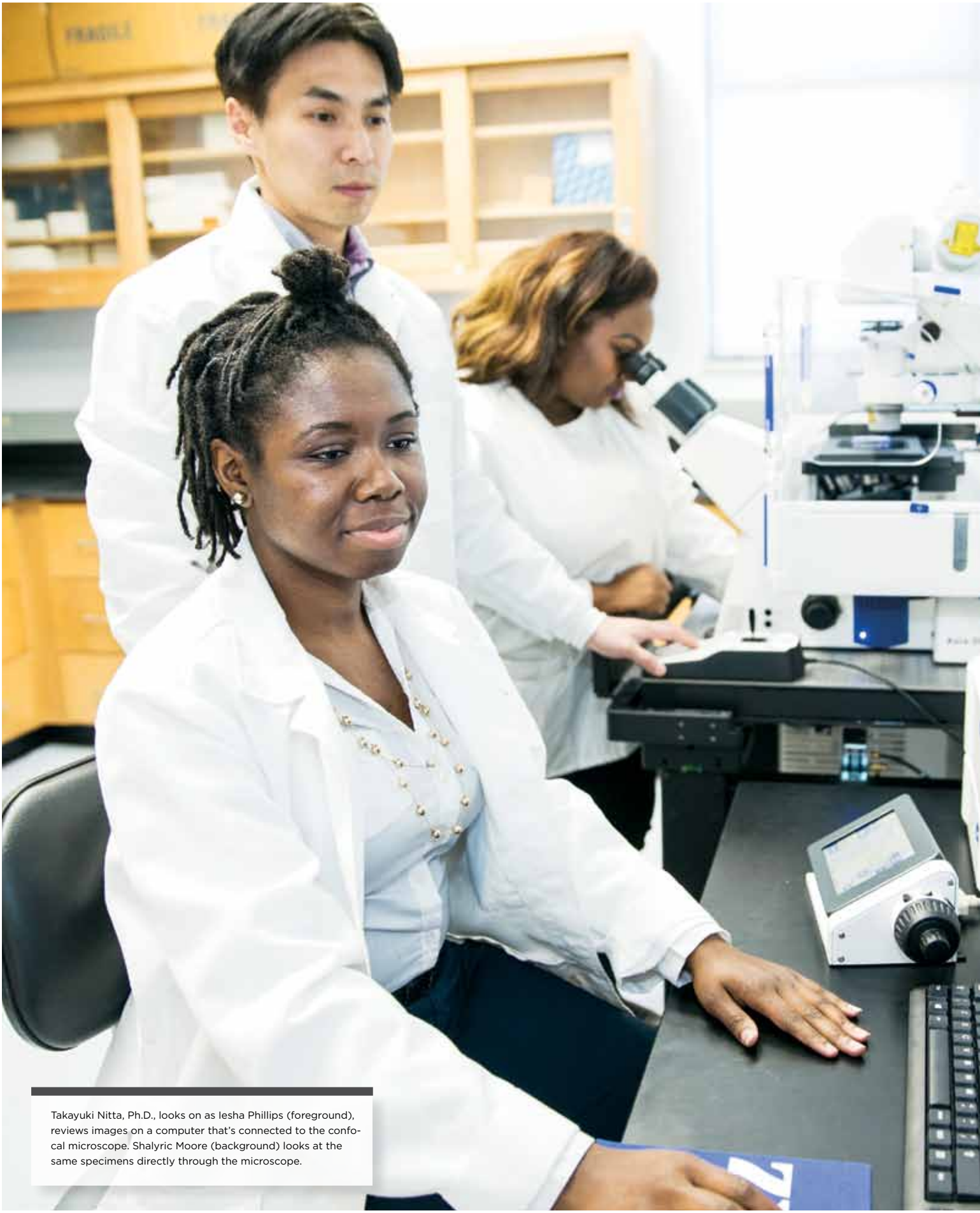
Though African-Americans represent roughly 13.3 percent of the population of the United States, a 2017 report by the National Science Foundation found that they comprised only 7.2 percent of master's degree awardees in STEM fields from 2004 to 2014. And the statistic was even lower for those receiving master of science degrees in mathematics and ocean sciences, at 2.8 and 1.2 percent, respectively.

"It was a sobering statistic," says SSU President Cheryl Davenport Dozier, DSW. "Savannah State University is in a unique position to combat this inequity."

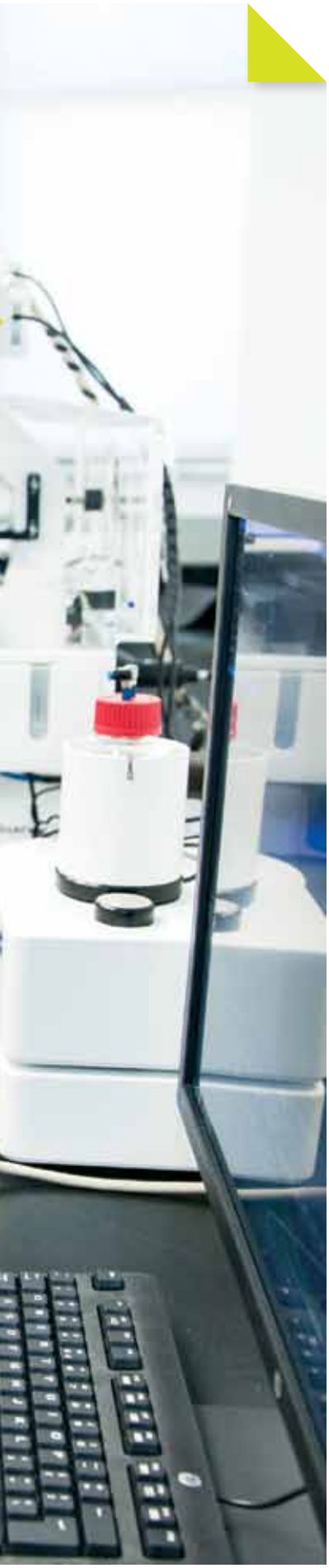
To help reverse that statistic, SSU has launched the SSU Masters in Mathematics and Marine Sciences (SSUMMS) program, which aims to increase the number and strengthen the preparedness of African-American and low income M.S. graduates in both disciplines.

Funded through a six-year, $2.5 million U.S. Department of Education Title VII grant, SSUMMS supports 10 qualified merit scholars each year, providing student stipends, tuition, research support and travel expenses to recruit and retain high-quality students. The goal of the program is to prepare the students for admission to doctoral and professional degree programs and to compete in the STEM workforce.

"The SSUMMS grant arrived at a critical time in the fall of 2017 to allow a strong start for the M.S. in mathematics degree program and to rebuild the graduate student ranks within marine sciences following a brief slump in federal funding," says Carol Pride, Ph.D., professor and chair of the Department of Marine and Environmental Sciences and the grant's principal investigator (PI), noting that both fields require significant funding for equipment and technology needs. "The SSUMMS grant is providing some of the research funding needed for our students to complete their thesis work in a timely manner, to be able to present their results at professional conferences and to compete with the best once they leave SSU."



Takayuki Nitta, Ph.D., looks on as Iesha Phillips (foreground), reviews images on a computer that's connected to the confocal microscope. Shalyric Moore (background) looks at the same specimens directly through the microscope.



A SHARP FOCUS ON SCIENCE RESEARCH

A new confocal microscope acquired by Savannah State University is changing the way students and faculty conduct research on campus.

In 2017, the university purchased a Zeiss LSM800, a confocal microscope that scans samples sequentially point by point, line by line, or multiple points at once, creating a high-contrast, high-resolution image that far surpasses other instruments in clarity and detail.

The microscope was acquired as part of a $360,438 U.S. Department of Defense Army Research Office HBCU Research/Education Program grant. Takayuki Nitta, Ph.D., an assistant professor of biology and the grant's principal investigator (PI), says that the microscope will serve as an instructional tool for upper-level undergraduate courses across three disciplines, exposing some 525 students to the cutting-edge equipment.

"We expect the confocal microscope will help our students in research as well as in teaching," Nitta says. "The ability to use a confocal microscope is a plus for (students') application to graduate programs, (their) research in graduate school and (future work at) companies in biological/biomedical sciences."

One unique feature of the microscope is its connectivity to an Airyscan, an innovative detection system that produces an image with an increased signal-to-noise ratio and 1.7-times higher resolution in all three dimensions. Both the Airyscan and confocal microscope utilize advanced ZEN imaging software, which enables the researchers to produce three-dimensional animations or fly-through videos.

Faculty members in the College of Sciences and Technology are taking advantage of the advanced technology to research a host of topics, from sigma-1 receptor regulation of cholesterol homeostasis in Alzheimer's disease to the inhibitory effects of betulnic acid and its derivatives in adipogenesis.

Nitta himself is using the confocal microscope

to identify and characterize cellular factors to restrict viral replication, studying the interplay between hosts and viruses and seeking to understand novel mechanisms in host-viral interactions.

"The confocal microscope is essential in the project since it can visualize interaction of host and viral proteins in cells," he explains.

The confocal microscope not only enables Nitta to engage in high-level research, it also gives his student assistants an unparalleled opportunity to gain experience that will give them an edge in graduate school and beyond.

"I spend most of my time using the confocal microscope looking at my cells. It's been really fun," says Alexus Williams, a senior biology major from Savannah, Ga., who has conducted research alongside Nitta for the past two years. "I think I'll have an upper-hand when I go to graduate school."

Iesha Phillips, a junior biology major from Savannah, Ga., says the confocal microscope will give her an advantage when she attends medical school one day.

"The microscope gives me a chance to explore different things and (do) research, and I'll have those techniques when we do research in medical school," Phillips says.

In addition to serving the students and faculty of the SSU College of Sciences and Technology, the microscope also is a learning tool for the community. Nitta and his co-PIs Kai Shen, Ph.D., associate professor of chemistry and forensic science; Karla-Sue Marriott, Ph.D., professor and interim chair of the chemistry and forensic science department; Johnny Johnson, Ph.D., assistant professor of biology; and Hua Zhao, Ph.D., have invited teachers and students from Islands High School and Alfred E. Beach High School in Savannah to campus to learn about the high-tech instrument.

Two field trips held this spring brought more than 55 students and teachers from Islands High School. The group attended a presentation on the microscope's applications and had an opportunity to observe images of pre-stained cell and tissue samples during the supervised hands-on sessions.

Megan Heberle, a teacher and program coordinator for the Scientific Research Program at Islands High School, is utilizing the microscope in her research of local songbirds. Heberle and her students are using the technology to better understand how thyroid hormones influence thermoregulatory, metabolic and immunological development and behavior of songbirds.

For Heberle, who collaborates with SSU faculty throughout the school year on her research, the university's confocal microscope is an invaluable teaching tool. "The hands-on research experience (has the potential to) foster research mindsets and interests in the high school students. ☐

Moore (left) and Alexus Williams (right) assist Nitta in his lab.

OF MICE AND MEN

A groundbreaking study of the interaction between hosts and viruses in mice could one day have a significant impact on the way scientists treat human disease.

In March 2018, Savannah State University Assistant Professor of Biology Takayuki Nitta, Ph.D., received a $299,961 grant through the National Science Foundation's Historically Black Colleges and Universities Undergraduate Program (HBCU-UP) Research Initiation Award program to study "Mechanisms of Interaction of Glyco-gag with Restriction Factors." The award will enable Nitta and his student researchers to study glyco-gag, an accessory protein found in the murine leukemia virus (MuLV), a retrovirus that can cause cancer in mice.

"MuLV escapes from the immune system in mice and causes leukemia. The virus can make one unique protein, glyco-gag, that will impair host immune systems," Nitta explains. "Many viruses, including (the) human immunodeficiency virus, use similar strategies to escape from their host immunity."

To better understand host-virus interactions, Nitta and his collaborators will study how MuLV glyco-gag controls host metabolism and interacts with restriction factors, identify and characterize novel restriction factors, and examine the role of glyco-gag in the feline leukemia virus, a virus that is similar to MuLV.

"Many viruses share basic systems in replication, and restriction factors could prevent replication and cell death induced by different viral infections," Nitta says. "Findings obtained through (this) new study exploring one aspect of how the virus counteracts host cell machinery to replicate itself could provide significant progress to understand replication and evolution of other viruses."

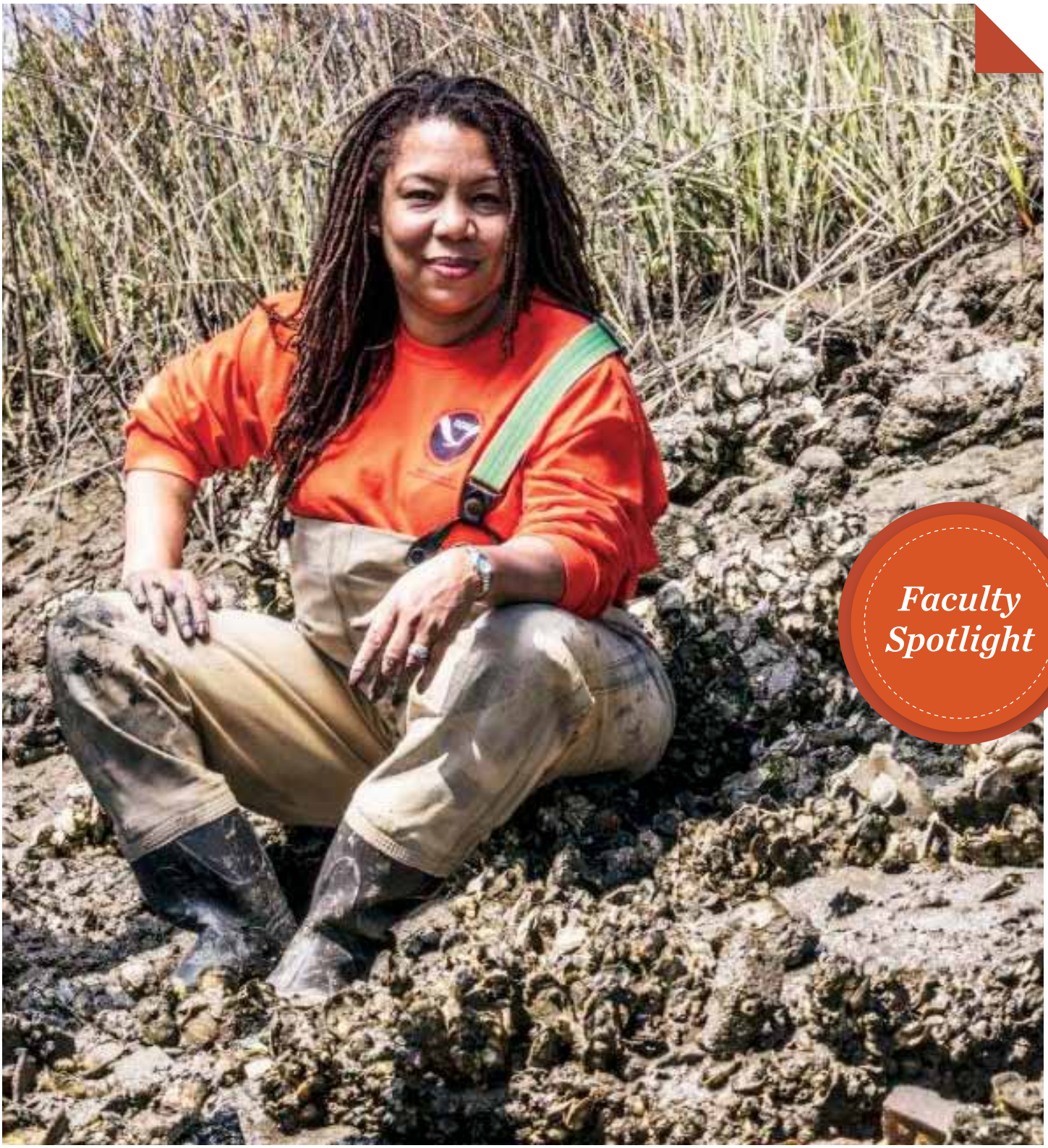
In addition to potentially making major advances in the field of virology, Nitta's grant project will also provide an incredible learning opportunity for Savannah State students. More than 250 students each year in Microbiology, Immunology, Virology and Introduction to Life Sciences courses in the SSU College of Sciences and Technology will learn from the research.

Each semester, up to three student researchers will receive a stipend to assist Nitta in the lab and attend professional conferences. Selected students will discuss career goals, supporting systems, conflicts, work-life balance and various research topics with Nitta, and receive guidance on responsible conduct of research, lab equipment and biosafety.

For students who have already had the opportunity to work alongside Nitta on other research projects, the experience has been invaluable.

"It's been a good experience conducting research," says Shalyric Moore, a senior biology major from Dublin, Ga., who has assisted Nitta in the lab since Summer 2017. "I plan to attend graduate school or medical school (after graduation), and he's definitely prepared us for our next steps." □

DIONNE HOSKINS-BROWN Ph.D.



Faculty Spotlight

Dionne Hoskins-Brown, Ph.D., is a change maker. When she was approached about a need for a summer pre-college experience for students interested in marine sciences, she created Coast Camp. When she saw that Savannah-area students weren't as prepared as they could be when entering college, she sought a position on the Savannah-Chatham County Public School System (SCCPSS) Board. And most recently, when she realized how strong the connection was between her beloved field of marine sciences and local coastal African-American communities, she joined the National Park Service's Gullah-Geechee Cultural Heritage Corridor Commission.

"What I would like for my journey to illustrate for students is that you can have a myriad of interests that can converge," says Hoskins-Brown, director of National Oceanic and Atmospheric Administration (NOAA) Sponsored Programs at Savannah State University and an associate professor in the marine and environmental sciences department.

Hoskins-Brown's interest in marine life began as a child in a cove of the Forest River on Savannah's south side.

"I was always fascinated with what we would pull up (from the river)," Hoskins-Brown reminisces. "We pulled up pipe fish, (which) blew my mind, (and also) crabs and shrimp and all kinds of fish that I had never seen before."

Her curiosity took her across town to Savannah State, where she graduated in 1992 with a bachelor of science degree in marine biology. She continued to pursue her passion after graduation, receiving a Ph.D. in marine science from the University of South Carolina in 1999.

While Hoskins-Brown was working toward her doctorate, the National Oceanic and Atmospheric Administration was in the process of expanding its cooperative research programs to HBCUs around the country. Savannah State was one of those institutions, and when a position opened in 1999 for a post-doctoral fellow to serve at the university, she was recruited for the job.

"I thought it would be a short postdoc," Hoskins Brown says. "And (then) during that time, the NOAA matured its cooperative program and created funding for a position that would be a NOAA scientist."

Hoskins-Brown accepted the full-time role and has remained in the position ever since. Now, it is the only remaining program of its kind in the country. Today she oversees a number of successful NOAA initiatives on campus, including the Living Marine Resources Cooperative Science Center (LMRCSC). Currently in its 17th year of funding at SSU, the LMRCSC—a partnership between lead institution University of Maryland Eastern Shore and six colleges around the country—seeks to train underrepresented communities in marine and fisheries sciences and prepare them for careers in the field. At Savannah State, the LMRCSC funding enabled the university to support a master of science degree program in marine sciences in 2001 and continues to aid students through scholarships, fellowships and other opportunities for advanced study in the field. In addition, Hoskins-Brown oversees the National Ocean Science Bowl competition for the Georgia and South Carolina region and Coast Camp, a popular summer program for middle and high school students in the Savannah area.

Though Hoskins-Brown has spent the better part of two decades affecting change on the Savannah State campus, she has devoted an equal amount of time seeking to influence the community around her.

In 2011 when SCCPSS Board District 2 Representative Floyd Adams stepped down to run for mayor of Savannah, she was appointed to take his place. It was a natural progression for Hoskins-Brown, who had sought opportunities for engagement with the local public school system over the years. When her appointed term ended in 2012, she successfully ran for the position and is currently serving her second consecutive term.

In 2017, Hoskins-Brown's interest in the local Gullah and Geechee communities—which populate coastal areas from Florida to North Carolina—led her to join the Gullah-Geechee Cultural Heritage Corridor Commission, where she currently serves as chairman.

"Being interested in the Gullah Geechee (community) and working as a proponent for preserving that culture doesn't have to sound aberrant for a marine scientist," Hoskins-Brown explains. "There are human dimensions to many science questions in our community, and one of those dimensions is how do communities of low-lying areas respond to sea-level rise and what is their coastal resilience to the implications of climate change. How are coastal communities dependent upon fish and fisheries and healthy habitats?"

Hoskins-Brown hopes that her involvement with the commission will help answer some of those questions and also inspire her students to consider the broader implications of their academic studies.

"I want students to know that you can have diverse interests and strengths and you can channel those characteristics of yourself into positive, productive activities for the common good," Hoskins-Brown says. "It takes work and you may sometimes be misunderstood, but when it comes together it's immensely satisfying." ☐

Student Voices

SARAH DILLARD

I was inspired by my former high school teacher Ms. Schofield to pursue engineering after excelling in an introductory sketching course. The teacher, who shared the same cultural background, encouraged me to reach my full potential. This potential was combined with my interest in transportation studies.

As the city population increases, the traffic congestion and air pollution in Atlanta, Ga.—my hometown—has been an ongoing issue, and I wanted to contribute to the solution. When the opportunity to earn a certificate in Interdisciplinary Transportation Studies at Savannah State University arose, without hesitation I added classes to my schedule.

I knew that in order to become more marketable within my field, I must go the extra mile. This mantra of going the extra mile, while paying it forward, has granted opportunities I know I would not have been granted had I not attended SSU. I know that when my ancestors were not granted the option to read or write, they obtained what they could and passed it on. The legacy I aim to leave at SSU is to share all the opportunities that I have earned with another scholar.

SSU has aided my development professionally, socially and civically. Since my enrollment at SSU, I have conducted research as part of the Proactive Recruitment for Introductory Science and Mathematics (PRISM), Students Engaged in Naval STEM Research (SENSR), Peach State Louis Stokes Alliance for Minority Participation (PSLSAMP), and Research Transportation Infrastructures and Geotechnics Education Research (TIGER) group programs. I have been fortunate to receive transportation-related scholarships from the Professional Women in Building Atlanta Chapter and Women in Transportation Atlanta Chapter, along with the Dwight David Eisenhower Transportation Fellowship, for which I was the first female recipient at SSU.

During Summer 2016, I conducted research for the Sea Grant portfolio with my faculty mentor, compiling analyzed data from the coastal region's most vulnerable areas of sea-level rise. I desired to continue this PSLSAMP research opportunity to gain additional mentorship on research post-graduation and gain additional opportunities to present my research. As a result, I have enhanced my leadership and self-confidence as I pursued leadership roles on campus.

Upon graduation, I seek acceptance into a pathways program to complete master's and post-doctoral degrees in the field of transportation. To support this study, I also will search for planning documents and patent studies that show the evolution of preexisting pavement adaptation strategies. In reviewing these sources, I will analyze both formal and textual analysis, which will impact the methodology of how adaptation strategies are developed. This dual focus will be vital to my understanding the impact of distress on pavement during regional weather extremities. My pursuit of a certification in transportation studies at Savannah State University will enable me to understand components of these studies in a well-rounded context, furthering my preparation for higher education. □

Sarah Dillard is a senior civil engineering technology major with a concentration in transportation studies from Atlanta, Ga. She is the 2017-18 president of the SSU Student Government Association.

When Stacy Cobb began working toward a doctorate degree at the University of Georgia (UGA) in 2011, she didn't know that she'd one day be making history. But on May 5, 2017, the Savannah native did just that when she became the first African-American to earn a Ph.D. in statistics from the university.

"It was very humbling, especially because I felt like I had blazed a trail for other women to fearlessly enter the field," says Cobb, who graduated from Savannah State University in 2008 with a bachelor of science degree in mathematics and minor in biology. "Now other African-American women can believe that the goal is much closer than they think and far from what others may perceive."

For Cobb, the journey to making history began when she was a student at Herschel V. Jenkins High School. During her senior year, she enrolled in a dual degree program at Savannah State and got her first taste of academia. It was a natural fit for Cobb, who grew up coming to campus to visit her mother, long-time staff member Larrice Cobb.

She began classes as a full-time student in 2005, joined Delta Sigma Theta Sorority and took advantage of numerous opportunities on campus, including the prestigious Peach State Louis Stokes Alliance for Minority Participation (PSLSAMP) program, a National Science Foundation-funded initiative that seeks to increase the number of underrepresented minority students who earn bachelor's degrees in STEM fields and go on to pursue graduate study.

It was through PSLSAMP that Cobb was first exposed to rigorous research, something that would eventually propel her to obtain a master's degree in statistics from Stony Brook University in New York, serve as a research assistant at the Harvard School of Public Health in Boston and eventually enter the Ph.D. program at UGA.

"(Through PSLSAMP), I had my first research experience, (and attended) my first conference. It showed me what I could do with a STEM degree," Cobb says.

Cobb also credits three SSU faculty members, Professor and Department Chair Mulatu Lemma, Ph.D., Assistant Professor Darrell DeLoach and Associate Professor Samuel Dolo, Ph.D., with instilling in her a love of mathematics.

"Mr. Deloach, Dr. Lemma and Dr. Dolo made the experience of math enjoyable. They were the best professors I ever had (throughout my academic career)," reminisces Cobb, who says she thoroughly enjoyed learning from all of her professors at Savannah State during her tenure at the university.

Today Cobb continues to shatter glass ceilings, working as a biostatistician at UNC Health Care in Morrisville, N.C., a position that combines her interests in statistics and public health.

"I hope to (one day) study and find the gene variants associated with certain types of cancer," says Cobb, noting the importance of statistics in public health research. "Statistics plays the role of identifying the variants significantly associated with the formation of the type of cancer being studied. The statistical tests and models can help validate your scientific research."

Though her career and academic studies have taken her to northeast Georgia, New York, Massachusetts and now North Carolina, where she lives with her 3-year-old son, Ayden, and fiancé, Cobb credits her years at Savannah State with laying a strong foundation for her future.

"I love the (SSU) slogan 'You Can Get Anywhere from Here.' It is a 110 percent true statement," Cobb says. "Savannah State prepared me to fight for what I want and handle obstacles that came my way." ☐

Photo: Litus Marshall

Where Are They now?

Students participating in grant-related research at Savannah State University are encouraged to apply to graduate school. Chellu Devi, a program manager in the College of Sciences and Technology, works closely with students in several grant programs, requiring them to apply to at least six graduate school programs. Thanks to Devi's efforts, a majority of the students she's worked with are accepted in to graduate programs. Here we catch up with two SSU alumni who were featured in past issues of *Arising*. These former students, like many others who have graced the pages of the magazine, are pursuing their dreams in graduate programs around the country.

DOLPHURS HAYES

Issue: Spring 2014

Article: "Rising to the Challenge" – Hayes described his experience in SSU's Researh Initiative for Scientific Enhancement (RISE) program working with faculty mentor and Professor of Chemistry Cecil Jones, Ph.D.

Degree: B.S., biology, 2016

What he's up to now: After receiving a master's of health science degree from Meharry Medical College in 2017, Hayes was accepted to Morehouse School of Medicine, where he is currently in his first year of medical school. He is interested in cardiology and hopes to one day open a heart clinic in an underserved population in order to eradicate the prevalence of preventable heart disease within minority communities.

Photo courtesy of Dolphurs Hayes

BLESSING ENYA

Issue: Spring 2014 and Spring 2016

Article: Spring 2016: "Student Voices" – Enya wrote an essay in *Arising* about her experience starting SSU as a 15 year old and participating in numerous grant programs on campus. Spring 2014: "Rising to the Challenge" – Enya was photographed in a chemistry lab conducting research on how to extract algal oil from microalgae using a microwave reactor.

Degree: B.S., biology, 2017

What she's up to now: Enya is attending the Post-Baccalaureate Research Education Program (PREP) at University of Iowa. The program is geared toward recent graduates from groups traditionally underrepresented in biomedical fields who are planning on pursuing a Ph.D. or M.D./Ph.D. She is currently performing research in a microbiology lab on HIV-1 envelope proteins and has already been accepted into Ph.D. programs at Purdue University, University of Utah, and Case Western University, which she plans to attend.

Photo courtesy of Blessing Enya

A big Moment For Data Analytics

In 2014, Merriam-Webster added the term "big data" to its dictionary. Defined as "an accumulation of data that is too large and complex for processing by traditional database management tools," the term has numerous real-world applications.

Now four years later, Savannah State University is preparing students to take on the challenges of big data in the real world through the Targeted Infusion Project in Interdisciplinary Data Analytics (TIP-IDA) program.

Funded by a $399,974 National Science Foundation HBCU-Up grant, the TIP-IDA program is set to launch a data analytics certificate program in Fall 2018. The program will teach students how to take large amounts of data, break them down and use them in ways that will benefit their respective areas of study.

"(Whether or not you're) choosing to pursue a career in data analytics, it's important that you know the art of analyzing the numbers," says Suman Niranjan, Ph.D., the grant program's principal investigator (PI).

Niranjan, an associate professor in SSU's College of Business Administration (COBA), director of the Interdisciplinary Transportation Studies program, and coordinator of the university's Global Logistics and International Business Education and Research Center of Excellence, notes that a background in data analytics can help improve whatever career paths students eventually choose, whether in STEM fields, global business, or homeland security and emergency management.

"The applications are endless," he says. "The focus of the (certificate) program is on understanding the analysis portion of the data and learning the tools so that the students are marketable and they will be able to get a job."

Because computer applications are at the heart of data analytics, Niranjan has enlisted the help of fellow faculty members who specialize in the field. Co-PIs Shetia Butler-Lamar, a lecturer in COBA and coordinator of the university's Computer Information Systems program, and Alberto De La Cruz, an instructor of computer science technology in the College of Sciences and Technology, are helping Niranjan develop the curriculum. Former SSU Assistant Professor Richelle Oakley, Ph.D., who served as a co-PI, continues to work as a consultant on the project.

Students applying for the certificate program must fulfill prerequisites in statistics, computer applications and pre-calculus. Once enrolled, they are required to take four to six classes, depending on their major and coursework, to obtain the certificate.

Classes will be offered in person or online. Students opting for the latter will have access to a virtual computer lab equipped with cutting-edge software applications that can be accessed on any computer anywhere.

In addition to being available to SSU students, the data analytics certificate will be available to the community when the program launches in Fall 2018. □

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For more information on the data analytics certificate program, visit www.savannahstate.edu/transportation-studies/data-analytics-certificate/.

CURRENT GRANT FUNDING *at* SSU

FUNDING AGENCY	PRINCIPAL INVESTIGATOR
U.S. Department of Education	Dedra N. Andrews
U.S. Department of Education	Dedra N. Andrews
National Science Foundation	Agegnehu Atena, Ph.D.
U.S. Department of Defense/Army Research Office	Pascal Binda, Ph.D.
U.S. Department of Defense/Army Research Office	Pascal Binda, Ph.D.
National Science Foundation	Tara Cox, Ph.D.
U.S. Department of Education/Jacksonville State University	Kisha Cunningham, Ph.D.
U.S. Department of Education/Jacksonville State University	Kisha Cunningham, Ph.D.
National Science Foundation	Kisha Cunningham, Ph.D.
Georgia Governor's Office of Student Achievement/Tift County Schools	Alberto De La Cruz
U.S. Department of Health and Human Services/Health Resources' and Services Administration	Roenia Deloach, Ph.D.
National Science Foundation/Carlton College	Sue Ebanks, Ph.D.
Georgia Department of Natural Resources	Chandra Franklin, Ph.D.
U.S. Department of Education	Gary Guillory, Ed.D.
Sea Grant Georgia/University of Georgia	Christopher Hintz, Ph.D.
National Oceanic and Atmospheric Administration/University of Maryland Eastern Shore	Dionne Hoskins, Ph.D.
Consortium for Ocean Leadership	Dionne Hoskins, Ph.D.
Federal Highway Administration	Roxana Javid, Ph.D.
Morehouse School of Medicine	Shinaz Jindani, DSW
National Institutes of Health/National Institute of General Medical Sciences	Cecil Jones, Ph.D.
National Science Foundation	Amanda Kaltenberg, Ph.D.
U.S. National Security Agency	Bryan Knakiewicz, Ph.D.
Georgia Department of Transportation/University of Georgia	Bryan Knakiewicz, Ph.D.
National Science Foundation	Jonathan Lambright, Ph.D.
Georgia Department of Education	Jonathan Lambright, Ph.D.
National Aeronautics and Space Administration/Georgia Institute of Technology	Jonathan Lambright, Ph.D.
National Science Foundation/University of Georgia	Mohamad Mustafa, Ph.D.
National Science Foundation/University of Georgia	Mohamad Mustafa, Ph.D.
U.S. Department of Education	Emmanuel Naniuzeyi, Ph.D.
U.S. Department of Education	Emmanuel Naniuzeyi, Ph.D.
National Science Foundation	Suman Niranjan, Ph.D.
National Science Foundation	Takayuki Nitta, Ph.D.
U.S. Department of Defense/Army Research Office	Takayuki Nitta, Ph.D.
National Institutes of Health/National Institute of General Medical Sciences	Carol Pride, Ph.D.
U.S. Department of Education	Carol Pride, Ph.D.
U.S. Department of Education	Zenobie Purnell
U.S. Department of Education	Bobby Roberts Jr.
U.S. Department of Energy	Kenneth Sajwan, Ph.D.
U.S. Department of Energy	Kenneth Sajwan, Ph.D.
U.S. Department of Health and Human Services' Substance Abuse and Mental Health Services Admin.	Linda Samuel, Ph.D.
Georgia Department of Human Services/Georgia State University	Julius Scipio, Ed.D.
National Institutes of Health	Kai Shen, Ph.D.
U.S. Department of Defense/Army Research Office	Kai Shen, Ph.D.
U.S. Air Force Office of Sponsored Research	Kai Shen, Ph.D.
U.S. Department of Defense/Congressionally Directed Medical Research Programs	Kai Shen, Ph.D.
University of the West Indies	Paramasivam Sivapatham, Ph.D.
U.S. Department of Education/University System of Georgia	Cora Thompson, Ed.D.
Gilead Sciences, Inc./Howard University	Felicia Tuggle, Ph.D.
U.S. Department of Education	Tamara Waterman
Army Educational Outreach Program	Asad Yousuf, Ed.D.
Army Educational Outreach Program	Asad Yousuf, Ed.D.

GRANT	DURATION	AWARD
Title III-B	2017-18	$ 3,841,510
Title III-SAFRA	2017-18	$1,116,468
HBCU-UP TIP: Developing a Minor in Math	2017-20	$399,972
Acquisition of Dynamic Mechanical Analyzer and EcoSEC GOP for Polymer/Materials Characterization	2016-18	$218,497
Design and Synthesis of New Heteroleptic Lanthanide Complexes to Catalyze Ring-Opening Polymerization of Cross Linkable Gamma Lactone Monomers to Exclusively Obtain Unsaturated Polyesters	2015-18	$332,633
Bridge to Research in Marine Sciences: A Summer REU Program in Savannah, Georgia	2015-20	$427,437
iCore Project	2015-17	$56,000
Investing in Innovation (i3)	2017-20	$84,000
SSU/STC Noyce Teacher Scholarship Program	2014-19	$1,421,715
Coding Across Georgia	2017-18	$10,000
Behavioral Health Workforce Education and Training for Professionals and Paraprofessionals	2014-18	$659,554
STEP Center Integrate: Interdisciplinary Teaching of Geoscience for Sustainable Future	2017	$39,323
Georgia Coastal Incentive Grant: New Technology to Quantify and Predict Loss or Recovery of Marsh Vegetation Using Rhizome Viability	2015-17	$60,000
Student Support Services	2015-20	$1,210,725
Recovery and Response to Hurricane Irma	2018	$9,980
Living Marine Resources Cooperative Science Center (LMRCSC)	2017-21	$536,548
National Ocean Sciences Bowl (NOSB)	2017-18	$9,000
Dwight David Eisenhower Transportation Fellowship	2018	$27,500
HBCU CFE Behavioral Health: Detecting Symptoms of Distress: A Toolbox, Mental Health Reference Guide for Residential Staff on HBCU Campus	2017-18	$7,500
MARC U-STAR Program	2012-18	$790,629
HBCU-UP RIA -Physical Forces Impacting the Temporal Viability of Mesopelagic Prey at the Cape Hatteras Marine Top-Predator Diversity Hotspot	2016-19	$282,106
GenCyber Middle School Summer Camp	2018-19	$92,723
Development of Road COnstRuction Database (RECORD) System	2017-19	$23,529
HBCU-UP TIP: Targeted Infusion Project in Interdisciplinary Transportation Studies	2015-18	$477,824
MSP: Enhancing the Ability of Middle School Educators to Improve Students' Achievement in Science	2014-17	$571,724
NASA Space Grant College and Fellowship Program	2015-18	$26,000
Peach State LSAMP – Extending the STEM Pipeline in the Peach State: Mentorship, Research and Graduate School	2016-21	$450,000
Collaborative Research: An Integrated Approach to Retain URM Students in STEM Disciplines	2016-18	$32,411
Fulbright Group Project Abroad: 2015	2015-17	$91,236
Fulbright Group Project Abroad: 2017	2017-18	$100,000
HBCU-UP TIP: Interdisciplinary Data Analytics	2017-20	$399,974
HBCU-UP Research Initiation Award: Mechanisms of Interaction of Glyco-gag with Restriction Factors	2018-21	$299,961
HBCU Research/Education Program: Acquisition of Laser Confocal Microscope	2017-18	$360,438
RISE Biomedical Research Training Program	2012-18	$1,123,953
HBCU Masters in STEM (Mathematics and Marine Sciences)	2017-23	$2,500,000
Educational Talent Search	2016-21	$2,292,000
Upward Bound	2013-18	$2,991,334
Waste Management Education and Enhancing Environmental Science Program	2017-18	$150,000
Waste Management Education and Enhancing Environmental Science Program	2018-23	$750,000
Savannah State University Know to Live – HIV Outreach	2015-18	$863,402
Title IV-E Child Welfare Student Training Program	2015-18	$453,445
SC2: Metavinculin Regulation of Cell Cytoskeleton Remodeling in Response to Substrate Stiffness	2015-19	$296,692
Mediating Role of Metavinculin on the Mechanical Properties of Extracelluar Matrix and Smooth Muscle Cells (with 2 HSAP supplements)	2015-18	$332,972
Sigma-1 Receptor Agonists as Novel Therapeutic for Circadian Rhythm Disruption-Induced Fatigue	2017-20	$671,465
Sigma-1 Receptor Agonists as Novel Therapeutic for Brain Mitochrondrial Dysfunction in Gulf War Syndrome	2017-20	$672,888
Developing a Strategy for the Mitigation of Cadmium in Cocoa	2015-18	$208,615
GEAR UP Georgia	2017-18	$177,036
HBCU HIV Prevention Program (H2P)	2017	$1,500
GEAR UP DeRenne	2011-18	$2,800,000
Research & Engineering Apprenticeship (REAP)	2017-18	$1,000
JETS UNITE	2018	$17,180

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