



FAYETTEVILLE
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FSU RISE News



FSU-RISE Program

The Fayetteville State University Research Initiative for Scientific Enhancement (FSU-RISE) program is sponsored by the National Institutes of Health/ National Institute of General Medical Sciences (NIH/ NIGMS). The overarching goal of the program is to increase the number of well-prepared FSU minority students pursuing terminal degrees in biomedical and behavioral fields of study. FSU-RISE offers opportunities for faculty, staff and students to engage in professional development and creative scientific research. Students matriculate in FSU-RISE from their sophomore year through graduation. Developmental activities include seminars, hands-on biotechniques/bioinformatics workshop, intramural and extramural research, career trips, Graduate Record Exam (GRE) preparation, and an undergraduate research symposium. FSU-RISE also sponsors a four-week Pre-Freshman Summer Enrichment Program (PFSEP) to prepare Pre-RISE Scholars for college-level biology, chemistry and math courses, and to stimulate their interests in pursuing research careers. FSU-RISE and PFSEP scholars make presentations at local and/or national symposia.

"The Mission of the FSU-RISE program is to provide high quality research training and professional development for competitive entry into graduate programs and careers in biomedical science field."

FSU-RISE Scholar Dissertation Defense



Dr. Lea Lough

and another Master's in Pathology in May 2017 from New York University School of Medicine. Dr. Lough earned her Doctor of Philosophy (Ph.D.) in Pathology at New York May, 2019 under the mentorship of Dr. Timothy Cardozo. Her dissertation entitled "Engineering the Integrated Stress Response" The central hypothesis was based on validated triazolo[4,5-d] pyrimidines as GCN2 inhibitors and demonstrated that they reduce growth of Leukemia cells. Drug-like chemical inhibitors targeting major ISR kinases have been identified, with the exception of GCN2. She demonstrated several compounds potently inhibited GCN2 in vitro in orthogonal assays and displayed good selectivity over the related kinases PERK, HRI, and IRE1. As a graduate student, Dr. Lough had two publications "Medchemcomm" and "Computational and structure Biotechnology Journal" in submission, and was involved in numerous projects. She has numerous She also was an active member in professional memberships such as American Association for the Advancement of Science and NYU Sackler Coding club. She also has several certifications such as NYU's Business of Science and Biotechnology Industry, Structure & Strategy. She received the NIH grant diversity supplement award to R01CA176502.

Dr. Lea Lough is a former FSU-RISE scholar from August 2005-December 2006. She graduated from San Francisco State University (SFSU) in May 2009 graduate with a Bachelor's of Science degree in Biochemistry. After graduating from San Francisco State University she received her Master's in Chemistry/ Biochemistry in September 2012 from San Francisco State University

Ph.imishedD.



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You did it!
 Congratulations



FSU-RISE Graduates

On their way to a Ph.D.



**Loreнна
Garcia-
Bochas**



**Daria
Brown**



**Arshay
Grant**



**Zaniya
Mark**



**Chastity
Ward**

The pathway to graduate school is revealed in the treading

A major objective of the FSU-RISE program is to prepare scholars for graduate studies. The following individuals were accepted into programs across the country. **Loreнна Garcia-Bochas**, a fall 2018 graduate, was accepted for admission to the Master's program at Kennesaw State University. **Daria Brown**, a spring 2019 graduate, was accepted for admission to the Ph.D. program in Biomedical Sciences at Augusta University. **Arshay Grant**, a spring 2019 graduate, was accepted for admission to the PhD program in Biology at Georgia Tech, College of Medicine. **Zaniya Mark**, a spring 2019 graduate, was accepted for admission to the PhD program in Biochemistry & Immunology at Meharry School of Medicine. **Chasity Ward**, a spring 2019 graduate, was accepted for admission to the PhD program in Pharmacology & Toxicology at East Carolina University.



Former FSU-RISE Scholars: Where are they now?

The former RISE scholars are either at the beginning or just completed their programs at professional schools across the country. During this 2018-2019 academic year, we received news from the former scholars about their acceptances. **Ky'ara Carr** was accepted for admission into the PhD program in Biochemistry, Molecular, and Cell Biology (BMCB) Program at Cornell University. **Rar-nice Johnson** completed the PREP program at Virginia Commonwealth; and was admitted to the PhD program in Biology at Clark Atlanta University. **Tecarla Ikard** completed the Master's program in public health at Lenoir-Rhyne University, Hickory, NC.

FSU-RISE Program Ladder to Success :



ACADEMIC YEAR

SUMMER		EXTRAMURAL SUMMER RESEARCH EXPERIENCE		
		S4 Program McNAIR other programs	INTRAMURAL RESEARCH EXPERIENCE & CRITICAL THINKING/TEST-TAKING STRATEGIES WORKSHOP	
FALL			BIOTECHNIQUE WORKSHOPS	INTRAMURAL RESEARCH EXPERIENCE & CRITICAL THINKING/TEST-TAKING STRATEGIES WORKSHOP
		RESEARCH SEMINARS & SCIENTIFIC MEETINGS		
		ENRICHMENT SEMINARS: Applications & Professional Development, Conference Presentations, Recruitment and Leadership Development		
SUMMER	LEAP/RISE (4-week) BIO, CHEM, MATH and English Enrichment Program	FSU-RISE PROGRAM		
		Pre-Freshman	Freshman	Sophomore

Leadership Retreat at Myrtle Beach, SC



Every fall semester, RISE Scholars and Staff travels down to the Myrtle Beach to regroup and build on a two-day Leadership Retreat. Activities on team building and leadership was performed as well as making suggestions to make this program stronger.

Dr. Valeria Fleming Professional Roundup

The Dr. Valeria Fleming Professional Round-Up was originally organized in 2009 as part of a campus-wide celebration for Dr. Valeria Fleming, Professor of Biology/Biotechnology, in honor of her dedication to more than 50 years of service to Fayetteville State University (FSU) and the State of North Carolina. Since then the event has been held annually and semi-annually for the past three years. The professional round-up showcases FSU Alumni who are now completing post-undergraduate education or currently working in science-related professional fields (medicine, dentistry, pharmacy, research, etc.). The goal of the event is to inspire FSU students to complete their undergraduate degrees and to pursue advanced degrees in their fields of study. The event affords current FSU students an opportunity to hear about and to discuss the experiences of our alumni while at FSU, to learn about various professional careers, and to establish a Bronco Network with FSU alumnus.



Dr. Valeria Fleming Scholarship **2018-19 Recipients**

- Kaila Craig
- Kerry Hall
- Jonathon Hobbs
- Myah Howard
- Zyaja Mattocks
- Quaveon McCallum
- Maalik Douglass

Fall 2018 Annual Biomedical Research Conference for Minority Students

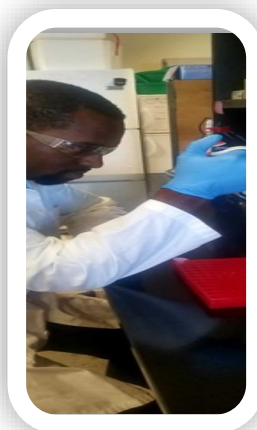
The Annual Biomedical Research Conference for Minority Students (ABRCMS) has become the premier venue for students in the biomedical or behavioral sciences, including mathematics, to network with and learn from the best pioneers, thinkers and practitioners in the sciences. Fifteen (15) Fayetteville State University Research Initiative for Scientific Enhancement (FSU-RISE) scholars attended the conference in Indianapolis, Indiana on November 14-17, 2018. Twelve (12) of these students presented their intramural and extramural research projects in the conference poster presentation competition: including Rashad Baker, Marina Better, Lorenna Garcia-Bochas, Daria Brown, Don Eaford, Cheyenne Holloman, Arshay Grant, Zaniya Mark, Jeffrey Shipman, Shamar Wallace, and Chastity Ward. Now in its ninetieth year, ABRCMS is one of the largest, professional conferences for underrepresented minority students, military veterans, and persons with disabilities to pursue advanced training in science, technology, engineering and mathematics (STEM). Although, we did not have a winner this year, we feel like this upcoming ABRCMS is the year for most of our scholars to shine. ABRCMS attracts approximately 4,050 individuals, including 2,100 undergraduate and postbaccalaureate students, 450 graduate students and postdoctoral scientists and 1,500 faculty, program directors and administrators. Students come from over 350 U.S. colleges and universities. All are pursuing advanced training in science, technology, engineering and mathematics (STEM), and many have conducted independent research. The conference is designed to encourage underrepresented minority students to pursue advanced training in STEM and provide faculty mentors and advisors with resources for facilitating students' success. More than 650 representatives from graduate programs at US colleges and universities as well as scientists from government agencies, foundations, and professional scientific societies join ABRCMS in the exhibitors program to share information about graduate school and summer internship opportunities. These representatives present research opportunities, funding sources, and professional networks.

UPCOMING: ABRCMS 2019
 Anaheim, California November 13-16



RISE Scholars takes advantage of extramural research experiences to increase their entry into graduate research-intensive institutions.

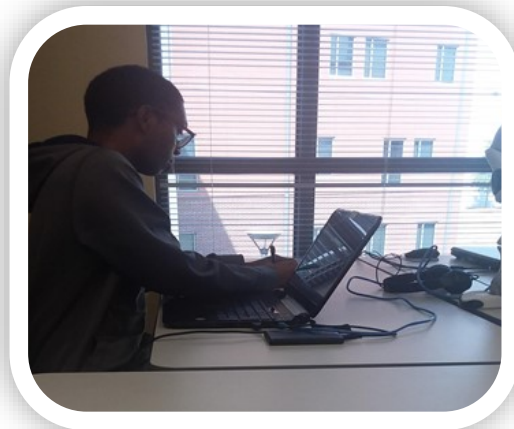
Each summer FSU-RISE Scholars are required to complete at least five (5) applications to summer research internship at research-intensive institutions across the USA. This requirement was implemented to address the low number of FSU faculty with active research labs and grants. Scholars participate in paid research experiences ranging from \$3-\$5K for an 8-10 week training experience. The training experience includes a real-world, hands-on laboratory experience, enrichment seminars, Graduate Record Exam (GRE) practice, personal statement and research abstract preparation, as well as participation in poster presentations. Upon scholars' return to FSU for the fall semester, they are required to share their summer experiences with the newly accepted scholars to the RISE program as well as with local, regional, and national research conferences. The experiences speaks for themselves as our scholars are accepted into research-intensive graduate schools upon FSU graduation. Thirteen (13) RISE Scholars were accepted into competitive summer research internships while four (4) scholars were accepted into PhD Program and one (1) scholar were accepted into Master's Program for the fall 2019. The thirteen undergraduate research interns include: **Rashad Baker, Marina Better, Heather Davis, Don Eaford, Germaine Gregory, Eulim Kang, Raymond Kimble, Ishmel Lock, Dominic Romero, Lianis Reyes-Rosa, Jeffrey Shipman, Shamar Wallace, and Lauryn Worley.** The four graduates includes **Daria Brown, Arshay Grant, Zaniya Mark, and Chastity Ward,** and one Master's candidate include **Lorena Garcia-Bochas.**



I, **Rashad Baker** had the opportunity to participate in Texas State University outstanding Chemistry and Biochemistry ChemIE REU program under Dr. Holland. I conducted research in an exciting biochemistry/medicinal chemistry lab under the mentorship of Dr. Kerwin and MS student Chelsea Davis. My research project was entitled "Inhibition of MAPK p38 α by Rooperol and Analogues". I performed ADP luminescence assays and other biochemical techniques to optimize in vitro inhibition of Mitogen Activated Protein Kinase p38 α (MAPK p38 α) by measuring production of ADP. The purpose of the project is to use assay methods to test various possible drug candidate compounds with MAPK p38 α . This kinase is involved in cellular growth, replication, differentiation and apoptosis, making it a good target for anti-cancer research. Under current examination is various natural products and analogues of Rooperol, a drug derived from the African potato (*Hypoxis hemerocallidea*), which is believed to inhibit the growth of cancer cell lines, target stem-like cancer cells, and inhibit MAPK p38 α . Working in the Kerwin lab has provided me with the opportunity to explore several organic and biochemistry projects. These projects are being conducted simultaneously furthering the same goals. Each part of the research results in a different element of understanding needed to select an anti-cancer drug. Summer 2019 has been an excellent learning opportunity as I was provided outstanding hands on research training in the Kerwin lab, and participated in science courses, presentations, and training. Working in this summer internship has enhanced my research, presenting, and writing skills.

Over the last month I've been working on vision recognition with robotics. The goal for the internship is to allow the robot to describe a scene that takes places over time and be able to communicate it in a natural way. Currently I am working on setting up scenes that imply changes over time, though natural or human caused means. Scenarios that were made so far are; a person going to sleep, a person taking fruit, and a flower bud blooming. There has been a fair share of issues that occurred while I've been researching. Some issues included, power outages, connectivity issues with the robots and routers, coding languages, and program malfunctions. Fixing the problems has been constant, but good overall to ensure things run smoothly for everyone. This internship will be running through into the school year and I'm being scouted by the army research lab, who we're working alongside. I also met with the president of Air Probe UAV that specializes in drone work.

Raymond Kimble



I, **Jeffrey Shipman** had the opportunity his summer to conduct research at the Mississippi state college of veterinary medicine under the mentorship of Dr. Bindu Nanduri. In our lab we are focused on *Streptococcus pneumoniae* which is a gram positive bacteria and opportunistic pathogen that causes otitis media, septicemia, meningitis and pneumonia. In my particular project I am investigating impairment of polyamine synthesis pathways as polyamines, which are present in all living things and regulate biological functions, are what cause *Streptococcus pneumoniae* virulence factors. These virulence factors are what gives it its ability to cause disease. I have conducted experiments such as PCR, Gel purification DNA digestion, and Ligation. I have also been able to attend various workshops to help my scientific communication skills such as presenting and understanding the information I have read. I am very grateful to Mississippi State University for the opportunity that it has given me and the skills I have learned to better prepare for my future.

RISE Scholars takes advantage of extramural research experiences, cont'd.



This summer I was given the opportunity to participate in the Summer Biomedical Research Program (SBRP) of Eastern Carolina University. I was assigned to Dr. Elizabeth Able's lab which does genetic stem cell research pertaining to *Drosophila Melanogaster*. *Drosophila*'s close genetic make-up to humans make them a prime subject. *Drosophila* have 14,000 genes compared to humans 21,000 genes. During my time in the lab I was able to study transgenes using multiple techniques. Their multi step process for generating lineage begins with setting genetic crosses, transfer to dissections and staining, and then imaging to see effects on Oogenesis. My favorite part about my time in Dr. Able's lab was being able to learn about the confocal microscope. This microscope gives the ability to illuminate certain tags ovaries are stained with. The microscope is also able to photograph the specimen. My experience this summer has helped to ignite my pursuit of a PhD, along with equipping me with tools to make me a competitive applicant. I am extremely grateful for the opportunity ECU gave me this summer with SBRP and the wealth of knowledge I have been able to gain from Dr. Able's lab.

This summer I was given an opportunity to conduct research at the University of Buffalo. I worked with Dr. Werner Ceusters MD, whom is chief of the ontology division within the department. My research project was entitled "Quantifying the adherence of domain ontologies to basic formal ontology (BFO): A case study with the cancer-cell ontology." Ontology is still a young field within the Bio-medical informatics domain; therefore, it is still in the process of being perfected. Ontology is the science of "what is" that explains all aspects of reality of objects. There are two main types of Ontology, mainstream ontology and basic formal ontology (BFO). Mainstream ontology has only a 3-D perspective, where basic formal ontology has a 3-D and 4-D perspective. Dr. Werner and I conducted research to find ways on how much the cancer-cell ontology adheres to basic formal ontology. The research experience at the University of Buffalo was very enriching and taught me so much. Due to the knowledge of Dr. Werner, I learned about Ontology within bio-medical informatics, which gave me a good outlook on what I may study for graduate school. I had the chance to meet new people to cultivate new relationships. The at the University of Buffalo was a blessing and opened the door for more opportunities.

Dominic Romero



During the summer I was given the great opportunity of working at the Naval Research Laboratory. I have been given an opportunity to see what it is like to be a federal employee as a citizen and have been opened the option to possibly intern again. I have been able to attend workshops to improve my professional career. The Naval Research Laboratory has provided me opportunities such as meeting scientists and students at seminars with very similar research interests as I. This internship is slightly demanding at times, but it has overall given me a better idea of different routes and options I can take to towards my goals. My current project is on Coronal Mass Ejections and understanding their magnetic structure using a technique known as Faraday Rotation. We hope to be able to use this to further understand Coronal Mass Ejections and how it affect space weather and Earth.

Lianis V. Reyes-Rosa



RISE Scholars takes advantage of extramural research experiences, cont'd.



This summer I participated in the Opportunities in Genomics Research Program at Washington University School of Medicine in St. Louis Missouri. I was given the opportunity to not only show case the scientific skills Fayetteville State University has prepared me with, but I was also able to learn, fail and succeed in a completely new discipline working in a genetic, cell biology and microbiology lab on the Danforth campus with Dr. Doug Chalker. We study the role of adenine methylation in gene expression in *T. thermophila*, a poorly understood biological mechanism in eukaryotes. OGR also provided me with a GRE, grad school prep and python programming class, as well as weekly enrichment seminars. This has been an amazing opportunity to learn so much about genetics and cell biology and I cannot wait to share the work that I've done at WashU."

Marina Better

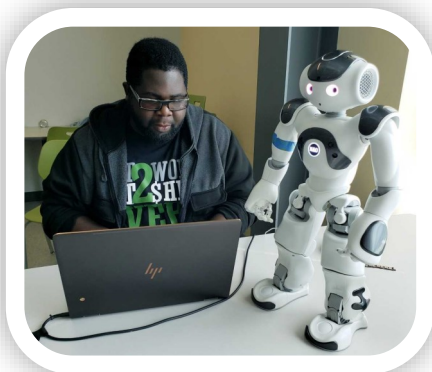
This summer, through the Society of Developmental Biology, I was afforded the opportunity to conduct extramural research at Cornell University in Ithaca, NY. I worked in the Department of Molecular Biology and Genetics under Dr. Mariana Wolfner to analyze the importance of zinc in the fecundity and progeny of *Drosophila*. Preliminary research has discovered that a release of cellular zinc (zinc sparks) follows the trigger of egg activation and facilitate its completion. We wonder if similar processes occur in *Drosophila*, and whether zinc is required for normal fertility. My project consisted of three experiments utilizing CRISPR-Cas 9 sequencing, UAS/Gal4 system, Polymerase Chain Reaction, and DNA isolation. Participating in RISEs weekend workshops prepped me for using those same techniques of PCR, pipetting, and DNA isolation on a day to day basis. The three experiments were done concurrently, which was challenging at first. While running a fertility assay I was also targeting a gene (*foi*) for knockdown using UAS/Gal4 system and planning a knockout using CRISPR-Cas 9 for that same gene. *Foi* is the most highly expressed zinc transporter gene in *Drosophila* ovary. By targeting it, we can disrupt its function and analyze its effects on fertility. Despite any complications, this experience has introduced me to amazing students and faculty, and I have come to have a greater appreciation for research. The environment at Cornell is very welcoming, and the mentors are very receptive to any questions regarding research, graduate school, and the environment in Ithaca. I could not have had a better, first extramural research experience.

Lauryn Worley

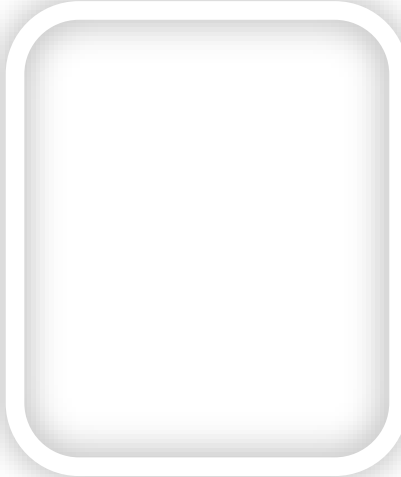


For my summer research, I participated in joint research alongside The United States Army Research Lab to analyze the potential of the famous NAO Robot. We are currently documenting our discoveries and sharing them with the Army Research Lab to help develop a more efficient Artificial Intelligence software used for identification. The software will most likely be used by the "AIR PROBE UAV" to better render more concise data and accurate images to promote security and surveillance. Throughout the program, we are required to keep updated blogs that establish our progress and our discoveries with our project, which will most likely extend throughout the school year.

Germaine Gregory



RISE Scholars takes advantage of extramural research experiences, cont'd.

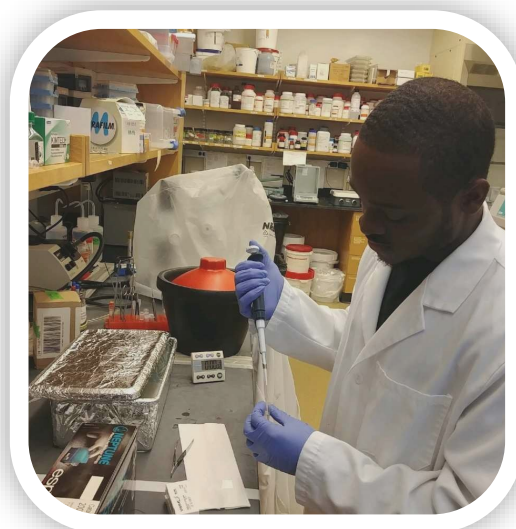



In the Molecular Biology and Genetics REU at Cornell University, I am performing cell biology research in the lab of my mentors Dr. Chris Fromme and Carolyn Highland. With them, I am investigating the uncharacterized roles of the lipid phosphatidylinositol 4-phosphate (PI4P) in vesicle formation and trafficking from the trans-Golgi network (TGN). PI4P is essential for membrane trafficking regulation and has been shown to be important for Golgi function and cell survival in both yeast and mammalian cells. Using the yeast *Saccharomyces cerevisiae*, I have performed experiments using fluorescence microscopy, yeast genetics techniques, and protein engineering. This experience has been a challenging yet exciting way to learn more about biological research and the necessary skills to become a great researcher and graduate student in the future.

Shamar Wallace

This summer I participated in extramural research at Harvard Medical School by the Summer Honors Undergraduate Program (SHURP), which is located in Boston Massachusetts. My research project was entitled “Assessing the Role of Histone Acetylation on Meiotic Recombination”. I studied how histone modification affects recombination in *C. elegans*. One key element that I have come accustomed to is the techniques of gene crossing, DNA gel electrophoresis, and immunofluorescence staining. I really enjoyed immunofluorescence staining of the *C. elegans*, because it introduces me to new techniques that will be very useful for the future, and DNA gel electrophoresis helped us to confirm the specific genome sequence that we wanted for the specific mutants. One pleasant detail which transpired during my time at SHURP is the wonderful amount of terrific scientist. My journey here at HMS has developed me into a more critical thinker as well as better managing my time more efficiently. It is safe to say that my time here has solidified my passion of becoming a Doctor of Philosophy in the area of biochemistry.

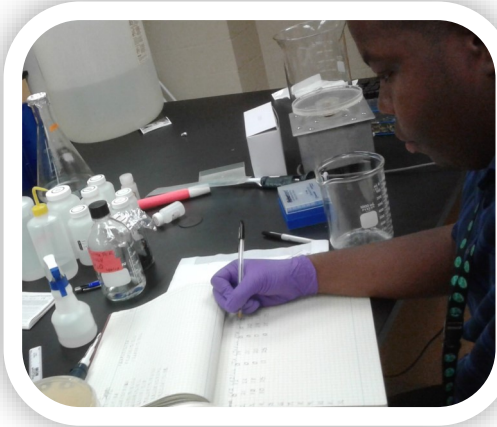
Don Eaford

For Summer 2019, I had the opportunity to work with the East Carolina Brody School of Medicine Hematology/Oncology department. The project I am working on studies the roles of a G protein-coupled receptor family in cancer and inflammation. During this internship, I had gained extensive knowledge that will benefit me in many years to come. The knowledge gained in this research will allow me to apply it in different situations and future projects. This summer research will also prepare me to be a more competitive Ph.D candidate. Being able to interact with other Ph.D students and Medical school students helped me choose the path I desired. The environment at Brody was welcoming and inspiring. Being able to be in a research lab working with people who have similar dreams and desires encourages me every day.

Eulim Kang

RISE Scholars takes advantage of extramural research experiences, cont'd.

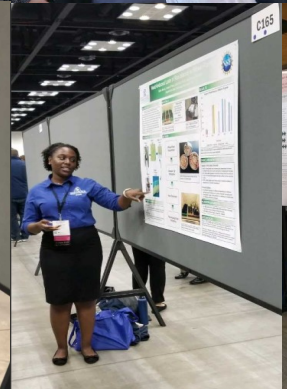
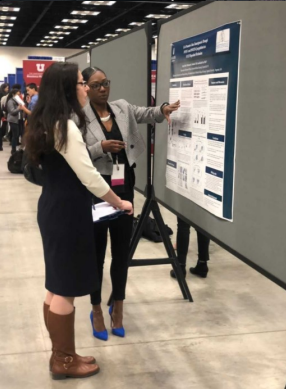
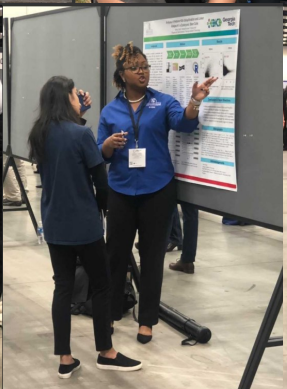
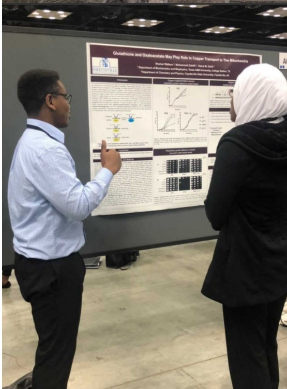


During the summer months, I was allowed the exceptional opportunity to work as an intern in the RISE program at Fayetteville State University. While there, I worked under the tutelage of the greatest minds an HBCU can offer. More specifically, I worked in Dr. Raynor's microbiology lab. Whilst there I performed a myriad of tasks. I studied and cultured bacteria, observing the effects that certain antibiotics had on strains of E Coli and other diseases. I used a PCR machine and gel electrophoresis to provide data on the particular strains in study. The purpose of the research is to understand what DNA is similar and/or shared with certain bacteria, so that we can glean ways to eradicate them more effectively. As you could probably imagine, I was also taught how to make Agar gel, LB broth, and other skills that I would not have gotten anywhere else. I even had brief opportunities helping younger individuals learn the virtues of the sciences through summer camps. The program has provided me with an innumerable amount of opportunities to learn and grow not only as a scientist, but as a person, giving me experiences I will never forget.

Ishmel Lock

Mr. & Mrs. 2018 RISE





Visit to Medical University of South

The 19th Annual Ernest E. Just Symposium took place Friday, Feb. 22, 2019 at the James E. Clyburn Research Center Auditorium. It would be hard to imagine a scenario in 2019 where a young man who worked long and hard to earn the highest grades and honors in his graduating class was denied the opportunity to speak at commencement exercises simply because of the color of his skin. This, according to Deborah Deas, M.D., interim dean of the College of Medicine, is precisely what happened to Ernest E. Just when he was graduating from Dartmouth College in 1907. Every February, MUSC honors the legacy and contributions of the native Charlestonian and renowned scientist. Each year, this event celebrates the life and scientific achievements of Charleston native and African-American scientist Ernest Everett Just, Ph.D., who made contributions to the areas of cell biology, cell structure and tissue development throughout his career. Just is recognized for coining the phrase, the “Biology of the Cell Surface” in his book in 1939.

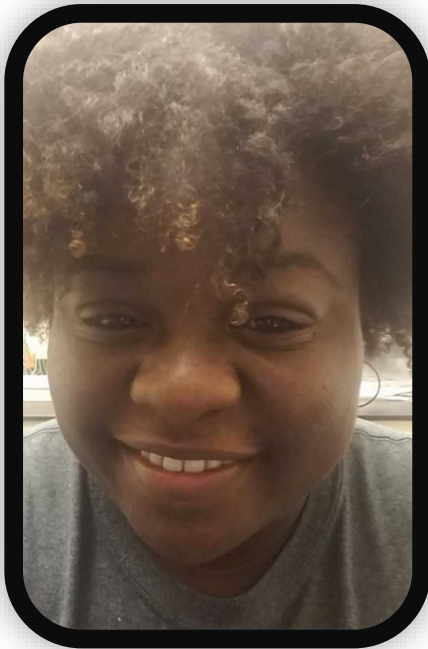
Annual Graduate School Tour, Atlanta, GA.

On March 28, 2019, FSU-RISE staff and scholars took a 3-day trip to Atlanta, GA, for the Annual Graduate School Tour. Students visited institutions that offer graduate and professional degrees including Augusta University, Emory University, Clark Atlanta University, Georgia Tech and Morehouse School of Medicine. The students also toured the Martin Luther King National Historical Park. This visit helped students learn about graduate admissions, requirements and graduate degrees in biomedical research fields. Twenty-one (21) FSU-RISE Scholars and three (3) RISE staff attended.



RISE Scholar Leadership to Leadership in the RISE Program

Ky'ara Carr (FSU RISE Case Manager) transitioned from RISE Scholar to RISE Staff. After the departure of Ms. **Sharon Ochoa-Rios** and Mr. **Brandon Murphy**, this former scholar took upon herself to become a leader and helped to improve the RISE program. She participated in several events and listened for suggestions to bring together this program as a professional family. Not only was she the case manager, but she continued as a research assistant in Dr. Subir Nagdas lab. In June 2019, her position ended and she matriculated into her PhD program.



1st Annual Undergraduate and Graduate Research Symposium

On April 05, 2019, the research symposium was held in the R.J. Student Center, First Floor, Student Center Lounge. This event was collaborated by the Honors and Undergraduate Research Programs and the US Department of Education FSU HBCU Master's Program and Title III. There were ninety-(93) total presenters at this symposium and out of this symposium, there were twenty-five (25) students that presented orally. The winners under the STEM Category for oral and poster were Eulim Kang and Chastity Ward, respectively. During this research event, Dr. Nathaniel Issac, who is a Licensed Psychologist for the states of Virginia and Illinois spoke about his experiences and his journey from undergraduate life to where he now. His work in mental healthcare includes integration of effective mental/behavioral health treatment into primary care medial settings, whereas psychiatric disorders such as depression, anxiety, post traumatic syndrome, bipolar and schizophrenia are commonly misdiagnosed.

2019 Biomedical Science Summer Camp

“Exploring Cellular Pathophysiology”

Twenty-three (23) rising high school freshmen through rising seniors participated in the FSU Biomedical Science Summer Camp (FSU-BSSC) from June 16-21. The goal of the one-week, residential math and science enrichment program is to prepare and increase students’ interest in post-secondary education in science technology engineering, and mathematics (STEM). Campers engaged in intensive, laboratory-based studies in the biomedical sciences in which they learned to apply the Scientific Method and critical thinking skills to obtain laboratory results. Students also participated in seminars and workshops to broaden their understanding of health disparities and the critical need for more underrepresented minorities in biomedical research and health careers. Additionally, students attended a field trip to the GOLDEN LEAF Biomanufacturing Training and Education Center (BTEC) in Durham, North Carolina. Finally, students took a comprehensive examination and made final group presentations on their science laboratory projects during the Closing and Awards Ceremony on the last day of the program. Outstanding performing students received awards, while all participants received certificates. Below are videos links of the 2019 BSSC.

<https://youtu.be/WGSyfP1TQis>



2019 LEAP/RISE Pre-Freshman Summer Enrichment Program

Fourteen (14) Pre-freshman students participated in the *Learning and Engagement at an Accelerated Pace (LEAP)/Research Initiative for Scientific Enhancement (RISE) Summer Enrichment Program* at Fayetteville State University from July 1 - July 31, 2018. The 4-week, residential, bridge program was co-sponsored by FSU University College and the RISE program. The goal of the enrichment program is to prepare incoming freshmen for STEM majors. To this end, scholars participated in intensive academic enrichment activities in the classroom and hands-on laboratory activities in MATH 129 (Pre-Calculus) and Principles of Biology (BIOL 150). Scholars received academic support in all courses in addition to presenting PowerPoint Presentations on what they learned in each course during weekly Enrichment Seminars on Fridays. The summer enrichment program has proven to provide pre-freshmen with the academic edge necessary to lead in the classroom academically during their freshman year, keep students on track in the STEM major, and facilitate early or on-time graduation. Each week, scholars were also engaged in professional development seminars

and social activities to promote success in the STEM major and to help them become better student leaders. Finally, students received leadership training during a two-day Leadership Retreat in Myrtle Beach, South Carolina. The hallmark of the retreat was the Civic/Community Engagement & Service Learning project the scholars participated during the event. The students distributed pamphlets and information on heat stroke, importance of sun screen and the approved SDF, heat exhaustion, and sun burns. The culmination of the LEAP/RISE SEP is the Closing and Awards Ceremony in which scholars present what they have learned over the summer to faculty, students, family and friends. Scholars are also recognized for their program participation and outstanding achievements.



FSU-RISE FACULTY RESEARCH MENTORS & WORKSHOP INSTRUCTORS

We would like to thank our research mentors for giving RISE students the opportunity to train and gain basic research experiences that prepares them for extramural summer research experiences. In many cases, RISE scholars have opportunities to co-author research publications with their mentors. Additionally, RISE mentors are committed coaches who direct the pathways of our students towards Ph.D. degrees. Mentors make a significant connection with students, inspiring them to work beyond the barriers to pursue and succeed in their endeavors. We cannot thank our mentors enough for their unwavering dedication and sacrifices. We appreciate the below 2018-19 research mentors and workshop instructors:



2018 - 2019 FSU-RISE SCHOLAR AWARDS

-**Don Eaford**: SCHOLAR OF THE YEAR

For having outstanding scholarship, dedication, and program participation

- **Shamar Wallace**: EXCELLENCE AWARD

For earning the highest GPA of 4.0

- **Marina Better**: DIRECTOR'S AWARD

For exemplifying outstanding attitude, motivation and high spirit



Brain Teaser

What did the scientist say when he found 2 atoms of helium?

What did the angry electron say when it was repelled?

AALLL: What am I??

No ways it ways: What am I??

What do you do with a dead chemist?

Insult + injury: What am I??



Who's Who in the FSU-RISE Office

Dr. James E. Raynor, Jr., Director
Ms. Nakia Walcott, Coordinator
Ms. Leslie Moore, Lab Manager
Ms. Ky'ara Carr, Case Manager

