



# FSU-RISE NEWS



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

## 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.

## Former RISE Scholar returns as an Assistant Professor



active participant in several honor societies, clubs, and organizations including Phi Eta Sigma, Bio Phi Chem Science Club as well as Beta Kappa Chi National Scientific Honor Society. She held executive board positions including secretary of Bio Phi Chem Science Club and president of Beta Kappa Chi National Scientific Honor Society. She was the recipient of several prestigious awards including the Department of Biological Science Student of the Year. During Dr. Fortune's tenure at FSU, she was also initiated into the Delta Xi Chapter of Delta Sigma Theta Sorority Incorporated. She graduated Magna Cum Laude from FSU with her Bachelor's of Science in Biology in May 2011. The fulfillment of research and compassionate mentorship she received during her undergraduate career propelled her to pursue a doctoral degree. Dr. Fortune earned her Doctor of Philosophy in Microbiology and Immunology at The University of Arkansas for Medical Sciences in August 2015 under the mentorship of Dr. Jon Blevins. Her dissertation entitled "Investigating virulence determinants in the Lyme disease spirochete, *Borrelia burgdorferi*" focused on identifying genetic components that the bacterium utilizes to promote mammalian virulence. Currently, Dr. Fortune's post-doctoral work under the mentorship of Dr. Rita Tamayo in the Department of Microbiology and Immunology is focused on studying how the obligate anaerobic bacterium, *Clostridium difficile*, adapts to changing extracellular conditions and promote disease. In addition to her research, Dr. Fortune received a competitive NIH-funded SPIRE postdoctoral fellowship which provides resources to engage in extensive pedagogical workshops and obtain valuable teaching training and classroom experience at a local underrepresented minority institution. As a fellow in the SPIRE program, Dr. Fortune taught a specialized Bacterial Pathogenesis course at Johnson C. Smith University in spring 2017. Dr. Fortune will return to her alma mater to join the faculty in the Department of Biological Sciences at Fayetteville State University in the fall 2017 as an Assistant Professor of Microbiology. She plans to develop a learning environment that engages students using active learning, critical thinking, writing, and analytical skills through hands on research experiences in efforts to increase diversity in science careers.

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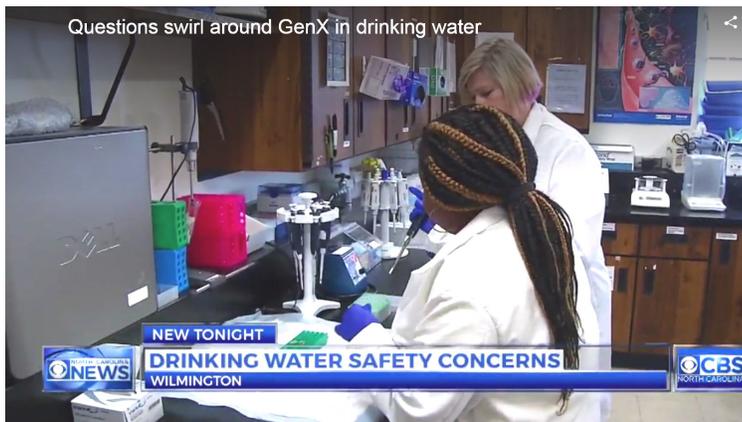
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**Dr. Danielle E. Fortune** is a SPIRE postdoctoral scholar at The University of North Carolina at Chapel Hill. She began her academic career at Fayetteville State University in the fall 2007 with a full academic scholarship through the FSU Honor's program based on her excellent scholastic performance in high school. During her tenure at FSU, she participated in the FSU-RISE program where she was afforded the opportunity to learn essential tools and techniques necessary to conduct biomedical research. Using the skills learned in the FSU-RISE program, she participated in two extramural summer research internships at The University Nebraska-Lincoln and The University of Georgia. In addition to gaining valuable skills in biomedical research, she maintained an exceptional GPA and was recognized as either a dean's or chancellor's scholar every semester of her undergraduate career. Dr. Fortune was also an

## *RISE Scholar's Extramural Research highlighted in CBS News*

WILMINGTON, N.C. (WNCN) – Scientists who've been studying the release of GenX in to the Cape Fear River say they still have a lot to learn about its potential impacts on human health. "There are many compounds in the water that we drink. Many of these compounds have not been tested. We make assumptions about their safety, but we don't really know do we? And, that's the scary part," said Dr. Jamie DeWitt, associate professor in the pharmacology and toxicology department at East Carolina University. Researchers at NC State's Center for Human Health and the Environment said Wednesday they're trying to get a grant from the National Institutes of Health to expedite studying the effects on people. The study would include a few hundred people initially. A panel of scientists spoke during a forum at Cape Fear Community College hosted by Clean Cape Fear.

Gov. Roy Cooper has called on the SBI to look at whether a criminal investigation is warranted after the state revealed that Chemours, a chemical manufacturer, discharged Gen X, an unregulated compound, into the Cape Fear River near the Cumberland-Bladen County line with GenX flowing toward Wilmington. The state told the company to stop the discharge. CBS North Carolina asked Chemours what research the company has done on GenX's impacts on human health. A spokesman responded with the same statement the company released Tuesday. "We continue to work closely with local, state and federal officials to determine the appropriate next steps," wrote Gary Cambre in an email. Since learning about the situation last month, many residents have been frustrated no one told them about this sooner.



**Chastity Ward, Junior Biology major**

<http://wncn.com/2017/07/26/questions-swirl-around-genx-in-nc-drinking-water/>

The compound has been discharged as a byproduct since 1980.

"Why would the public officials and why would the chemical companies not make this information more readily available?" asked Leland resident Keith Buckindail. Clean Cape Fear is calling on Chemours to "make a public commitment to permanently end the discharge of GenX and other hazardous chemicals" into the river. "Because in this void of uncertainty, we shouldn't be wondering if the water we're providing ourselves is clean, and we shouldn't have one part of the community saying it's not, one part of the community saying it is," said the group's co-founder Emily Donovan. "I want the most done. I want it for my family. I want it for my children who are growing up on this water. And, I want it for all the community that's vulnerable and voiceless right now."



## **2016 - 2017 FSU-RISE SCHOLAR AWARDS**

- **SCHOLAR OF THE YEAR**  
For having outstanding scholarship, dedication, and program participation
- **ACADEMIC EXCELLENCE AWARD**  
For earning the highest GPA of 3.86
- **DIRECTOR'S AWARD**  
For exemplifying outstanding attitude, motivation and high spirit

## Fall 2016 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. Seventeen (16) Fayetteville State University Research Initiative for Scientific Enhancement (FSU-RISE) scholars and one (1) McNair scholar attended the conference in Tampa, Florida on November 9-13, 2016. Ten (10) of these students presented their intramural and extramural research projects in the conference poster presentation competition: including Brandon Murphy, Shaaron Ochoa Rios, Kenya McFadyen, Gerry Woodland, Arshay Grant, Samuel Cooper, Ky'ara Carr, Marissa Baccas (last year's winner), Thomas Cardona and Lorena Garcia-Bochas

Now in its seventeenth 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). We were very excited to have another winner this year, Shaaron Ochoa Rios (see below). 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 un-

derrepresented 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 2017  
Phoenix, Arizona  
November 1-4



## WINNING CONTINUES FOR THE 11<sup>TH</sup> YEAR AT 2016 Annual Biomedical Research Conference for Minority Students (ABRCMS)



Shaaron Ochoa Rios

Shaaron Ochoa-Rios, a graduating senior biology major at Fayetteville State University, was selected as a winner for her poster presentation at the 2016 Annual Biomedical Research Conference for Minority Students (ABRCMS) in Tampa, Florida, November 9-13, 2016. Shaaron displayed a huge amount of confidence in presenting her work primarily because she felt well-prepared and she also won an award for the same presentation at the end of her summer research program at Georgia Institute of Technology in Atlanta, Georgia. Shaaron continued the outstanding track record of the FSU-RISE program bringing home a winner each year for the past 10 years. Shaaron received a \$250 cash prize and a free full year membership into the American Society for Biomedical Engineering. Shaaron is a third year FSU Research Initiative for Scientific Enhancement (FSU-RISE) scholar, who will graduate from FSU

on December 10, 2016. Shaaron recently received the 2016-17 FSU-RISE Scholar of the Year Award for her outstanding research and performance in the RISE program. She was a research student in the laboratory of Dr. Shirley Chao investigating "Exposure of male German cockroach, *Blattella germanica* to cannamix and its components decrease the mortality rate and affects their nervous system". Her ABRCMS poster presentation from her summer work at Georgia Tech was entitled, "Controlling Stem Cell Aggregate Differentiation Using Microfluidics Devices" Shaaron was among 10 FSU-RISE scholars who presented their research work out of a total of 17 scholars who attended the conference. More than 3,600 students, faculty, administrators and 350 exhibit booths attended ABRCMS this year with more than 2,035 research presentations in 20 areas of biomedical and behavioral research.

## *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 excepted into research-intensive graduate schools upon FSU graduation. Thirteen (13) RISE Scholars were accepted into competitive summer research internships while one (1) scholar were excepted into PhD Program for the fall 2017. The thirteen undergraduate research interns include: **Carlin Ashford, Marissa Baccas, Ky'ara Carr, Samuel Cooper, Lorenna Garcia-Bochas, Arshay Grant, Zaniya Mark, Kenya McFadyen, Brandon Murphy, Amani Rashad, Truman Thames, Obumneke Umerah, Chastity Ward** and the one graduate was **Shaaron Ochoa-Rios**.



I am **Arshay Grant**, a senior majoring in Biology. Over the summer I had the opportunity to participate in SROP (Summer Research Opportunities Program) at The Pennsylvania State University. I conducted research in Dr. Anthony P. Schmitt's laboratory. Dr. Schmitt is a molecular virologist who studies paramyxovirus assembly and budding. My research study was titled "Enhancing VLP Based Protein Delivery Using Tandem Packaging Sequences." I focused on packaging foreign proteins into parainfluenza virus 5 VLPs (virus like particles). The purpose of my study was to increase protein packaging so that these VLPs would be more beneficial during therapeutic delivery. Working in Dr. Schmitt's lab solidified my goal of becoming a molecular virologist. I also learned new techniques such as transfection and western blotting. The experience was very challenging but it was well worth it. I must say that he has prepared me for graduate school in every way possible, from learning how to be independent in the lab to writing scientific papers. I am very grateful for this experience and encourage every student to do extramural research.

Hi, I am **Chastity Ward** and this summer I participated in extramural research at East Carolina University's Brody School of Medicine which is located in Greenville, NC. My research project was "Fighting fires with toxic foams: Exploring the immunotoxicity of these agents used for fire suppression". I studied a highly fluorinated compound known as Aqueous film forming foam (AFFF). This compound is used by municipalities and the military for hydrocarbon fire suppression. My internship was great but most of all I enjoyed connecting (networking) with graduate students and professors in my field of interest which is Pharmacology and Toxicology. The experiment we did involve direct contact with mice it was very new to me and exciting. Overall, this experience helped me to gain a lot of laboratory techniques, writing skills, new learning styles, friends and future recommenders and if I could do it all over again I would.



I, **Samuel Cooper**, was accepted into the Scientific Computing for Structure in Big or Complex Datasets which was held at the University of Miami under the mentorship of Dr. Messinger - Department of Psychology. The title of our research was, "Visualizing classroom social networks of hearing impaired and Non-impaired children with real time automated measurements"

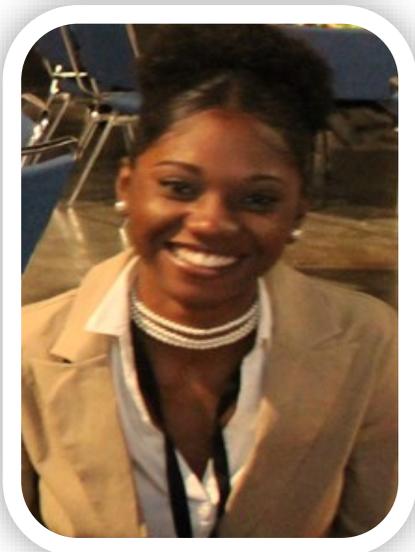
This was a great opportunity I was given to do research at a very prestigious research university and I had an amazing time. I was able to see some of the ways computer science can be applied to psychology and biomedical fields, I really enjoyed utilizing computer science in a way that I have never done before and being exposed to things that aren't available at my home institution. I have gained a tremendous amount of knowledge from attending this Research Experience for Undergraduates (REU) and I plan on applying and sharing the skills I learned with my peers and faculty upon my return to Fayetteville State University. My summer research experience gives me skills to become a competitive applicant for a PHD program in computational science or computer science. In addition, this REU gave me the affirmation that when you put hard work and dedication into something you can do way more than you initially believed you could.

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



I am **Lorena Garcia-Bochas**, this past summer, I was accepted into the Summer Research Opportunities Program at Duke University in Durham, NC where I worked closely with Dr. Gurpreet Baht on "Cellular Differentiation in Models of Vertical Sleeve Gastrectomy" where we observed closely the effects of gastric bypass surgery on overall bone health over time. This project was the first of its kind to look at the effects of gastric bypass surgery specifically on bone. We collected Mesenchymal Stem Cells (MSC) located in the Tibia otherwise known as the shin bone from mice that had undergone Vertical Sleeve Gastrectomy (VSG) which is a specific type of gastric bypass surgery; where about 75% of the stomach is removed. Using these MSCs we differentiated them into Adipocytes and Osteoblasts in a tissue culture hood. We monitored the changes and found significant differences between the groups of cells. This research has opened my eye to how surgery can impact the body and has definitely pushed me to look into Stem Cell research more closely. Because of this opportunity, I truly feel more confident to continue on my path to a Ph.D program.

I, **Ky'ara Carr**, was given the opportunity to conduct research at NYU School of Medicine Sackler Institute's 2017 Summer Undergraduate Research Program (SURP) in Biomedical Sciences. I worked with Mario Delmar, MD/PhD in the department of Cardiovascular Biology. Dr. Delmar's lab is interested in sudden cardiac deaths that has been affecting young individuals. My project was to investigate the impact of the mutations in  $Na_v1.5$  ( $\alpha$ -voltage-gated sodium channel,  $\alpha$ -VGSC subunit), which are associated with Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC), on cell-cell adhesion strength. Before I began working in the lab, I did not know much about the heart. Entering to this new field, I was full of curiosity and determination. I am familiar with working with proteins due to intramural research with Dr. Nagdas so the transition between the two schools was not too hard. However, it was a challenge in learning how to cell culture and produce cytosections of heart tissue. At the end of this program, I was thankful and proud to be a SURPie and one of Dr. Delmar's lab members because I networked in conferences such as the Leadership Alliance National Symposium (LANS) and was connected in learning one of the causes of heart failure which sparked my interest in pursuing biomedical research.



Greetings, I am **Zaniya Mark** and this summer I was given the opportunity to participate in the Leadership Alliance Program at the University of Miami. I conducted research at The Miami Project to Cure Paralysis under Dr. Vance Lemmon in the Lem-Bix lab. Dr. Lemmon is a neurologist, whom studies the development of the nervous system to enhance nerve regeneration after injury to the Central Nervous System. Throughout my study I was able to test the ability of viral activation domains with transcription factors to boost axon regeneration. My primary focus was to accelerate axon regeneration in the Central Nervous System by improving gene expression from the previous study of the viral activation domain VP16 fused to the transcription factor Stat3CA. Overall this experience allowed me to grow and develop as a scientist by teaching and helping me understand the basic fundamentals of molecular biology. It has equipped me for my future endeavors by providing incite on my desire to conduct research and make a significant impact in my community through my knowledge and understanding. I am forever grateful for this opportunity and to those who guided me along the way. I have learned so many assets such as new laboratory techniques, professional development and effective writing skills. Despite the challenges I faced adapting to a new state, after all wasn't so bad because I was able to meet incredible people from all over the world and build life long friendships. Now that I have my foot in a door, I look forward to what the future holds because if I were able to do it again, I would without a doubt in my mind.

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



Greetings, I am **Brandon Dionte Murphy** and this summer I was awarded the opportunity to participate in the Summer Undergraduate Research at University of Florida. I conducted research in the Drosophila lab under Dr. Marta Wayne with the mentorship of Galaxia Cortes. My research was titled Titer of Wolbachia in Male and Female *Drosophila melanogaster*. My research was focused on observing the correlation between sex of fruit flies and the amount of wolbachia in the gut of fruit flies. This summer was very different for me but in a good way. I was in a lab that not only focused on research but also how I was developing as a person. Not only did I meet very important researchers, I also met brilliant future researchers that I can call my personal friends/advisors. I branched out to a field of biology that I never experienced before. I learned so much about genetics and how to be a great scientist in general. The skills and knowledge that I have obtained from this program will forever be implemented into life. I definitely look forward to applying and being accepted in the PhD program at the University of Florida.

I, **Carlin Ashford**, conducted a summer internship at University of Houston Cullen College of Engineering, Mechanical Engineering department. I worked in a production lab under Dr. Hadi Ghasemi where I synthesised various materials the focus of my project was heat localization on various materials. I had a selection for a few materials to work with including exfoliated graphite, graphene aerogel, and carbon rayon. For the following materials we tested the Transient Temperature, Heat Localization and the porosity of the given samples. Once I collected data on each of the materials the next thing to do was graph and compare each of the data sets. The time I spent in Houston was great the professor and my lab mates that worked on the project with me were friendly and I would definitely come back another summer to do more research.



This past summer I, **Kenya McFadyen**, had the opportunity to conduct research at the Medical University of South Carolina (MUSC) working in Dr. Cowart's lab. Ashley Cowart, PhD, works in the molecular biology and biochemistry department. Dr. Cowart's lab focuses on sphingolipids and their mechanisms in relations to obesity, diabetes and cardiovascular diseases. The work that has been published by her and other scientist has given lipids a new found respect and lipidomics emerged. The great mentorship I received allowed me to increase my knowledge and experiences with working in a lab. The lab always welcomed me with open arms and made sure that I knew I could ask them for anything. Their patience with me helped build up my confidence and believe in myself just the way they believed in me. Different techniques and procedures were taught to me that plan to utilize throughout my science career. My research was observing the effects of Sphingosine-1-Phosphate (S1P) on differentiation and inflammatory signaling in 3T3-L1 cells. This project gave me the chance to culture cells that were later exposed to S1P in a dose response manner. This summer experience definitely helped me in my decision to pursue my PhD. My mentor played the BIGGEST role, the few conversations we had were always motivational and very inspiring. God placed her in my life at the right time for a greater purpose!

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



"My, **Obumneke Umerah**, experience at UCONN Health Center Institute of Regenerative Engineering was very eye opening. I learned many lab techniques, instruments, and met a lot of new people. I also learned about how the effort of bone regeneration is possible in a matter of time. My research project was the development of a nanoliposome for intracellular delivery. It gave me insight of how biochemistry is important relation to osteogenesis. I presented my research to the fellow R.E.M. students, graduate students, post docs, and also professors. I also spoke on behalf of my program to an audience that wanted to learn about the goals of having a Mentor." That's basically all that I can put together at the moment, hopefully this is enough.

I am **Amani Rashad** and I spent ten weeks as an intern at the Center for Colon Cancer Research (CCCR) located at the University of South Carolina (USC). I conducted colon cancer research with Dr. Karthikeyan. We examined the expression and distribution of TGF $\beta$ III and its effect of WNT (a signaling pathway) in colon cancer cell lines. The emphasis in the project was to examine the extracellular domain of TGF $\beta$ RIII that can be shed/cleaved from the cell surface and released into the extracellular compartment. This research also shed light on how cleaving the extracellular domain affects detecting TGF $\beta$ RIII expression levels and if the extracellular domain is found in the stroma of colon cancer tissues. Overall I had a great experience working in the lab with Dr. Karthikeyan and the other lab members. I hope to continue the same research area next summer.



I, **Truman Thames**, am a student at Fayetteville State University. This summer of 2017 I had the opportunity to work at the Center for Research in Computer Vision (CRCV) at the University of Central Florida (UCF). I worked studying the effects of dataset size on deep learning action recognition networks performance under the mentorship of Dr. Boqing Gong and Lijun Li. While I was not able to reach a conclusion in my study, I am continuing to read on the topic and am independently conducting related deep learning research. I very much look forward to having further research experiences of my own and learning from others. I am particularly interested in research in mathematics, computer science and the ways in which these can connect to and influence the fields of biology and bioinformatics.

## Former RISE Scholars: Where are they?

**Shaaron Ochoa Rios** graduated from Fayetteville State University December 16, 2016. She was accepted into two (2) PhD programs.. Shaaron was accepted for admission to the Ph.D. program of the School of Biology at Georgia Tech, effective fall semester 2017 as well as the biomedical program at the Medical University of South Carolina (MUSC). Shaaron accepted MUSC offer and will began her journey fall of 2018.

**Kareen Blue**, attended East Carolina’s Masters of Chemistry program fall 2015. He completed the program successful July 14, 2017 and accepted for admissions to the PhD program of Chemistry at Clark Atlanta University (CAU) fall of 2017.

**Luisa Encarnacion-Hernandez** completed the Master of Science in Biomedical Research (MSBR) program at Morehouse College of Medicine on May 20, 2017. She is currently applying for PhD schools.

**Ilza Medina-Ortiz**, completed PREP program at Case Western Reserve University and currently awaiting acceptance into graduate school.

*“To catch the reader’s attention, place an interesting sentence or quote from the story here.”*



Shaaron Ochoa Rios



Kareen Blue



Luisa Encarnacion-Hernandez



Ilza Medina-Ortiz

## Visit to Medical University of South Carolina

The 17th Annual Ernest E. Just Symposium took place Friday, Feb. 24, 2017 at the James E. Clyburn Research Center Auditorium. It would be hard to imagine a scenario in 2016 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. The phrase explains how a cell responds to cell to cell and cell to matrix interactions.

The symposium was established in 1990 to recruit minority students to careers in biomedical science and the health professions. It is sponsored by the offices of the vice president for Academic Affairs and provost, College of Medicine and College of Graduate Studies.



## 2017 Biomedical Science Summer Camp

### *“Exploring Cellular Pathophysiology”*

Twenty-two (22) rising high school freshmen through rising seniors participated in the FSU Biomedical Science Summer Camp (FSU-BSSC) from June 18-23. 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 Joint School of Nanoscience and Nanoengineering (JSNN) in Greensboro, North Carolina, a biomedical research facility and the Industries for the Blind in Winston-Salem 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 2017 BSSC.

[https://youtu.be/DaFERKmy\\_kg](https://youtu.be/DaFERKmy_kg)  
<https://youtu.be/ckeSIaLkf4-->



**BioMedical Science Summer Campers visit The Joint School of Nanoscience and Nanoengineering (JSNN) in Greensboro, North Carolina**

**Leslie Moore, lab assistant, shows BSSC students how to inoculate bacteria on agar plates**

**Dr. James E. Raynor, Jr. assists BSSC students with preparing a wet mounts**

## 2017 LEAP/RISE Pre-Freshman Summer Enrichment Program

Thirteen 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 - August 1, 2017. 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), Principles of Biology (BIOL 150), CHEM 140 (General Chemistry), ENGL 110 (English Composition I) and UNIV 110 (University Studies). 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.



## Inside Story Headline



This story can fit 150-200 words.

One benefit of using your newsletter as a promotional tool is that you can reuse content from other marketing materials, such as press releases, market studies, and reports.

While your main goal of distributing a newsletter might be to sell your product or service, the key to a successful newsletter is making it useful to your readers.

A great way to add useful content to your newsletter is to develop and write your own articles, or include a calendar of upcoming events or a special offer that promotes a

new product.

You can also research articles or find “filler” articles by accessing the World Wide Web. You can write about a variety of topics but try to keep your articles short.

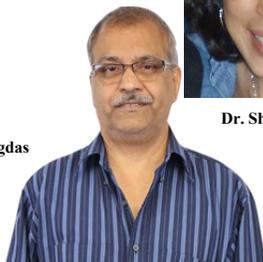
Much of the content you put in your newsletter can also be used for your Web site. Microsoft Publisher offers a simple way to convert your newsletter to a Web publication. So, when you’re finished writing your newsletter, convert it to a Web site and post it.



## ***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 2015-16 research mentors and workshop instructors:



Dr. Subir Nagdas



Dr. Shirley Chao



Dr. Perry Gillespie



Dr. Zhiping Luo

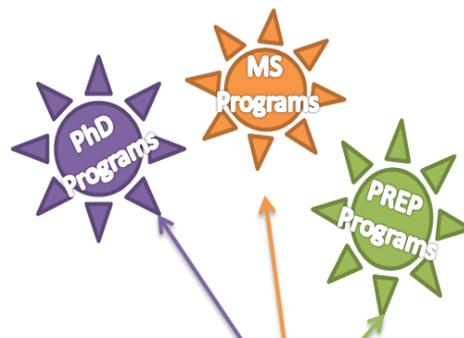


Dr. Sambit



Dr. Shubo Han

# FSU-RISE Program Ladder to Success :



## ACADEMIC YEAR

SUMMER		EXTRAMURAL SUMMER RESEARCH EXPERIENCE			
		SPRING	NC-LSAMP 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			
		<b>FSU-RISE PROGRAM</b>			
SUMMER	LEAP/RISE (4-week) BIO, CHEM, MATH and English Enrichment Program				
	Pre-Freshman	Freshman	Sophomore	Junior	Senior



### Who's Who in the FSU-RISE Office

Dr. James E. Raynor, Jr., Director  
 Ms. Cathy Baldwin, Coordinator  
 Mrs. Amita Naik, Lab Manager



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<http://www.uncfsu.edu/fsurise/>