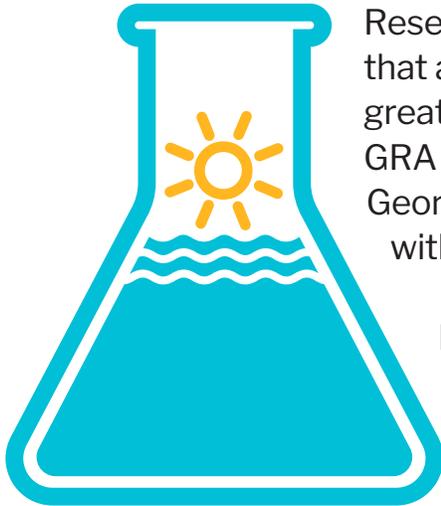


Experimental Summer

The 2022 GRA Student Scholars Program



Research shows diverse teams tend to outperform those that are more homogenous in their makeup. To promote greater diversity and inclusion in scientific research teams, GRA created the Student Scholars program. It provides Georgia students who are underrepresented in STEM fields with opportunities to experience university research.

In summer 2022, 15 students worked alongside top scientists in university labs contributing to actual funded research projects. Here's a sampling of some of what the 2022 cohort did over the summer.



Brandon Reece | *University of Georgia*

Brandon was immersed in cardiovascular research inside the lab of **Neal Weintraub**. He investigated the DARC gene, which helps regulate inflammation. The gene is absent on the blood cells of 7 out of 10 African Americans; Brandon performed experiments on mice to explore whether this absence contributes to greater incidence of high blood pressure and artery disease in African American populations.



Ashton Jackson | *Georgia State University*

Inside the UGA lab of **Ted Ross**, Ashton tried an array of practical lab experiments and analytic work related to vaccine development. Some examples: Western Blotting, a technique for verifying the presence of a specific protein in a sample; BCA assays, a method of quantifying the amount of a sample's protein once detected; and Prism, software used to analyze assays.

"I've acquired skills that I believe will be with me for a lifetime and helpful as I continue making my way through the biology field."





Riah Ivy | *Kennesaw State University*

Riah spent the summer working in the Georgia Tech lab of **Bill Koros**, performing tests on OBIGGS (on-board inert gas generation systems). These sophisticated devices filter gases from the atmosphere around an airplane in-flight; the gases then take up space in fuel storage, preventing unwanted combustion. OBIGGS use specialized hollow fibers to perform this filtration, and Riah's work centered on testing these fibers for their reaction to atmospheric gases.



Dianah Anderson | *Savannah State University*

Dianah studied xylem, the plant tissue that performs critical functions such as moving water throughout trees and other organisms. Her project in the **C. J. Tsai** Lab at UGA focused on how certain xylem-affecting genetic mutations affected the larger health of the tree. This involved a multitude of different tests, including genetics tests as well as photosynthesis, transpiration and water-use tests.



Linda Habersham | *University of Georgia*

Linda's work inside the **Shafiq Khan** Lab at Clark Atlanta concerned a new treatment for prostate cancer. By manipulating a particular protein on cancer cells, in a process called TGF Beta, Linda contribute to exploring potential chemotherapy treatments by limiting the growth of cancer cell. Her efforts entailed growing cells for experimentation and tests to measure the success of TGF Beta.

"The summer internship was absolutely amazing. I've been documenting the entire experience in a notebook. I especially enjoyed sitting in on some of the lab meetings where we brainstorm solutions. I learned so much."



Ashley-Kaye Fonkeng | *University of Georgia*

Ashley-Kaye worked in the Center for Vaccines and Immunology at the University of Georgia. At one time, she lived in Bolivia and experienced working in a clinic, so she has a baseline interest in medicine. In the **Ted Ross** Lab, Ashley-Kaye got to work on stages of vaccine development – first by using a centrifuge to isolate PBMCs, or peripheral blood mono-nuclear cells, and then performing Western Blotting to identify proteins.



Janelle Booker | *University of Georgia*

Inside the Emory lab of **Iñaki Sanz**, Janelle worked with multiple serum samples from people who have lupus, testing each for the concentration of a certain marker, 9G4. The goal was to correlate the marker to the severity of symptoms from the disease. To accomplish this, Janelle used an assay test called IgG Elisa, which colorfully displays occurrences of 9G4 for study. The bioinformatics conducted on her data contributes to the understanding of the complexities of lupus, and Janelle has discovered a passion for this sort of analysis.

“So far, through this internship, I have learned that I’m fascinated with bioinformatics, which I plan to focus more on in the future.”



J'Lyn Martin | *Kennesaw State*

J'Lyn spent the summer in **Raeda Anderson's** lab at Shepherd Center. Hers was a data-dive experience: She examined how education levels, income and other social factors affect people with disabilities compared to those without. To do that, J'Lyn analyzed an annual compendium of disabilities statistics for all 50 states plus the District of Columbia. Her study keyed in on how gaps in income and other areas affected employment and housing for people with disabilities.



Demetrius Jelks | *University of Georgia*

What causes abdominal aortic aneurysms? Demetrius's work in **Neal Weintraub's** lab at Augusta University contributed to a potential answer. He applied several laboratory techniques, such as DNA genotyping and animal handling and surgery, to introduce the fatty acid 12, 13 DiHOME to mouse livers in order to understand the fatty acid's effect on that organ.

“This research experience has been very informative. I have learned how to apply a lot of material that I have learned across different classes.”



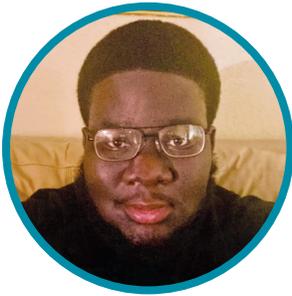
Niyah Brown | *University of Georgia*

A key area being explored in the Emory lab of **Larry Boise** is cancer biology. To help inform this work, Niyah Brown performed experiments that identified the proteins living in cells. Notably, this involved a series of steps for Western blots, which helps to identify amino-acid sequences inside the proteins.



Jamiya Thomas | Savannah State University

Jamiya worked in the lab of **Art Edison** at UGA, identifying metabolites in MSCs — stem cells found in the body’s connective tissue that factor into our regenerative processes. The metabolites in question are created when an organism is affected by disease or undergoes a change in environment. Jamiya analyzed samples to investigate whether the metabolites produced are unique or shared across various media. The information they’re gathering will hopefully shed light on the ways these stem cells behave.



Timothy Roundtree | Kennesaw State University

Tim worked to make complex data gathered from experiments easier to understand, a process called structural deconvolution. The lab of **Art Edison** at UGA does much experimentation using nuclear magnetic resonance imaging, which generates enormous quantities of data on the physical, chemical and biological properties of matter. The raw data from NMR is highly complicated, so Tim used a toolkit of computer programs like MATLAB and NMR Pipe, to turn the data into useful information.

“When provided with data from NMR samples, the data is too complex and complicated to understand with the naked eye. My research is more computational than experimental.”



Audree Garrett | Fort Valley State University

Terpenes were the focus of Audree Garrett’s summer work in the UGA lab of **Robin Buell**, a leading plant geneticist. Terpenes are aromatic compounds that have potential health benefits, and Audree conducted experiments designed to increase the production of terpenes in tomatoes. Her experiments involved using a virus to silence genes inside the plants.

“The experience was mind-blowing. While an intern, I was exposed to real state-of-the-art research. We focused on terpenes, but the work could open the doors to so much more that could be done.”



Elorm Adzadi | University of Georgia

Telehealth was the focus of Elorm’s research at the Shepherd Center in Atlanta. Working in the lab of **John Morris**, she gathered qualitative and quantitative data on the experiences and perceptions of telehealth from people with disabilities. The resulting data provided insights into patterns, motivators and technologies; it also revealed facilitators and barriers to accessing telehealth.

“Working with Dr. Morris and his team, I’ve witnessed great teamwork and collaboration, which I’ve begun to emulate. I’ve improved my time management and interpersonal skills. All in all, the summer has been enriching, encouraging and motivating.”



Ka’Liyah Morgan | University of Georgia

Working in **Brad Willingham’s** lab at The Shepherd Center, Ka’Liyah and her team used wearable sensors to assess the health and physical activity of the center’s patients. The center treats people who have sustained injuries to their brain or spinal cord; the sensor technology explored by the team helped clinicians evaluate the progress being made by the patients. Ka’Liyah gained valuable experience extracting meaning from large sets of data generated by the wearable sensors.



About the Program

Launched in 2021, the GRA Student Scholars program provides underrepresented minority students with a highly challenging research lab experience. The program is part of a larger effort by the Academy of GRA Eminent Scholars to strengthen diversity and inclusion in university research.

Special thanks to our corporate sponsors for supporting the launch of the GRA Student Scholars pilot program:

