THE RONALD E. MCNAIR POST-BACCALAUREATE ACHIEVEMENT PROGRAM AT GEORGIA SOUTHERN IS PROUD TO PRESENT

McNair Journal

The 2017 - 2018 Cohort
# Table of Contents

Letter from the Director ................................................................. 2
Letter from the Editor ................................................................. 3

Olamide Adebayo
- Bio .................................................................................. 4
- Abstract ........................................................................... 5
- Poster ............................................................................... 6

Johanna Dieudonne
- Bio .................................................................................. 7
- Abstract ........................................................................... 8
- Poster ............................................................................... 9

Arneshia Henderson
- Bio .................................................................................. 10
- Abstract ........................................................................... 11
- Poster ............................................................................... 12

Taylor Mallett
- Bio .................................................................................. 13
- Abstract ........................................................................... 14
- Poster ............................................................................... 15

Raven Ulieme
- Bio .................................................................................. 16
- Abstract ........................................................................... 17
- Poster ............................................................................... 18
Letter From The Director

An underlying priority of the McNair Scholars Program is to instill in our scholars a sense of commitment; to give them an understanding of how difficult and challenging research may be, but achievable; and to expand their knowledge and intellectual curiosity so that they emerge transformed and prepared to impact society. As Ronald E. McNair stated, “Whether or not you reach your goals in life depends entirely on how well you prepare for them and how badly you want them. You’re eagles! Stretch your wings and fly to the sky.” With the support of faculty, staff, and stakeholders in the McNair Scholars Program (MSP), we empower our students through research opportunities, scholarships, internships, and professional networks.

Throughout the year, scholars in the program have had success in presenting research at local, regional and national conferences. Several McNair Scholars have received numerous awards and cash prizes at these conferences. The purpose of the MSP is to expand their knowledge and intellectual curiosity so that they emerge transformed and prepared to impact society. I am honored to be Director of this prestigious program and I am very proud of the accomplishments of each scholar. I am grateful for the faculty, staff, and offices who have lent their support in making the MSP soar towards excellence. I am excited about the future of the MSP here at Georgia Southern University and what the next year has to offer.

Issac Taylor
Driven! Focused! Boundless potential! These are a few of the words that come to mind when I think about our Georgia Southern McNair Scholars. Indeed, it has been an honor to serve as the Faculty Liaison for the program. From that vantage point I have had the opportunity to observe the scholars as they take on new challenges, grow in their confidence and work toward their goals. Most of all, we have seen them come together as a group in support of each other. They have celebrated many special moments together including their first research presentations, awards, acquisition of internships, scholarships, and of course, graduations. They are an amazing group of high-performing individuals who are as different in their interests as they are in their experiences, and they are going to make their mark wherever they go.

As I observe our scholars, I am reminded that here in the United States of America, by virtue of our demographic makeup, the potential always exists for an exceptional and rich synergy. This type of synergy fuels change and moves the world in a direction that is far beyond the ingenuity of any one person or group.

The legacies of Dr. Ronald E. McNair and the Post-baccalaureate Achievement Program established in his honor are astounding. For more than three decades, this program has empowered individuals from a multitude of backgrounds to obtain graduate degrees and take their fields to the next level. It is truly a privilege to host the Georgia Southern McNair Scholars Program (MSP) on our campuses once again. In the following pages you will see that the MSP has been entrusted with an incredible group. Like Dr. McNair, the passion of the MSP Scholars cannot be contained. These students are poised to change the world!

Dr. Karelle Aiken
My name is Olamide Adebayo. I am a junior and a pre-med biology major with a chemistry minor at Georgia Southern University. I live in McDonough Georgia with my parents and four siblings. I joined the McNair Scholars Program for a number of reasons. McNair is designed to increase the attainment of doctoral degrees among students that are members of underrepresented groups. They provide a large number of resources for first generation students like myself. My involvement with the program has enabled me to discover the potential within myself and has encouraged me to work on that potential through participating in research and workshops.

Besides research and school work, I enjoy volunteering and serving the community. I have volunteered at the local Statesboro Food Bank, Habitat for Humanity, and Holiday Helper Tree. I have also gone on two alternative break trips to serve humanity and work on social issues. I am currently involved in organizations such as Phi Eta Sigma, The National Society of Collegiate Scholars (NSCS), and The Office of Leadership and Community Engagement (OLCE). Currently, I hold the position of a chemistry teaching assistant and supplemental instructor.
Health Promotion Through Self-Management Among College Students
Olamide Adebayo; Anunay Bhattacharya, DrPH(c); Marian M. Tabi, PhD

Spirituality has affected the lives of billions over the globe with beliefs and perceptions in different spiritual domains. The lives of most individuals depend on their spirituality. Health disparities are synonymous to epidemics among the people who lack proper healthcare due to potential factors including race and ethnicity, cost, access to healthcare, and lack of insurance. It is well documented that chronic diseases such as diabetes, depression, and hypertension have synchronicity with spirituality making it eminent to study. Little is known about the spirituality and health of college students and their perception towards the relationship between spirituality and health disparities.

This study focuses on both undergraduate and graduate students’ perception on the role of spirituality in relation to health. Data will be collected from an approximate sample of 200 undergraduate and graduate students in a rural southeast regional university completing a 52-item health promotion survey via Qualtrics administered online. The tool will gather data on health-promoting lifestyle, the areas of physical activity, nutrition, stress management, health responsibility, spiritual growth, and interpersonal relations. The collected data will be pooled into the SPSS 25.0 statistical software for analysis using descriptive and factor analysis.
**CONCLUSION/FUTURE RESEARCH**

- Further research and quantitative data analysis will be performed for better understanding.
- The body mass index (BMI) and the percentage of body fat are both important factors.
- The study provides a demographic distribution of the population who look for healthy food options.
- The study was conducted on 122 students from the college. The data represents both men and women.

**METHODS**

- Descriptive and inferential statistics were performed on the collected data.
- The statistical techniques included mean, standard deviation, and correlation.
- Statistical analysis was conducted using SPSS 23.0.

**PURPOSE**

- To assess the current situation.
- To measure the nutritional status of college students.
- To examine the health status of college students,
- To provide evidence for the promotion of healthy behaviors.
- To study the effects of stress and nutrition on college students.
- To support the creation of a healthy environment.

**RESULTS**

- Health status
- Nutritional status
- Stress levels
- Social support

**INTRODUCTION**

College students make up a significant portion of the population. They face unique challenges in maintaining a healthy lifestyle, including high stress levels and limited time for physical activities. This study aims to explore the current status of health and nutrition among college students at the University of Georgia. The data collected will provide insights into the factors affecting their health and suggest strategies for improvement.
I am a Junior at Georgia Southern University majoring in Biology with French and Spanish minors. I am from Douglasville, Ga. While matriculating at Georgia Southern, I am involved with The United Nations Children’s Fund, Oyster restoration projects, and the chemistry labs as a TA. I became interested in McNair because I knew I would be able to gain a support system for guidance on preparing for and applying to graduate schools, and the opportunity to research beside a faculty member, I would like to continue partaking in field research as well as move on to gain a PhD in ecology or marine biology.
Boring Sponges “Inhibition on Easter Oysters” health Conditions and Growth in Reference to the Tidal Height

Johanna Dieudonne; John Carroll, PhD

Eastern oysters, Crassostrea virginica, perform important services for estuarine ecosystems, including filtering water, retaining shorelines, providing habitat and increasing biodiversity. However, in recent years the eastern oyster populations have lowered in numbers due to a variety of reasons such as harvesting, infections, and habitat changes. In reviewing the possible causes, one important factor that may have impact on these populations was found to be the boring sponge, Cliona spp. Throughout the oysters’ range, including along Georgia’s coastlines, boring sponges may be hindering the eastern oyster populations in many ways. However, the severity of the effects that boring sponges have on oysters relative to the tidal height has not been properly assessed.

It is possible that being submerged for longer periods can give oysters covered in boring sponge the opportunity to feed more often and thus have a better growth rate than those exposed by low tides. Alternatively, sponges might also grow better under constant submergence. This study stands to further the understanding of the relationship between boring sponges and the tidal height of oysters.
MEET THE SCHOLAR

ARNESHIA HENDERSON

I am a junior at Georgia Southern University majoring in biology and minoring in chemistry. I am originally from Waco, Texas, but I went to high school in Richmond Hill, Georgia. I am a member of the National Organization for Women and a Auxiliary Service volunteer at East Georgia Medical Center. I am also a Ronald E. McNair Scholar, and I joined this TRiO program because I wanted to advance my research and gain knowledge on how to apply and prepare for graduate education. In the future I hope to obtain my MD-PhD so I can continue to conduct research as well as interact with patients. I would like to work in underserved communities and one day become a doctor without borders.
ABSTRACT

Synthesis of 1,2,3-Triazole Amino Acid Derivatives for Structure Activity Relationship Investigations

Arneshia T. Henderson; Raven Richardson; Brandon Sellers; Ria Ramoutar PhD.;
Karelle Aiken PhD.

1,2,3-Triazoles derivatives of alpha-amino acids were synthesized for structure activity relationship (SAR) investigations against cancer cell lines. The amino acids differed by the attachment of a hydroxy group on a phenyl ring appended to the triazole group. 2-/3-/4-Azido phenol precursors for these molecules were produced from their respective aminophenols through a diazotransfer reaction. The triazoles were be made by the “click” reaction using the azidophenol regioisomers and (S)-2-((tert-butoxycarbonyl)amino)pent-4-ynoic acid. 13C- and 1H- Nuclear magnetic resonance (NMR) spectroscopy and Infrared (IR) spectroscopy were used to determine if the intended products and their precursors were successfully synthesized.
References

- Ronald E. Miller, Scholars Program
- Biotechnology Department
- Georgia Southern University Chemistry and

Acknowledgments

Substituents on the N of the imidazole core
derivatives with other biologically-significant
derivatives that inhibit the activity of amine oxidase.
Condensed sulfuric and all three amino analogues
Complete synthesis of 4-amino derivatives

Future Directions

General Cyclic Reaction

General Boc Dep-Protection

General Precursor Reaction

Introduction

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Amesha J. Henderson, Raven Richardson, Brandon Sellers, & Pamela Aiken

Synthesis of 1,2,3-triazole amino acid derivatives for

TRIO

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Structure-activity relationship investigations
I am a senior Biochemistry student from Arlington, Tennessee; a suburb outside of Memphis. I joined the McNair Program to boost my preparation for obtaining a PhD and for research funding. I am involved in several organizations including Georgia Southern’s chapter of the Student Affiliates of the American Chemical Society (SAACS), National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE), and Disability Education for Awareness and Leadership (DEAL), a club for which I am an officer. In addition to science, I have a love for children and have obtained a minor in Child and Family Development; when I am not working on school or research, I am nannying for a family in the Statesboro area. After getting my PhD, I hope to work in the field of Research and Development in either Bioinformatics or Chronobiology.
Detection of Saccharides Using Boronic Acid Derivatives
Taylor Mallett; Nicole Naclerio; Shainaz Landge, PhD

A tri-substituted phenylboronic acid derivative was synthesized for saccharide recognition. The intention was to create a molecule that could detect multiple saccharides at once. The major aim was to have either a colorimetric or fluorometric change after coordinating with sugar. Detailed investigations were carried out via Nuclear Magnetic Resonance, Ultra-Violet spectroscopy, and fluorometric studies. Ideally, such a molecule would be useful for Diabetes research.
Acknowledgements

References

Future Research

Results and Analysis

Introduction

Abstract
MEET THE SCHOLAR

RAVEN ULIEME

I am currently a junior with a major in Nutrition and Food Science, and I was accepted into the Dietetics Program here at Georgia Southern University. Born and raised in the small military town of Kingsland Georgia, I was equipped and prepared for my career aspirations as a registered dietitian. My high school had a variety of pathways that students had to choose from that exposed them to, and helped them decide their future career. I chose the nutrition pathway and have been passionate ever since.

Growing up, I experienced health ailments that inspired me to research healthier eating habits and exercise routines to improve my overall health. Excelling in school has never been difficult for me as I have been on both the Dean’s list and President’s List at Georgia Southern. My future plans include completing a required dietetic internship after graduation, taking the RD exam, and obtaining my license to practice. Currently, I am considering a graduate program that includes the dietetic internship.
ABSTRACT

The Hepatic Effects in Dams that Ingested 2-Aminoanthracene during Gestation

Raven Ulieme; A Surjania; Jessica Rasdall; Wilson Yau; Worlanyo Gato, PhD

Diabetes mellitus has been on a continual rise as one of the top chronic diseases to affect individuals worldwide. The goal of this study was to determine how exposure in utero of Sprague Dawley (SD) rats from a well-known polycyclic aromatic hydrocarbon (PAH), 2-Aminoanthracene (2AA), could potentially lead to diabetes. PAHs have been recognized as a possible human carcinogen and environmental contaminant that could affect health. Common forms of human exposure to 2AA includes foods cooked in high heats and tobacco smoke. To be able to analyze the effects of 2AA, three groups of SD dams consumed an adulterated 2AA diet from gestation to their postnatal period.

The timed-pregnant dams’ diets are as follows: the control group (C) consumed 0 mg/kg, the low dose group (LD) consumed 50 mg/kg, and the high dose group (HD) consumed 100 mg/kg. Liver samples from the dams and their pups will be examined to gather information about the gene expressions, Adam8, Bax, Ccng1, Cd68, Cd93, Cdkn1c, and Ddit4, that reveal possible PAH toxicity. Any difference in the hepatic gene expression will be noted alongside any minimal shifts to their liver’s structure, and an increase in alanine transferase (ALT) and IgA due to liver damage. An enzyme-linked immunosorbent (ELISA) and a specific protein immunoblot assay will be used to support the anticipated results. It is expected that the dams exposed to the 2AA will have systemic effects, which will produce similar effects later in the pups.