



Winthrop McNair
 Summer Research Symposium 2019
 Whitton Auditorium & MacFeat House
 MONDAY, JUNE 24, 2019 1:00 -4:30 pm
 Tentative Presentation Schedule



Start Time	Scholar	Major	Mentor	Winthrop McNair Summer Research 2019 Project Title
Oral Presentations will be delivered in Whitton Auditorium starting shortly after welcome.				
Welcome @ 1 pm				
1:10 pm	Nicholle Lewis	Biology	Dr. Matthew Stern	Optimization of Smooth Muscle Cell Culture for Blood Vessel Tissue Engineering
1:25 pm	Kiera Alexander	Chemistry	Dr. Nicholas Grossoehme	The Interplay Between Oxidation, Phosphorylation, and Regulation of RitR in <i>Streptococcus pneumoniae</i>
1:40 pm	Cayla Odom	Chemistry	Dr. Maria Gelabert	Silver Nanoparticle Biosynthesis and Calcium Calcite Biomineralization as a Precursor to Hydroxyapatite
1:55 pm	Sierra Davis	Social Work	Dr. Wendy Sellers	Sustainable Development and Environmental Justice: Connecting Students to Global Issues
2:10 pm	Mattin Avalon	Sociology	Dr. Michael Sickels	Personalizing Religion: A Qualitative Analysis of New Age Spirituality Online
Poster Reception 2:30 – 3:10 pm Macfeat House	Gabrielle McGee	Psychology	Dr. Donna Nelson	Process Goals Raise Academic Confidence and Performance of First-Generation College Students
	Chelsea Harris	Psychology	Dr. Melissa Reeves & Dr. Matthew Hayes	College Student's Perception of Their Future
Return to Whitton Auditorium for Oral Presentations				
3:15 pm	Sauliha Mitchell	Political Science	Dr. Scott Huffmon	The Impact of Political Donations on Sponsored Legislation in the North Carolina State Legislature
3:30 pm	Maya Whaley	Psychology	Dr. Merry Sleight	Work Professionals and College Students Attitudes Toward Juvenile Offenders
3:45 pm	Monejah Black	Mass Communication	Dr. Nathaniel Frederick & Mr. Emmanuel Nwachukwu	The Representation of Female African American College Students on Television: A Content Analysis of A Different World and Grownish
4:00 pm	Makeyla McCray	Early Childhood Education	Dr. Crystal Glover	Perceptions of African American Students' Professional Relationships with Faculty at a Predominantly White Institution
4:15 pm	Veronica Worthington	Psychology	Dr. Matthew Hayes & Dr. Melissa Reeves	Active shooter protocols: Perceptions, preparedness, and unintended consequences
Concluding Remarks @ 4:30				

Winthrop McNair Summer 2019 Research Scholars and Projects



Winthrop McNair Scholar: **Kiera Alexander**

Major: Chemistry

Mentor: Dr. Nicholas Grosseohme

Title: The Interplay Between Oxidation, Phosphorylation, and Regulation of RitR in *Streptococcus pneumoniae*

Abstract: *Streptococcus pneumoniae* is able to respond to extracellular availability of iron through phosphorylation of a regulatory protein (RitR) by the sensor kinase (StkP); this results in a form of RitR that is unable to bind to DNA and allows expression of an iron uptake system. RitR has also been shown to respond to oxidative stress through a monomer to dimer transition facilitated by oxidants that cause the formation of a disulfide bond. This project aims to further characterize the interplay between oxidation, phosphorylation, and the DNA binding properties of RitR.



Winthrop McNair Scholar: **Mattin Avalon**

Major: Sociology

Mentor: Dr. Michael Sickels

Title: Personalizing Religion: A Qualitative Analysis of New Age Spirituality Online

Abstract: Traditionally, religion has been understood through uniform belief communities, fixed identity, and face-to-face worship in physical spaces. In the wake of internet culture and postmodernity, religious practitioners are increasingly encouraged to explore, blend, and pick different beliefs to find one's own expression of religious identity or spirituality. This paper analyzes the relationship between internet technology and the construction of identity through a qualitative media analysis of three "new age" religious subreddits. The study primarily focuses on themes of authenticity, capitalist influence, and the personal creation of sacred spaces.



Winthrop McNair Scholar: **Monejah Black**

Major: Mass Communication

Mentor: Dr. Nathaniel Frederick & Mr. Emmanuel Nwachukwu

Title: The Representation of Female African American College Students on Television: A Content Analysis of A Different World and Grownish

Abstract: This research examines the portrayal and representation of the African American female college experience on television sitcoms. A content analysis was conducted on two situational comedy television shows, A Different World and Grownish, coding the comparative aspects of each show to include: the depiction of the female lead, the predominant theme of each episode, resolution of conflict, perceived realism, and overall tone. The study suggests that though Grownish addresses diverse issues faced by millennial students, the portrayal of these issues dilutes the overall message, while A Different World succinctly illustrates the problems students face. Results and implications will be discussed.



Winthrop McNair Scholar: **Sierra Davis**

Major: Social Work

Mentor: Dr. Wendy Sellers

Title: Sustainable Development and Environmental Justice: Connecting Students to Global Issues

Abstract: This pilot study will contribute to the literature surrounding study abroad using a new framework to gauge the effect travel has on knowledge of global issues. The United Nations created a list of sustainable development goals aimed at addressing issues that impact nations around the world. The goals have been separated into the categories of ending poverty, ensuring prosperity for all, and protection of the planet. Using them as the framework for a quantitative study, data is being collected from college-level students around South Carolina. The project has had two phases so far. This current phase is focused on narrowing the focus on study abroad programs and sustainability programs on college campuses.



Winthrop McNair Scholar: **Chelsea Harris**

Major: Psychology

Mentor: Dr. Melissa Reeves & Dr. Matt Hayes

Title: College Student's Perception of Their Future

Abstract: This study examined future orientation (FO) in college students across credit hours earned and perceived levels of social support (SS). FO has been shown to act as a protective factor for adolescents (Alm & Laftman 2016; Oshri 2018). Research is minimal on FO in college students, this study seeks to extend examination of FO in college students and investigate the mediating effect of FO and SS on GPA. Data was collected through social media and college classes. Participants completed an anonymous survey. Results and implications will be discussed.



Winthrop McNair Scholar: **Nicholle Lewis**

Major: Biology

Mentor: Dr. Matthew Stern

Title: Optimization of Smooth Muscle Cell Culture for Blood Vessel Tissue Engineering

Abstract: Over 1.5 million heart attacks occur annually in the U.S. alone. Vascular bypass surgery is a viable treatment option; however, the grafts being used in bypass surgeries suffer from several limitations and therefore require additional optimization. One potential solution is the use of tissue engineered vascular conduits constructed using patient-specific smooth muscle and endothelial cells. We are testing different ECM coatings, media types, and smooth muscle and endothelial cell media mixtures to identify optimum culture conditions for human smooth muscle cells both prior to and during seeding into acellular porcine internal thoracic artery scaffolds. Results will be presented.



Winthrop McNair Scholar: **Makeyla McCray**

Major: Early Childhood Education

Mentor: Dr. Crystal Glover

Title: Perceptions of African American Students' Professional Relationships with Faculty at a Predominantly White Institution

Abstract: The relationships college faculty have with students closely correlates to the students' overall college experience (Astin, 1993). In this study, we examined African American students and their relationships with faculty members at a predominantly white institution. Using qualitative and quantitative methodology we measured the general perceptions of student-faculty relationships. Findings from the study fill a gap in the literature of higher education and highlight that African American students sometimes find it difficult to relate to faculty members because of the underwhelming representation of diversity within the campus faculty.



Winthrop McNair Scholar: **Gabrielle McGee**

Major: Psychology

Mentor: Dr. Donna Nelson

Title: Process Goals Raise Academic Confidence and Performance of First-Generation College Students

Abstract: Research indicates that first generation college students (FGCS) enter college less academically prepared than their peers. This disadvantage may manifest itself in lower perceived academic competence and lower achievement of FGCS compared to their non- FGC counterparts. As such, it is important to find ways to increase confidence and performance among FGCS. Process goals have been associated with lower levels of anxiety and higher levels of performance than outcome goals. The present study manipulated goal orientation on a difficult task and then measured confidence and performance with respect to a subsequent task. Results confirmed that FGCS benefited from process goals.



Winthrop McNair Scholar: **Sauliha Mitchell**

Major: Political Science

Mentor: Dr. Scott Huffmon

Title: The Impact of Political Donations on Sponsored Legislation in the North Carolina State Legislature

Abstract: In US politics, there is notorious debate surrounding the ability for donors to contribute to campaigns and whether or not this results in gained access to a lawmaker (Kalla and Brockman 2015). Access to lawmakers encompasses votes on a bill, the ability to push specific bills and the allotment of time that a legislator is willing to give. The focus of this research is to analyze campaign donations, donor interests, and the actions of lawmakers in the North Carolina Legislature to see if donations facilitate any degree of access or influence. The results and implications of the research question will be discussed further in this paper.



Winthrop McNair Scholar: **Cayla Odom**

Major: Chemistry

Mentor: Dr. Maria Gelabert

Title: Silver Nanoparticle Biosynthesis and Calcium Calcite Biomineralization as a Precursor to Hydroxyapatite

Abstract: Antimicrobial hydroxyapatite (HA) offers preventive measure against surgical implant infection. Embedded silver nanoparticles (AgNP) represent one modification, but reliable synthetic strategies are relatively lacking. This study proposes a novel pathway to synthesize AgNP-doped HA using the fungus *Fusarium oxysporum*. This effort

combines AgNP biosynthesis and calcium calcite biomineralization for hydrothermal phosphatization to HA. XRD and SEM enables confirmation of product and examination of AgNP-HA microstructure, where AgNP are expected to attach to the HA crystallite surfaces. This work investigates synthetic and analytical steps for production of safe and reliable implant materials.



Winthrop McNair Scholar: **Maya Whaley**

Major: Psychology

Mentor: Dr. Merry Sleigh

Title: Work Professionals and College Students Attitudes Toward Juvenile Offenders

Abstract: We examined perceptions of juvenile offenders. Participants were 40 professionals who worked directly with juveniles and 75 college students. Working professionals were more sympathetic toward offenders and emphasized the role of the family in rehabilitation; students perceived

mentors to be necessary for rehabilitation. Both groups placed the majority of blame on the juvenile's parents. Women and African Americans, compared to men and Caucasians, preferred community- over state-based interventions. Open-mindedness predicted support for rehabilitation, while student entitlement predicted a preference for incarceration. Hope, forgiveness, and religion were less predictive of attitudes.



Winthrop McNair Scholar: **Veronica Worthington**

Major: Psychology

Mentors: Dr. Matthew Hayes & Dr. Melissa Reeves

Title: Active shooter protocols: Perceptions, preparedness, and unintended consequences

Abstract: The national concern about active shootings has pushed schools to implement intense drills without considering unintended consequences. There is also a lack of empirical research on effects of active shooter (AS) drills, with findings focusing on immediate effects. This study expanded research on AS protocols by exploring long-term effects that AS training had

on knowledge, anxiety, and preparedness. Undergraduate students completed an online survey. We anticipate that protocols completed in high school impact current levels of knowledge, anxiety, and preparedness and that students have lower knowledge of current campus active shooter protocols. Results and implications will be discussed.

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The Winthrop McNair Scholars Program prepares first generation, low-income, and underrepresented undergraduates to be successful in PhD programs through a variety of resources and supports including research experience, workshops, graduate admissions and financial aid assistance, test preparation and travel to present research and explore graduate programs. Winthrop's program is funded through 2023 with the renewable TRiO grants from the U.S. Department of Education (PR/Award No.: P217A170094). \$242,136 in annual federal funds helps 30+ eligible, outstanding students complete research and prepare for graduate study. This year, federal funds represent approximately 72% of program costs. Winthrop and the Winthrop Foundation contribute the remaining 28% of the budget with over \$90,000 in cash and in-kind matches.

Winthrop's program is successful because of the excellent work and persistence of our Scholars; expertise of our Mentors'; dedication of our staff; support from Dean Jones and our administration; funding from the U.S. Department of Education, our institution, and foundation; and guidance from our Advisory Board. The 2018-19 Advisory Board members are: **Dr. Adolphus Belk, Dr. Tyrone Ceaser, Dr. Victoria Frost, Ms. Rose Gray, Dr. Wenonah Haire, Dr. Willis Lewis, Mr. James White** (Scholar), **Dr. Karen Stock, Dr. Takita Felder Sumter, Dr. Will Thacker, Dr. Nicki Washington, Dr. Brad Witzel, and Dr. Cheryl Fortner-Wood. Deans Gloria Jones.** For more information about Winthrop's program, visit www.winthrop.edu/mcnair, <http://digitalcommons.winthrop.edu/mcnair/>, or email mcnairga@winthrop.edu.