

Winthrop's Ronald E. McNair Postbaccalaureate Achievement Program

The Winthrop McNair Scholars Program is a U.S. Department of Education TRiO project designed to help exceptional undergraduates from first-generation, low-income, and underrepresented backgrounds complete high quality research and prepare for doctoral study. There are over 200 McNair programs nationally and two in South Carolina. Winthrop's program is funded to serve 30 students each year.

Funded since 2009, this is year three of Winthrop's current five-year grant (P217A230073). \$272,364 in federal funding is provided each year for the research internship, year-round programming, participant travel, personnel, and materials. Federal funds comprise approximately 75% of program costs. Winthrop University and the Winthrop University Foundation contribute the remainder of the total budget with cash and in-kind funds.

Highlights of Recent Program Outcomes

- 41 alumni hold research or professional doctorates
- 10 of this year's 12 graduates applied to and accepted offers from graduate programs, and are expected to matriculate this fall (83%, our objective is 50%)
- Four of our May 2026 graduates are entering PhD programs this fall
- 91% of alumni who were first-year graduate students in fall 2024 continued their graduate studies this year (our objective is 75%)
- The program's fourth objective is that 14% of each graduating cohort will earn a research doctorate within 10 years of earning the bachelor's degree. 30% of the 2015-16 grads and 27% of the 2014-15 grads earned a PhD. Including all doctorates earned in each cohort, the percentages are 40% and 36% respectively.

We owe many people gratitude for their support. Here's a start. Thank you!

-**Scholars**, for working through the McNair moments and supporting each other.

-**Mentors**, for helping your Scholar develop and pursue important research questions and supporting them through an intense, fast-paced research obstacle course this summer. Our Scholars succeed because of you.

-**Dr. Matthew Hayes**, our Stats and Methods Coach, who has mentored and supported several Scholars through project design, statistical analyses, interpretation, and presentation preparation this summer.

-**Stephanie Bartlett**, Writing Coach, for supporting the Scholars' research and written works year-round.

The dedicated and tenacious **Marian Moorer**, MSW (McNair Program Assistant) and **Kenya Williams** (McNair GA).

-The many experts who helped the Scholars succeed as summer researchers, learn how to give award winning presentations, and prepare to succeed as graduate students: **Dr. Jason Hurlbert, Erin Patel, Dr. Gloria Jones, Cody Walters, Amanda Cavin, Morgan Baxter, Dr. Joni Boyd, Logan Pender, Kenya Ratliff, Dr. Heather Listhartke, Marian Moorer, Dr. Matt Hayes, and Dr. Kelly Costner.**

-SURE faculty and students who support and celebrate the McNair summer interns.

-The **McNair Advisory Board** that selected this amazing cohort: **Amanda Cavin, Dr. Victoria Frost, Rose Gray, Dr. Heather Listhartke, Dr. Jason Hurlbert, Dr. Joanna Jackson, Dr. Willis Lewis, Dr. Nicholas Moellman, Dr. Tenisha Powell, Dr. Karen Stock, Dr. Janet Wojcik, and Cierra Randolph.**

-Folks all over campus who support our students and program, especially **Asst. Provost Leigh Poole, Dean Takita Sumter, Candace Bass, Jessica Peeples, Deborah Broome, Michelle Hare** and the **Financial Aid Team, Student Account Services, HR, Records & Registration, Admissions, Jarad Russell** and the **Res Life Team, Dining Services, Michele Smith, Kristin Smith, Dr. Jeremy Lopuch, Accounts Payable and Procurement (esp. Thom Couto, Krista Scherpf, and Victoria Balberde,)** **Central Receiving, Facilities Management, Ashley,** and our **Provost, Dr. Sebastian van Delden.**

-Those who helped us get ready for this symposium: **the Printing Services Gurus (Jill Stuckey, Angie Conner, and Richie Parrish), Phyllis Redden, Jerry Fussell,** and the **Blue Line Catering team.**

Winthrop McNair Summer 2026 Research Abstracts



Scholar: **Ashlee Courtney**

Mentor: **Dr. Cliff Calloway**

Presentation Category: Physical Science

Type: Oral

Arson Evidence Stability Analysis Through GC-MS

Abstract: Arson is the leading cause of fire in the United States, with 267,000 arsons being committed every year, as well as being the second leading cause of death and injury. When investigators collect evidence from arson cases they only have a limited amount of time before the accelerants evaporate off the sample and it becomes unusable as evidence. The stability of the evidence is dependent on the sample's environment, so different environments can cause the evidence to vary in shelf stability. This research was conducted with the York County Sheriff's Office to test different factors that can affect the shelf-life of arson evidence samples using gas chromatography mass spectrometry (GC-MS) for analysis and using headspace technique to collect samples. Combustion residues can be determined relative to the accelerant using retention time and mass spectrum from the GC-MS analysis. 10 chambers were created to test lighter fluid on wood and carpet in different environments, including: ambient conditions, vacuum, oxygen, argon, and bleach. These chambers were built with rubber septa to collect headspace aliquot of the samples in their different environments. Headspace components of lighter fluid were tested with the GC-MS prior to the combustion with wood and carpet. The samples were analyzed 2 to 3 times a week to compare the degradation of the accelerant on the sample over time.



Scholar: **Lindsey Dangelmaier**

Mentor: **Dr. Donna Nelson**


Presentation Category: Social Science


Type: Oral

Scrolling, Comparing, and Buying: How Social Media May Influence Overconsumption Behaviors

Abstract: Social media use is increasingly common among emerging adults and has been linked to greater social comparison and emotional distress. However, less is known about whether these experiences may contribute to problematic spending behaviors. We examined how frequency of social media use relates to overconsumption, including compulsive shopping, impulsive shopping, and online shopping addiction. Participants completed measures of social media use, social comparison tendencies, emotional dysregulation, and overconsumption behaviors. Serial mediation analyses revealed that higher social media use was associated with more social comparison, which in turn predicted greater rates of emotion dysregulation and ultimately higher rates of compulsive shopping, impulsive shopping, and online shopping addiction. Together, these findings contribute to a growing understanding of how social media may influence both emotional functioning and tendencies toward problematic spending and consequent financial hardship.

Winthrop McNair Summer 2026 Research Abstracts

Scholar: Judith Diaz	
	Mentor: Dr. Crystal Glover
	Presentation Category: Education Type: Oral
	Carrying the Weight: How Childhood Adversity, Trauma Symptoms, and First-Generation Identity Shape Academic Outcomes
<p>Abstract: This study examined how Adverse Childhood Experiences (ACEs), PTSD symptomatology (PTSD-S), and first-generation status predict academic motivation and self-efficacy in college graduates (N ≈ 180, ages 18–25). Using a series of 2×2×2 ANOVAs, PTSD-S significantly predicted higher amotivation (p = .014) and lower academic self-efficacy (p = .050); first-generation status approached significance for self-efficacy (p = .056). ACEs and all two-way and three-way interactions were non-significant. Unlike current-student research, this graduate sample showed trauma eroding internal appraisals (purpose and confidence) while GPA and achievement held steady, suggesting survivorship leaves behind effects that academic performance alone cannot capture.</p>	

Scholar: Jayden Gaskins	
	Mentor: Dr. Ida Oesteraas
	Presentation Category: Humanities Type: Oral
	Packaging Patriarchy in Pink: How Christian Nationalism Rebrands Modern Feminism for Political Ends
<p>Abstract: Women have been central to the spread of conservative ideology, from before they could participate in political systems to the present, through contemporary modes of communication and influence. This raises a couple of questions: (1) why do women participate in and promote socially conservative movements that add to the loss of their own autonomy? and (2) what are the constructed narratives used to assimilate women into these values? Using an ethnographic content analysis of Christian nationalist influencer Allie Beth Stuckey, this study examines how Christian Nationalism platformizes patriarchal bargains by presenting conservative femininity, motherhood, and Christian-nationalist values as morally authoritative and socially desirable, while adapting traditionally feminist language for its own social influence.</p>	

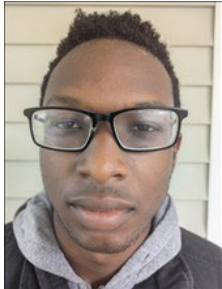
Winthrop McNair Summer 2026 Research Abstracts


	Scholar: Jazzmyne Miller
	Mentor: Dr. Joni Boyd
	Presentation Category: Health Type: Oral
	The Relationship Between Sleep Quality, Sedentary Behavior and Mental Fatigue in College Students
<p>Abstract: Mental fatigue is a significant concern affecting the overall well-being of college students as they navigate the demands of academic coursework, inconsistent lifestyle behaviors, and inadequate recovery practices. Previous research has identified behavioral factors associated with fatigue; however, the relationships among physical activity, sedentary behavior, sleep quality, and mental fatigue in college students remain insufficiently understood. De Souza et al. (2021) identified sedentary behavior and poor health habits as indicators of burnout among college students, while Hanif et al. (2024) reported an inverse relationship between physical activity and self-reported fatigue. Additionally, Moussa-Chamari et al. (2024) demonstrated that sleep quality was a significant predictor of mental health outcomes within a model that included physical activity, suggesting that sleep may play a critical role in student well-being. The purpose of this study is to examine the relationships among physical activity, sedentary behavior, sleep quality, and mental fatigue in undergraduate college students. It is hypothesized that higher levels of physical activity and better sleep quality will be associated with lower levels of mental fatigue, whereas greater sedentary behavior will be associated with higher levels of mental fatigue. Furthermore, sleep quality is expected to emerge as the strongest predictor of mental fatigue. Correlation and multiple regression analyses will be conducted to examine the strength and direction of these relationships. Three self-report instruments will be utilized: the Pittsburgh Sleep Quality Index (PSQI), which measures subjective sleep quality, sleep latency, duration, and efficiency; the International Physical Activity Questionnaire–Short Form (IPAQ-SF), which assesses physical activity levels and sedentary behavior; and the Mental Fatigue Scale (Johansson & Rönnbäck), which evaluates a broad range of mental fatigue symptoms.</p>	

Winthrop McNair Summer Research Interns are matched with faculty experts who hold a research doctorate. Since May 19, the Scholars have been on campus conducting research under the guidance of and often with their faculty mentor. The Scholars could not produce such high quality research without their hard work and their Mentors' efforts. Additionally, our Stats and Methods Coach, Dr. Matt Hayes, has supported the Scholars during his on-campus office hours MTWR since mid-May. June 15-18, the Scholars' presentations were judged during live virtual meetings. Likewise, our Writing Coach, Stephanie Bartlett, supports the Scholars during office hours three days a week. After today's Symposium, the Scholars will present their work in person at the Southeastern Association of Educational Opportunity Program Personnel (SAEOPP) SSS/McNair Research Conference in Atlanta, along with fellow TRiO McNair Scholars from all over the country.


To learn more about the Winthrop McNair Scholars Program, please visit www.Winthrop.edu/McNair.


Winthrop McNair Summer 2026 Research Abstracts

Scholar: Myles Moore	
	Mentor: Dr. Victoria J. Frost
	Presentation Category: Life Science Type: Oral
	Lysogens and Superinfection Immunity
<p>Abstract: Bacteriophages are viruses that infect bacteria. Temperate phages can enter lysogeny during their replicative cycle, conferring immunity to the host against further infection. The phage then persists as a prophage within the cell's genome and is copied as the cell replicates. The host cell is now described as a lysogen. Bioinformatic analysis of phage genomes can be used to predict gene functions and the replicative pathways phages use. However, bioinformatic data require validation at the bench, especially as interest in the practical use of phages and their products is growing. Bioinformatics predicted that phage Lucia could use lysogeny, whereas Cleatunium could only use the lytic cycle. To verify these predictions, each phage's capacity to establish lysogeny and protect the host from external infection was assessed using the phage-seeding technique and immunity assays. Results confirmed that only Lucia could form a lysogen, which was immune to infection by the same or genomically similar phages. Cleatunium initially appeared to produce candidate lysogens. However, these were dismissed after a negative liquid phage release assay. Thus, both Lucia and Cleatunium's predicted replicative cycles were experimentally confirmed. Verifying predicted data is a powerful way to deepen our understanding of phage-host behavior and advance knowledge of phage biology.</p>	


Scholar: Maite Torres Guilhamelou	
	Mentor: Dr. Jennifer Schafer
	Presentation Category: Life Science Type: Oral
	Herb-serving stomata: amphistomy occurs in herbaceous but not woody plants in longleaf pine sandhills
<p>Abstract: Amphistomatous plants have shorter distances for carbon diffusion, resulting in more efficient photosynthesis. We investigated the occurrence of amphistomy in species within the longleaf pine sandhills ecosystem in relation to plant characteristics. We collected leaves of herbaceous and woody plants and assessed stomata and pubescence on lower and upper leaf surfaces. Only herbaceous plants exhibited amphistomy which was most common in plants with trichomes on both leaf surfaces. The probability of amphistomy decreased with leaf mass per area. Our research increases knowledge of how plant characteristics relate to amphistomy and carbon uptake potential in an ecosystem with frequent fire.</p>	


Winthrop McNair Summer 2026 Research Abstracts

Scholar: Annalise I. C. Turner	
	Mentor: Dr. Julie Orme
	Presentation Category: Health Type: Poster
	The Challenges and Experiences of OT Treatment for Spanish-Speaking Hispanic Adults With TBI by Multilingual and Interpreter-Assisted Occupational Therapists
	<p>Abstract: Approximately 65.5 million people in the US are Spanish-speaking, but only 5% of occupational therapists (OTs) are Hispanic/Latinx. To address this disparity, more Spanish-speaking OTs are needed to improve language access and culturally responsive care. This qualitative study examined the perceived challenges and experiences of multilingual and interpreter-assisted OTs during the treatment of traumatic brain injury (TBI) in Spanish-speaking Hispanic adults. Using an Interpretive Description approach, semi-structured interviews were conducted with 4 OTs. It was found that interpreter-assisted OTs experienced more challenges when treating TBI in Hispanic adults when compared to multilingual therapists. Being linguistically diverse positively impacts patient/doctor experiences, specifically in TBI treatment. Interpreter-assisted OTs were limited in their ability to communicate effectively with the patient. Future research should explore how having a multilingual therapist affects the patient/doctor experience.</p>

Scholar: Karen Uribe-Huizache	
	Mentor: Dr. Daniel Stovall
	Presentation Category: Life Science Type: Oral
	Overexpression of RYBP in Glioblastoma Cells Increases Expression of ALX4 and SEMA6D
	<p>Abstract: Glioblastoma multiforme (GBM) is a lethal central nervous system cancer that is often driven by abnormal changes in gene expression patterns. As a result of these changes, Polycomb (Pc) proteins that regulate gene expression are often dysregulated in GBM cells. Specifically, the Pc protein RING-1 and YY1-binding protein (RYBP) is a chromatin-modifying transcription regulator that is frequently downregulated in GBM cells and may play a tumor suppressive function. However, the specific transcriptional targets of RYBP in GBM have not been reported. To that end, our lab previously transduced U-87 and U-251 GBM cell lines with lentivirus expressing green fluorescent protein (GFP) only as a control or RYBP conjugated to GFP, then performed RNA-sequencing to identify potential differentially regulated target genes. In the current project, we sought to validate the RNA-seq data using RT-qPCR. We observed that RYBP overexpression led to a significant increase in SEMA6D and ALX4 mRNA transcript levels in U-87, but not U-251 cells. Further, our lab has previously observed that stabilization of G-quadruplexes significantly increased RYBP mRNA levels, and thus we sought to determine if this also led to increases in putative RYBP target genes SEMA6D and ALX4 using RT-qPCR. Overall, our results reveal novel insights into RYBP's transcriptional effects in glioblastoma.</p>

Winthrop McNair Summer 2026 Research Abstracts

Scholar: Sasha J. Vorontsov	
	Mentor: Dr. Victoria J. Frost
	Presentation Category: Life Science Presentation Type: Oral
	Characterizing Interactions between Adephagia gp78 and its Bacterial Host's Proteome
	<p>Abstract: The increase in antibiotic resistance is driving a search for alternative solutions. Bacteriophages, viruses that infect and destroy bacterial cells, are a promising option. However, approximately 70% of the functions of predicted genes in a phage genome remain unknown. To investigate these functions, the bacterial two-hybrid (B2H) assay was used to assess interactions between the phage protein Adephagia gp78 and the host <i>Mycobacterium smegmatis</i> proteome. The phage gene was cloned into a plasmid (p2Hα), which was then transformed into an <i>Escherichia coli</i> cell line carrying the entire <i>M. smegmatis</i> genomic library in a different plasmid (pC1). Following dual plasmid expression, protein-protein interactions (PPIs) were detected by expression of the reporter genes, <i>bla</i> and <i>lacZ</i>, which encode β-lactamase and β-galactosidase, respectively. Both reporter genes produce a phenotypic response on carbenicillin-containing media, yielding blue colonies when PPIs occur. Thus far, 14 PPI candidates have been identified between Adephagia gp78 and its bacterial host, and the colony plasmids have been purified. These candidate interactions are currently being verified at the bench. Once verified, plasmids can be sequenced to identify the interacting host protein(s). Research into phage-host PPIs will help elucidate phage gene function and enhance understanding of phage biology and its potential applications.</p>

Scholar: Chris Wilburn	
	Mentor: Dr. Donna Nelson
	Presentation Category: Social Science Type: Oral
	Avoid or Approach? How Reflecting on the Past Influences Self-Perceptions and Future Education and Career Intentions
	<p>Abstract: Emerging adults frequently encounter educational and career opportunities that involve uncertainty and anxiety. Identifying factors that promote approach rather than avoidance may help individuals pursue meaningful opportunities. We examined how reflecting on past approach versus avoidance experiences influenced self-perceptions and future educational and career intentions among emerging adults. Participants were randomly assigned to recall past experiences where they approached or avoided challenges despite anxiety. They then completed measures of anxious self-view, capable self-view, and future behavioral intentions. Results indicated reflecting on past approach experiences increased willingness to pursue future opportunities. Additional mediational analyses revealed that capable self-views mediated the link between the recall task and future intentions while anxious self-views did not. Findings have implications for interventions to help reduce avoidance and increase confidence about pursuing opportunities.</p>

Winthrop McNair Summer Research Symposium

June 22, 2026

Richardson Ballroom

Schedule

TIME	PRESENTER	TITLE	MENTOR
1:00 PM	Dr. Cheryl Fortner	Director's Welcome	
1:05 PM	Panel 1 Oral Presentations		
1:05 PM	Jazzmyne Miller	<i>The Relationship Between Sleep Quality, Sedentary Behavior and Mental Fatigue in College Students</i>	Dr. Joni Boyd
1:15 PM	Chris Wilburn	<i>Avoid or Approach? How Reflecting on the Past Influences Self-Perceptions and Future Education and Career Intentions</i>	Dr. Donna Nelson
1:25 PM	Judith Diaz	<i>Carrying the Weight: How Childhood Adversity, Trauma Symptoms, and First-Generation Identity Shape Academic Outcomes</i>	Dr. Crystal Glover
1:35 PM	Lindsey Dangelmaier	<i>Scrolling, Comparing, and Buying: How Social Media May Influence Overconsumption Behaviors</i>	Dr. Donna Nelson
1:45 PM	Panel 1 Q & A		
Break			
2:15 pm POSTER	Annalise I. C. Turner	<i>The Challenges and Experiences of OT Treatment for Spanish-Speaking Hispanic Adults With TBI by Multilingual and Interpreter-Assisted Occupational Therapists</i>	Dr. Julie Orme
2:30 PM	Panel 2 Oral Presentations		
2:30 PM	Karen Uribe-Huizache	<i>Overexpression of RYBP in Glioblastoma Cells Increases Expression of ALX4 and SEMA6D</i>	Dr. Daniel Stovall
2:40 PM	Myles Moore	<i>Lysogens and Superinfection Immunity</i>	Dr. Victoria J. Frost
2:50 PM	Sasha J. Vorontsov	<i>Characterizing Interactions between Adeptophagia gp78 and its Bacterial Host's Proteome</i>	Dr. Victoria J. Frost
3:00 PM	Panel 2 Q & A		
Break			
3:15 PM	Panel 3 Oral Presentations		
3:15 PM	Maite Torres Guilhamelou	<i>Herb-serving stomata: amphistomy occurs in herbaceous but not woody plants in longleaf pine sandhills</i>	Dr. Jennifer Schafer
3:25 PM	Ashlee Courtney	<i>Arson Evidence Stability Analysis Through GC-MS</i>	Dr. Cliff Calloway
3:35 PM	Jayden Gaskins	<i>Packaging Patriarchy in Pink: How Christian Nationalism Rebrands Modern Feminism for Political Ends</i>	Dr. Ida Oesteraas
3:45 PM	Panel 3 Q&A		
4:00 PM	Dr. Fortner	<i>Closing Remarks, then Guests Exit</i>	
4:10 PM	Anna Barkley, McNair alumna	<i>Just for the Scholars: Words of Wisdom and Inspiration</i>	

Thank you for coming.