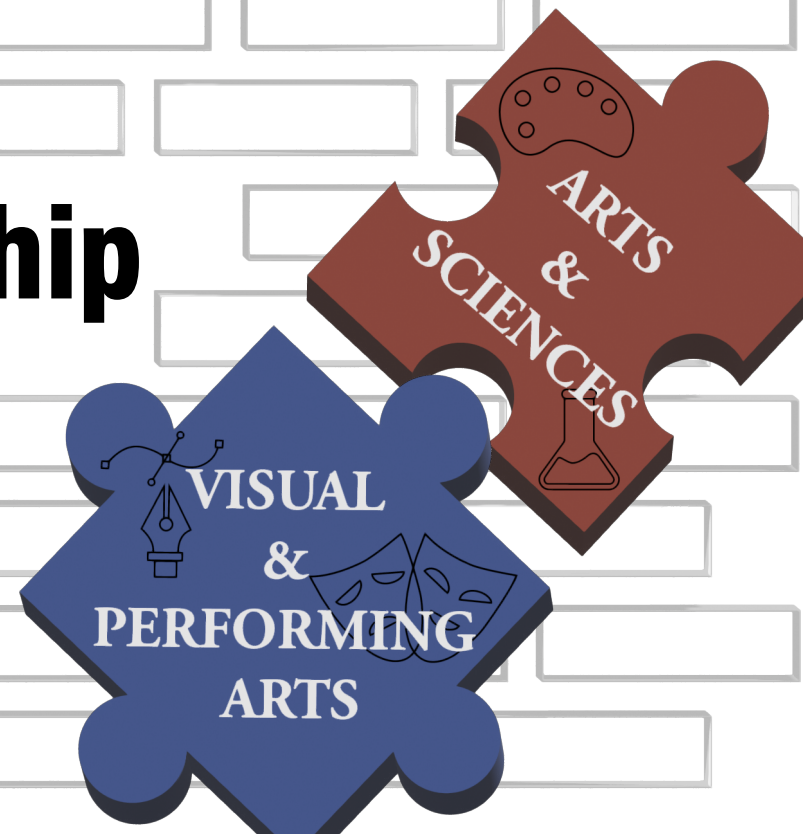




**Winthrop University | 2024**

# **Undergraduate Scholarship & Creative Activity**



*“A lot of people notice when you succeed, but they don’t see what it takes to get there.”*

Dawn Staley

*“All you have to do is dream, work really hard and be surrounded by really, really good people that believe in you.”*

Caitlin Clark

This has been a historical year for women’s NCAA basketball. It has been a year where everyone took note of the amazing things happening in the game and the amazing women that are part of the story. The inspiring stories that surrounded the sport this year provide uncountable lessons to anyone paying attention. Lessons of leadership. Lessons of motivation and hard work. Lessons of personal growth and achievements. Lessons of failure and resilience. These stories of growth, leadership, failure, and success exemplify what it takes to embark on a journey of scholarship and intellectual growth. The abstracts and creative work captured in this compilation represent the journey that was experienced by nearly 400 Winthrop students this year. For this reason, we have elected to highlight quotes from two remarkable women that have taken all challenges in stride, stood out from the crowd, have elevated everyone around them to another level, and transformed the sport and how people perceive it.

University College and Winthrop University proudly present Undergraduate Scholarship and Creative Activity 2024. This thirteenth annual University-wide compilation of undergraduate work chronicles the efforts and accomplishments of students and faculty mentors campus wide. The remarkable work summarized in these pages represents nearly every academic department and spans all five colleges of the university: College of Arts & Sciences (CAS), College of Business Administration (CBA), Richard W. Riley College of Education, Sport & Human Sciences (CESHS), College of Visual & Performing Arts (CVPA), and University College (UC).

We are confident that you will be impressed by the depth and diversity of the scholarly and creative explorations highlighted within these pages. As you will see, these student projects grew from a variety of origins, including curricular requirements and co-curricular programs, and were supported by a range of internal and external funding sources. Independent of origin, each contribution to this book represents a transformational experience that engaged a student with a problem that does not have a correct answer or an obvious end; the benefit comes from the process of navigating the unknown and, maybe, reaching a logical conclusion. These experiences embody some of the most meaningful learning opportunities provided by Winthrop University.

This year also marks the 10th anniversary of the Symposium on Undergraduate Research and Creative Endeavors, fondly referred to as SOURCE. This annual event provides an opportunity for students in all disciplines to engage in a scholarly exchange that centers on their work. The sense of excitement that students and mentors feel as SOURCE approaches is electric – you can feel it in the air throughout campus. When SOURCE Day arrives, it’s an explosion of activity and engagement. The sound of 50 conversations happening at the same time in one of the poster sessions. The sound of overlapping oral presentations in adjacent rooms in the DiGiorgio Center and the West Center. The sight of students and faculty mentors rushing through the halls to get to a presentation they’ve marked on the agenda. The sense of accomplishment felt by students and the look of pride on their mentor’s face is priceless. Ten years ago, when Dr. Robin Lammi and Dean Gloria Jones envisioned and organized the first annual SOURCE, it’s hard to imagine they could have envisioned what the event would grow into and what it would mean to the campus community. To put it simply, SOURCE is more than a day or an event – it is a permanent and pervasive fixture that has become part of Winthrop’s identity. With the deepest of gratitude, we thank Dr. Lammi and Dean Jones for their vision, time, and efforts.

We offer our deep congratulations to all our student scholars on their creation of new knowledge and new forms of creative expression, as well as their development of professional skills and attributes that have prepared them to pursue nationally competitive awards, graduate and professional degrees, and employment in their chosen fields. Of particular note, we acknowledge the contributions of undergraduate Mykaela Werdnie, a senior graphic design major, who created the artwork and design for this book. We also recognize the faculty members who served as mentors, coordinators, thesis readers, and reference writers, whose commitment and dedication enabled students’ accomplishments. We thank them for helping to sustain a vibrant learning environment at Winthrop and for contributing to the development of the next generation of curious, engaged professionals. Lastly, we offer deep thanks to Yvonne Engblom and Jessica Peeples for their irreplaceable contributions.

**Nicholas Grosseohme, Ph.D.**

Director of Undergraduate Research

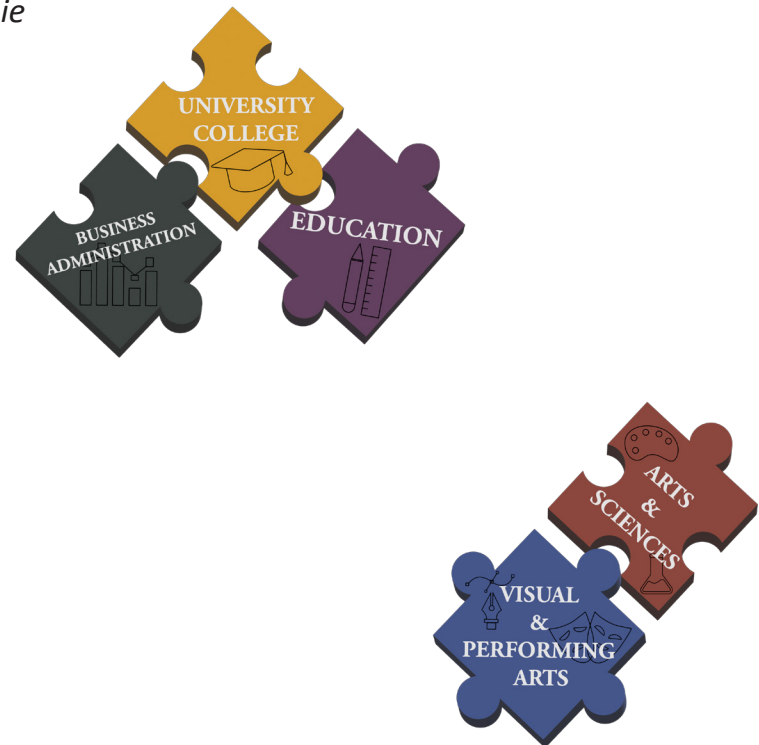
**Leigh Poole, Ph.D., MBA**

Interim Dean of University College

*Throughout each of Winthrop's colleges and majors, unique and diverse knowledge is found. However, when this knowledge is combined, each piece can be arranged to reveal an overall image. Within this design, I used the concept of moving puzzle pieces to show how they actively work to create connections, just as individuals within each major do.*

*Most importantly, the overall image and success would not exist without the presence of each piece which reflects the value of every person's knowledge.*

*- Mykaela Werdenie*



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# Winthrop University Undergraduate Research Initiative

The Winthrop University Undergraduate Research Initiative supports a student centered learning environment that fosters student research, scholarship, and creative activities. The Initiative encourages students and faculty mentors to collaborate in the design and implementation of projects and the dissemination of results.

## Undergraduate Research Advisory Committee:

**Sarah Marie Catalana-Berry, Ph.D.**  
College of Education, Sport, and Human Sciences

**Tomoko Deguchi, Ph.D.**  
College of Visual and Performing Arts

**Adrienne Edwards, Ph.D.**  
College of Education, Sport, and Human Sciences

**Cheryl Fortner, Ph.D.**  
University College

**Tracy Griggs, Ph.D.**  
College of Business Administration

**Anna Igou, Ph.D.**  
College of Arts & Sciences

**Hope Lima, Ph.D.**  
College of Arts & Sciences

**Michael Lipscomb, Ph.D.**  
University College

**Jeremy Lopuch, Ph.D.**  
College of Education, Sport, and Human Sciences

**Nicholas Moellman, Ph.D.**  
College of Business Administration

**Claudia O'Steen, M.F.A.**  
College of Visual and Performing Arts

**Kelly Ozust, M.F.A.**  
College of Visual and Performing Arts

**Leigh Poole, Ph.D.**  
Interim Dean of University College

**Anna Romanova, Ph.D.**  
College of Business Administration

**William Schulte, Ph.D.**  
College of Arts & Sciences

**Michael Sickels, Ph.D.**  
College of Arts & Sciences

**Merry Sleight, Ph.D.**  
College of Arts & Sciences

**Janet Wojcik, Ph.D.**  
College of Education, Sport, and Human Sciences

## College of Arts and Sciences Student Research Committee:

**Michael Sickels, Ph.D.**  
Sociology, Criminology, & Anthropology,  
Committee Chair

**Gregory Bell, Ph.D.**  
History

**Salvatore Blair, Ph.D.**  
Biology

**Matthew Fike, Ph.D.**  
English

**Arran Hamm, Ph.D.**  
Mathematics

**James Hanna, Ph.D.**  
Chemistry, Physics, Geography and the  
Environment

**Kristin Kiblinger, Ph.D.**  
Political Science, Philosophy, Religious, and  
Legal Studies

**Jessie Hoffman, Ph.D.**  
Human Nutrition

**Anna Igou, Ph.D.**  
World Languages and Culture

**Greg Oakes, Ph.D.**  
Associate Dean

**William Schulte, Ph.D.**  
Mass Communication

**Kiyoshi Sasaki, Ph.D.**  
Biology

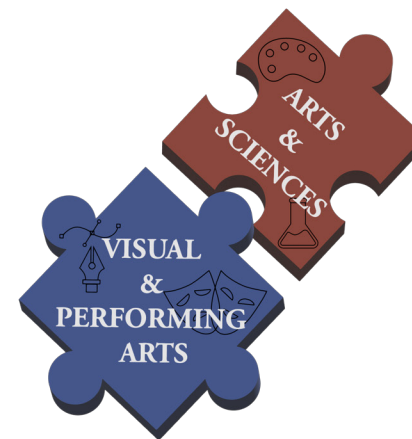
**Aubrey Sejuitt, Ph.D.**  
Social Work

**Ephraim Sommers, Ph.D.**  
English

**Merry Sleight, Ph.D.**  
Psychology

**Hannah Switzer**  
Student Representative, Political Science

# Honors Theses



# Honors Theses

Winthrop University's Honors Program is designed to enrich the college experience for highly talented and motivated students. The program provides qualified students the opportunity, through interactions with a vibrant scholarly community of talented faculty and peers, to build specific skills and knowledge that will allow them to succeed in graduate school, professional school, and post-educational employment. More particularly, the program offers students opportunities to engage in directed scholarly research and creative endeavors directly related to their fields of study and their post-Winthrop plans.

The program has a rich history. Founded in 1960, Winthrop's Honors Program is one of the oldest in the nation. President Charles S. Davis, realizing the importance of an enriched education for high-achieving students, appointed faculty member John S. Eells as the founding director. Eells joined the Inter-University Committee on the Superior Student (ICSS), which received funding from the Carnegie Foundation, the National Science Foundation, and the U.S. Office of Education to help establish honors programs at colleges and universities across the U.S.

When the ICSS disbanded in 1965, several members of that group formed the National Collegiate Honors Council (NCHC), which is committed to maintaining a professional association of honors educators. Eells was elected the fourth President of NCHC in 1970. Over the years, the Winthrop University Honors Program has continued to flourish, and in the early 1980s the program was divided into a program for entering freshmen and a program for upperclassmen. At that time, there was a national trend toward creating "learning communities," and Winthrop created the Clustered Learning Units for Educational Success (C.L.U.E.S.) program in which new honors freshmen enrolled in a cluster of three honors classes. This program later became the Freshman Honors Program. Seeing the need for a more cohesive honors experience, President Anthony J. DiGiorgio led a 1997 initiative that combined the freshmen program with upper-class offerings, which was directed by Dr. Kathy Lyon until 2019. During her tenure, Dr. Lyon built the program into a thriving and crucially important part of the Winthrop experience.

Today, the Honors Program at Winthrop University enrolls approximately 420 students from each of the degree-granting colleges of the university. To graduate with an Honors Program degree, a student must complete 24 hours of honors courses, which includes completing an Honors Culminating Experience Project while maintaining at least a 3.30 grade point average. The Honors culminating experience for Honors Program students, in which they work collaboratively with a faculty director and two additional committee members, requires Honors students to produce a project that evaluates knowledge, concepts, and methodology; examines major issues; integrates complex information; and develops and appropriately defends an argument, and/or appropriately curates an artistic project or an original performance. The project may consist of an original research project; creative work or a performance accompanied by supporting written and visual documentation; a project with practical or commercial application accompanied by supporting written and visual documentation; or a critical literature review.

The Honors Program students and I would like to thank the faculty members who have worked as Honors culminating experience directors and committee members throughout this process. Their expertise, guidance, and commitment is crucial to the continuing success of the Winthrop Honors Program.

**Michael Lipscomb, Ph.D.**

Honors Program Director

## Advisory Committee:

**Michael Lipscomb, Ph.D.**

Chair, Honors Program Director

**Paul Wiegand, Ph.D.**

College of Business Administration

**Sarah Marie Catalana-Berry, Ph.D.**

College of Education, Sport, and Human Sciences

**Marvin McAllister, Ph.D.**

College of Visual and Performing Arts

**Kyle Sweeney, Ph.D.**

College of Visual and Performing Arts

**Cody Walters, M.L.I.S.**

Dacus Library

**Devon Ralston, Ph.D.**

College of Arts and Sciences

**Jeffrey Sinn, Ph.D.**

College of Arts and Sciences

**LeeAnn Pounds**

Director of the Office of Nationally Competitive Awards, ex officio

**Leigh Poole, Ph.D.**

Interim Dean of University College, ex officio

**Takita Sumter, Ph.D.**

Dean of the College of Arts and Sciences, ex officio

Honors Thesis  
Committee: Karen Stock,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Fine Arts)

(HONR 450H - Karen  
Stock, HONR 451H -  
Michael Lipscomb)

## Queer Creationism: Exploring Queer Universes with the Art of Arca and Salman Toor

Radio L. McAda

Creating art is a form of self-governing and self-care that Queer artists need during threatening times, for instance, the rise of anti-transgender bill proposals and right-wing traditionalism in 2023. My intentions are to explore the unique relationship between persecution and the creation of alternate realities created by Queer artists. Arca, with the help of the animator, Jesse Kanda, creates a futuristic reality within her music visuals. Arca and Jesse Kanda create beings and scenes coated with Queer coding. The alternate realities in Arca's universe could never exist, and Arca herself being a transgender artist has the threat of her existence ending. Salman Toor's paintings create a universe of scenes where Queer people of color are seen expressing themselves freely. Toor fantasizes his own memories to create a universe of power for Queer people of color. Both artists utilize non-figurative bodies and bright colors to Queer the body within their art. The artists showcase escaping the restrictions of the contemporary world by creating their own universe through manipulating the body and environment of the social space in their artworks.

Honors Thesis Committee: Zach  
Abernathy, Ph.D.; Kristen  
Abernathy, Ph.D.; Gihanee  
Senadheera, Ph.D.

Winthrop University's Annual  
McNair Summer Research  
Symposium, Rock Hill, SC, June  
2023. | Winthrop University  
Showcase of Undergraduate  
Research and Creative  
Endeavors, Rock Hill, SC, April  
2024

Supported by U.S. Department  
of Education McNair Grant  
P217A180094 Scholars Program

1st Place in Physical Science  
Oral Presentations, June 2023,  
Southeastern Association of  
Educational Opportunity Program  
Personnel (SAEOPP).

(CAS – Mathematics)

(MATH 450H - Zach Abernathy,  
HONR 451H - Michael Lipscomb)

## Time Series Forecasting Models for Local Light Pollution

Abigail Mervine

This study builds a forecasting model to describe local trends in light pollution: the brightening of the night sky as a result of anthropogenic, artificial light sources. Satellite-based radiance measurements can be used as a proxy for light pollution levels. Specifically, a sample from a dataset representing radiance  $[(nW \cdot cm^{-2} \cdot sr^{-1}) = 10^{-5} (W \cdot m^{-2} \cdot sr^{-1})]$  values from 2012-2022, collected by the Visible Infrared Imaging Radiometer Suite – Day/Night Band (VIIRS-DNB) sensors on the Suomi National-Polar Orbiting Partnership (SNPP) satellite, along with time series forecasting, was used to predict future radiance values for Rock Hill, South Carolina. Autocorrelation plots and the augmented Dickey-Fuller test were utilized to select parameters for an Autoregressive Integrated Moving Average (ARIMA) forecasting model. The accuracy of this model, quantified by an Akaike Information Criterion (AIC), was compared to that of models built by Python's auto arima package, including Seasonal ARIMA (SARIMA) models. The model with the lowest AIC was chosen. A test-train split was then performed on the dataset to cross-validate the chosen SARIMA model. After cross-validation, the chosen model was used to generate an 8-year (2022-2030) forecast with 95% confidence intervals, and the forecast appears to show a decrease in radiance values for the Rock Hill area. We conclude with a discussion on the degree to which these radiance values could correlate with changes in light pollution, including the impact of adopting LED technology in artificial lighting over the period of time used in the training data.

Honors Thesis  
Committee: Kori  
Bloomquist, Ph.D., Sara  
J. English, Ph.D., Tenisha  
Powell, Ph.D.

SOURCE, April 2024 |  
Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Social Work)

(HONR 450H - Kori  
Bloomquist, HONR 451H -  
Michael Lipscomb)

Honors Thesis  
Committee: O. Jennifer  
Dixon-McKnight, Ph.D.,  
Adolphus Belk, Ph.D.,  
Sarah Reiland, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – History)

(HONR 450H - Jennifer  
McKnight, HONR 451H -  
Michael Lipscomb)

## Parental Perceptions of Reading in Early Childhood

Claire Roberts

Early literacy is a critical developmental factor in a child's readiness for learning, language comprehension, and vocabulary. This thesis will focus on the question: what are parents' perceptions of reading in early childhood? The basis of the research in this study explores the role of parents in creating a positive literacy environment for their children and how parents perceive the value of reading and literacy for both themselves and their children. In this study, we collected data from parents of children aged 0-8. The language of the questionnaire is specifically designed to allow parents to express their opinions to the fullest extent in an unbiased environment. The findings of this study conclude parental perceptions of reading concerning demographic factors and literacy in early childhood. Nurturing early childhood literacy, language, and reading skills provides the necessary structure for the further development of these skills as children transition into school and later years of development. Recognizing parental perceptions of reading can help provide the knowledge for further research that determines how to successfully advocate for the accessibility of positive reading environments and equitable access to resources that support the literacy development skills of all children.

## Invisible Chains: The Psychological Impact of Slavery on Slave Marriage and Family

Makala Irby

The psychological impact of slavery in the United States is evident in the African American experience of being kidnapped and enslaved. By exploring historical records and the firsthand narratives of those captured and enslaved it becomes clear that they faced many mental health concerns including issues with coping, self-esteem, and PTSD. This study focuses on how slavery and plantation culture created mental health concerns in the contexts of marriage, family, and parenting. Slave marriages had no legal backing and were only granted at the mercy of their masters. These same masters held the right to buy, sell, and rape these enslaved people at their will without repercussions. These actions destroyed the sanctity of monogamy among slaves and stood as a continuous reminder that enslaved people were not the masters of their own fate. Parents tended to be the heads of the household, but slave masters outranked parents in terms of authority. Just as with adult slaves, slaveholders could merchandise slave children as they saw fit for personal and economic gain. The institution of slavery was purposely made to maintain the enslaved as property, not people. This lack of power and autonomy influenced generations of African Americans slaves through practices that were intended to degrade and continuously oppress them.

Honors Thesis  
Committee: Laura  
Glasscock, Ph.D.; Jennifer  
Schafer, Ph.D.; Silvia  
Wozniak, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Biology)

(HONR 450H - Laura  
Glasscock, HONR 451H -  
Michael Lipscomb)

## How Hearing Loss Affects Mental Decline and Dementia

Sydney L. Helms

This literature review looks into the connection between hearing loss and dementia. We know that hearing stimulates neurons in our auditory nerves, which travel to the auditory cortex in our temporal lobe and that the speech, music, and nature sounds that we hear stimulate our brains in many ways. These sounds can trigger memories and emotions that stimulate many other areas of the brain. Without the stimulation of sounds, the auditory nerves degrade, and the brain reorganizes to prioritize other tasks. People whose brains are under-stimulated have a higher risk of developing dementia. This literature review examines how untreated hearing loss amongst the elderly might be linked to the development of dementia, particularly in comparison to individuals whose hearing has been aided by hearing aids, cochlear implants, or other hearing devices. Practically, then, it addresses the question of whether hearing aids and other devices could be used as preventative measures to lower the risk of cognitive decline in the elderly by increasing stimulation of the brain and decreasing isolation and depression.

Honors Thesis  
Committee: Michael  
Lipscomb, Ph.D., Jennifer  
Disney, Ph.D., Adolphus  
Belk, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490H - Michael  
Lipscomb)

## The International Realities of Sex Work: Using Quantitative Analysis and Case Study Comparisons to Construct an Ideal Framework for the Legalization of Sex Work

Hannah Switzer

Often referred to as the oldest profession, sex work is an international reality. However, the stigmas surrounding sex work and the legality of the work itself differ greatly from nation to nation. This paper explores the different methods and impacts of legalizing sex work through a comparative analysis of the Netherlands, Brazil, and the United States. The current sex work legislation from each nation has been evaluated using several variables, including legal status, protections offered to sex workers, protections against human trafficking, and access to support and healthcare services. The international legal status of sex work is also evaluated through a quantitative analysis of data from 160 countries to determine what factors make a nation more likely to legalize sex work. I argue that government type has little impact on the likelihood of legality, but the geographic location, population size, and national religion can influence a nation's attitude towards legalizing sex work. Finally, using the results of the comparative and quantitative analyses, I propose an ideal framework for legalization which pulls methods from the case study nations.

Honors Thesis  
Committee: Michelle  
Livek Garner, Ph.D., Kelli  
Passmore, Ed.D., Stacey  
Walden, MAT

(CVPA – Fine Arts)

(ARTE 391 - Michelle  
Garner)

## Immersive Investigation into Ecological Habits as an Artist Teacher

Riley Poirier

The global climate crisis is an ongoing issue that, if not remedied, could force the world past the point where environmental efforts can heal the damage. The public needs to be made aware of the climate crisis so that they can make more environmentally sound decisions in their everyday lives. Embedding ecological awareness into education, specifically art education, can create a more environmentally aware understanding of the natural world and bring local communities closer together to advocate for change. This project envisions a classroom that centers around sustainability that models how educators could encourage new generations to become more environmentally friendly in their own daily practices. I have reflected on my past practices as a student and as an art-educator-in-training, and I have combined my findings and existing research on sustainable art education to inform my lesson plans. I have implemented as many sustainable practices as possible, such as using materials that can be reused or recycled, having my students create a final artwork with many different uses, as well as modeling and discussing with my students ways they can become more ecologically aware. I have presented my student's artwork in the most sustainable way I could for the exhibition Time Capsule curated in collaboration with my ARTE 391 peers.

Honors Thesis  
Committee: P.N. Saksena;  
Adriana Cordis, Ph.D.;  
Hannah Richards, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CBA – Accounting,  
Finance, & Economics)

(HONR 450H - P.N.  
Saksena, HONR 451H -  
Michael Lipscomb)

## Fraud and the Accounting Department

Olivia Lantz

Fraud is a major threat to individual businesses and the economy at large and can range from large-scale collusion to single-employee skimming. This paper focuses on the acts or circumstances that result in fraud. Through research of case studies and fraud reports, this paper investigates whether the majority of accounting fraud is the result of intentional statements, management expectations, company culture, or personal intent. This paper also examines the security and effectiveness of whistleblower programs. Programs that are in place to protect and support the truth often do not shelter and defend the informer as they should. An analysis of these whistleblower programs leads to the conclusion that the programs focus on how to benefit and make the company whole rather than protect and help the individual.



Honors Thesis Committee:  
Nicholas Grosseohme,  
Ph.D.; Daniel Stovall, Ph.D.;  
Laura Glasscock, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
grant from the National  
Institute for General  
Medical Sciences  
(P20GM103499)

(CAS – Chemistry, Physics,  
Geology & the Environment)

(HONR 450H - Nicholas  
Grosseohme, HONR 451H -  
Michael Lipscomb)

Honors Thesis  
Committee: Christian  
Grattan, Ph.D.; Jason  
Hurlbert, Ph.D.; Michael  
Lipscomb, Ph.D.

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(HONR 450H - Christian  
Grattan, HONR 451H -  
Michael Lipscomb)

## Characterization of the Interplay Between Phosphorylation and Dimerization of RitR

Courtney Miller

Iron is an essential micronutrient for nearly all organisms. This metal plays a critical role in several physiological processes due to its ability to readily cycle between the +2 and +3 charge states, a property that also makes it a liability to the cell. Consequently, organisms have evolved dedicated machinery to control the intracellular concentration of iron. Surprisingly, *S. pneumonia*, an important human pathogen that presents serious health risks, lacks a well-characterized iron sensing mechanism. The serious health risks associated with *S. pneumonia* highlight the importance of developing new strategies to prevent the spread of its strains. It is crucial to gain a better understanding of the mechanisms of *S. pneumonia* that control the intracellular concentrations of iron to devise these therapies. The repressor of iron transport (RitR), a transcriptional regulator that represses the pneumococcal iron uptake operon, appears to play a key role in controlling iron levels. The ability of RitR to regulate transcription is impacted by oxidation-induced dimerization and kinase-induced phosphorylation; the former results in strong repression while the latter signals derepression. This project aims to better understand the relationship between oxidation, phosphorylation, and transcriptional control by RitR. Currently, efforts are focused on establishing conditions that are ideal to stabilize the RitR dimer and characterizing the oxidation/dimerization reaction. Future goals will focus on (1) the DNA binding affinity for dimer vs. monomer, (2) the impact phosphorylation has on the dimerization reaction and (3) how dimerization influences the ability of RitR to be phosphorylated.

## Synthesis of Pyrazole Derivatives to Be Used as an Anticancer Drug

Mackenzie A. Smith

Cancer remains a significant target of multiple anti-cancer drug research projects. As new drugs are developed and discovered, the disease seems to evolve and resist the impact these drugs have on curbing the progress of the spread. To combat this drug resistance, molecules containing the heterocyclic pyrazole ring have been developed. This project focused on the synthesis of novel pyrazole-containing compounds to assess the impact these compounds may have in cancer treatments. The synthetic approach evaluated how changing the halide, which is para to the diazo group, may be introduced by preparing the diazonium salt and reacting with malononitrile to substitute the central alpha carbon. The scheme also focused on how changes in the pyridine ring nitrogen position impacts how the molecule interacts as a cancer therapeutic drug. The preferred halide and pyridine ring was then combined to further enhance the compounds' ability to combat this disease and ultimately the drug resistance.

Honors Thesis  
Committee: Michael  
Lipscomb, Ph.D.; Jennifer  
Disney, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490H - Michael  
Lipscomb)

Honors Thesis  
Committee: Virginia  
Williams, Ph.D.; Michael  
Lipscomb, Ph.D.; Gregory  
Bell, Ph.D.

SOURCE, April, 2024, SC,  
Winthrop | Winthrop  
University Showcase of  
Undergraduate  
Research and Creative  
Endeavors, Rock Hill, SC,  
April 2024

(CAS – History)

(IDVS 490H - Virginia  
Williams, HONR 451H -  
Michael Lipscomb)

## “Nothing About Us, Without Us”: Challenging the Exclusion of Disability Theory and Politics from the Discipline of Political Science

Sera Crookes

The discipline of political science has been slow in its recognition and exploration of disability and the key issues presented by disability theorists: eugenics, medicalization, social justice, and disability rights. Even though disabled individuals comprise the largest or one of the largest physical minorities in many countries, disability politics, scholarship, activism, and theory are confined to select spaces. As Harlan Hahn, disability activist and professor of psychiatry and political science has asserted, the study of disability has had a significant effect on all the social sciences, but political scientists have largely neglected the subject, associated policies, and its theoretical implications for the discipline. Although feminist theory and antiracist politics have established themselves as essential traditions within the discipline of political science and political theory, the same *cannot* be said for disability theory and disability studies. The discipline of political science would benefit from the incorporation of disability theory and studies into contemporary political theory to produce a more robust and inclusive framework to engage with politics. Establishing disability studies as a recognized, valued, and *unique* dimension of political theory is essential to dismantling the historical exclusion of disabled scholars and activists and the important substantive content of disability studies from mainstream academic recognition and, by extension, to establish true diversity of study within the discipline of political science.

## Intervention in Public Education

Alex Constantine

This investigation explores the effects of parental and government intervention on public education. This topic is important because of the impact that both parental and government involvement has had on public education, especially in recent history. My research question asks in what way has parental and government involvement positively and negatively impacted public education within the past fifty years. Drawing on the disciplines of psychology, education, and sociology, my thesis is that parental and government involvement such as questioning the topics taught in school and making laws that censor certain books harms the academic skills of students. Despite that fact, parental and government involvement can have positive outcomes, such as standing up for your child and funding multiple areas in public schools. In recent years, however, more intervention has led to negative outcomes. Government officials are trying to recreate the school they were in instead of using the schools' strengths to grow, while parents are stopping teachers from teaching certain topics or books due to the controversial issues within these themes and topics. Teachers are becoming bombarded from every angle, but if these three groups could work together, or if government and parents trusted teachers and let them do their job, schools may become a better place where students could learn effectively.

Honors Thesis  
Committee: Giancarlo  
Anselmo, Ed.D.; Sarah  
Reiland, Ph.D.; Cheryl  
Fortner, Ph.D.; Michael  
Lipscomb, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024.

(CAS – Psychology)

(HONR 450H - Giancarlo  
Anselmo, HONR 451H -  
Michael Lipscomb)

## The Criterion Validity of a Computer-Adaptive Assessment for a Statewide High-Stakes Reading Assessment

Catherine Windham

There is some evidence that benchmark assessments are valid predictors of students' performance on high-stakes assessments. However, there is less research on this relationship at the middle school level, particularly when looking at computer-adaptive benchmark assessments. As such, this study analyzed the criterion validity of the computer-adaptive assessment Star Reading assessment (STAR-R) when given three times a year and then compared to a statewide high-stakes assessment. Further, this study also tested the divergent validity of the STAR-R by examining if the STAR-R would produce significantly different mean scores when comparing students labeled academically gifted, students in regular education, and those in special education. Participants included sixth ( $N = 218$ ) and seventh ( $N = 270$ ) grade students from a rural southeastern middle school. Correlations were strong between the STAR-R and the high-stakes assessment across the year for both grades, suggesting that the STAR-R may hold value as a predictor for high-stakes assessment performance as early as nine months in advance. Further, there was a significant difference in performance on both the STAR-R and the high-stakes assessment in each subgroup of students tested (i.e. students in special education and students labeled gifted). Future research directions and implications of the research results are discussed.

Honors Thesis  
Committee: Leslie  
Bickford, Ph.D.; Kelly  
Richardson, Ph.D.; Dustin  
Hoffman, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – English)

(ENGL 471H - Leslie  
Bickford, HONR 451H -  
Michael Lipscomb)

## “Could It Be Madness—This?” Mental Health Disorders and Creativity in Virginia Woolf’s Writing

Paige M. Lillibridge

In this project, I explore the ways in which Virginia Woolf, known to have suffered from manic depression, used her creativity both as an outlet to find solace from her mental illness and to encourage understanding of mental illness. I specifically focus on her novel *Mrs. Dalloway*, analyzing representations of mental illness in her character Septimus Smith. There has been significant research done on the ways in which creative individuals experience mental illness differently from those outside of the creative community. This paper builds on that research by applying it to the life of Woolf in order to understand how her mental illness may have been influential in her creative works. I explore the links between her writing and the mental state of Woolf in order to determine how she used writing as a means of coping with her mental health, as well as how she utilized her experience of mental illness to express within her novel the the importance of understanding mental health. In doing so, I discuss a relationship between writing and mental health, showcasing how writing can be both a coping mechanism for mental illness as well as serve as a catalyst to shed light on matters often overlooked by larger society. Likewise, through this research, I emphasize the importance of not accrediting the creation of an author's work to their mental illness but rather recognizing how they can create despite their mental health challenges.

Honors Thesis  
Committee: Monique  
Constance-Huggins, Ph.D.;  
Michael Lipscomb, Ph.D.;  
Anthony Hill, Ph.D.; Sarah  
Titman, M.S.W.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Social Work)

(HONR 450H - Monique  
Constance-Huggins, HONR  
451H - Michael Lipscomb)

## The Experiences of Black College Students Seeking Mental Health Services on College Campuses

Zaria J. Graham

Having access to mental health resources on college campuses is critical in light of the growing number of students experiencing mental illness. The absence of important resources can have a serious impact on students' performance. Yet, few studies exist that explore how students, especially those of color, access mental resources across different kinds of college campuses. This study explored the research question “What are the lived experiences of Black college students, with a mental illness, accessing mental health resources on a college campus at a Historically Black College or University (HBCU) versus a Predominantly White Institution (PWI)?” This study used a small sample of six participants from an HBCU and a PWI. The participants were chosen using a convenience sample, which means that they were accessed through personal connections and contacts. The study sought to showcase their lived experiences through qualitative research using semi-structured interview questions. Students' responses were analyzed for connected themes. The preliminary findings are that students are not using resources, that support comes from student organizations and not the university, and that the stigmas associated with mental health outweigh students' desire and need to access resources. The findings have important implications for the provision of mental health services for Black students on college campuses.

Honors Thesis  
Committee: Janet Wojcik,  
Ph.D.; Alice McLaine, Ph.D.;  
Beth Costner, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(GESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381H - Janet Wojcik)

## Exercise, Sleep, and Athletic Performance

Chandler Bowers

This investigation seeks to summarize and synthesize current understandings of the relationship between sleep, exercise, athletic performance, and general health. I hypothesize that each of these have a positive bidirectional relationship between them. A review of scholarly literature was conducted to survey the scholarly conversation about these relationships. The results of this review were that regular exercise at a moderate intensity plays a causal role in improving sleep duration (SD) and sleep efficiency (SE). This review also found that increased SD and SE are associated with improved competitive performance in athletes, shown by improved reaction time, coordination, power output, and endurance. Improved SD and SE are also associated with a reduced risk of sleep disorders and chronic diseases in general populations. This review underscores the importance that people, especially competitive athletes, exercise regularly at an appropriate intensity and maintain healthy sleep behaviors to ensure optimal outcomes in athletic and everyday situations.



Honors Thesis  
Committee: April Mustian,  
Ph.D.; Kimberly Oxley,  
M.Ed.; Kelly Costner,  
Ph.D.; Michael Lipscomb,  
Ph.D.

(CESHS – Counseling,  
Leadership and  
Educational Studies)

## Misdiagnosis of Multilingual Learners Within the Special Education System

Amani Townes

This thesis assesses the ways multilingual learners are misrepresented in the special education system, hypothesizing that multilingual learners are misrepresented within special education due to biases in student assessment results and miscommunication with children and their families. To test the hypotheses critically, peer-reviewed articles were analyzed using literature review tables. The results show that misrepresentation of multilingual learners is a result of 1) low representation of teachers from diverse cultural backgrounds, 2) a lack of communication with students and families to influence referral outcomes, 3) educators mistiming referrals of students to special education services, and 4) biases within standardized testing based on cultural and linguistic differences. This study is significant to the future of multilingual learners, giving a glimpse into the barriers that can negatively change a child's life. Based on this analysis, this thesis concludes with possible changes that may decrease the misrepresentation of multilingual learners within the special education system: 1) increase in recruitment of diverse educators through the support of professional development and scholarship programs, 2) a referral requirement for teacher and parent collaboration from the moment support is suspected to be needed for a child 3) a referral checklist made to assess biases that sets a timeline for submitting a student's referral, and 4) recruiting test makers that ideally represent every demographic of the students taking the assessment. These possible solutions provide support and guidelines for educators to assess if there is a need for special education services based on data and open communication with families.

## Standard Dilution Analysis of Capsaicin in Hot Sauce

Mackenzie Miller

Standard Dilution Analysis is a technique that can be used in a high school setting, as it is able to allow students to analyze a sample without having to use the more difficult techniques introduced at an undergraduate level. Using this technique, students can analyze two absorbances at once, eliminating any matrix effects or fluctuations that could occur. For this experiment, only two stock solutions are needed. The first stock solution was a standard solution that contained 50% benzophenone and 50% capsaicin. The other stock solution contained 50% sample and 50% standard solution. Five solutions were then created containing the same amount of sample stock solution and varying amounts of the standard stock solutions. These five samples were analyzed using the HPLC. To determine the concentration of capsaicin, a plot was made using the data collected, with the plot being the area of the standard vs. the area of the analyte. This analysis was conducted on a sample of hot sauce to determine the concentration of capsaicin in a sample of Texas Pete hot sauce. This experiment would then be compared to other hot sauces to compare capsaicin amounts. Though this experiment was conducted using a sample of hot sauce, it has the ability to be conducted with other reagents. This method of standard dilution analysis is more applicable in a high school setting compared to typical standard dilution because this method uses resources that are readily available in high school settings and also does not require extensive class time.

Honors Thesis  
Committee: Cliff Calloway,  
Ph.D.; Athena Detrick,  
PhD; Christian Grattan,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(HONR 450H - Cliff  
Calloway, HONR 451H -  
Michael Lipscomb)

Honors Thesis  
Committee:  
Amanda Hiner, Ph.D.;  
Leslie Bickford, Ph.D.;  
Amanda Covington, M.A.;  
Josephine Koster, Ph.D.

SOURCE, April 2024,  
Winthrop University |  
Winthrop University  
Showcase of  
Undergraduate  
Research and Creative  
Endeavors, Rock Hill, SC,  
April 2024

(CAS – English)

(ENGL 471H - Amanda  
Hiner)

Honors Thesis  
Committee: Julia  
McCallum, M.M.E.; Lonie  
Crochet; Jeremy Mims

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Music)

(HONR 450H - Julia  
McCallum, HONR 451H -  
Michael Lipscomb)

## “Dally Was so Real He Scared Me”: S.E. Hinton’s Frighteningly Real Characters and Their Influence on Young Adult Literature

Jaden C. Lemmonds

This project examines the life and works of Susan Eloise (S.E.) Hinton and her contributions to the young adult genre over the twenty-one year period from 1967-1988. This investigation will include Hinton's contributions to the development of young adult literature as its own separate genre by comparing her work within the genre with outside media during the years immediately before and after the publication of *The Outsiders*, Hinton's first novel, in 1967. Hinton's contribution to the field of young adult literature lies less in her writing style and more in her realistic representation of characters and issues that were not previously discussed in literature for young people. Her realistic portrayals of Ponyboy Curtis, Rusty-James, Dallas Winston, and Tex McCormick, among others, stand in stark contrast to the fantastical plots and characters of children's literature before 1967, which included books such as *A Wrinkle in Time* (1962), the *Little House on the Prairie* series (1931-1943), and the wildly popular *Nancy Drew* series (first appearance 1930). Her realistic approach opened the genre towards considerations of real-life circumstances that children were facing in the 1950s and 60s, presenting young readers with characters that were more relatable to them.

## Elementary Music Teachers' Experiences with Orff Schulwerk

Sheri Norris

Orff Schulwerk is a music education approach used in the classroom to promote creativity and improvisation rather than a “step by step music making method”. This approach focuses on student-centered musical exploration that emphasizes improvisation, creativity, and imitation. Why is it that an approach created in the 1950s is still used in many of today's classrooms? This work explores Orff Schulwerk teachers' perspectives of the creative freedom in the teaching direction, lesson outlines, and music making guidance given to teachers who use Orff Schulwerk. Six music teachers with varying levels of experience were interviewed about their experiences with using Orff Schulwerk in their classrooms. Their responses include what they perceive as benefits and challenges of the methods across dimensions of guidance, outlines, exploration, movement, and musical independence.

Honors Thesis  
Committee: Christian  
Grattan, Ph.D.; Michael  
Lipscomb, Ph.D.; Jason  
Hurlbert, Ph.D.

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(CHEM 351 - James Hanna)

## Synthesis of BRAF Inhibitors--Derivatives of 4,5-Dihydropyrazoles

Jessica D. Gengler

This research is dedicated to developing inhibitors of the BRAF cancer protein to help shut down its expression as a way of treating cancer. Cancer develops from the abnormal growth of cells within the cell division process. Abnormal cells, instead of healthy cells, go through cell division to grow and multiply. One cell signal mutation that is prevalent in cancer cells is in the BRAF protein. This protein is responsible for functions such as cell growth, differentiation, and proliferation. With the substitution of a glutamic acid to a valine at the 600<sup>th</sup> position, the protein becomes about 500 times more active than the non-mutated BRAF protein. This mutation (BRAFV600E) is found in several types of cancers, most frequently observed in 50-70% of melanoma tumors, and found in papillary thyroid cancer, colorectal cancer, and nonsmall cell lung cancer. The mutation of the position 600 glutamic acid to valine in BRAF allows for the cancer cell's survival by continuing ERK activity, driving proliferation and survival, and contributing to neoangiogenesis to provide necessary tumor growth and maintenance functions. Inhibitors designed to stop the expression of BRAFV600E are currently used as anti-cancer drugs, specifically niacinamide and 4,5-dihydropyrazole derivatives. With this information, this research aims to synthesize similar 4,5-dihydropyrazole derivatives incorporating substitution geometry and different halogens (bromine, chlorine, and fluorine), to have the most compatibility with the active site of BRAFV600E. The success of these inhibitors will be determined using bioassays.

Honors Thesis  
Committee: Michael  
Lipscomb, Ph.D., Jennifer  
Disney, Ph.D., Chris Van  
Allen, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490H - Michael  
Lipscomb, HONR 451H -  
Michael Lipscomb)

## An Analysis of Foreign Interference and Its Effects on the Ethiopian Economy

Michael S. Suter

Is the poor state of the Ethiopian economy a product of the Ethiopian state, or is it a product of foreign actors and their interference in Ethiopia? This thesis answers that question by situating a quantitative analysis of economic performance indicators, such as the output of various economic sectors, within Ethiopia's history of foreign interference, including forceful political and economic restructuring, from the 1930s to the 1970s. This analysis, building on an extensive literature review, finds that the present state of the Ethiopian economy to be a product of foreign actors and their interference in Ethiopia. It is relevant that Ethiopia is now among the poorest African countries. While the poverty of similar countries is frequently attributed to prolonged colonial occupation, it is often claimed that the same cannot be said for Ethiopia. Ethiopia housed the longest standing African empire, the Ethiopian Empire, historically referred to by its exonym, Abyssinia. The country maintained positive relations with various Eurasian powers and defended its sovereignty until the Second Italo-Ethiopian war of the mid 1930s. Ethiopia's loss to Italy began a history of foreign occupation and interference in the country. Italy occupied the country for nearly a decade following the war, the United Kingdom then occupied it until the mid 1950s, and it faced interference from various countries, alongside international monetary groups, after the United Kingdom's occupation. This interference had a markedly negative impact on Ethiopia's economy, and it explains the state of Ethiopia's economy despite its past success.

Honors Thesis  
Committee: Hope Lima,  
Ph.D.; Wanda Koszewski,  
Ph.D.; Michael Lipscomb,  
Ph.D.

(CAS – Human Nutrition)

(HONR 450H - Hope Lima,  
HONR 451H - Michael  
Lipscomb)

## See Food: A Collection of Evidence Based Recipes that Promote Eye Health and Function

Jessa Joy Ordile

This project is a culmination of ocular and nutrient-related research reports paired with an original, evidenced based recipe book targeted towards eye health and function. The eyes are complicated organs that provide one of our most fundamental capacities: sight. "See Food" is a collection of original recipes that focus on not just flavor and presentation but primarily on the nutritional contents in the food that benefits the eyes. There are several nutrients addressed in this report and in the recipes that have a role in eye maintenance and function. The nutrient analysis consists of vitamins C, D, and E, zinc, omega-3 fatty acids, and carotenoids lutein and zeaxanthin. The report explains the role that these nutrients have in preventing macular degeneration, dry eye syndrome, and cataracts. The recipes themselves are original recipes based on a variety of cultures, flavors, and pairings. Each recipe has been physically created and tested to ensure a delicious and accurate recreation for those reading the recipes.

Honors Thesis Committee:  
Shaun Cassidy, M.V.A., Daniel  
Gordon, B.A.

Winthrop University  
Showcase of Undergraduate  
Research and Creative  
Endeavors, Rock Hill, SC,  
April 2024

(CVPA – Fine Arts)

(HONR 450H - Shaun  
Cassidy, HONR 451H - Michael  
Lipscomb)

## Black Box: An Investigation into the Potential of 'Sculpture Theatre' and the Future of Drama with Generation Z

Ami Hughey

Despite being the most popular form of entertainment in centuries past, interest in live theatre has been on a decline in recent decades. The issue can be traced back to the onset of the film industry and social media culture, both raising expectations for entertainment and causing a decrease in the attention span of younger audience members. Theatre has not yet had the chance to evolve in accommodation to these new means of realistic storytelling and fast-paced forms of entertainment. Therefore, the aim of this study was to create a play through the synthesis of sculpture and traditional theatre practices in order to investigate new means of creating drama for Generation Z. Through this synthesis, the team built a piece of theatre that cannot be replicated digitally, existing as an inherently in-person experience. The spectators were surveyed after the show on how they perceived our play compared to ones they had seen previously and how the experience affected their overall attitude towards live theatre, categorizing the results by generation. The feedback indicated that most of the audience had not experienced our kind of dramatic practice before, and the majority of spectators reported having thoroughly enjoyed it, now possessing an increased interest in attending live shows. The results indicate that the popularity of theatre amongst Generation Z can be revived through new methods of creating drama which rely on its live nature and create an intimate shared experience for its spectators.

Honors Thesis  
Committee: Michael  
Lipscomb, Ph.D.; Jennifer  
Disney, Ph.D.; Sandy  
Rogers, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490H - Michael  
Lipscomb, HONR 451H -  
Michael Lipscomb)

Honors Thesis  
Committee: Deborah  
Loomer, D.M.A., Tracy  
Patterson, D.M.A.,  
Leonard Lewis, Ph.D.

The SOURCE conference  
in April at Winthrop  
University. | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Music)

(HONR 450H - Deborah  
Loomer, HONR 451 -  
Michael Lipscomb)

## The Relationship that a “Transgender” History Has with Current Laws and Regulations Regarding Gender Non-Conformity Around the Globe

Cian Gareau

Gender non-conformity, in history and mythology, dates back to ancient civilizations such as Egypt, Rome, and Greece. Today, in a wide range of nations, laws concerning gender identity have become more prevalent. What relationship, if any, do these laws have to the cultural and religious histories of gender non-conformity and “transness” within these nations? This paper analyzes the instances of “transgender folk” in the cultural and religious histories of India, Greece, Italy, Denmark, Finland, Iceland, Norway, Sweden, Egypt, Iran, and Thailand, among others. Initial research suggests that nations with historical representations of visibility and acceptance of transgender people have current legislation regarding transpeople, with a majority of the laws supporting transgender rights.

## A Sailor's Journey

Katelyn L. Selkinghaus

My culminating project is a composition for clarinet choir was performed in April by our Universities group. The group of individuals consists of 11 clarinets and a Bassoon. This composition and performance were dedicated to my grandfather George Selkinghaus. The composition itself was written and loosely based around the stories my grandfather would talk about his sailing trips. One story was written out by him - this story was up on the slide show as we were playing. The music itself reflects specific aspects such as the waves, storm, and laughter.

Honors Thesis  
Committee: P.N. Saksena,  
Ph.D.; Hannah Richards,  
Ph.D.; Adriana Cordis,  
Ph.D.

Source Conference April  
12, 2024 at Winthrop  
University | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CBA – Accounting,  
Finance, & Economics)

(HONR 450H - P.N.  
Saksena, HONR 451H -  
Michael Lipscomb)

Honors Thesis  
Committee: Jason Chung,  
Ph.D., Kristen Abernathy,  
Ph.D., Frank Pullano, Ph.D.

(CESHS – Physical  
Education, Sport &  
Human Performance)

(HONR 450H - Jason  
Chung, HONR 451H -  
Michael Lipscomb)

## Significance of Bank Collapse

Logan Craig

This thesis asks what caused the banks to shut down from 2020 to 2023 and hypothesizes that those banks collapsed due to the global pandemic in 2020. In 2023 interest rates skyrocketed, which caused loan payments to increase. Bank closures can occur from high amounts of interest rates, the value of any property, and the ability of citizens to pay for loans due to decreases in jobs. The economy has changed a lot recently regarding the prices of supplies and services as well as loan payment rates, and there have been drastic changes in liquidity ratios and profitability ratios over the span of 4 years. There are many banks that have been able to successfully make it through the pandemic, but major ones have collapsed. Based on this analysis of bank closures that occurred because of the pandemic and high interest rates, I propose that banks can and should prepare for future economic downturns and disruptions in order to avoid collapsing. We see that small changes such as being more careful about loan amounts that banks lend can increase survival and increase the profitability of growth and stability when we have economic downturn. The survival of future banks relies on creating policies that allow citizens to pay their loan debts but also allow room for banks to make a profit during economic disruptions.

## The Effect of Technology on the Perception of Sports

Jacob Balogh

The world of sports and technology have continued to grow in recent years, and have started to intertwine with each other. This new kind of technological impact on sports has been embraced by some fans, but others see these technologies as moving sports away from what they think sports are meant to be. This paper utilized an extensive literature review and a survey asking others about their own opinion on technology and its use in sports. The participants completed the survey which asked them how they feel about recent technological aspects and changes in sports on a scale of 1-5.

Honors Thesis  
Committee: Brad Tripp,  
Ph.D.; Veronica Ahadzie,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Sociology,  
Criminology, &  
Anthropology)

(HONR 450H - Brad Tripp,  
HONR 451H - Michael  
Lipscomb)

## **Truancy in Juveniles: Age and Income Differences in Open Communication in Families**

**Ollie Waters**

When it comes to the development of children, the family unit is one of the most important factors. In our prior study examining truancy in juveniles through the lens of family communication and support, statistically significant racial differences were found for family open communication within the program. Both white children and parents displayed increased success in their open-communication post-test scores. The current study examines if age and socioeconomic status also plays a role in family open communication improvement in a 10-week intervention program by examining correlations between age and income with the pre and post test results of the study. Each factor is important to understand fully so that alterations can be made to the Family Support Program to better serve the community. There was a significant correlation between child age group and child-open communication in both pre-test and post-test, however, there was no significant relationship between child-open communication pre-test and post-test for income.

Honors Thesis  
Committee: Merry Sleight,  
Ph.D.; Michael Lipscomb,  
Ph.D.; Cheryl Fortner,  
Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – Psychology)

(HONR 450H - Merry  
Sleight, HONR 451H -  
Michael Lipscomb)

## **Comprehensive Impact of Quality Daycare Attendance on Psychological Development: A Multi-Dimensional Analysis**

**Bradlee Bell**

This paper investigates the multifaceted benefits of attending a quality daycare program on cognitive, social, emotional, and physical development in the short term and its enduring influence throughout the educational journey and into young adulthood. Combining contemporary literature in a comprehensive review provided a pathway to understanding the early childhood experiences that shape short-term and long-term development. I hypothesized that quality daycare alumni, enrolled for at least one year, would demonstrate better cognitive, social, emotional, and physical well-being in the short and long term. The research findings supported this hypothesis by revealing enduring higher academic achievements, improved interpersonal skills, engagement in extracurricular activities, and enhanced emotional resilience in alumni of quality daycare. Furthermore, daycare alumni continued to experience benefits throughout high school and young adulthood by displaying increased motivation, responsibility, and adaptability. This paper highlights the pressing need for further exploration of gaps in the literature, urging researchers to delve into the specific factors contributing to the enduring impact of quality daycare. Understanding these nuances is essential for informed policy decisions and targeted interventions that optimize early childhood experiences, paving the way for lifelong success.

Honors Thesis  
Committee: Scott Werts,  
Ph.D.; Lauren Kohut,  
Ph.D.; Gwen Daley, Ph.D.;  
Michael Lipscomb, Ph.D.

Source, Winthrop  
University, April, 2024  
| Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(HONR 450H - Scott Werts,  
HONR 451H - Michael  
Lipscomb)

## **Review of the Benefits of Implementing Green Spaces into Urban Areas**

**Joseph Metcalf**

As urbanization increases, the amount of green spaces available to people living in urban areas decreases. Green spaces are areas of high vegetation used for recreation, agriculture, or aesthetics in an urban environment. These green spaces can have numerous effects on the neighborhoods near them. Based on an extensive literature review, this paper surveys the positive effects of implementing green spaces into urban environments. Synthesizing insights from twenty studies that looked at the interactions between green spaces and the environmental, psychological, social, economic, and health conditions of people living in urban environments were analyzed. The literature review revealed an array of positive benefits associated with green spaces, such as lower crime rates, better mental health, and more community engagement. Other beneficial effects of green spaces were a decrease in the amount of flooding in pollution-prone areas neighboring the spaces. City planners and legislatures could use this information as a guide to create and maintain existing green spaces as a means of promoting the health and well-being of their citizens. and this paper is designed to be an easily accessible resource for those legislators and city planners.

Honors Thesis Commit-  
tee: Ronald Parks, Ph.D.;  
Leonard Lewis, Ph.D.;  
Michael Lipscomb, Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CVPA – Music)

(HONR 450H - Ronald  
Parks, HONR 451H -  
Michael Lipscomb)

## ***Soundtrack for a Dead Town: A Concept Album***

**Hunter Morgan**

Just as technology can enhance our daily lives, it can also divide and alienate us from reality. This experimental album chronicles the cycle of a town's growth into a paranoid, technological dystopia before being abandoned and reclaimed by nature. This is reflected in the different genres the music cycles through, ranging from folk to electronic, as well as the lyrical content. The live performance also used two hour-long edited short films (displayed on TV screens) and players who move on/off stage to reflect the different stages in the narrative. Soundtrack for A Dead Town represents a departure from the traditional composition recital format, which usually features isolated chamber pieces inspired by Western classical music. While this has its merits, its enjoyment by audiences is often more for the performers and students rather than the music itself. Pieces in this format lack thematic coherence despite being inspired by a narrative or message and are therefore more easily forgotten. In response, I chose to write a long-form performance inspired by contemporary musical styles and 70's concept albums that still uses traditional techniques of thematic development to enhance the storytelling. This approach creates a more memorable and immersive experience for both the musicians and audiences, drawing on my knowledge of songwriting and music technology. In addition, this project aims to inspire more multidisciplinary collaboration for future composition recitals.



Honors Thesis  
Committee: Kelly Ozust,  
M.F.A., Carla Sciandra  
(Clover School District),  
Emmalee Bradley, B.A.,  
Michael Lipscomb, Ph.D.

(CVPA – Theatre & Dance)

(HONR 450H - Kelly Ozust,  
HONR 451H - Michael  
Lipscomb)

## Determining the Attainability of Middle School Dance Programs Requiring Culminating Performances

Kayla Alexander

The purpose of most middle school dance programs and classes is to provide students with an exciting but concise exposure to multiple dance genres, allowing students to determine if they want to pursue dance at the high-school level, which aims for a more technically-oriented and career-based instruction. Most middle school dance class rosters are determined by student choice, and the average middle school dance class includes students who have never danced before (and may not have any interest in doing so). Due to the nature of middle school dance programs, most of them do not include culminating performances or showcases in their programs and curriculum. Ideally, students of all backgrounds and technical ability should be required to perform an end of semester showcase, pushing students to commit choreography to memory and self-choreograph portions of their pieces. Through an extensive literature review, this paper investigates whether culminating performances and student showcases are attainable for the majority of middle school dance students. Findings suggest that although few middle school dance programs include a culminating performance, performance requirements at the middle school level foster greater student achievement and benefit students as opposed to programs that do not adopt this requirement.

Honors Thesis  
Committee: Karin Evans,  
M.A.; Jessie Hoffman,  
Ph.D.; Silvia Wozniak,  
Ph.D.; Leigh Poole, Ph.D.

SOURCE, April 11th, 2024.  
The location is Winthrop  
University. | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Human Nutrition)

(HONR 450H - Karin Evans,  
HONR 451H - Michael  
Lipscomb)

## The Neglection of Males and Disordered Eating

Brooke Uleano

This thesis investigates how the social stigma of males and eating disorders neglect the acknowledgment of disordered eating in male lives. Research demonstrates most recognized cases of eating disorders are associated with females, and studies have overlooked the role eating disorders play in male lives. Professional assessments include eating disorder symptoms typically associated with females, which disregard the common symptoms associated with males. Therefore, a majority of males may potentially go misdiagnosed or missassessed. The purpose of this research is to analyze the issue and bring awareness to the gender stereotype our society has developed in connection to eating disorders.

Honors Thesis  
Committee: Aimee  
Meador, Ph.D.; Michael  
Lipscomb, Ph.D.; Nathaniel  
Frederick, Ph.D.; Michael  
Sickels, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(HONR 450H - Aimee  
Meador, HONR 451H -  
Michael Lipscomb)

Honors Thesis  
Committee: Michelle Livek  
Garner, Ph.D.; Cheryl  
Fortner, Ph.D.; David  
Vawter, Ph.D.

SAEOPP Research  
Conference, June 2023  
| Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by U.S.  
Department of  
Education McNair Grant  
P217A180094 Scholars  
Program

(CVPA – Fine Arts)

(HONR 450H - Michelle  
Livek Garner, HONR 451H -  
Michael Lipscomb)

## The Effects of Media Images on Minority Populations

Raquel Simon

This study hopes to observe the unique influence and effects that lack of diversity and negative representation have on people's identity, sense of belonging, self-esteem, and personal beliefs. This research is based on existing theories of mass communication and sociology. These theories address how the media has the power to set people's beliefs through the proliferation of images that characterize modern media, and they offer insights into how representation in the media has real world effects. Building on these theories, this study reviews the long history of how the media has impacted different races through specific racial imagery. The findings of this study suggest that the effects of media misrepresentation include, but are not limited to, overestimation of criminal activity, under-representation in higher education, and lower self-esteem in minority-groups. This study is significant because it explores ways in which the media affects individuals, through underrepresentation and overrepresentation, and how certain portrayals and stereotypes may impact certain beliefs, whether about oneself or others. The imbalance and relationship between lack of diversity, stereotypes, and social status are influenced by labels and terms used in the media to classify people, and establishing this determines the steps that can be taken to change negative stereotypes and diversify the media as a whole.

## Art Therapy Minded Interventions for Restorative Classroom Management

Skyler Allen

Art therapy minded interventions as a means for classroom management within early childhood and elementary settings has the potential to positively overlap in various aspects of our society. It is widely known that art has therapeutic values which allow individuals to express themselves in ways that language does not allow. Through the use of grounded theory, it can be found that real teachers across the country view art therapy and classroom management as connected entities, and it can be theorized that through the implementation of art therapy minded classroom management, students can feel empowered in their ability to articulate their feelings and needs within the classroom, thus contributing to a restorative classroom environment.

Honors Thesis

Committee: James Hanna,  
Ph.D.; Aaron Hartel, Ph.D.;  
Cliff Calloway, Ph.D.

Southeastern Regional  
Meeting of the American  
Chemical Society,  
Durham, NC, October  
2023; NC Photochem  
2023, Charlotte, NC,  
October 2023; Summer  
Undergraduate Research  
Experience Symposium,  
Rock Hill, SC, July 2023  
| Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

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UR1)

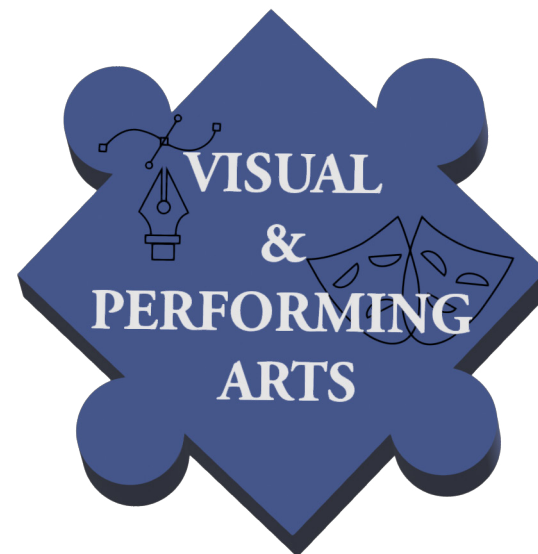
(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(CHEM 552H - James  
Hanna, HONR 451H -  
Michael Lipscomb)

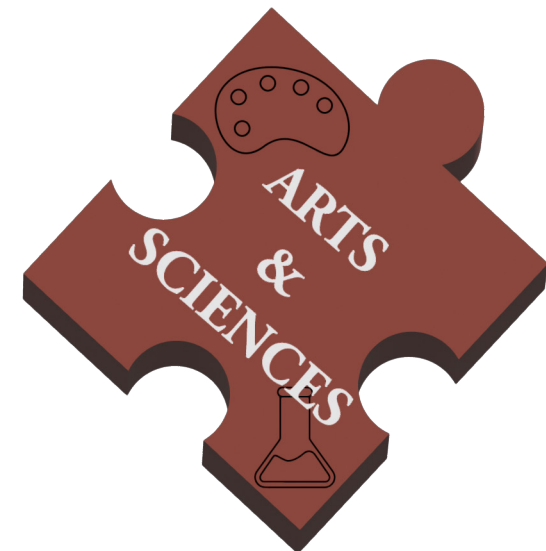
## Visible-Light Induced, Catalyst-Free Reduction of Alkynes and Alkenes

Ryan Wernsman

Hydrogenation reactions are some of the most important chemical reactions used in industry, such as their use in the synthesis of gasoline as well as the development and modification of pharmaceuticals. In fact, hydrogenation reactions are so prevalent that around 25% of all industrial syntheses involve at least one of these transformations. Due to this, there has been an extensive amount of research into alkene and alkyne reductions, and photochemical reductions are no exceptions. The photo-reduction of alkenes has been extensively studied in the presence and absence of a photocatalyst, however, the photo-mediated reduction of alkynes has been the subject of comparatively fewer studies. A recent report from the Nicewicz group described an organic photocatalyst (9-mesityl-3,6-di-tert-butyl-10-phenylacridinium tetrafluoroborate, *dtb-Mes-Acr-Phe*), which in its reduced, excited state, has an oxidation potential similar to that of lithium metal, leading us to investigate its use in the reduction of alkynes. Initial investigations indicate that diphenylacetylene can be reduced to bibenzyl, along with a bibenzyl dimer, by irradiating the solution with a 390 nm LED source, in the presence of *dtb-Mes-Acr-Phe* and diisopropylethylamine (DIPEA), in acetonitrile solution. Both trans- and cis-stilbenes appear to be intermediates along the reaction pathway, and the addition of thiophenol can eliminate the formation of the bibenzyl dimer. Control experiments show that the reaction can take place without the photocatalyst, albeit in slightly lower yield. Further studies reveal that alkynes with extended aromatic systems are suitable reaction substrates, affording higher product yields than less conjugated or non-conjugated alkynes.



# Public Performances and Projects





Mentor: Merry Sleigh,  
Ph.D.

Southeastern  
Psychological Association  
Conference, Orlando, FL,  
March 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Psychology)

(PSYC 302 - Merry Sleigh)

## Maladaptive Daydreaming Predicts Stress, Externalized Responsibility, and Poor Parent Relationships

Connor Dixon, Ja'Kearah Dunbar, Angela Caston

While mind-wandering and certain levels of daydreaming are normal, maladaptive daydreaming is characterized by excessive time spent in structured, complex daydreams that interfere with daily activities. People use maladaptive daydreaming as a strategy to cope with social anxiety, health issues, and trauma. However, maladaptive daydreaming tends to worsen psychological distress and emotional regulation abilities. As this concept is relatively new in the research literature, we added to the existing knowledge by investigating additional unhealthy experiences that may be comorbid with maladaptive daydreaming. We hypothesized that higher levels of maladaptive daydreaming would predict higher stress levels, increased marijuana use, a higher externalized sense of responsibility and a poorer relationship with parents. Participants ( $n = 125$ ) were young adults with a mean age of 21.75 ( $SD = 5.78$ ). They were primarily cisgender women (73%) and evenly divided between African American and Caucasian. Participants responded to scales to assess their maladaptive daydreaming, marijuana use, stress level, externalized responsibility, and quality of parental relationship. Our findings support the majority of our hypotheses. Maladaptive daydreaming related to high levels of stress and poor parent-child relationships. We also found that maladaptive daydreaming predicted externalized responsibility. In other words, daydreamers have a diminished sense of personal responsibility. Marijuana use did not relate to maladaptive daydreaming, perhaps reflecting two distinct coping mechanisms. These findings add to our understanding of this relatively new concept by confirming how pervasive maladaptive daydreaming is among young adults and identifying new and unhealthy experiences that co-exist with excessive daydreaming.

Mentor: Janet Wojcik,  
Ph.D.

SOURCE in April 2024  
| Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CESHS – Physical Edu-  
cation, Sport & Human  
Performance)

(PESH 381 - Janet Wojcik)

## Improving the Performance of Trained Runners

Nolan Weisdorfer

Trained runners are not the typical athletes. They have their own individualized training, diets, and other factors that may help them. While there are not many articles to show how to improve the performance of a trained runner, this presentation will give information on the ways and methods that can improve the performance of trained runners. Whether it is running at a different altitude, using modern technology in shoes, or changing their running style, there are multiple ways to improve trained runners to be at their best. This presentation will give an in-depth overview of how using evidence-based techniques can improve trained runners' performance.

Mentor: Nathaniel  
Frederick, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CESHS – Physical Edu-  
cation, Sport & Human  
Performance)

(PESH 381 - Janet Wojcik)

## No Longer Human: Social Death in Duvernay's *When They See Us*

Ashlynn Hinson

Ava Duvernay's *When They See Us* (2019) is a Netflix miniseries that portrays the 1989 Central Park Five case, when five Black and Hispanic teens were accused and convicted of sexually assaulting a jogger in New York City. The series depicts the treatment of the teens by law enforcement, the judicial system, and their representation by the media. Significant portions of the series depict the youth's imprisonment and the effect on them physically and psychologically. This research investigates how socioeconomic status, racial dehumanization, and perception of mental health concerns contribute to social death within the miniseries. Social death, first coined by Orlando Patterson in 1982, refers to an instance of social ostracism and contempt following criminalization. Students and youths who are who undergo social death are often relegated to unexpected paths and in this process are left behind by many members of society. This process—dehumanization in policing and subsequent social death when labeled deviant—is depicted in *When They See Us*. This research further investigates how this miniseries portrays these happenings while maintaining a sense of hope for the future and of resilience in the face of hardship. The research purports that the show argues the narrative took on its own life, and attempts at agency are portrayed as having been ignored. Social death following their arrest condemns the boys to poor treatment.

## Recurring Hamstring Injuries

Brailyn Washington

In the world of sports, recurring injuries are one of the most troublesome things that an athlete has to deal with, the hamstrings specifically are one of the most consistently reinjured groups of muscles in sports. The hamstring muscles consist of the bicep femoris, semitendinosus, and semimembranosus. Hamstrings are known for easily reagggregated after an injury, research shows the more someone's hamstrings are injured, the more likely the hamstrings are to be reinjured in the future. The purpose of this review is to determine what factors make hamstring injuries more likely and what factors will reduce the risk of hamstring injuries.

Mentor: Merry Sleigh,  
Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – Psychology)

(PSYC 302 - Merry Sleigh)

## Young Adults' Perceptions of Generational Differences in Openness, Adaptability, and Resilience

Haileigh Whittington, Amanda Abdelnour, Peyton Sadler

Generation Z, those born between 1997 and 2012, have distinct characteristics. For example, compared to the older adults of Gen X, Gen Z experienced more openness to change but lower resilience during the pandemic. We focused on Gen Z's perceptions of themselves and their perceptions of Gen X. We hypothesized that Gen Z would perceive themselves as more adaptable, open, cognitively flexible, and sensitive to multiculturalism, but less resilient. Participants (n = 77) were young adults with a mean age of 21.05 (SD = 2.06). About half (53%) identified as women, with an equal representation of Caucasian and African-American adults. After random assignment to conditions, half of Gen Z participants responded to questions as themselves. The other half imagined being a member of Gen X and responded as if they were part of that generation. Participants completed scales to assess multicultural attitudes, cognitive flexibility, openness, adaptability, and resilience. In sum, we found that Gen Z adults, across race and gender, shared similar perceptions. Gen Z adults were more positive towards themselves and more critical of Gen X. Gen Z adults viewed themselves as more open, cognitively flexible, behaviorally adaptive, and sensitive to multiculturalism. They perceived themselves as equally resilient as Gen X. Gen Z adults reported feeling neutral about whether the two generations respect one another; however, the more negatively they viewed their generation, the more they believed Gen X respected their generation. These findings offer insight into generational perceptions that likely impact expectations, communication, and interactions.

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CESHS – Physical Edu-  
cation, Sport & Human  
Performance)

(PESH 381 - Janet Wojcik)

## Comparing Minimalist and Maximalist Running Shoes - An Integrative Literature Review

Brandon Fierro

From minimalist shoes that offer a natural feel to maximalist shoes with extra cushioning, which is better for your running goals? This literature review examines how various running shoes affect running performance, biomechanics, and how different types may prevent injury. Some people like shoes that feel more natural (minimalist), while others prefer ones with lots of cushioning (maximalist). Researchers are still figuring out which shoes are best. The review looks at studies that tested how different shoes affect things, like how much energy you use and how your muscles work when you run. They found that minimalist shoes make your feet work harder, while maximalist shoes give more cushioning. Understanding these differences can help people choose the right shoes for better running.

Mentor: Merry Sleigh,  
Ph.D.

Southeastern Psy-  
chological Association  
Conference, Orlando FL,  
March 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

presented in CEPO Award  
Showcase Session at SEPA

(CAS – Psychology)

(PSYC 302 - Merry Sleigh)

## Body Dissatisfaction Predicts Social Media Self-Consciousness and Judgmental Attitudes

Makelya M. Stevens, Jazlyn Wilson

Social media exposure has a negative impact on body image and body satisfaction, with young women being particularly vulnerable. The dominating theory is that social media content promotes idealized physical images that are unattainable for most viewers. We contributed to existing literature by focusing on users' body image, self-presentation on social media, and perceptions of judgment on social media. We hypothesized that increased social media use would predict lower body image, and lower body image would predict more self-consciousness and sensitivity to judgment on social media. Participants (n = 79) were young adults with a mean age of 21.20 (SD = 6.78). The sample was majority women (79%) and equally divided among Caucasian and African American adults. We assessed participants' body mass index, body satisfaction, and social media reliance. Participants also responded to items to assess their self- presentation and feelings of judgment on social media. Our hypotheses were supported. Results revealed the more adults relied on social media the worse they felt about their bodies. The worse participants felt about their bodies, the more important it was for them to present themselves favorably on social media and the more sensitive they were to judgment. Adults who were Caucasian or spent more time on social media were most vulnerable to feeling self-conscious and judged; however, ironically, they were also the most judgmental of others. The fact that negative feelings associated with social media was linked to increased users' engagement with social media speaks to the addictive nature of this platform.

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CESHS – Physical Edu-  
cation, Sport & Human  
Performance)

(EXSC 511 - Janet Wojcik)

## FITT Principles for Metabolic Syndrome

Jason Makowski

As Americans, we are no strangers to the growing issues with our health care system and our current health status. Cardiovascular disease, bad cholesterol, and obesity are commonplace for us. However, what many do not understand is that these issues can create a perfect storm of health problems known as Metabolic Syndrome. Metabolic Syndrome is identified when a person has hypertension, hyperglycemia, dyslipidemia, and high BMI. Understanding this disease and how to reverse it has been a tough task, as there is not just one issue that needs to be treated and with little data. The data that we do have would suggest that diet and exercise are large components to defend against the disease. One study showed that when creating a large caloric deficit, coupled with structured exercise, those with Metabolic Syndrome were shown to improve drastically. Aerobic exercise for those suffering should include at least 5 days a week, with 30 minutes sessions of at least 40% heart rate reserve. Resistance training should be incorporated for 2 to 3 days a week at 60% 1 rep max. Static stretching should also be utilized for 2 to 3 days a week for 30 second holds. While we do not completely understand Metabolic Syndrome, we understand that diet and exercise can improve each component of it, and therefore, we see results when implemented against it.

Mentor: Michael Sickels,  
Ph.D.

## **Campus Safety at Winthrop: Student Perspectives with Regards to Gender Identity**

**Micah Reynolds, JaNyah Bacote, Aniyah Williams, Brooklyn Clive**

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – Sociology, Crimi-  
nology, & Anthropology)

(SOCL 519 - Michael  
Sickels)

The research explores the relationship between campus safety at Winthrop University and students of different racial, ethnic, sexual, and gender backgrounds. We examined whether students of different racial and gender backgrounds have different experiences/opinions regarding campus safety. In conducting our research, we chose to do semi-structured interviews with undergraduate students at Winthrop University. We recruited interviewees by posting a flyer on social media and asking around campus (advertising the project in our classes, asking friends, and asking people in organizations we are a part of). We found that in terms of discussing safety on campus, interviewees not only discussed safety as it relates to staying safe from danger (i.e., the possibility of being attacked) but also safety in terms of accessibility on campus. We also found that most of our participants stated that they felt their gender identity and their gender presentation was the only thing that affected how safe they felt on campus due to how Winthrop's diversity. We wanted our findings to insight more research into how gender presentation plays a part in campus safety along with gender identity. We found that though we were able to collect good-quality data, we ran into some problems when conducting our interviews. For example, interviews that were juniors or seniors who attended Winthrop during the time of COVID-19 restrictions did not have much to discuss in terms of being on campus to experience campus safety.

Mentor: Janet Wojcik,  
Ph.D.

## **An Integrative Literature Review on How Injuries Affect Athletes' Mental Health**

**JaNay Thompson**

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CESHS – Physical Edu-  
cation, Sport & Human  
Performance)

(PESH 381 - Janet Wojcik)

The disregard for the psychological consequences of athletes' encounters with severe injuries is a common occurrence. There exists a potential relationship between athletes who have had injuries and an increased susceptibility to the development of mental health and psychological issues, including but not limited to depression, anxiety, eating disorders, substance abuse, and other associated conditions. In the case that athletes encounter deep symptoms of depression or demonstrate heightened levels of anxiety, there is a potential for the emergence of self-harm. It is important for coaches, medical experts, and athletes themselves to possess an understanding of the psychological and mental health issues that can ensue subsequent to an injury. Furthermore, their involvement in the advancement of therapies and treatments to support the athlete is of utmost importance. This presentation aims to examine the complex evidence between injuries and the mental health of athletes, providing insight into the concealed challenges that frequently go unnoticed among the backdrop of athletic achievement.

Mentor: Janet Wojcik,  
Ph.D.

## **The Effects of Going Back to Sports or Daily Life Activities Too Soon After an Anterior Cruciate Injury**

**Diashia Anthony**

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CESHS – Physical Edu-  
cation, Sport & Human  
Performance)

(PESH 381 - Janet Wojcik)

Many people, not just athletes, tend to not take the proper amount of time to heal from an injury because they either think they are healed or are too eager to get back on the playing field. An anterior cruciate ligament (ACL) is the tissue that connects the thigh bone to the shinbone at the knee. By not taking the proper healing time especially for injuries like a torn ACL can cause them to either have to get the surgery again or have some serious injuries that will alter the lifestyle they had before. The injury is usually caused by participating in some type of sport activity such as soccer and basketball. Some of the symptoms include swelling, pain, and instability. The treatment consists of an arthroscopy and anterior cruciate ligament reconstruction. If one does not want to undergo surgery they can wear a brace to support stability and participate in physical therapy to help strengthen the ligaments. Physical therapy, rehabilitation therapy, as well as stretching are methods to help improve the injury overtime. This presentation will discuss what a torn anterior cruciate ligament is and the different healing methods along with the negative outcomes of not doing so properly, in hopes of preparing others if they experience this type of physical injury.

Mentor: Janet Wojcik,  
Ph.D.

## **Preventing Chronic Diseases Through Exercise**

**Javius Ramirez**

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CESHS – Physical Edu-  
cation, Sport & Human  
Performance)

(PESH 381 - Janet Wojcik)

Exercising is a valuable medicine that can be cost effective and beneficial to the body because it will help fight many chronic illnesses, but many overlook it. It will reduce or prevent the risk of chronic conditions like obesity, arthritis, type 2 diabetes, heart disease, many types of cancer, depression, anxiety, and dementia. Therefore, the importance of individuals being educated and having an understanding on how it can be beneficial can help individuals find a way to create and improve their physical activity schedules. Many people are dealing with chronic disease and can also agree that it would be nice to live a longer, beautiful, and strong life. The outcome of exercising is beneficial because it puts the body in state of becoming stronger and less prone to illnesses compared to a sedentary life that many live due to reasons like jobs, family, time constraints, or living with some sort of serious illness. Instead of watching TV, taking a walk for half an hour or get friends and family together to go for hikes in nature or around a neighborhood is beneficial. Individuals can also create a schedule and make every Sunday a jog day or set days out of the week to do some type of physical activity. Making physical activity a priority can contribute to life being more enjoyable while reducing risk of chronic diseases.

Mentor: Merry Sleight,  
Ph.D.

Southeastern Psychological Association  
Conference (SEPA),  
Orlando, Florida,  
March 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by Winthrop  
University -  
Undergraduate Research  
Committee

Psi Chi Regional Research  
Award

(CAS – Psychology)

(PSYC 302 - Merry Sleight)

Mentor: Jennifer Disney,  
Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Jennifer  
Disney)

## False Confidence in Fentanyl Knowledge Predicts Harmful Drug Behaviors

Emily Reidy, Sarah E. Powell, Catherine E. Justice, Carson E. Gamble

Fentanyl-related deaths are rapidly increasing, particularly among young adults. Despite its prevalence, most adults perceive their risk of exposure to be low. To maximize the effectiveness of educational interventions, it is helpful to identify variables that predict fentanyl knowledge and harm-reduction behaviors. To this end, we examined such predictors. We hypothesized that knowledge would positively predict harm-reduction behaviors. We also hypothesized that harmful drug-related behaviors would be higher in adults who were entitled, were impulsive, lacked self-esteem, and used marijuana. Participants (n = 97) were adults with a mean age of 21.01 (SD = 2.16). The majority were women (62%), Caucasian (59%), and heterosexual (70%). Participants took a fentanyl knowledge quiz and responded to scales to assess their fentanyl experiences, harm reduction behaviors, self-esteem, entitlement, impulsivity, and marijuana use. Contradicting our hypothesis, knowledge and behavior did not clearly predict one another. Adults who knew the most about fentanyl avoided fentanyl but did not engage in harm-reduction behaviors related to drugs in general. Adults who mistakenly believed they knew a lot about fentanyl spent time around drugs and engaged in harmful drug-related behaviors. Providing further contradictions, women reported a combination of risky behaviors alongside worry about drugs, while African American adults reported fentanyl awareness and denial. Personality also played a role, with adults who reported more exposure to fentanyl being more impulsive and entitled, while adults with lower self-esteem reported more risky behavior around drugs. These inconsistencies and complicated contributing factors highlight the challenges that are part of educational interventions.

## The History of the South Carolina Heritage Act and the Power of Grassroots Activism

Cynthia Bruce

The South Carolina Heritage Act, a law protecting historical monuments and dedications, including those to Confederate soldiers and explicit white supremacists, has been a focal point of debate and contention, particularly in the aftermath of racially charged events, such as the Emanuel AME Church massacre in 2015 and the George Floyd protests in 2020. This paper traces the history of The Heritage Act as well as the history of the use of confederate symbols in the South. Beyond South Carolina, similar acts in North Carolina and Alabama fuel broader discussions on the topic. Using the 'Two Faces of Power' in my analysis exposes the contrast between the presence of Confederate monuments and the absence of statues honoring enslaved/formerly enslaved individuals, revealing biases in public commemoration. Lastly, this paper examines the role of grassroots activism, highlighting the specific powers it has in the ongoing struggle of fighting for racial justice.

Mentor: Michael Sickels,  
Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – Sociology,  
Criminology, &  
Anthropology)

(SOCL 519 - Michael  
Sickels)

Mentor: Jennifer Disney,  
Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Jennifer  
Disney)

## How Students Balance Life and Work: A Marxist View on Working University Students and Social Mobility

Toni Oglesby, Jasmine Sutton, Bryanna Rhoney

For our research, we interviewed 9 students at Winthrop University who work in any capacity to support themselves in some way. This is where we found that students who work are often forced to choose between having a social life or having good grades while they work. Those who receive more financial support are typically those who are more likely to have the best of both. However, those who are working to support themselves are more likely to struggle with balancing everything. These students attempt to climb up a socioeconomic ladder where upward mobility is slim to none without the help of someone in a higher class. By using Marxist theory, we identified how students were exploited and alienated because of their job. However, we do find that many students who work do so with the hope of receiving more experience to flourish in their future careers. The career readiness skills that they receive from their jobs in college is something that most students appreciate and seek to use once they graduate. Without the economic system in society changing to support those in the working class, they will continue to struggle and have a rare chance at upward mobility.

## Creating a Safe Haven: The Refugee Crisis in Jordan

Caroline Sewell

Since the Syrian refugee crisis began in 2011, Jordan has been one of the main countries of sanctuary for Syrian people fleeing the conflict. Other neighboring countries such as Lebanon and Turkey have also accepted large numbers of Syrian refugees, and as Syrians became the largest population of displaced people, European countries have housed a growing number as well. Because of its size and current issues within the country, Jordan has struggled to accommodate the massive influx of people. This paper examines the crisis that Jordan is experiencing, the existing issues in the country and how refugees are being falsely blamed, fueling hostile public opinion toward them. The paper will also seek to provide insight into how Jordan can address these issues and use the refugee population to boost the economy. The refugee perspective has often been left out in these discussions and many previous developments have been advantageous to Jordan but not to the general refugee population. The possible solutions presented in this paper will seek to achieve what is beneficial for the refugees as well as the country of Jordan and will present a case for more foreign aid and investment.



Mentor: Josephine  
Koster, Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – English)

(ENGL 310 - Josephine  
Koster)

## Sherlock Holmes and Dr. John Watson: A Homosexual Relationship Unraveled

Alyssa DeCaprio

In this paper, I apply queer theory to Sir Arthur Conan Doyle's *A Study in Scarlet* and "The Reichenbach Fall" to find evidence of a homosexual relationship between Sherlock Holmes and Dr. John Watson. My research on this section was very limited, so I decided to find articles about queer theory and Sherlock Holmes' character to identify moments in the canon works where queer theory is applicable. When researching BBC's *Sherlock*, I was able to find more articles, but many of them were working to disprove a homosexual relationship between the two men. Therefore, I used John Reich's article to identify whether the characterization of the two characters were closely, moderately, or loosely adapted from the canon works. From there, I delved into discussion about the queerness of BBC's *Sherlock* to identify that the homosexual relationship between the two men transfers from canon to adaptation.

Mentor: Bradley Young,  
Ph.D., John Hairston Jr.,  
M.F.A., Jason Tselentis,  
M.F.A., Chad Dresbach,  
M.F.A.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

## Swarm

Asher Johnson

The most popular trading card games often focus on the whimsical and magical, set in worlds where elves and dragons roam free to do whatever their hearts desire. In a world dominated by games like this, my aim is to change the narrative. These games can be about whatever and whoever people want, and somehow, there is no game like *SWARM*. *SWARM* is a game about aliens sacrificing their bodies to fight in a gladiator-style tournament purely with the intention of winning prize money for their home planet. This cynical, somewhat dark delivery is what sets the game apart from the others. *SWARM* features gouache paintings as the main card art to create a unique look and feel. With the inclusion of science-fiction elements with the aliens, this game is intended to be fun for late-teenagers, early 20-year-olds who have a passion for aliens. The game is set up in an uncommon way; the trading cards are set on game boards in fixed positions, which each different board representing the four planets involved. Each board gives different advantages to each alien. There are many different possibilities for the player and their opponent, with each play of the game able to go a different way. A gladiator knows how to both put on a show and win a bloody battle, giving each player a chance to win in their own stab at glory. Fight through the onslaught, and don't get lost in the *SWARM*.

Mentors: Hope Lima,  
Ph.D.; Jessie Hoffman,  
Ph.D.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – Human Nutrition)

## The Effect of a 10-Week Nutrition Education Intervention on Dietary Habits in Marching Arts Athletes

Cameron Scott

Nutrition is one known factor that influences athletic performance. Coaches working with athletes will utilize available literature to develop recommendations to help optimize performance based on the physical requirements of the sport. Sports with a mainstream following – like football or basketball – have a larger breadth of peer-reviewed literature to guide recommendations. However, evidence to guide dietary recommendations to improve performance of marching arts athletes is very limited. In this study, we aim to describe the dietary habits of marching arts athletes participating at an elite level and assess the impact of a 10-week nutrition education intervention on the nutritional gaps that exist within the population. Forty-five marching arts athletes participated in the program requiring them to complete pre- and post-intervention food frequency questionnaires, body composition analysis using bioelectrical impedance, nutrition education, and conditioning education.

Mentor: John Hairston  
Jr., M.F.A.

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

## Vehemence

Marion Wright Jr.

Emotions are in every one of us, and they can get so strong sometimes that we cannot really contain it most of the time. Being a person that isn't really a stickler for expressing himself, this is a topic that I really hold dear in my heart. I feel as if it is not only an issue that I have with but an issue that millions are struggling with to this day. Mental Health is a topic that is always reoccurring and there have been great strides in helping people who are struggling with their psychological well-being. I have created a new and creative way to bring awareness to the battles that most people have been fighting for long periods of time. I have created a comic book that is set on a college campus that follows a college freshman that is trying his best to be a "normal" student but that is proven difficult given how strong his emotions are and how they affect him. In the words of former president Barack Obama, "Learning to stand in somebody else's shoes, to see through their eyes, that's when peace begins..." I insert that quote to show how I want readers to come together, whether that person is struggling with their emotions or not. This comic is to serve as a catalyst for understanding, but more importantly it was made to make the viewer dealing with these issues know that they are not alone.

Mentor: Josephine  
Koster, Ph.D.

Department of English  
Undergraduate and  
Graduate Research  
Conference at Winthrop  
University, Feb. 2024

(CAS – English)

(ENGL 507 - Josephine  
Koster)

## **New Emotions, Acts of Rebellion, a Need for Solidarity, and Interest in the Past: Four Major Reasons for the Development of New Slang Terms Over Time**

### **Jaden Lemmonds**

This essay examines four major reasons why slang develops and changes as a subset of American English over time. These reasons include slang as a form of emotional expression, slang as an act of defiance by new generations against the old, slang as an expression of both group and individual identities, and slang as a result of interest for a past moment in time. With the exception of one source, the information presented was published within the last 25 years in order to ensure relevance to an ever-changing subject. This essay relies heavily on the writings of Robert Moore, author of “We’re Cool, Mom and Dad Are Swell: Basic Slang and Generational Shifts in Values” and “On Swearwords and Slang,” and is supplemented by other research on slang. This research includes a study on Internet slang as well as on fashion trends and cycles over time, relating both to how they deepen our understanding of slang. This topic is important because everyone uses slang whether they realize it or not, and the sociolinguistic trends of why slang develops can deepen the knowledge and understanding of English as a living, growing language. This essay discusses the processes by which slang develops and why it is different from traditional English, speaking on each reason for slang development and its purpose within American culture. Looking at where slang has come from can help linguists and literature scholars alike understand where it is now, and perhaps even where it will be in the future.

Mentor: Adolphus Belk,  
Ph.D., John Hairston Jr.,  
M.F.A., Elizabeth Dulemba  
(Hollins University), Myles  
Calvert, M.A., Bradley  
Young, Ph.D.

## **Political Illustration of the Reality of the World from a Generation Z Point of View**

### **Avarie M. Radel**

Political cartoons have been utilized to satirize current issues for many years. During this time, people have used these images to share their views, and teach others about important matters of the day, not to mention spread propaganda. What sets my illustrations apart from those currently produced is that the illustrations are from a new perspective and are not visible in the mainstream media. At present, there is a distinct void in the media landscape of any political cartoons being produced from the Generation Z perspective. As this generation increases its visibility in today's workforce, there is the perception that it is not allowed as much voice as other generations have previously enjoyed. The dozen illustrations presented here focus on key issues the author believes connect specifically with this generation and has a deep personal affinity to. The imagery is also from a female perspective, which is uncommon in political cartoons in and of itself. The myriad topics like abortion rights, the 2024 election, and global warming are not off-limits, and they are featured in this series as a sign of things to come.

Department of Design  
Senior Showcase, April  
26th | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

Mentor: Bradley Young,  
Ph.D., John Hairston Jr.,  
M.F.A., Mark Aguilar (Self  
Employed), Liuda  
Neznakhina (Freelance)

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

## **Extraordinary in the Ordinary**

### **Emily Burnham**

I have stayed in many unique places around the world, but only truly loved the ones I've lived in. Spending 15 years of my life growing up in Ukraine and five formative months in Japan gave me intimate insights into the authentic culture and incredible beauty of each that no tourist attraction can capture. My thesis is composed of environmental illustrations of ordinary city streets and courtyards from these countries that I have brought to life with sound and originally crafted characters. Visible textures, “ugly” elements like power lines and air conditioning units, and “unfinished” stylization underscore the value of similarly unacknowledged artistic methods. This art honors my God who cares for and restores things disregarded. It also conveys a small part of the love I have for these “ordinary” public places that I cannot access now, whether because they have been ravaged by war or because I happened upon them by chance. With these gently animated scenes, I encourage people to appreciate the physical areas of life they are used to, create these kinds of communally cared-for places in their own surroundings, and value the overlooked locations of diverse cultures they travel to.

Mentor: Chris Johnson,  
M.Arch.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(ENVS 463 - Scott Werts)

## **The Future of Sustainable Transportation**

### **Jovei Eanes**

Every day the climate changes, whether you are affected or someone else around the globe is affected, the impacts are felt. The rise in greenhouse gases (GHG) contributes to the rise in heat on Earth as it traps the heat that is made on Earth within our atmosphere. To bring attention to the issue of unsustainable transportation, Winthrop University is committed to bringing electric vehicle charging stations to campus to promote the use of electric vehicles. Another goal Winthrop is pursuing is the implementation of bikes on campus as well as promoting the use of the MyRide bus system (which is all electric and free!). The goal of this is to bring attention to how we can use our resources better. Transportation is not the only thing that is contributing to the accumulation of Greenhouse Gases. Contributions of gases also come from industry, which burns fossil fuels, and from the commercial and residential sectors, which uses refrigeration, and cooling in buildings. Other smaller portions that contribute to greenhouse gases are agriculture, land use and forestry.

Mentor: Amanda Campbell, Ph.D.

17th Annual Department of English Undergraduate and Graduate Research Conference, Rock Hill, SC, February 2024 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – English)

## Victim Versus Monster: How Medusa's Forgotten Origins Redefine Her Place in Mythology

Caitlin Lewis

Women in mythology are wide and varied. However, there is a woman that constantly seems to be overlooked. A Grecian mortal, damned by the gods; serpent-haired Medusa. The problem with solidifying Medusa's character is that she has many different beginnings. Medusa's very first appearance is in Hesiod's Theogony, written somewhere within 730-700 BC. However, things take a different tone in Ovid's Metamorphosis, written in 8 BC. Instead, Ovid suggests that Medusa was a mortal woman who got caught between two gods; two gods who, in fact, have a history of rivalry. For the rest of her life, and even after her death, Medusa is still a victim. She was killed in cold blood, forced to act as a weapon for her killer, and given as a prize to Athena, the goddess who had transformed her into the serpent-haired beast in the first place. So then, why do we only know Medusa as the obstacle, the beast in Perseus' story? To answer this, one more question must be posed: who comes off looking worse in this myth? The answer is Medusa herself. And so we forgot Poseidon's strategic raping and Athena's misplaced rage in favor of a Medusa who was deserving of punishment to begin with. Fortunately, in recent years, Medusa's image has begun to turn itself around, with writers and artists using her image as a symbol of feminism and the #MeToo movement.

Mentors: Tamara LaValla, B.F.A.; Bradley Young, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley Young, VCOM 487 - Bradley Young)

## For When It Bites: An Emotional Dictionary

Grace Griffin

Why is it so hard to understand and identify the emotions we feel in our day to day lives? We experience over 400 a day, so surely by now we should all be experts. As it turns out, there are only 3,000 emotional words in the English language, yet clearly our emotional range far exceeds this number. Though language is associated instantly with external verbal communication, our internal communication, the way that we talk to ourselves, is what causes internal disconnection. For When it Bites, this Emotional Dictionary will be there to enliven and encourage others to process their complex and contradictory feelings. Follow my journey as I brand, advertise, and organize this useful little book.

Mentors: Bradley Young, Ph.D.; Jason Tselenitis, M.F.A.; Devon Ralston, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley Young, VCOM 487 - Bradley Young)

Mentor: Virginia Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – History)

(IDSV 490 - Virginia Williams)

## Predator: Trophies of Men

Jesse Shoffstall

As an entertainment format, board games have a special ability to create unique player experiences by blending story, theme, and gameplay. Cooperative board games in particular offer new and exciting opportunities for players to share these storytelling experiences with others. My thesis project, *Predator: Trophies of Men*, is a theme driven cooperative board game that follows the plot of the original 1987 film *Predator*. As a longtime fan of the *Predator* franchise, I saw an opportunity to design a board game that lets similar fans relive the story in exciting new ways. Set in a Central American jungle, players step into the boots of Major "Dutch" Schaefer and his elite team of commandos. Together, they must face an extraterrestrial foe known as the demon who makes trophies of men. Players will embark on a mission of survival and pursuit where the line between hunter and hunted is hazy. The finished game is a novel and interactive approach to game design featuring seven playable characters each with unique abilities, a variety of useful items to aid in your survival, and elements of chance to stimulate unexpected outcomes.

## Mental Health of Students Following Covid-19

Melanie Yerkes

When the COVID-19 pandemic started and schools were closed, almost no one was thinking about the mental health concerns of school closures and quarantining. Being physically ill was of a more pressing concern than being mentally ill at the time, but the long-term mental and social effects of policies implemented to impede the spread of COVID-19 have already started to appear. Concern for mental health care and adapting to virtual health care has grown considerably since the start of the COVID-19 pandemic, especially when it comes to children, but what exactly are the psychological and developmental repercussions of the pandemic and how can schools and parents work to remedy them? The disciplines of psychology and education provide unique and collective insights into this topic. Psychology provides insights into mental health symptoms and care, virtual counseling strategies and effectiveness, counselor attitudes towards virtual settings, groups of students who are at a greater risk mentally, and parental involvement in development. Education provides insights into school policies and their effects on children, virtual learning strategies and effectiveness, teacher and student attitudes towards virtual settings, minorities that are disadvantaged by educational systems, and parental involvement in virtual learning and their children's education. With the disciplines of psychology and education, I aim to prove that school closures and isolation that the COVID-19 pandemic caused has raised levels of anxiety, depressive symptoms, and maladaptive behavior; and suggest that increases in school counselor personnel and training, and appropriate parental involvement can work to reduce these adverse effects.



Mentors: Bradley Young, Ph.D.; Jason Tselentis, M.F.A.; Jessie Hoffman, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley Young, VCOM 487 - Bradley Young)

Mentor: Jennifer Disney, Ph.D.

Southeastern Association of Educational Opportunity Program Personnel (SAEOPP) | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – Political Science, Philosophy, Religion & Legal Studies)

## Beyond the Pitch: Building the Identity for a Dynamic USL Championship Expansion Team

Sam F. Bell

My senior thesis is committed to creating and developing an all-encompassing marketing and design strategy for a new USL Championship expansion team in Rock Hill. This ambitious project will cover various elements, such as crafting a distinctive logo, establishing a brand identity, developing a social media presence, designing clothing and assets, and implementing out-of-home advertising. From when I was a young boy, I was fascinated with all aspects of sports. As a senior design student, I have developed a passion for design and have fused a relationship between my love for sports and design. This is the root of my excitement for such a project. My mission is to introduce a professional soccer team that pays homage to the Rock Hill/Fort Mill area's rich history and becomes a source of pride for the local community. Beyond just providing a team to rally behind, I aim for the team to be a catalyst for this great city's ongoing growth and development. My vision goes beyond the soccer pitch; I envision the team as a positive force that enhances the fabric of the community. By fostering local support, I intend for the team to create expansion opportunities and establish meaningful partnerships with businesses in the area while also giving the community a team to love and support locally which is Rock Hill's. This is the materialization of what the brand style guide and marketing would look like for this team.

## The Implications of Straight Ticket Voter Option (STVO) on Residual Voting: A Comparative Study of Gaston County, NC and York County, SC

Carrie Vaughn

Votes uncast in certain contests limit the effectiveness of American democracy. Our research measures the effects of the straight-ticket voting option (STVO) on residual voting in midterm and presidential elections. STVO allows voters to choose a party's entire slate of candidates with one mark. To measure this effect, we compared two bordering counties (Gaston, North Carolina, and York, South Carolina) with similar demographic data, one with and one without STVO, in the 2020 and 2022 elections. STVO decreases residual voting. Voters are more likely in a presidential election to vote on each contest; during a midterm election, residual voting increases.

Mentor: Virginia Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – History)

(DVS 490 - Virginia Williams)

Mentor: Virginia Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – History)

(DVS 490 - Virginia Williams)

## Censorship Within Education

Sidney D. Morfin

My research topic concerns censorship in the public education system and its adverse effects on curriculum and reading. Censorship within the educational system is an important topic because educational texts are pulled from public schools and libraries and therefore leaving the education system void of potential texts and resources within the public school system and libraries. The reach of censorship within the educational system plays a crucial role in determining the curriculum and what becomes of controversial material when embedded within the system. Thus, it asks what will become of students' curriculum and the future of reading. Therefore, my research investigates how the role of censorship within the public education system affects students' curriculum and reading. To articulate the effects of censorship on the educational system curriculum and reading, I have chosen to research my paper through a historical, educational, and literary lens. I chose the discipline of history as it will provide background on the history of censorship within schools. For my second discipline, I chose Education. Using an educational lens will address what subjects and texts are censored within the system and show how it impacts the students and teachers. For my last discipline, I chose to focus on Literature. Censorship impacts the education system through the texts used within the course, in the library, and what is being left out. A lack of reading materials plays into developing students' reading skills and future abilities. Therefore, using a literary perspective will address what texts are left out and their impact on students' reading abilities, such as comprehension. My research will show that censorship impacts the public education system by limiting social and educational resources in the curriculum, which hinders students' ability to read and learn concepts that require comprehension.

## Queering Hollywood

June Campbell

Western culture's contemporary discussion surrounding quality representation within the television and film industries is pertinent as ever. My scholarly project delves into the inner workings of the television and film industry's traditionally racist and heteronormative culture, specifically as this impacts outcomes for Black queer visibility in productions. Utilizing a sociological, LGBTQ+ studies and media studies approach to this issue, my work seeks a practical means of mitigating the modern issues with Black queer representation such as tokenism and negative stereotyping. The enriching sources I draw historical and technical context from primarily consist of literary and film analysis, which explore the real world and industry realities of Black queers. My project centers advocacy for increasing industry-wide representation, drawing attention to core issues within the television and film industry, and highlighting the need for prioritizing a humanizing approach to how we produce Black queer stories.

Mentor: Virginia Williams,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – History)

(DVS 490 - Virginia  
Williams)

## Health Disparities Between Pregnant Black Women Versus Pregnant White Women

Arkia Stroud

The topic of research focuses on the health care field and how factors such as race and implicit bias effects the level of care provided to patients. The research questions center the thought, “What are the health disparities between pregnant black women and pregnant non-black women”<sup>9</sup> The research is aimed to address the various health disparities, why they exist, and how they contribute to factors such as mortality rates during childbirth. Statistics consistently prove that “Black women are two to three times more likely to die from pregnancy related complications than white women, most of the maternal deaths being preventable” (CDC, 2023). The importance of conducting this research is exuded through those statistics, People are dying. The deaths are preventable. In 2024, in one of the most advanced countries in the world, women should not still be dying during childbirth especially not only black race specific women. The three disciplines that will be used to examine this study are biology, sociology, and psychology. The biology discipline will cover the medical aspect of the research. Genetics and illnesses like cardiovascular health and high blood pressure will be evaluated to see its correlation to the maternal mortality rate. The sociology discipline will evaluate social aspects that may affect the statistics stated above. Social class, race, health care accessibility, educational and career perspectives will be examined. Finally, the psychology discipline. Statistics show that stress is a compliant factor that effects pregnancy and childbirth. It is believed that the treatment provided by health care providers and social issues contribute to stress and the high mortality rate of black mothers. The health disparities evaluated within pregnant black women and pregnant nonwhite women play a huge part in the high mortality rate of black mothers. The research shows the implicit bias and proves the fact that these deaths are preventable. With these findings, the research can be further taken into depth to determine what can be implemented to lower the maternal mortality rate.

Mentor: Bradley Young,  
Ph.D., Tamara LaValla,  
B.F.A., Wanda Koszewski,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

## Cooking for College Students - Designing a Lifestyle Resource

Finnley Constantino

What if there was a resource for college students that empowered and gave them a starting point to learn how to cook? This interactive pdf has been designed to be user friendly and offers a jump off point for those who are looking to learn how to cook for themselves. There are pages dedicated to learning about food preservation, kitchen safety, and best practices with kitchen tools. All of the recipes included in this resource have ingredients that are readily available and easy to find. I also reached out to the students themselves and surveyed them about what they like to eat and what they want to learn and then curated a selection of recipes and tips to meet students where they're at in their own cooking journey. The goal from the start was to design a friendly transitional aid for students as they transition to living on their own. It's not just a recipe book, it's a lifestyle book.

Mentor: Virginia Williams,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – History)

(DVS 490 - Virginia  
Williams)

## Community Stakeholders and Student Achievement: Does It Take a Village?

Briana Alexis Tillman

In the United States, the education system comes into contact with both the public and private spheres. Because these interactions have historically been influenced by racial and class divides, location and race often determine the educational achievement of children in this country. Since Brown vs. The Board of Education, educational reform has aimed to prioritize equalizing educational opportunities and student achievement. Despite these efforts, however, community stakeholders that bridge both public and private spheres in education, limit the extent to which reforms can advance student success. This paper questions how community stakeholders contribute to district-line-focused education reform weakening student achievement. By utilizing the areas of education, political science, and economics, my research proves that sustained student achievement necessitates intentionally integrated schools and communities. First, the discipline of education provides insight into student achievement since the implantation of district-line-centered reform, while also assisting in determining what community stakeholders directly impact the process of authorizing these initiatives. Next, political science reviews past and current court rulings that seek to further student achievement through existing district-line-centered reform, identify which community stakeholders affect the success of education litigation, and show the most effective way to seek legal action aimed at ensuring that educational reforms are effective in sustaining student achievement. Lastly, the discipline of economics determines the effectiveness of district-line-centered reform that emphasizes equalized funding, in addition to revealing community stakeholders that reduce student achievement despite schools having sufficient resources.

Mentors: Jason Tselentis,  
M.F.A.; Nicholas King (The  
Creative Hub); Bradley  
Young, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

## The AI Fusion Cookbook

Ka'Darrius T. Ellerbe

In the 21<sup>st</sup> century, there have been many technological advancements in the way of artificial intelligence that are shaping the way that we experience the different aspects of our life. We are even privy to those same advancements within graphic design as well. What this means for the graphic designer is that there is a fresh area of design that many have yet to explore and that can be beneficial. While AI has been proven useful, some still might look at the tool as a crutch instead of an asset. My goal is to display some of the characteristics of AI art as explained by Joanna Zylińska in her article “Art in the Age of Artificial Intelligence.” These characteristics include creative possibilities, the simulation of human reflection, and educational values presented by AI artwork. My objective is to narrow the divide between proficiency in Photoshop and AI techniques, aiming to enhance the design process and provide aspiring young designers with an avenue to acquire and aptly apply these innovative methods. So, for my senior thesis project, I am creating a fusion cookbook that teaches readers how to develop Midjourney AI images and how to use them to create dynamic designs in Adobe Photoshop using detailed “recipes”.

Mentors: Bradley Young, Ph.D.; John Hairston Jr., M.F.A.; Jason Tselentis, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley Young, VCOM 487 - Bradley Young)

## Artificial Series

### Jaylen Metz

In the year 2024, we have all become accustomed to artificial intelligence. It's in almost every facet of our lives, from our phones, to our cars, to some homes and even in our workforce and school systems. My graphic novel series: Artificial delves into just how far this A.I takeover can get. Artificial is a graphic novel series beginning with the book "CTRL". The series traverses concepts surrounding artificial intelligence such as the advancement of artificial intelligence and the overreliance on A.I as a whole. The books ask thought provoking questions but will also explore concepts such as Asimov's laws of robotics along with more ephemeral constructs such as the Pygmalion effect, nature vs. nurture and the desire for uniqueness between humans. The series straddles the line of horror and dystopia with parts of one book having a special twist having been written in part by AI. In the first book: CTRL explores the concept of the Turing test and the idea of Artificial intelligence edging closer and closer to being human. It also makes poignant comments on the vast amount of information that we give the internet without a second thought. It also addresses the topic of what exactly makes us human and how close to humanity artificial intelligence is. This is a thought provoking journey into the dark potential of artificial intelligence that will make you question your own humanity.

Mentor: Virginia Williams, Ph.D.

## Drug Prevention and Education in U.S. Public Schools

### Jordan Reed

The topic for this research paper focuses on drug prevention and education in our country's public school. Addressing drug addiction in our country is crucial to improving our community health and wellbeing. Education about the short and long term effects of drug abuse is the most significant tool in preventing future drug addiction. Mark Kleiman states that the US has the highest rate of teenage drug use of any industrialized country (Kleiman, 1987). By making sure that we are providing accurate and informative drug prevention education in our public schools, we are actively combating drug abuse and curiosity while also confronting the misunderstanding that surrounds drugs. The youth is an at-risk group for drug misuse and deserves an educational program that is effective in its methods to deter young people from ever entering the sphere of drug use. The research question that this paper will focus on is "What factors contribute to the ineffectiveness of drug prevention and education in public schools, and what approaches are the most effective?" This paper will use research done in the disciplines of Political Science, Sociology, and Psychology to address the research question. The goals of this paper are to determine the impact of these programs on students' knowledge, attitudes, and behaviors regarding substance use and to highlight successful strategies that contribute to positive program outcomes. The intention also lies in being able to provide actionable recommendations for improving the design, implementation, and evaluation of drug prevention programs in public schools.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – History)

(DVS 490 - Virginia Williams)

Mentor: Jennifer Disney, Ph.D.

## A Comparative Analysis of a Century of Violence in Mozambique

### Caden Johnson

Similar to other formerly colonized nations, Mozambique has a lot of historical struggles with violence from their colonial oppressors, including the *sipais*, Portuguese created African police forces, the *chibalo* forced system of cotton production, and a Western-backed counter-insurgency force, RENAMO, before it was transitioned into a political party. Unlike many other colonized nations, Mozambique has a unique struggle currently underway in the form of a jihadist terrorist group within its borders, Al-Shabab, known as "Mashababos" to locals. While other colonized nations have had varying levels of economic and political success, it is important to: (1) analyze how Mozambique has historically been set back through the perpetuated use of violence within its borders; (2) examine the creation and expansion of the terrorist group within Mozambique; and (3) compare the differing systems of violence that have existed within Mozambique, one coming from the colonizing world and the other coming from within Mozambique's borders. For this paper, I would like to compare and contrast the elements of foreign, coercive violence perpetuated by Portugal and the Western world with the domestic violence that exists in the form of a jihadist terrorist group that grew from within Mozambique. The importance of this comes from a desire to understand where the origin of violence comes from within each system so that perhaps we can learn from it and work to eliminate it.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – Political Science, Philosophy, Religion & Legal Studies)

(PLSC 390 - Jennifer Disney)

Mentor: Virginia Williams, Ph.D.

## Expanding U.S. Health Insurance

### Haylee Woodall

How can insurance coverage be expanded to further reduce the number of uninsured individuals in the United States? According to the Census Bureau, in 2022, 26 million people in the United States (7.9 percent of the population) – were uninsured (Keisley-Starkley, Bunch, et. Al. 2023). This research aims to propose strategies and policies to expand US health insurance, by reducing and addressing barriers to access, affordability and inequalities. Using the three disciplines of political science, public health, and economics, I will be blending insights from various fields. Using the interdisciplinary approach promotes higher thinking, to provide unconventional solutions that may not emerge within the realm of a single discipline. Many political scientists believe that we need reform when it comes to our current health care system. Their published works advocates for a more simplified system that reduces disparities. Public health researchers further believe that the United States should advocate for better, built system with equal access. Economist research shows that they believe the US would see economic growth with a new, redefined system along with a reduction in healthcare cost. When discussing how to further expand health insurance, there are several issues brought up by each discipline that hinder progress. This includes cost, sustainability, resources, and abuse of the system. My goal for this paper is to provide the strategy to reduce and address the barriers while providing the insurance relief that is much needed in our country.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – History)

(DVS 490 - Virginia Williams)

Mentors: Zach Abernathy,  
Ph.D.; Gihanee  
Senadheera, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC  
Department of Commerce

(CAS – Mathematics)

## Using Machine Learning Classification Models to Identify Real and Fake News Articles

Chloe Myers

Artificial Intelligence (AI) is a learning framework that utilizes technology to solve problems more quickly and accurately than humans. AI includes important subfields such as supervised machine learning and natural language processing. Supervised machine learning utilizes algorithms that input features of labeled training data to predict labels on unseen data. Natural language processing allows computers to interpret human language, and has been recently spotlighted with students using ChatGPT to write essays and help with other assignments. The purpose of this research is to utilize machine learning methodologies and natural language processing techniques to distinguish between real and fake political news articles. Specifically, we aim to build supervised learning models for a publicly available dataset containing approximately 2000 records of both real and fake news articles. Fake news can distort public perception and decision-making, leading to widespread misconceptions and potentially harmful consequences. As for politics, fake news can spread false information that shapes voting and public opinions. We build several Naive Bayes classification models in Python to be able to predict whether or not a given article is real or fake based on words that appear throughout the title and body of the article. After tuning model hyperparameters and assessing model accuracy, we then perform a feature importance analysis to determine which features in the dataset are most useful for predicting the authenticity of news articles. We conclude by suggesting next steps for how to further improve model accuracy.

Mentors: Gihanee  
Senadheera, Ph.D.; Zach  
Abernathy, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC  
Department of Commerce

(CAS – Mathematics)

## Using Machine Learning Classification Models to Identify Predictive Features for Type 2 Diabetes

Rebecca Hanoka

Artificial Intelligence (AI) can be defined as a technology-based learning framework that can solve problems more quickly and accurately than humans. AI includes important subfields such as machine learning and natural language processing. Machine learning is divided into supervised learning, unsupervised learning, and reinforcement learning. Supervised learning utilizes algorithms that input features of labeled training data to predict labels on unseen data. Unsupervised learning seeks to uncover inherent patterns within a dataset, and reinforcement learning uses training methods based on rewarding desired behaviors and punishing undesired ones. The purpose of this research is to incorporate AI techniques into a biological background. Specifically, we aim to build supervised learning models for a publicly available diabetes dataset containing 100,000 records. Diabetes is an endocrine disorder in which the pancreas is not producing enough insulin, or the receptors are not properly indicating the amount of glucose found in the body. We implement several decision trees and random forest classification algorithms in Python to be able to predict if a person would be diagnosed with diabetes based on certain medical and demographic information. We tune each model's hyperparameters and assess model accuracy using recall scores. We then perform a feature importance analysis to determine which features in the dataset are most useful for predicting the development of diabetes and suggest next steps for how to further improve model accuracy.

Mentor: Jennifer Schafer,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Biology)

(BIOL 371 - Jennifer  
Schafer)

Mentor: Bradley Young,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

## Post-Fire Size Recovery of the Resprouting Species *Sassafras albidum* and *Vaccinium arboreum* in Longleaf Pine Sandhills

Nicholas Stalford

Longleaf pine sandhills historically burned approximately every two years, and fire is necessary to maintain longleaf pine dominance and understory plants. Many understory plants persist by resprouting after fire. The goal of this research was to better understand plant resprouting capabilities by investigating the relationship between pre-fire and post-fire size of woody resprouting species. We conducted research in longleaf pine sandhills at the Carolina Sandhills National Wildlife Refuge. Our selected study species were *Sassafras albidum* and *Vaccinium arboreum*, which are multi-stemmed, woody species that have the ability to resprout after fire. We haphazardly selected 22 *Sassafras* and 18 *Vaccinium* individuals from three different management units that were burned approximately seven months previously. We counted the number of resprouts and pre-fire (dead) stems and measured the basal diameter and height of the tallest resprout and dead stem. *Vaccinium* had a greater number of pre-fire stems than *Sassafras*; however, there was no significant difference in the number of resprouts between species. The ratio of resprouts to pre-fire stems was greater for *Sassafras* than *Vaccinium*. *Vaccinium* height recovery was greater than *Sassafras* height recovery, while *Sassafras* had a greater recovery of basal diameter than *Vaccinium*. Wood density was greater for *Sassafras* than for *Vaccinium*. Our results suggest that *Vaccinium* allocates more resources to height recovery post-fire, while *Sassafras* allocates more resources to stem support. Species with low wood density are predicted to have higher growth rates, and the lower allocation to support in *Vaccinium* appears to allow for greater height recovery.

## Go Bold or Go Home: The Coloring Book Designed for Distraction

Savannah Hynes

While the typical coloring book pushes the idea of mindfulness and meditation, sometimes one must embrace chaos and utilize the power of distraction in order to relax the mind through energy redirection. By diverging from traditional zen principles, this anti-zen coloring book uses bold and messy design elements, witty narration, and engaging prompts to redirect stressed energy chaotically and positively. With a focus on dynamic engagement and the freedom to interpret prompts personally, this coloring book provides a refreshing and personalized avenue for managing anxiety, encouraging users to embrace a more active and expressive approach to relaxation. The result is a coloring book containing patterns, typography, fun shapes, and a narrator to guide the reader through their journey.



Mentor: Jennifer Disney, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Michael  
Lipscomb)

## **Mental Health Care in Crisis: The Systemic Neglect of Mental Illness Within the U.S. Military and the Department of Veteran's Affairs**

**Chelsea N. Cash**

The inadequate access to mental health care and the systemic neglect of mental illness within the U.S. Military and the Department of Veteran's Affairs (VA) impacts the rates of suicide and homelessness among active-duty soldiers and veterans. Despite advancements in recognizing the importance of mental health, significant gaps persist in addressing the psychological well-being of those who serve and have served. Drawing on a comprehensive review of literature, this paper highlights the correlation between untreated mental health conditions like Post Traumatic Stress Disorder and Traumatic Brain Injuries, the stigma surrounding mental illness, and the cascading effects on soldiers' lives. The failure to provide timely and comprehensive mental health support not only exacerbates psychological distress but also contributes to a higher probability of suicidal ideation and attempts among service members and veterans. Moreover, the absence of adequate mental health care often intersects with challenges in transitioning to civilian life, leading to increased rates of homelessness. This underscores the urgent need for a holistic approach to current policies surrounding mental health care within the military and veterans' services. This paper emphasizes early intervention, destigmatization, and better access to mental health resources. Addressing these systemic deficiencies is crucial to honoring the sacrifices of those who have served and ensuring their well-being beyond the battlefield.

Mentor: Katharine  
Hubbard, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(MCOM 301 - Katharine  
Hubbard)

## **Comparative Analysis on the Subject of Parasocial Relationships and Its Effects on Personal Relationships**

**Nathan James Monti**

In the modern era, it is easy to follow and fixate on celebrities, characters, or franchises via social media and constantly consume content about it daily. In doing so, unhealthy relationships, i.e. parasocial relationships, can sometimes form as a result of this habitual behavior. The purpose of this research paper is to study and analyze the effects of parasocial relationships and the people they affect through comparing and contrasting research articles studying parasocial relationships, the effects on the people who develop them, and the people such relationships are developed around. These studies will show both positive and negative effects of parasocial relationships based on information gathered from participants' life experiences related to the idols that they have developed parasocial relationships around.

Mentor: Joni Boyd, Ph.D.

SAEOPP June 2023  
SEACSM February 2024

Supported by U.S.  
Department of  
Education McNair Grant  
P217A180094 Scholars  
Program

(GESHS – Physical  
Education, Sport &  
Human Performance)

## **Exploring the Impact of Movement on Mood**

**Maryah Lance**

Practitioners need sustainable unmedicated methods to assist with the improvement of mood and mental health. Mental health is associated with mood and emotions. Mood is the accumulation of dynamic emotions at a given time. Movement may be a tool for people to be able to control emotions. Fear, anger, happiness, and sadness are affected by the different motor behaviors. Happier movements are correlated with rising, jumping, and rhythm movements. Sad movements are correlated with slumped, head down, and closed posture movements. Movements done daily are voluntary as a coping strategy. Adolescents feel better and more energized after incidental activity. Adults who participate in physical activity are in a better mood daily than those who do not. We believe performing specific movement patterns will have a positive impact on the participants' mood states. Fifty-five participants were used in this study. Participants completed a pre- and post- survey consisting of screening, demographics, current physical activity level, emoji scales, and a movement sequence of Simon Says. A dependent-samples t-test was performed on the pre- and post- scores. The difference was significant,  $t(55) = 9.4, p < .001$ . A  $\chi^2$  Goodness of fit revealed significant differences in participants' ratings of the impact of the video.  $\chi^2(2, N = 55) = 73.35, p < .001$ . This was a large effect, Cramer's  $V = .81$ . Adding a few specific movements and postures can create positive feelings and experiences that can help mood. Movement patterns are not intense and do not require a warmup because of the low impact. Future research should incorporate more subjects and diverse populations.

Mentor: Christian  
Grattan, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

## **Synthesis of Sphingosine Kinase Inhibitors**

**Casey Kopyc**

Sphingosine kinase 1 (SK1) is an enzyme known to catalyze the formation of sphingosine-1-phosphate (S1P) in the sphingolipid metabolic pathway. Within the cell, the formation of ceramide from the sphingolipid triggers apoptosis. If apoptosis does not occur, ceramide is catalyzed to form sphingosine. Following the process, SK1 then catalyzes the formation of S1P, which at high concentrations initiates cell proliferation in cancerous systems. Novel inhibitors for SK1 are needed to stop S1P from being produced. Using a known template of a sphingosine kinase inhibitor (SKI), four new derivatives were created and were intended to improve the oral bioavailability while improving or maintaining interactions with SK1. Modifications were made to the central pyrazole ring of the lead compound. The modifications included the substitution for a thiophene (2D) ring and a furan (2G) ring. Through multiple syntheses, the final products of 2D and 2G were successfully created after purification and analysis by  $^1\text{H-NMR}$ . The new inhibitors will be evaluated via enzyme activity assay testing to determine how these modifications impact SK1 relative to our lead molecule.

Mentors: Virginia Williams, Ph.D.; Mark Nortz, M.Ed.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – History)

(DVS 490 - Virginia Williams)

## Creative Play and Imagination: Learning New Skills from Children's Pretend Play

Cooper Beck

Pretend play spurs creativity and imagination within children. Creativity blooms at an early age, but slowly burns away as we grow up. Why is that? Creative freedom and innovative problem-solving are limited within the public education system. I believe that creativity is not hereditary, but can be taught through creative play. Creative play creates the exact environment that public education limits. How can creative play benefit children? How can parents and educators implement creative play into the lives of children? This paper will conduct interdisciplinary research between Early Childhood Education, Children's Psychology, and Sociology. Early Childhood Education currently promotes creative play in their teaching practices. Children's Psychology gives us the benefits of these practices and how it directly affects the brain from adolescence into adulthood. Sociology shows us how the practices directly affect social development with creative activity. I would like to analyze how they cater their practices to best benefit children's cognitive and social development. I believe unstructured, but guided creative play could relieve academic pressure and assist in teaching creativity. I hope to suggest a system that sustains creative thinking throughout an entire lifetime. With my short film, Thought Bubble, I want to bring awareness to creative thinking in children and adults. The character 'Thought' will become a visual symbol for a young child's creativity and share that passion with a burnt out artist. I hope to display the importance of creativity in all ages through this film.

Mentor: Kelly Ozust, M.F.A.

(CVPA – Theatre & Dance)

## I'm Getting Better

Cassandra Jaramillo

The general topic of my research is how mental health in dance has become serious and common to dancers. The central problem of my research is that in today's society, teachers have become more toxic and hurtful with their words. It is expected from dancers to use that type of "criticism" as something that would help them in the near future. It is important to address this topic because viewers do not see the behind the scenes very often of what goes on in a studio. In my opinion, dancers have become more sensitive to themselves to where they would go beyond extreme measures to fulfill their "role models" expectations. With some experiences, I too have found myself becoming more sensitive as to where I am dealing with a deadly disease. I was hospitalized due to a heart attack that I endured last semester which made me have to stop school and go home to better myself before I could come back. I experienced severe depression and anxiety just from the thought of not being able to dance on a stage ever again due to the rare autoimmune disease I am dealing with right now. With my choreographic process, I communicated with my cast of their experiences and how it affected them mentally. We concluded that not only would this piece talk about my journey, but also of their journeys.

Mentor: Jennifer Schafer, Ph.D.

Association of Southeastern Biologist, Chattanooga, TN, March 2024 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499)

(CAS – Biology)

## Shrub Species Differ in Their Ability to Create Fertility Islands in Florida Rosemary Scrub

Chiara Meredith, Sabrina Rocha

Shrubs can create fertility islands, which are areas of high resource availability, through the funneling of organic matter and moisture under their canopies. We tested the hypothesis that shrub species differ in their ability to create fertility islands in Florida rosemary scrub. The three species sampled in our study were *Ceratiola ericoides* (Florida rosemary), *Sabal etonia* (scrub palmetto), and *Lyonia fruticosa* (staggerbush). We studied these species in a Florida rosemary scrub site 28 years post-fire. We measured shrub size and assessed litter cover, soil characteristics, and the presence of understory species under shrub canopies and in open areas among shrubs. Shrub size and litter cover was greater for *Ceratiola* and *Lyonia* than *Sabal* individuals. Soil organic matter did not differ among locations. Nitrogen availability was higher in open areas than under *Ceratiola* and *Lyonia*, while calcium was higher under *Ceratiola* and *Lyonia* than in open areas. Phosphorus availability was higher under only *Ceratiola*, while potassium was higher under all shrub species. Availability of most nutrients was higher under *Ceratiola* than in the open, but *Ceratiola* had few understory species under its canopy, likely due to its allelopathic effects. The high number of species under *Sabal* is likely due to the shade provided by leaves given that most nutrients were not higher under *Sabal*. Our hypothesis that shrub species differ in their ability to create fertility islands was supported. Patchiness in shrub cover appears to contribute to spatial variation in resource availability and understory species in Florida rosemary scrub.

Mentor: Donna Nelson,  
Ph.D.

## Traumatic Experiences of Discrimination, Social Support, and Post-Traumatic Growth Predict Subjective Well-Being

Sera Crookes

Traumatic experiences of discrimination (TED) based on one's identified or ascribed characteristics significantly impact emotional well-being. Racial discrimination can manifest as physical or emotional abuse, differential treatment in private and public spheres, or social exclusion. Experiences of discrimination have been linked with decreased subjective well-being (SWB) and feelings of traumatization. Social support (SS) has been shown to be a crucial factor in mitigating the negative impacts of discrimination. Although there has been extensive research on the negative impacts of discrimination, there are markedly fewer studies examining post-traumatic growth (PTG) based on race and other marginalizing factors. We aimed to expand upon previous findings and examine the connections between TED, PTG, SS, and SWB. We predicted that greater SS and PTG would lead to increased SWB, while TED would predict decreased SWB. We further hypothesized that SS and PTG would mitigate the harmful effects of TED and improve outcomes. Participants (n=117) in our online survey wrote about their most traumatic experience of discrimination and completed items from the Trauma Symptoms of Discrimination Scale, the Revised PTG Inventory, the Multidimensional Scale of Perceived SS, the PERMA Profiler of SWB, and standard demographic questions. TED predicted lower SWB; however, they also predicted significantly higher PTG. Black participants reported significantly more discrimination than their White counterparts; however, they also reported higher PTG. More research is needed to uncover interventions for increasing positive growth following traumatic discrimination to bolster potential beneficial effects that may arise in the face of adverse experiences.

Southeastern  
Psychological Association  
Conference, Orlando, FL,  
March 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Psi Chi Regional Research  
Award

(CAS – Psychology)

Mentor: Amy Clausen,  
Ph.D.

## Assessing the Current Research on Interventions for English Language Learners Within Resource Special Education

Evelyn H. Conran

English Language Learners, also known as ELLs, are a rising demographic in the United States, and our school systems are not currently equipped to educate effectively. This issue is exemplified within the field of special education, as it has been less than a decade since it was mandatory for schools to include data on ELLs who received special education services in their reports. As a result of this, research on the best educational practices and interventions for ELLs who receive special education services is very minimal. With this project, I have aimed to collect existing data from what little research exists and hope to use this research as a building block in my EDUC 495 research fellowship. Next year, I intend to continue my research fellowship in the form of survey-based research to gain data on what interventions are being used in resource special education and how educational practices are being adapted when it comes to ELLs.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Counseling,  
Leadership and  
Educational Studies)

(EDUC 495 - Amy Clausen)

Mentor: Jennifer Schafer,  
Ph.D.

## It's a Sticky Situation: Abundance and Identity of Arthropods Trapped on Tarflower (*Bejaria Racemosa*) Inflorescences

Sabrina Rocha, Chiara Meredith

Tarflower (*Bejaria racemosa*), a shrub endemic to the southeastern United States, produces a sticky substance that may function as a defense against predators. Petals emerging from flower buds, the bottom of flower petals, and fruits of tarflower are sticky. Our research aimed to assess the effects of habitat, reproductive shoot height, the number of inflorescences, and time since fire (TSF) on the number of arthropods trapped by tarflower and whether the identity of trapped arthropods differs with flower stage or TSF in Florida scrub habitats. We haphazardly selected 20 tarflower individuals (10 in flatwoods and 10 in scrubby flatwoods habitats) in sites ranging from 2 to 15 years post-fire. We measured the height of the tallest reproductive shoot and counted the number of inflorescences for each individual. Across both habitats, the number of arthropods trapped was not related to the height of the tallest reproductive shoot, the number of inflorescences, or TSF. Of the 410 arthropods we identified, 51% were in the order Hymenoptera, 26% were in the order Thysanoptera, and 15% were in the order Diptera. Overall, there was a similar number of arthropods trapped on closed and open flowers, but hymenopterans and thysanopterans tended to be more associated with closed flowers. The proportion of trapped arthropods that were dipterans, hymenopterans, or thysanopterans did not vary with TSF. The arthropods most commonly trapped by tarflower are not herbivores, which suggests that stickiness in tarflower may function as an indirect defense rather than a direct defense against herbivores.

Association of  
Southeastern Biologist,  
Chattanooga, TN,  
March 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Biology)

(BIOL 371 - Jennifer  
Schafer)

Mentors: Kristi Westover,  
Ph.D.; Victoria Frost, Ph.D.

## Genomic Annotation of Mycobacteriophage Issimir

Hannah E. Duncan, Israel A. Bellinger, Riley M. Burn, Chastity H. Chisolm, Fisher A. Cobb, Kalli M. Green, Madelynn P. Harding, Amari R. Johnson, Rachel A. Leek, Breanna A. Menard, Ciaran L. Murphy, Destiny N. Thompson, Gwendolyn R. Tomlin

Mycobacteriophage Issimir was discovered, isolated, and sent for genomic sequencing under the direction of the SEA program at Winthrop University. Issimir is a cluster C1 mycobacteriophage (phage) with myovirus morphology. It exhibits a lytic life cycle when inoculated with host *Mycobacterium smegmatis* mc<sup>2</sup>155 (*M. smegmatis*). Illumina sequencing revealed that Issimir's genome is circularly permuted with approximately 231 putative genes, and is 155,584 bp long. Primary analysis of the genome and gene start-site evaluation was performed through PEGEAN's bioinformatics prediction software using Glimmer, GeneMark, and Starterator; gene function annotations were performed using Phamerator, HHpred, NCBI Blast, DeepTMHMM, and phagesDB. Issimir contains notable predicted gene products like lysins and a holin, which support the lytic life cycle hypothesis. Structural and functional proteins in the C1 subcluster, such as tape measure proteins and tail assembly chaperones (involving a -1 frameshift), were also predicted. As many proteins in C1 phages like Issimir are hypothetical proteins, additional research on isolated gene function will advance studies of bacteriophages. Improving scientific understanding of bacteriophage biology will foster modern applications in medicine and biotechnology.

National SEA Symposium,  
HHMI (virtual), April 2024  
| Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by HHMI  
SEA-PHAGES  
Bioinformatics, Howard  
Hughes Medical Institute

(CAS – Biology)

(BIOL 271 - Kristi  
Westover)



Mentor: Nicholas Grosseohme, Ph.D.

SC INBRE 15th Annual Science Symposium, Columbia, SC, February 2024  
SC INBRE SE-Idea2023, Columbia, SC, September 2023  
SAEOPP McNair/SSS Scholars Research Conference, Atlanta, GA, June 2023  
| Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499), U.S. Department of Education McNair Grant P217A180094 Scholars Program, NSF Award #2203467 (Grosseohme)

(CAS – Chemistry, Physics, Geology & the Environment)

Mentor: Janet Wojcik, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CESHS – Physical Education, Sport & Human Performance)

(PESH 381 - Janet Wojcik)

## Progress Toward Understanding Cadmium Inhibition of Troponin Function

Cierra A. Randolph, Morgan Dukes, Victoria Williams

Muscle contraction is a complicated mechanism that involves different protein complexes working synergistically to carry out and regulate the process. One such protein is the troponin complex, which serves as the link between brain signaling and muscle function. This protein is composed of three subunits: troponin-T, troponin-I, and troponin-C. Troponin-T anchors the rest of the complex to tropomyosin, a component of the muscle fiber. Troponin-I is responsible for inhibiting muscle contraction until a surge of calcium is recognized by troponin-C in response to a signal from the brain. Cadmium is a dangerous heavy metal that has carcinogenic properties and is known to impact cardiovascular function. Interestingly, cadmium can bind to troponin-C with equal or higher affinity than calcium. The aim of this research is to understand the impacts of cadmium on troponin function and its implications for muscle contraction. The project focuses primarily on the expression and purification of hexahistidine- or MBP-tagged TnC and TnI (switch peptide and 1-73 regions), respectively. Each construct has been purified to near homogeneity and initial binding experiments were carried out using gel filtration chromatography. We have collected evidence of calcium-loaded TnC binding to the 1-73 region of TnI using gel filtration chromatography. The low Kd for these interaction (> 200 mM) is likely prohibiting us from observing other interactions. The next step for this research is to scale up the concentrations of each protein to confirm binding prior to using quantitative methods to further explore these interactions.

## Most Impactful Physiological, Psychological, and Perceptual Factors on Climbing Skills

Henryk G. Halka

Rock climbing is a popular recreational and competitive sport. The skill and climbing level of a climber is based on a plethora of factors ranging from a person's preferred form of climbing to the type of climbing style required in the routes they are attempting. The literature surrounding a climber's skill generally is based around a few main skills and characteristics such as grip strength, upper body strength, motor simulation, route interpretation, aerobic capacity (VO<sub>2</sub>max), movement class technique, and power. This presentation looks to synthesize the information from the literature surrounding the aforementioned characteristics to formulate a recommendation for the most important aspects to train to improve an individual's climbing level.

Mentors: Bradley Young, Ph.D.; Jason Tselentis, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley Young, VCOM 487 - Bradley Young)

Mentor: Daniel Stovall, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499)

(CAS – Biology)

(BIOL 471 - Daniel Stovall)

## Amaran

Alyssa M. Clark

Queer people have been finding a sense of self in science fiction long before explicitly gay characters were implemented into the medium. Space Operas like *Flash Gordon*, *Star Trek*, or *Buck Rogers* often held unintentional queer themes. Spanning sillier, more 'campy' attitudes of borderline drag persona villains, to the much more personal touch of the feeling of being alienated, space operas have always hit close for queer individuals. *Amaran* is a pixel art space opera RPG game being constructed in RPG Maker MV., calling back to the classic 80's era of space operas. While strives have been made in the representation of science fiction, *Amaran* studies the representation of queer people by bringing them to the forefront of lighthearted but genuine science fiction adventures, with a focus on queer joy. The pixel art style provides both a retro, nostalgic feel of the era, as well as a push for more intriguing workarounds in capturing character designs. The game will be distributed online, to hit a wide array of players on various platforms. The medium of role-playing games puts players right into the footsteps of another one of these space opera heroes, letting them play through these worlds' first hands and be an active participant in the unfolding adventure.

## The Role of G4 Resolvases in RYBP Downregulation in Glioblastoma Cell Lines

Farah Tabassum, Rafael Sarete

Glioblastoma multiforme (GBM) is a rare and malignant grade IV cancer of glial cells in the central nervous system, with a median survival of approximately 15 months. Frequently, GBM tumors reduce expression of RING1- and YY1- binding protein (RYBP), a tumor suppressive transcription factor that induces apoptosis and restricts cell growth and migration in a variety of cancer types. However, the mechanism by which GBM cells silence RYBP expression remains unknown. We hypothesized that G-quadruplexes (G4s), a secondary structure formed by guanine-rich sequences in both DNA and RNA, may form in the RYBP gene promoter and regulate RYBP expression. Indeed, G4-resolving enzymes, such as DEAH-box polypeptide 36 (DHX36) and RecQ-like helicase 4 (RecQL4), are frequently overexpressed in GBM. Therefore, we wondered if siRNA-mediated knockdown of these G4 resolvases could restore RYBP expression. To that end, we transfected U-87 and T-98 GBM cell lines with siRNA directed against either DHX36 or RecQL4. After 24 hours, RNA was isolated, quantified, reverse-transcribed into complementary DNA (cDNA) and amplified using qPCR. We confirmed DHX36 knockdown, but observed no difference in RYBP mRNA levels compared to cells transfected with a non-targeting control siRNA. Therefore, future work should investigate the effect of targeting additional G4 resolvases, such as RecQL4, on RYBP expression.

Mentors: Victoria Frost, Ph.D.; Kristi Westover, Ph.D.

National SEA Symposium, HHMI (virtual) April 2024 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Supported by HHMI SEA-PHAGES Discovery, Howard Hughes Medical Institute

(CAS – Biology)

(BIOL 270 - Victoria Frost)

Mentor: Myles Calvert, M.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Supported by Winthrop University Research Council Grant, CVPA Dean's Office

(CVPA – Fine Arts)

## Sea Students Discover Bacterial Viruses in Winthrop's Soil

Chastity H. Chisolm, Israel A. Bellinger, Riley M. Burn, Fisher A. Cobb, Hannah E. Duncan, Kalli M. Green, Madelynn P. Harding, Amari R. Johnson, Rachel A. Leek, Breanna A. Menard, Ciaran L. Murphy, Destiny N. Thompson, Gwendolyn R. Tomlin, Jessica E. Morgan

Bacteriophages, more commonly referred to as phages, are parasites that target bacteria and take over the cell's internal systems to replicate themselves. Winthrop University SEA Students collected soil samples from around the University's campus, and thirteen unique phages (Accio, Ardastra, Bunny, Creepus, Dezzi, Dove, Fingus, Gucag, Issimir, Kotallo, MooSherman, OlivePiper, and Tonga) were isolated at 37°C using the host bacteria *Mycobacterium smegmatis* mc<sup>2</sup>155. The phage samples were purified and amplified to obtain high-titer lysates. DNA was isolated from each phage, and analyzed by digesting with an array of restriction enzymes. DNA gel electrophoresis was then used to display the digest patterns of the individual phage genomes. The two phages with the highest titer, and most unique restriction digest patterns (Dove and Issimir), were sent to the University of Pittsburgh for DNA sequencing. All phages were imaged using transmission electron microscopy to determine the morphology and approximate size of the phage. The majority of the phages have a siphovirus morphology, with the exception of Accio, Fingus, Gucag, and Issimir, which all demonstrated a myovirus morphology. Following DNA sequencing, the genomes of Issimir and Dove were annotated using bioinformatics techniques. The overall purpose of this project was to involve undergraduate students in a genuine research experience and to ultimately increase our overall knowledge of phage biology.

## Southern Graphics Council International (SGCI) - Printmaking, Industry, and the Professional Pathway

Rex Ross, Angellina Bosch

The Southern Graphics Council International (SGCI) conference gathers over 1,000 printmakers and arts professionals annually, rotating across cities in the United States. The 2024 location of Providence, Rhode Island features a city known for its rich history and celebration of individual freedoms. The event embraces various print forms, from conceptual art to graphic design, fostering collaboration within the artistic community. Printmaking often intersects with other mediums ranging from traditional academic settings to community shops and maker/DIY spaces. Attending students actively participate through exchanging prints in the Member Print Exhibition, showcasing innovative work via student portfolio displays and faculty-led mentorship sessions, in addition to attendance at multiple live technical demonstrations at the Rhode Island School of Design (RISD) campus and pop-up exhibitions across the city. SGCI provides a platform for students to present their work and receive guidance. Participation in vendor events allow students to exchange and sell their work with other creatives and industry professionals. This year's keynote presentation is by Amos Paul Kennedy Jr., a renowned printer and book artist, emphasizing the lasting impact of printmaking in contemporary art. The conference promises a vibrant exchange of ideas, pushing the boundaries of print with its evolving future.

Mentors: Kristi Westover, Ph.D.; Victoria Frost, Ph.D.

National SEA Symposium, HHMI (virtual), April 2024 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Supported by HHMI SEA-PHAGES Bioinformatics, Howard Hughes Medical Institute

(CAS – Biology)

(BIOL 271 - Kristi Westover)

Mentor: Aaron Hartel, Ph.D.

Southeastern Meeting of the American Chemical Society, Durham, NC, October 2023 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Supported by Winthrop University Research Council Grant

(CAS – Chemistry, Physics, Geology & the Environment)

## Using Bioinformatics to Analyze the Genome of the Bacteriophage Dove

Gwendolyn R. Tomlin, Israel A. Bellinger, Riley M. Burn, Chastity H. Chisolm, Fisher A. Cobb, Hannah E. Duncan, Kalli M. Green, Madelynn P. Harding, Amari R. Johnson, Rachel A. Leek, Breanna A. Menard, Ciaran L. Murphy, Destiny N. Thompson

The HHMI (Howard Hughes Medical Institution) SEA (Science Education Alliance program) is a three-semester course research experience that introduces undergraduate students to genuine scientific investigations of bacteriophages, which are viruses that infect bacteria. Following the initial "Phage Discovery" semester of the program, the sequenced genome of Mycobacteriophage Dove was analyzed for the presence of putative genes using bioinformatic tools. The software tool PECAAN provides a general summary of the genome, genes, tRNA, tmRNA, Pham maps, and sequence homology with other phages, as well as methods for assessing gene start sites including Glimmer, GeneMark, and Starterator. Other resources, including Phamerator, NCBI BLASTp, and HHpred allow for the comparison of protein sequences with others in the specified databases, providing information regarding the predicted functions for these genes. Dove is a member of the J cluster, which only has 41 annotated phage genomes to date. Functions were predicted for a number of genes including lysins, a holin, immunity repressors, and integrases, consistent with the predicted lifestyle of all temperate phages. Genes coding for recB-like exonuclease, UDP-glucose dehydrogenase, peptidase, and capsid maturation protease were also annotated, which are typical to J cluster phages. In the future, individual Dove genes will be cloned, and assays will be performed to determine their effects on the growth of the bacterial host. This will be the first step towards revealing the function of phage genes.

## Preparation of the Fragrant Terpenoids Menthone and Thymol Via Catalytic Transfer Hydrogenation (Cth) of Pulegone

Mackenzie E. Paul

Terpenes and terpenoids are important classes of naturally occurring compounds consisting of repeating "isoprene" units. We have developed an experiment for an organic chemistry lab course in which the monoterpenoid pulegone (a fragrant component in catnip) undergoes catalytic transfer hydrogenation (CTH) using a palladium catalyst. The reaction produces two fragrant terpenoids: menthone (found in mint) and thymol (found in thyme). An acid-base extraction procedure was developed to enable the efficient separation of the two products. The thymol and menthone products could be isolated successfully in moderate to good yields and high purity by GC-MS analysis.

Mentor: Darren Ritzen,  
Ph.D.

## “Crazy, but Sexy”: Mental Illness and Sexism in Film

Brailyn Radcliffe, Bradlee Bell, Jess Crowell, Jada Brown, Imani Moye

Southeastern  
Psychological Association  
Conference, Orlando, FL,  
March 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Psychology)

(PSYC 302 - Merry Sleigh)

Psychological disorders are often not accurately presented in mainstream media. Research has shown that 34% of individuals with mental illness in movies and TV shows commit violent acts, compared to the actual rate of 3%; characters with mental illness are also 10 times more often portrayed as aggressive. The inaccurate portrayals of mental illness in movies have negative implications for those who may have a mental illness. Films which portray female characters with mental illness are particularly problematic. Even when the mental illness is accurately portrayed, a female sufferer of the mental illness is often treated in a sexist way. Depictions of sexism in film has not decreased at all since the 1950s. This study measured 1) the accuracy of mental illness depiction and 2) benevolent and hostile sexism in recent films. In order to measure the accuracy of mental illness in the films we selected, we used the diagnostic criteria for each mental disorder found in the DSM-5. Films were chosen based on a Google search of “movies that depict mental health” where we then narrowed them down by whether the main character was a woman. A total of 10 films were selected for assessment. Each film was rated by two different raters. While the accuracy of mental illness depictions in recent movies was high (3.75 on a 4 point scale), there was not a significant correlation between accuracy and level of sexism. Interestingly, the correlation between benevolent sexism and accuracy approached significance.

Mentor: Sarah Reiland,  
Ph.D.

## Perceived vs. Actual Support: Relationships with Mental Health

Maddesyn Graham, Sarah E. Powell, Bradlee Bell

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – Psychology)

Social support has been shown to be associated with better mental health. Whereas numerous correlational studies have established the relationship between social support and mental health, cause and effect is difficult to determine without an experimental design. This study explores the relationship between perceived social support and mental health in 192 college students and adds to the current body of literature by presenting a subset of the sample ( $n = 133$ ) with a challenging task to complete in an environment of low, medium, or high support. We hypothesized that lower levels of perceived social support would be associated with higher levels of anxiety, depression, and post-traumatic stress (PTSD) symptoms. We also hypothesized that higher social support during a challenging task would be related to better psychological functioning post-task compared to lower social support. As expected, greater perceived social support was associated with lower depression and PTSD scores, with a trend toward lower general anxiety scores as well. Additionally, we observed a trend toward better psychological functioning in the group that received high support, compared to the groups that received low and medium support. Although the small sample size of each support condition limits the conclusions we can make from the study at this time, these preliminary results suggest that encouragement during a challenging task is noticed by students and may benefit their mental health.

Mentor: Victoria Frost,  
Ph.D.

## Perfecting the Phenotypic Defense Assay to Investigate Phage-Host Interactions

Lidia A. Peralta, Alexis R. Atkinson

SC-INBRE Meeting, USC  
Columbia, February,  
2024; SC American  
Society for Microbiology  
(ASM), Coastal Carolina,  
April, 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

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National Institute for  
General Medical Sciences  
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alliance of HHMI

(CAS – Biology)

(BIOL 471 - Victoria Frost,  
BIOL 371 - Victoria Frost)

Bacteriophages can defend their host against external phage infection by producing proteins, often enzymes, to block surface receptors or destroy incoming phage competitors. They can defend homotypically or heterotypically, both representing types of superinfection immunity. We have been investigating the biology of a Mycobacteriophage, *ExplosioNervosa*, originally discovered in Winthrop soil. Each of *ExplosioNervosa*'s genes were cloned to enable downstream investigation of their possible functions, including host cell defense. Individual genes were assembled into the shuttle vector pExTra, and then transformed into host bacteria *Mycobacterium smegmatis*. Selected colonies were grown to exponential phase, and plated to create bacterial lawns. Induction of the phage genes enabled testing of their ability to defend their host from external phage infection. The genes tested were chosen at random, except for *ExplosioNervosa* gene 75, which is predicted to be an immunity repressor. These proteins keep phages in lysogeny and prevent the switch to the lytic life cycle. They can also play a role in defending the host against additional phage infection. We are now testing several of *ExplosioNervosa*'s genes to investigate their host defense potential against *ExplosioNervosa* itself, a mutant variant of *ExplosioNervosa*, and another A cluster phage; Ashballer. The formation of plaques following infection was observed, and the efficiency of plating, or EOP, was calculated. The EOP indicates how efficient each of these phages are at creating plaques once the test gene is induced. Measuring the effects of phage gene expression in this way will highlight more details about the processes involved during phage-host interaction.

Mentor: Sarah Reiland,  
Ph.D.

## Relationships Between Self-Esteem and Perceived Social Support

Georgia E. Gosselin, Riley B. Schroeder, Parker L. Short, Catherine Windham

Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – Psychology)

Social support is linked to many benefits, such as higher self-esteem and better mental health. The direction of these relationships is less clear, however, because most studies are limited by reliance on self-reported support levels assessed at the same time as self-esteem. This study examines the relationship between self-esteem and perceived social support in 192 college students. A subset of participants ( $n = 133$ ) completed an in-person challenging task in a controlled setting that offered a scripted amount of support (low, medium, or high) several days after completing online surveys of perceived social support and self-esteem. As expected, higher self-esteem was associated with higher perceived support from friends and family in the online survey. When confronted with a challenging task in the in-person portion of the study, however, actual levels of support predicted support ratings more than self-esteem did. Findings from this study suggest that the support in a student's environment may have a bigger impact on how they experience challenging tasks than their self-esteem does.



Mentor: Kelly Ozust,  
M.F.A.

## Chemically Bound

Robert Eugene Lee Jr.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Theatre & Dance)

(DANT 301 - Kelly Ozust)

The human body has the remarkable ability to produce natural antidepressants through the release of chemical compounds such as Endorphins, Serotonin, Dopamine, and Oxytocin. In my research, I directly provide audiences with such neurochemical phenomena. "Chemically Bound" serves as a visual representation of how these chemical releases might manifest within our bodies. The composition portrays dancers as molecular entities as if they are neurotransmitters, actively in flux. This portrayal is juxtaposed amongst a sequence of human interactions which seemingly cause such reactions. My research methodology involves curated weight-sharing and improvisational scores, which assess the dancers' relationships with one another. Rejecting conventional approaches, my cast explores speech, play, shaking, and modalities such as running as a means to develop relevant stimulation. For instance, dancers were encouraged to describe activities they wished to carry out publicly, without judgment. With responses such as "vocal outbursts" or "assertive gestures," I engineered movements symbolic of each action, thus evoking potential chemical releases among both performers and spectators. Additionally, the cast regularly engages in trust-building exercises, each based in dance or discussion, which foster a communal sense of unity within the rehearsal. This enables a sense of truly being chemically bound. In essence, the precise scientific phenomena, and the tangible experiences intertwine to create a captivating display of almost otherworldly concepts. Through an inclusive and inventive mindset, my cast presents this research, offering both themselves and audiences the chance to immerse in the vibrant work created.

Mentor: Michael  
Lipscomb, Ph.D.

## Understanding the Israel-Palestine Conflict: The Attainability of Past and Prospective Solutions

Muluken C. Hass

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Michael  
Lipscomb)

Scholars have extensively explored the Israeli-Palestinian conflict. This paper demonstrates the early and dynamic role of the British Mandate and the United Nations Partition Plan for Palestine in the emergence of this conflict. This research traces the history of this conflict into the 20th and 21st centuries and explores possible solutions to this enduring conflict, comparing and contrasting the different solutions that have been considered by scholars, diplomats, and policymakers. This includes the One State, Two States, Confederation, Autonomy-Plus, Federation, and Expulsion solutions. The analysis sheds light on the viability of each solution, identifying both their strengths as progressive pathways to resolution and their weaknesses that have blocked past efforts from achieving peace. This paper argues for a permanent ceasefire and its importance to the discussion of resolution. Through this comparative assessment, this study takes the political dialogue surrounding different proposed solutions and finds that the two-state solution will be the best and most effective solution to end this conflict.

Mentor: Sarah Reiland,  
Ph.D.

## Relative Influences of Personality and Environment on Support Perceptions

Abigail McGhee, Andrew L. Krabbenhoft, Quincy Sloan

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Psychology)

Social support is associated with many positive outcomes, but factors that predict perceived social support are less known. Factors in the environment, as well as person variables, may influence perceptions of support. Few studies have examined relationships among personality traits and perceived social support, and even fewer have tested whether personality traits can predict perceptions of social support. This study examines relationships between perceived social support and specific personality traits (extraversion, agreeableness, and neuroticism) in 192 college students. A subset of participants (n = 133) completed an in-person challenging task in a controlled setting that offered a scripted amount of support (low, medium, or high) several days after completing online surveys of perceived social support and personality. As expected, perceived social support was positively related to agreeableness and negatively related to neuroticism. Unexpectedly, extraversion was not related to perceived social support, with the exception of a negative relationship with family support. Counter to our hypotheses, when confronted with a challenging task, actual levels of support predicted support perceptions, whereas personality did not. This study suggests that, although personality is linked to perceived social support, environmental factors strongly influenced support perceptions in specific situations. Students tended to be accurate in their assessments of how much support was offered to them. Future studies should assess the impact of support on outcomes, such as task completion, learning, self-efficacy, and mental health.

Mentor: Sara J. English,  
Ph.D.

## Examining Ways to Address Housing Problems for Low-Income Seniors

Elizabeth E. McCarthy

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Social Work)

(SCWK 473 - Sara J.  
English)

Many older adults live on fixed incomes, which restrict the options of accessibility and availability of housing. Federal and state programs may provide assistance for some low-income seniors; however, housing vouchers are tied to specific properties, approved properties are scarce, and waitlists are long. Vouchers and other policies aim to assist housing costs for lower-income older adults, but these measures fail to address the needs of current persons seeking help, and do not account for the growing numbers of older persons who may need housing assistance in the future. Many non-traditional housing options exist, such as cohousing (the "Golden Girls" option), multigenerational housing between seniors and younger persons, village models of living, and naturally occurring retirement communities, which provide not only basic, safe, and affordable housing, but also companionship and other social supports. This research describes how a multilevel awareness campaign can support advocacy and change for policy and practice, broadening understanding of housing options, beyond traditional – and inadequate – voucher-based systems.

Mentor: Nicholas  
Grosssoehme, Ph.D.

SAEOPP, 2023; SE  
regional IDeA conference,  
September, 2023; SC  
INBRE conference, Feb-  
ruary, 2024. | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

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National Institute for  
General Medical Sciences  
(P20GM103499)

2nd Place Poster in Life  
Science at SAEOPP 2023

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

Mentor: Bradley Young,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

## Exploring the Interplay Between Oxidation, Dimerization, and Regulation of RitR

Jamia White, Jacob A. Rodriguez

Iron is an essential micronutrient for the fitness of living organisms. Its ability to alternate between the +2 and +3 oxidation states makes it critical for many redox processes; however, it also makes iron accumulation cytotoxic. Surprisingly, the common human pathogen *Streptococcus pneumoniae* lacks any of the well-characterized iron regulatory systems. The orphan response regulator, RitR, from this organism has emerged as the central component of novel class bacterial iron regulation, which relies on phosphorylation and oxidation/ dimerization to attune transcriptional regulation. This project aims to quantify the relationship between RitR oxidation, phosphorylation, and DNA binding. This project focuses on the expression and purification of RitR with subsequent efforts to stabilize the oxidation-driven dimer. We have successfully created the RitR dimer; however the dimer is sparingly soluble under conditions we have currently tested.

## How to Tattoo

Kaitlin Reindollar

About a year ago I was struggling to find motivation to draw. I had hit artist's block badly as many college art students do. I wanted to find something that was more technical and engaging rather than just pencil and paper. I'd been thinking about being a tattoo artist for a while and one day on a whim, I bought a tattoo machine. After many months of practicing on fake skin, I reached out to my tattoo artist and now mentor about a future in tattooing. The purpose of my thesis was to gather as much information about tattooing as possible so that when it came time for me to graduate and land a job, I would already have a foot in the door with an apprenticeship. My thesis covers many angles of tattooing, consisting of my studies on tattoo styles, the technique behind the machine, needle information, and angled techniques. After getting an apprenticeship in DEC 2023, I finally had the legal opportunity to tattoo other people than myself. Getting to work with skin is a huge honor and I am so thankful to those who have supported me and trusted me with their bodies. With tattooing, I have adapted my art style to enhance readability with bold lines, thin details, and salt and pepper shading. My style does not fit into a classic genre of tattoo art but if I had to classify it, it would fall loser to American traditional or illustrative.

Mentor: Daniel Stovall,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

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Program

(CAS – Biology)

(BIOL 472 - Daniel Stovall)

Mentors: Scott Werts,  
Ph.D.; Chris Johnson,  
M.Arch.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(ENVS 495 - Scott Werts)

## Detection of Novel G-Quadruplexes in the RYBP Gene Promoter

Michelle Aguilar-Gaspar, Erin Adams, Alexandra Gebbia

Glioblastoma multiforme (GBM) is a lethal central nervous system cancer with a median survival of under 15 months. GBM tumors frequently reduce expression of the Polycomb transcription factor RING1-and YY1-binding protein (RYBP). RYBP exhibits antitumor effects, such as promoting cell death and decreasing cell proliferation, in various cancers. However, the molecular mechanisms by which GBM tumors downregulate RYBP remain unknown. We analyzed the RYBP promoter and identified multiple sequences that putatively form G-quadruplexes (G4s), a stable secondary structure that, when present in gene promoters, can either repress or activate gene transcription. To determine whether the RYBP promoter is capable of forming G4s, we transfected synthetic oligos containing the wild-type sequences into U-87 and T-98 cell lines. Separately, we also transfected cells with mutant oligos that ablated intra- or inter-molecular G4 formation. We used a bona fide G4-forming sequence from the Myc promoter as a positive control. After 48 hours, the cells were immunostained with an antibody against G4s and counterstained with DAPI. We observed G4 formation by wild-type oligos as predicted. G4 presence was also detected in oligos suffering mutant ablation of intramolecular G4s, suggesting that these sequences are capable of forming intermolecular G4s. We did not detect any G4s in cells transfected with oligos bearing mutations that prevented both intra- and inter-molecular G4 formation. These data suggest that the RYBP promoter forms G4s in vivo, but some ambiguity in the images necessitates the experiment be repeated.

## Tracking Carbon: a Comprehensive Study of Winthrop University's Emissions from 2018

Riley Brown, Constance Wilson

Due to a rapidly changing climate and increasing cost of natural resources, increased interest in sustainable practices can be seen worldwide, inspiring escalated engagement with local communities. Multinational corporations down to individual citizens are interested in calculating their carbon footprint, which is a measure of the amount of greenhouse gas emitted by that person or entity, in order to make improvements. Winthrop University, located in Rock Hill South Carolina and home to around six thousand students yearly, is no exception. Through a combination of quantitative assessments and qualitative evaluations, this study scrutinizes various aspects of campus operations, including energy consumption and resource utilization. By undertaking a multifaceted investigation encompassing energy data collection, analysis, and synthesis this research comprehensively details the Winthrop University's current carbon emissions. We are continuing a study begun last year to analyze how Winthrop uses its energy, trends and developments over the years, and seeking to find places to improve. Interestingly, energy use over pandemic, covered in this study, does not show a substantial decrease in energy use overall despite the campus not being utilized by students or staff. Further examination of this data concludes that an increased number of sustainable actions could be implemented in the future to improve the emissions coming from Winthrop University.



Mentors: Leigh Poole, Ph.D.; Heather Haeger (The University of Arizona); Virginia Williams, Ph.D.

The 2024 Black Doctoral Network Western Regional Conference, Loyola Marymount University in Los Angeles, California, April 2024 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

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(UC – International Center)

(IDVS 490 - Virginia Williams)

Mentor: Veronica Ahadzle, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – Sociology, Criminology, & Anthropology)

(SOCL 516 - Veronica Ahadzle)

## Breaking Barriers, Building Bridges: An Interdisciplinary Exploration of Equity and Inclusion in U.S. Education Abroad Programs for Historically Underrepresented Students

Logan T. Pender

The transformative potential of education abroad programs for students is widely acknowledged, offering academic, personal, and cultural benefits. Nevertheless, disparities such as gender, racial & ethnic minority gaps, as well as programming infrastructure, persist within the U.S. higher education - education abroad system, with historically underrepresented students encountering intimidating financial and socio-cultural barriers. This research seeks to address these disparities by identifying barriers and exploring strategies to enhance participation and benefit minority students. Through interdisciplinary research drawing on education studies and postcolonial theory, with subliminal disciplines of sociology and psychology threaded throughout, this cumulative study aims to critically examine the systemic issues within U.S. education abroad programs. Secondary goals include contributing to ongoing discourse and decolonizing education abroad. The interdisciplinary approach allows for a comprehensive understanding of the complexities surrounding minority participation in study abroad programs. Ultimately, the research aspires to pave the way for transformative changes, ensuring equity, inclusivity, and global engagement for all students within U.S. study abroad programs. By proposing actionable strategies and fostering a more inclusive environment, the research seeks to advance the vision of a more equitable and holistic future in international higher education. To foster a holistic, inclusive, and equitable learning environment in education abroad programs that benefits all stakeholders, my proposed recommendations are: prioritizing financial accessibility; enhancing institutional support; promoting diverse representation; and adopting decolonizing practices.

## Does An Individual's Race Influence Their Perception of Unfair Police Bias on the Basis of Race and Social Class?

Emily Gibbons

Racial bias in policing has always been an issue of concern in the criminal justice system. This can be tied to the lack of support from individuals who do not believe the police exhibit evidence of racial bias in their treatment. As a result, this study examines how an individual's race and socioeconomic status impact their perception of unfair policing. Using data from the Seattle Neighborhoods and Crime Survey, this study examined how race and social class influence police treatment. Findings reveal that individual race and social class influence their perception of unfair policing treatment.

Mentors: Silvia Wozniak, Ph.D.; Bonnye Stuart, M.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – Biology)

(MCOM 461 - Bonnye Stuart)

Mentor: William Schulte, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – Mass Communication)

(MCOM 441 - William Schulte)

## Biology Department Documentary

Cameron Cherry

The significance of film can be seen in many forms. This can also be a powerful tool that can be used to educate those in an effective and creative manner. With my film experience as a mass communication student at Winthrop University, I began to use what was learned to educate and promote the biology department with various forms of media. These include social media posts and the biology department documentary that features many sections such as the 1900s and present-day student experiences. For the past 16 weeks, I have been producing a documentary for the biology department. For this project, I have been obtaining footage around the department, courses in session, and interviews of students and professors. The documentary has been one of the biggest projects I have worked on in my time at Winthrop. When producing this documentary, I had a few goals that I wanted to achieve. To start, I knew that it would be important to show multiple student views and their experiences as biology majors. This presentation is the result of the work I have done during my internship. Throughout this endeavor, I have gained valuable insight that has well prepared me for future career positions and future projects. The internship has enhanced my skills in areas such as film editing, script writing and communication. After completing my internship at Winthrop University, I am eager to continue my career journey as a journalist and film creator. The final version of the film will be shown in the oral presentation.

## The Cracks in South Carolina's Road Safety Provisions

Ainsley C. McCarthy

South Carolina roads have been neglected for decades, and their slow repair has taken a toll on the pockets of everyday citizens as the state government spends massive amounts of time and money trying to literally and figuratively fill in the cracks. Thousands of people have paid for this negligence not only with their tax dollars but with their lives. Despite concerning statistics, little reporting has been done on its effect on young drivers. The following investigative multimedia project highlights the extent to which unsatisfactory roads impact the safety and cultural surroundings of young drivers, in this case between the ages of 15-24. It contains information found via public documents, open records, organizational reports and expert interviews, which illuminated the deadly consequences of deferred upkeep, and offered solutions to potentially save the lives of young people behind the wheel. My findings are presented in the form of a podcast and an animated presentation. The first is a conversation with an accomplished researcher studying road safety and program development for children and young drivers. The second is a video about state-funded road recovery projects and their usefulness in preventing accidents involving inexperienced young drivers, especially given that rural roads are more severely affected than main routes. Notably, a FOIA request fulfilled by the S.C. Department of Transportation uncovered the correlation between the millions of dollars in tax money spent to remedy a decades-long issue, and the poor quality of S.C. roadways due to debris, potholes and other surface conditions.

Mentors: Victoria Frost, Ph.D.; Kathryn Kohl, Ph.D.

## Continued Characterization of Mycobacteriophage ExplosioNervosa

National SEA Symposium, HHMI (virtual), April 2024 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Layla GM Herndon, Alexis R. Atkinson, Abby G. Bowers, JC Ferebee, Chase A. Keisler, Kaylyn L. Little, Grace E. Ouzts, Amaya O. Payton, Lidia A. Peralta, Julianne V. Phu, Maya G. Scott, Bryson E. Vaughan, Karissa M. Wilczak, Jessica E. Morgan

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499), SEA-GENES project of the Howard Hughes Medical Institute

The SEA-GENES program aims to further our understanding of bacteriophage gene function by characterizing each annotated gene of a phage's genome. Winthrop University SEA-GENES students have been investigating the mycobacteriophage *ExplosioNervosa*: an A9 subcluster phage discovered in the soil of Winthrop University's campus. *ExplosioNervosa* has a genome containing 96 genes. Of these genes, only 36 have a predicted function. Through molecular cloning, students have isolated and amplified each of *ExplosioNervosa*'s genes excluding genes 74-84, which reside in a large area of deletion that is present in a mutant strain of *ExplosioNervosa* but not the original wild type isolate. The amplicon size of each gene was confirmed by gel electrophoresis. The resulting gene inserts were assembled into the pExTra plasmid to be transformed into competent *Escherichia coli* cells. The resulting colonies were clone verified to ensure the uptake of pExTra plasmids containing the desired gene inserts had occurred. Verified clones were grown overnight, and plasmid DNA was extracted then transformed into *ExplosioNervosa*'s bacterial host *Mycobacterium smegmatis*. Following transformation, a cytotoxicity assay was performed. This assay allows visualization of the effect of expressing each of *ExplosioNervosa*'s genes on its host bacteria *M. smegmatis*. A phenotypic response to *ExplosioNervosa* gene expression may be indicative of interactions between *ExplosioNervosa*'s gene products and the host's proteome. The work of students in the Winthrop University SEA-GENES program may help further elucidate the relationships between bacteriophages and their bacterial hosts.

(CAS – Biology)

(BIOL 526 - Victoria Frost and Kathryn Kohl)

Mentors: Bradley Young, Ph.D.; Tamara LaValla, B.F.A.

## Lulu's Garden

Laura Le

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Lulu's Garden is a product line of garden seeds from my family's garden, exploring home gardening, branding, packaging, and business strategy. The idea stemmed from my dad jokingly commenting that we should sell our excess seeds, sparking my realization of the lack of design in seed packaging and the potential to elevate this niche. Inspired by postal mail and stamps, I plan to create unique branding, with each plant illustrated like a postage stamp, incorporating hidden symbolism based on its native origin. The seeds will be directly sourced from our harvests, ensuring authenticity. The packaging will resemble stamps, with illustrations printed on stickers placed on the seed packets, mimicking how a postage stamp sticks onto an envelope. This project aims to blend creativity with practicality, offering a unique and aesthetically pleasing product to home gardeners.

(CVPA – Design)

(VCOM 486 - Bradley Young, VCOM 487 - Bradley Young)

Mentor: Daniel Stovall, Ph.D.

## G-Quadruplex Stabilizing Ligands Restore RYBP Expression in Glioblastoma Cell Lines

Lanea Brown, Melanie C. Williams

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Glioblastoma multiforme (GBM) is the most common central nervous system cancer, with a median survival of less than 15 months. Gene dysregulation plays a significant role in driving GBM progression. RYBP (RING1- and YY1-binding protein) is part of the Polycomb transcription factor family and is a chromatin-modifying protein that stimulates tumor cell death in various cancer types, acting as a tumor suppressor gene. However, nearly 50% of GBM tumors display decreased RYBP expression in comparison to normal brain tissue, but the mechanism of this downregulation is unknown. We hypothesized that GBM cells may decrease RYBP by aberrantly resolving G-quadruplexes (G4s), a type of secondary structure in DNA formed by guanine-rich sequences. We treated U-87 and T98 glioblastoma cell lines with the G4-stabilizing ligands TMPYP4, PHENDC3, and pyridostatin or a vehicle control. After 48 hours, we isolated and quantified RNA using the Nanodrop and subjected samples to RT-qPCR using the Luna Universal One-Step RT-qPCR Kit to detect differences in RYBP levels. In both U-87 and T98 cells, G4 stabilization with PHENDC3 and pyridostatin significantly increased RYBP mRNA levels compared to vehicle-treated control cells. We conclude that G4 stabilization may increase RYBP expression, and thus GBM cells may reduce RYBP levels by aberrantly resolving G4s in the RYBP gene promoter.

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499)

(CAS – Biology)

(BIOL 471 - Daniel Stovall)

Mentor: Kyahdric Moses, B.F.A, Tamara LaValla, B.F.A., Jane Thomas, Ph.D., Bradley Young, Ph.D.

## Blissful Bee

Molly Desmond

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Blissful Bee is a proposed local honey sweet potato chip company striving to make the world a better place for bees. Since 2008, honey bees have been on a stagnant decline due to pesticides, parasites, and habitat loss, and throughout 2020-2021, 45.5% of honey bee colonies have been lost in the United States. These insects pollinating 80% of our flowering plants have a tremendous impact on our environment and our food, and it's important to recognize how to take care of these problems to further make the world a better place. Contained in a circular, compostable, biodegradable paper tube and sealed in beeswax wrap, Blissful Bee utilizes ethically sourced honey from local companies in South Carolina to create unique hexagon-shaped sweet potato honey chips. This product comes in a variety of flavors; original honey chips, lavender honey, pink peppercorn, and rosemary. Each flavor is given a flower in the South Carolina region for the viewer to read and be educated on how to garden for bees, with a QR code for further gardening tips. The assigned flower's petals are then placed around the hexagon of the logo to further indicate the difference in flavor of each product. This project focuses on the brand identity of the proposed company, the logo design, and the package design of the product. It encourages the use of sustainable packaging to make the world a better place for not only us but for other living creatures such as bees.

(CVPA – Design)

(VCOM 486 - Bradley Young, VCOM 487 - Bradley Young)

Mentor: Jennifer Disney, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CAS – Political Science, Philosophy, Religion & Legal Studies)

(PLSC 390 - Jennifer Disney)

## Unveiling Economic Decline and Democratic Recession: A Comparative Analysis of Haiti and Ethiopia

Shivani Dahya, Michael Suter

This paper presents a comparison of the economic and political transformations of two post-colonial nations: Haiti and Ethiopia. These countries possess unique but similar histories marked by victories over foreign powers and long-lasting independence. Despite their historical successes, both countries experience economic instability, often attributed to internal conflicts. It is known that colonization and imperialism have impeded stability and economic growth of developing nations. However, Ethiopia and Haiti are anomalous. Both countries experienced brief periods of colonization, yet they continue to remain two of the poorest nations in the world. In this comparative analysis, we seek to understand the contributing factors of these economic phenomena through the lens of foreign interference and internal political corruption. Additionally, we analyze how both countries have undergone a democratic recession within the last 10 years, leading to a teetering democracy in the face of global polarization. The methodology utilized is historical-comparative analysis of scholarly articles and analyzed data found in the United Nations, and news articles that all pertain to different areas of research surrounding Haitian and Ethiopian history, politics, and international agreements. We find the detrimental impact of foreign interference within internal politics in both Haiti and Ethiopia. Along with foreign interference, the influence of contemporary International Financial Institutions (IFIs) like the International Monetary Fund and the World Bank have continued to hinder both countries economically.

Mentor: Aaron Hartel, Ph.D.

SERMACS in Durham, NC on October 22nd 2023 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Supported by Winthrop University Research Council Grant

(CAS – Chemistry, Physics, Geology & the Environment)

(CHEM 351 - James Hanna)

## Utilizing the Brook Rearrangement to Form Gamma-Ketooximes and Their Silyl Enol Ethers from Acylisoxazolines

Jaylin Sypolt, Mackenzie Paul

Gamma-Ketooximes are versatile synthetic intermediates. Additionally, the corresponding silyl enol ethers of these useful structures have potential for the preparation of more highly-substituted variants. We have developed a method for the preparation of gamma-ketooximes and their silyl enol ethers from acylisoxazolines using silyllithium reagents. The reaction utilizes a Brook rearrangement: the migration of a silyl group from a carbon to an oxygen. By adjusting reaction parameters such as solvent, silyllithium reagent, and temperature, the reaction can be tuned to favor either the gamma-ketooxime or the silyl enol ether product. Optimization experiments have shown the solvent used and the amount of silyllithium added to be the most impactful variables. Upon completion of the reaction, the gamma-ketooxime or silyl enol ether can be isolated using column chromatography.

Mentor: Victoria Frost, Ph.D.

SC-INBRE Meeting, USC Columbia, February, 2024, SC American Society for Microbiology (ASM), Coastal Carolina University, April 2024 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499), SEA alliance of HHMI

(CAS – Biology)

(BIOL 472 - Victoria Frost, BIOL 371 - Victoria Frost)

Mentor: Bradley Young, Ph.D., John Hairston Jr., M.F.A., Elizabeth Dulemba (Hollins University), Mark Aguilar, B.F.A.

Free Range Brewing, Charlotte, NC, April 2024 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley Young, VCOM 487 - Bradley Young)

## Comparative Analysis of ExplosioNervosa Mutant and Wild-Type Strains

Jessica E. Morgan

An evolutionary arms-race has been occurring between bacteriophages and their bacterial hosts since the beginning of cellular life. Both are fighting to overcome each other's defenses, and evolving in tandem. Here, we are investigating the biology of a temperate Mycobacteriophage, ExplosioNervosa, isolated on bacterial host *Mycobacterium smegmatis* mc<sup>2</sup>155. When ExplosioNervosa was sequenced, approximately 20% of the population had a 3,614bp mutation resulting in the deletion of 11 genes predicted to be in the wild-type strain. This fuels the question of whether the ExplosioNervosa variant displays different infectious behavior compared to the wild-type. Any phenotypic differences may indicate the potential role and importance of these putative genes. These comparative studies began by attempting to clone each of the 11 predicted genes that are absent in the mutant strain. All 11 genes were recovered using PCR amplification of the wild-type genome. Each gene was assembled into a shuttle vector and cloned. Plasmid DNA was extracted and transformed into the bacterial host. To date, expression of one gene (gene 80) caused a reduction in host growth, confirming a phage-host interaction. Any genes that show this "cytotoxic" effect will be further characterized using a Bacterial-2-Hybrid (B2H) assay to help reveal potential functions. Additional assays investigating differences between the wild-type and mutant phage plaque morphology, infection rates and stability, are in progress. This work hopes to provide further insight into the role particular phage genes play during interactions with its bacterial host.

## Epoch

Tianna Sanders

Recently, there has been a noticeable shift towards the usage of 3D animation as opposed to 2D animation, sometimes incorporating elements of both. Unlike bigger animation studios, independent creators are more inclined to use 2D animation instead of 3D. This preference is driven not only by a desire for nostalgia but also by an artistic decision. My goal is to show 2D animation by creating an animation reel that includes three short 2D animations, introducing two new characters with contrasting personalities who embark on a journey of self-discovery. This project seeks to create positive entertainment through the usage of 2D media using Adobe software. I aim to create something that captures the joy of childhood cartoons, evoking happiness and emphasizing how the changes we experience in life shape our personality, and how our reactions to these transformations ultimately shape our identity.

Mentor: Salvatore Blair,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

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the National Institute  
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U.S. Department of  
Education McNair Grant  
P217A180094 Scholars  
Program

1st place in Poster  
Presentations at SOURCE  
2023

(CAS – Biology)

Mentor: Scott Werts,  
Ph.D.

GSA Conference  
Pittsburg, October 2023  
| Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by Winthrop  
University Research  
Council Grant

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

## Effects of TiO<sub>2</sub> Nanoparticles on Goldfish (*Carassius Auratus*) Upper Thermotolerance

Leliana Bohanan

Titanium dioxide (TiO<sub>2</sub>) nanoparticles can be found in a wide variety of products such as sunscreen, soap, and even foods such as M&Ms. Due to their widespread use, these nanoparticles often find their way to aquatic environments making them a potential threat to aquatic organisms, which has stimulated a surge in research efforts toward understanding the environmental implications of nanotechnology. Our initial objective was to see if TiO<sub>2</sub> inhibited fish's ability to cope with increasing aquatic temperatures as this could present a dual threat when considering the effects of climate change on water temperature. To perform the experiment, we subjected four groups of fish (n=8) separated into non-injected, saline-injected, polyacrylic acid capsule injected, and TiO<sub>2</sub> injected treatments to a critical thermal maximum (CT<sub>Max</sub>) test and sampled them after loss of equilibrium (LOE). The LOE temperatures for each fish were recorded and an ANOVA test comparing each treatment group to the control group revealed that the TiO<sub>2</sub>-injected fish demonstrated a significantly reduced thermal maximum compared to controls (p=0.0262). Data also supports differential tissue gene expression related to the varying treatments.

## Calculating Erosional Rates and Carbon Loss Along Southeastern Coastal Vegetated Landscapes

Sydney Elise Lyons

The Florida Department of Natural Resources designates "critical shoreline erosion" based, partly, on whether the erosional areas are adjacent to the Atlantic Ocean and whether the area has a value for recreation or development. As sea level rise continues, however inlets and estuaries are being eroded by rising seas and development in nearby areas, which is playing a role in carbon recycling, sedimentation rates, and the release of greenhouse gases. Here, we present the beginnings of a case study of Big Talbot and Little Talbot Island in Duval County on the Atlantic Coast of Florida based on erosion, carbon stores, and carbon losses. High rates of erosion are occurring along edges of Big Talbot Island, which is located in Nassau Sound and not considered critical. Calculations of the density of the carbon content of biomass of overlying vegetation, the density of carbon in the soil horizons, and underlying Pleistocene sediments were completed to estimate the total amount of carbon stored in these islands. Current estimates of tens of thousands of tons of carbon stored in the ecosystem and increasing rates of erosion may cause disruptions to the blue carbon cycle and result in larger pulses of greenhouse gases to the atmosphere following storm or other erosive events.

Mentor: Christian  
Grattan, Ph.D.

Southeastern Regional  
Meeting of the American  
Chemical Society,  
Durham, NC, October  
2023.

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

## Synthesis of 4,5-Dihydro-1H-Pyrazole Derivatives as BRAF Inhibitors

Hannah Bendure

BRAF is a human gene that encodes the BRAF protein which stimulates cell growth. BRAF mutations are found in several types of cancer, most notably in 50-70% of melanoma cell lines and tumors. 90% of activating BRAF mutations in cancer cells are a valine to glutamic acid substitution at position 600 (BRAFV600E), which is approximately 500 times more active than the wild-type protein. The constitutive action of the mutated BRAF protein causes constant cellular growth and proliferation, therefore feeding tumor development. Many inhibitors of the mutated protein have been developed and are available as anti-cancer drugs or supplements to cancer treatment. Certain compounds are proven to treat human cancers, including 4,5-dihydropyrazole derivatives and nicotinic acids. Several studies have revealed dihydropyrazoles as good inhibitors for other proteins involved in cancer development. Nicotinic acids are currently used in intravenous cancer therapy with vitamin C and as sensitizing agents for chemotherapy. A promising inhibitor\* in the research study on which this project is based contains both of these compounds and has a bioactivity comparable to that of existing inhibitors of BRAF. The purpose of this research is to synthesize similar 4,5-dihydro-1H-pyrazole derivatives while comparing the effectiveness of substitution geometry as well as different halogens (such as bromine, chlorine, and fluorine) relative to the starting structure. These inhibitory compounds will be analyzed using bioassay testing to assess their efficacy.

## The Effects of Different Types of Exercises to Aid Senior Adults with Everyday Movements and Stability

Damien R. Poston

As the life spans of people around the world increase and more people are over the age of 60, many older individuals face aging related issues like sarcopenia resulting in a loss of muscle mass. This can make it harder for the older population to perform daily movements, such as getting up from a chair, going up and down stairs, getting dressed and other daily tasks. The result of the older populations struggling to perform daily tasks results in more frequent falls, which can be fatal in older populations. A way to improve this is by getting older populations exercising, and to continue exercise, in order to maintain muscle mass, strength, and mobility to be able to perform daily movements and prevent fatal falls. Many different forms of exercise can aid the older population in making everyday life easier, like resistance training providing a way to increase muscle size and strength. Adding yoga or Pilates to an everyday routine will assist in improving balance and core stability to prevent falls. Another form of exercise to aid in aging is aerobic training to keep the individual's body moving and improve their cardiovascular health by reducing the risk of heart disease as well as lowering blood pressure and resting heart rate. This presentation will dive deeper into the effects of the different types of exercise on the older population and which types of training are the most viable for promoting independence and longevity.



Mentor: Jeffrey Sinn,  
Ph.D.

Southeastern  
Psychological Association  
Conference, Orlando, FL,  
March 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Psychology)

## Translating the Moral Foundations into the Language of Schwartz Value Theory: Moral Foundations or Just Values?

Sera Crookes

Moral Foundations Theory (MFT) claims to explain liberal-conservative differences, asserting that liberals endorse "individualizing" foundations (Harm and Fairness) while conservatives rely on the "binding" foundations (Authority, Loyalty, and Purity). Critics of MFT have challenged the theory by questioning whether the MFT constructs are distinct moral "foundations" or simply values. Some have suggested that Schwartz's Value Theory provides a better framework for explaining ideological differences between liberals and conservatives. We attempted to address this criticism by testing whether MFT's foundations might be able to be extracted from the Moral Foundations Questionnaire (MFQ) and be re-operationalized or "translated" as values by reframing them within the response format of Schwartz's Portrait Values Questionnaire (PVQ). Participants (n=115) responded to an online survey that included the PVQ and the Translated Moral Foundations Questionnaire (TMFQ) scales created by the authors, measures of social conservatism, and demographic questions. We predicted that correlational and regression analyses of our new constructs would show a pattern of relationships supporting the suggestion that MFT constructs are simply values rather than unique "moral foundations." The TMFQ "binding" measures showed significant correlations with related PVQ values. This finding presents a substantial degree of overlap between the moral "foundations" and values endorsed by conservatives, calling into question the distinct utility of MFT in predicting social conservatism. Our findings suggest that endorsing closely related values (such as tradition) may predict just as well or better than the supposed "foundations."

Mentor: Scott Amundsen,  
Ph.D.

The BIG IDEA Conference,  
Indianapolis, IN April 2024  
| Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Professional  
Studies)

## Transforming Lives Through Higher Education: Understanding Today's Latin X Adult Learners

Martha T. Selmon

The Winthrop University Bachelor of Professional Studies program is committed to supporting adult learners from a variety of backgrounds. In this case study, discover how Winthrop University provided the support structure for a Latinx, Veteran, and Mom to thrive and complete her college degree. This presentation will share this student's journey, focusing on how academic and campus resources were activated and utilized. We will also discuss how her story aligns and differs with the current literature on Latinx, adult, and military veteran student success theory.

Mentor: Jason Hurlbert,  
Ph.D.

June 2023 Winthrop  
McNair Symposium, Rock  
Hill SC June 2023 | SAEOPP  
McNair/SSS Scholars Re-  
search Conference at At-  
lanta, Georgia | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

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U.S. Department of  
Education McNair Grant  
P217A180094 Scholars  
Program

1st Place Physical  
Science Oral Award at  
2023 SAEOPP Research  
Conference

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

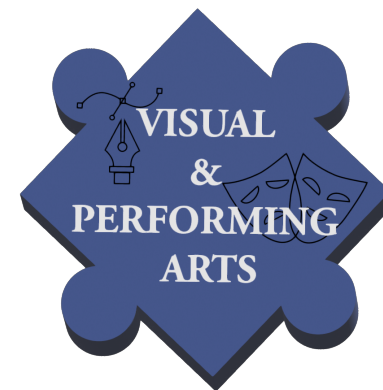
(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

## Investigating the Function of DUF 3310 Containing Mycobacteriophage Gene CAIN55

Be Kuehn

Bacteriophages are infectious agents that infect specific host cells and make copies of themselves within the host cell. A bacteriophage was identified from soil that infected bacteria of genus *Mycobacterium*. A gene from that bacteriophage named cain55, was identified and demonstrated to be cytotoxic to host cells. Homology modeling of the predicted amino acid sequence of CAIN55 suggested that the protein may be a cellobiohydrolase. A two-hybrid assay conducted by our collaborator found that CAIN55 bound to NusA, a protein involved in transcription. We have expressed and purified both proteins and will use them to determine the function of CAIN55.



## Changes in Fitness from Periodization Training in Soccer

Andrew C. Robbins

Variations in fitness levels differ between the three main time periods in soccer; preseason, in-season, and postseason. Variables like V02max and V02 peak are used to quantify changes to aerobic endurance over time. V02max is the maximal oxygen capacity your body can utilize, and a greater V02max indicates later onset of fatigue. V02 peak refers to the highest amount of oxygen at a given time used during aerobic exercise. Alongside V02max and V02 peak, power output, velocity, and body composition all change during the transitions between stages of a competitive season as a result of training regimen and protocols implemented. Highlighting the major physiological alterations that occur as a result of these changes in training help define true conditioning and preparedness for open play. This presentation will analyze the various changes an athlete experiences over the course of a competitive soccer season.



Mentor: William Schulte,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(MCOM 441 - William  
Schulte)

## Exploring the Phenomena of Safety and Online Dating

Kelli J. McAlhany

This enterprise journalism work analyzes the correlation between public safety and online dating providers. To explore these questions about safety and online dating, safety and social media experts were interviewed. This included questions about how online safety has changed and how people can protect themselves online. Communication through social media platforms is a debated topic. This is amplified more with the pretenses of online dating providers, perhaps because of the intentions behind users. Stalking, harassment, catfishing and scams are explored herein using interviews, open records, public documents, and data were obtained about audiences who use dating apps. Results showed that preventative measures are the most productive way to prioritize safety, and that 57% of online dating users report having a positive experience of online dating services. A survey conducted about IT related incidents found that individuals who used online dating services were at higher risk to incidents than people who did not use online dating providers. These incidents included malware infections, hacking, and data sharing. Technology facilitated violence is a form of violence used through digital platforms. This includes image-based violence, online harassment, cyberbullying, and doxing. Online dating makes technology facilitated violence accessible because the connections are based on sharing information. Safety professionals suggest avoiding the sharing of personal information and precaution about meeting people from the internet alone. This research examines why these safety concerns occur and what can be done to prevent more online safety concerns from happening.

Mentor: Daniel Stovall,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Biology)

(BIOL 471 - Daniel Stovall)

## Effect of Ectopic RYBP Expression on GBM Cell Sensitivity to Cytotoxic G4 Ligands

Amaya Brown

Glioblastoma multiforme (GBM) is the most common and lethal malignant tumor of the central nervous system. Polycomb proteins, especially RING1 and YY1 Binding Protein (RYBP), are commonly dysregulated in GBM cells. Indeed, GBM cells frequently silence RYBP, which is a transcriptional regulator that exerts tumor suppressive effects in a variety of cancer types and that may be transcriptionally regulated by the formation of G-quadruplexes (G4s), secondary structures formed by guanine-rich DNA sequences, in its gene promoter. Additionally, G4-stabilizing ligands induce cytotoxic effects on glioma and GBM cells. Therefore, we hypothesized that RYBP expression may sensitize GBM to G4 stabilizing drugs. We first transfected a plasmid that ectopically expressed RYBP or an empty vector control into U-87 and T-98 GBM cells. After 48 hours, we isolated total protein from transfected cells and utilized a Western blot to confirm induction of RYBP expression. Transfected cells were then treated with G4-stabilizing ligands or a vehicle control, and cell viability was measured after 48 hours to determine if RYBP expression sensitizes GBM cells to the cytotoxic effects of G4 drugs.

Mentor: William Schulte,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(MCOM 441 - William  
Schulte)

## Increased Maternal Mortality Rate Among Black Women

She'Quan M. Franklin

Maternal mortality, especially among Black women, remains a critical public health concern requiring urgent attention and action. This story delves into the factors contributing to this disparity, focusing on the alarming increase in mortality rates during pregnancy and childbirth. The research aims to identify the root cause of the increasing mortality rate among Black women, advocating for equal access to necessary care and resources during pregnancy for all women, regardless of race or ethnicity. Recognizing data gaps and inconsistencies in reporting, the work employed various approaches, including Freedom of Information Act (FOIA) requests, a public document review, expert interviews, and interviews with individuals impacted by this issue. The investigation uncovered potential discrepancies in the categorization of women's health deaths, highlighting the need for comprehensive and accurate data collection to ensure the well-being of all women. The research also identified a link between insurance bias in Medicaid policies and geographic and demographic targeting of low-income communities, revealing historical patterns of racial disparities persisting in the present. This research reveals a complex interplay between factors such as insurance bias, geographic location, income level, and race contributing to the disproportionately high mortality rate among Black women during pregnancy and childbirth. These findings emphasize the need for multifaceted interventions addressing systemic inequities and implementing robust policies that prioritize the health and well-being of all pregnant women.

Mentor: Tamara LaValla,  
B.F.A., Willie Bush, B.A.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

## Melophile Hideout

Dulce Dubose

For my senior thesis, I've conceived the concept of a music shop/venue duo aimed at enriching the local music scene in Charlotte and its surrounding areas. Dubbed 'Melophile Hideout,' the establishment embodies a sanctuary for music aficionados, encapsulating the essence of its name – 'melophile' meaning music lover. Melophile Hideout consists of three primary components. Firstly, it operates as a traditional music store, offering a diverse collection of rock and alternative music spanning various decades of the Charlotte scene as well as a special emphasis on showcasing emerging local artists. Secondly, the establishment features fully digital listening stations where patrons can enjoy both exclusive and nonexclusive tracks from up-and-coming musicians. Patrons have the option to listen privately or partake in communal listening sessions, fostering connections with fellow music enthusiasts. Lastly, Melophile Hideout serves as a venue for weekly concerts spotlighting new talent, promoted through posters and customized electronic advertisements displayed at each listening station. Together, these elements establish Melophile Hideout as a vibrant hub for Charlotte's rock and alternative music enthusiasts, providing an avenue not only for musical discovery but also for cultivating meaningful connections and friendships among like-minded individuals.

Mentor: Daniel Stovall,  
Ph.D.

Southeast Regional IDeA  
Conference, Columbia,  
SC, Sept 2023

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Biology)

(BIOL 371 - Daniel Stovall)

## G Quadruplex-Stabilizing Ligands Increase RYBP Expression in Glioblastoma Cell Lines

Alexandra Gebbia, Clara Whitehead, Farah Tabassum

Glioblastoma multiforme (GBM) is a malignant cancer of glial cells in the central nervous system, and it has a median survival of only around 12 months. When compared to healthy glial cells, GBM tumors significantly downregulate the Polycomb (Pc) protein RING1- and YY1-binding protein (RYBP), and in various other cancers RYBP exerts antitumor effects, such as promoting cell death and increasing chemosensitivity. However, the molecular mechanisms of RYBP transcriptional silencing in GBM remains unknown. RYBP may be regulated by the formation of G-quadruplexes (G4s), which are guanine-rich sequences that fold in DNA and RNA to create stable secondary structures. When present in gene promoters, G4s can behave as switches that modulate transcription. The complexity and stability of G4s allows them to play a significant role in regulating gene expression and overall genome stability. Therefore, we hypothesized that the aberrant resolution of G4s in the RYBP promoter contributes to RYBP downregulation in GBM cell lines. To determine whether G4s contribute to RYBP silencing, we analyzed the RYBP promoter sequence and identified two putative G4-forming sequences. We treated U-87, U-118, and T-98 GBM cell lines with the G4-stabilizing ligands PHENDC3 and TMPyP4, or vehicle controls (DMSO and sterile water, respectively). After 48 hours, total RNA and protein were isolated and quantified. Isolated RNA was used in reverse-transcription qPCR to detect differences in RYBP mRNA levels. Isolated protein was used to perform SDS-PAGE and Western blot analysis. Our results demonstrate that stabilizing G4 structures increases RYBP transcription in GBM cell lines, although the effects of these ligands on RYBP protein levels remains unclear. Nonetheless, we suggest a regulatory pathway that is readily targetable and worthy of future investigation as a therapeutic application for GBM.

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Physical  
Education, Sport &  
Human Performance)

(EXSC 511 - Janet Wojcik)

## Exercise Program for Sedentary Office Workers Celina Burles

Sedentary Office workers usually have 9 to 5 jobs where they are sitting in a desk chair staring at a computer screen with possibly a break for lunch. Physical activity must be incorporated into these days as these are long periods of sitting. Not only is it good to physically get up and exercise, but it can also clear the mind. With office workers who have been sedentary almost their whole life, it is important to start with small goals and then work to accomplish larger goals. For a sedentary office worker, it is important to start twice a week with 30 minutes each day at an intensity between 40%-60%. This workout can include resistance training exercises (kettlebells, bands, dumbbells, barbells) or aerobic activity (cycling, treadmill, walking, biking). Reducing the sitting time by exercising can improve cardiometabolic health. There was a study that compared fasting and post-meal glucose and insulin concentrations with frequent breaks from sitting and no exercise versus considerable sitting plus moderate exercise. The result that was concluded from this study was that breaks from sitting had approximated the effects of moderate-intensity exercise on post-meal glucose and insulin responses and more effectively constrained glycemic variability.

Mentor: Daniel Stovall,  
Ph.D.

SURE Symposium  
September 2023

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(CAS – Biology)

## Effect of RYBP Overexpression on EMT and Apoptotic Marker Levels in GBM

Monica Lopez, Dylan Lewis

Despite modern advancements, Glioblastoma multiforme (GBM) remains the most common and fatal tumor of the central nervous system. The complexities of treatment arise from its invasive nature, heterogeneous cellular composition, limited drug delivery avenues, and resistance to radio-and chemotherapy. The brief post-diagnosis survival window stresses an urgent imperative for novel therapeutic approaches that can effectively navigate the traditionally complex challenges associated with GBM treatment. This research aimed to identify molecular pathways that may present points of vulnerability in GBM tumors. RING1- and YY1-binding protein (RYBP), a member of the Polycomb group protein family, plays a key role in gene regulation and chromatin modifications, and RYBP mRNA levels are decreased in approximately half of GBM cases. Therefore, we sought to determine whether forced expression of RYBP would antagonize cell survival and trigger apoptosis or suppress the epithelial-to-mesenchymal transition (EMT) and restrict cell invasion. We used U-118 and T-98 GBM cell lines previously transduced with lentivirus expressing green fluorescent protein (GFP) only (as a control) or expressing a RYBP-GFP fusion protein. Cell lysates were isolated and examined by Western blot to measure the levels of molecular markers associated with apoptosis and EMT. We observed a modest decrease in the EMT marker ZEB1, but not Z01, in RYBP-expressing T-98 cells compared to control. In U-118 cells, RYBP expression appeared to reduce Z01, but not ZEB1. No changes in beta-catenin were observed in either cell line. The effects of RYBP on the activation of caspase-3, -7, and -9 were inconclusive. Ultimately, this research aids in the ongoing investigation of RYBP's potential role in the governance of EMT and apoptosis in GBM cells. Although early findings suggest possible trends in molecular marker availability, additional research is necessary to definitively uncover RYBP overexpression's effect on these cellular functions.

Mentor: Daniel Stovall,  
Ph.D.

Southeast Regional IDEa  
Conference, Columbia,  
SC, September 2023

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grant from the  
National Institute for  
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University Research  
Council Grant

(CAS – Biology)

## Investigating the Role of miRNAs Towards RYBP Silencing in Glioblastoma Multiforme

Valentine M.P. Savioz

Glioblastoma multiforme (GBM) is a devastatingly invasive and deadly tumor of the central nervous system. Survival rates for patients diagnosed with GBM are low, with a median survival of under 15 months. GBM progression involves the alteration of key regulatory epigenetic pathways. Many of these modifications act on Polycomb group (PcG) proteins and contribute to their dysregulation in GBM. Specifically, the RING1- and YY1-binding protein (RYBP) is a PcG protein that is down-regulated in approximately 50% of GBM tumor patients and is a known tumor suppressor in multiple cancers. However, the mechanism of RYBP down-regulation in GBM is unclear. MicroRNAs (miRNAs), small noncoding RNAs that regulate protein synthesis, are thought to contribute to RYBP silencing by complementary binding to the RYBP mRNA transcript at its 3'-UTR. We hypothesized that RYBP is a direct and functional target of multiple oncogenic miRNAs in GBM. To determine which miRNAs are predicted to target the RYBP 3'-UTR, we analyzed the RYBP 3'-UTR using TargetScan and identified miR-9-5p, miR-125b-5p, and miR-128-3p as having the highest probability of functionally targeting the RYBP transcript in GBM. Through inhibition of these miRNAs with a synthetic miR-inhibitor in the U-87, U-118 and T-98 GBM cell lines, RYBP expression increased, as measured by Western blot and RT-qPCR. We also measured the oncogenic effects of miR-9, miR-125b, and miR-128 in U-118 and T98G cell lines using WST-1 viability assays, but these assays were inconclusive. Our findings suggest miR-9, miR-125, and miR-128 contribute to RYBP silencing in GBM, and may offer potential therapeutic targets. Future experiments will be aimed at determining whether RYBP is a direct and functional target of these miRNAs.

Mentor: Salvatore Blair,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
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(CAS – Biology)

## The Effects of Turbidity on Bluegill Sunfish (*Lepomis Macrochirus*)

Henryk G. Halka, Jada Fogle

The literature surrounding the influence of environmental turbidity on Bluegill Sunfish (*Lepomis macrochirus*) is somewhat bereft. Alongside the minimal literature on the topic, most of the work is dated. This experiment looks at the physiological effects of environmental turbidity on Bluegill Sunfish, specifically at the tissue of the gill and a region called the interlamellar mass, paired with gene expression in response to changes in turbidity levels. Based on the two main focuses in our research, two hypotheses were formed. One being that the increase in turbidity will cause the bluegills ILCM to increase due to its protective physiological function observed in response to similar external stimuli. The other being that the increase in turbidity will result in triggering differential expression of various cellular genes involved in coping with external stressors. In this experiment 4 trials were held, each involving 7 bluegill which were placed in identical tanks. The fish were exposed to different levels of turbidity for 24 hours and then the tissue samples were collected. The fish's gill arches were collected, preserved, and stained for analysis. Tissue samples from the liver, intestines, and gill filaments also underwent RNA isolation for downstream molecular analysis.

Mentor: Timea Fernandez,  
Ph.D.

SC INBRE Science  
Symposium, Columbia, SC,  
February 2023 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

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track 1 – ADAPT in SC

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

Mentor: Jennifer Disney,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 390 - Jennifer  
Disney)

## Nucleic Acid Aptamer Au/Ag Nanoparticle Conjugates as Trojan-Horse Drug Delivery Vehicles in the Fight Against Bacterial Infections

Jadyn Williams, Morgan Hunter

Illnesses caused by bacteria are a major public health concern since microorganisms have become increasingly resistant to available antibiotics. At the same time, big pharma has gradually shifted its focus from developing drugs that cure diseases to those that treat chronic conditions. Thus, rediscovering old drugs and using them for new purposes is becoming more important. The ultimate goal of this project is to use nucleic acid aptamer-nanoparticle conjugates as vehicles to deliver antibiotics to cells that are resistant to them. Currently, we are investigating the therapeutic potency of nucleic acid-gold/silver nanoparticle conjugates as carriers of tetracycline and ampicillin to treat infections caused by E. Coli. We hypothesize that by attaching nucleic acids that binds to these antibiotics, to gold nanoparticles, the resulting conjugates will work as a "Trojan-horse" antibiotic-delivery vehicle that smuggles the antibiotic into the cell without being detected by cellular defense systems. Moreover, we reason that gold/silver ions released by the nanoparticles add to the antimicrobial effects of the antibiotics. To test the viability of this idea we used tetracycline and ampicillin binding DNA aptamers that were developed for detection of these antibiotics. We optimized conditions to attach these DNA aptamers to gold and silver nanoparticles. We are currently testing the antimicrobial effect of these aptamer nanoparticle conjugates using E. coli (ATCC strain 29522) and verify, using MTS assays, that they do not harm mammalian cells.

## The Examination of U.S. Involvement Within the Coups in the Democratic Republic of the Congo and in the Republic of Chile

Stormy G. Brown, Ella Miller

During the mid-late 1960s-1970s, two coups were led both in the Democratic Republic of the Congo (DRC) and the Republic of Chile. Both of these nations' coups had the United States' Central Intelligence Agency (CIA) involvement. In the DRC, the coup led by Mobutu Sese-Seko, overthrew and assassinated the democratically elected leader Patrice Lumumba; the successful coup allowed Mobutu to rule as a dictator for almost 30 years, send the country down a path of devastation. In Chile, Salvador Allende, who was an elected leader by the people of Chile, had a coup led against him in 1973 by the dictator Augusto Pinochet, also with assistance from the U.S. and the CIA. This coup strategically allowed Pinochet to rule as a dictator over Chile for 17 years. The US contributed to both of these coups, which entailed leading both of these nations to be ruled over by dictators and had horrific consequences for the people in the DRC, as well as people in Chile. Our research explores what led these coups to transpire, the consequences of these coups, and raises the question of whether or not these coups could have occurred without the U.S involvement.

Mentor: Kelly Ozust,  
M.F.A.

## Agora

Elloise T. Bethea

Performance: Junior  
Choreography Showcase  
on April 19, 2024 SOURCE  
Conference at Winthrop  
University on April  
12, 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Theatre & Dance)

(DANT 301 - Kelly Ozust)

The literal meaning of *agora* is a gathering place or assembly. Through studying community-based learning, I have explored the importance of community building and togetherness. As a junior, I have been able to conduct creative movement research through the choreographic process to make a work that brings people together through support, care, and community. My dance piece seeks to communicate the importance of personal breakthroughs, discoveries, and rebirths through support systems and community. I previously struggled with finding reliable support systems and have recently discovered meaningful relationships through community. I have a desire for more accessible support resources and a community of strength. I took this research opportunity to further connect my studies to my passion. My research has been based on exploring solitary experiences and growing relationships. Through discussion and improvisation, I created choreography to showcase every dancer's strengths and individual style. Each dancer has organic and intriguing movements that are molded to fit their unique abilities and personal experiences. The dancers and I have built a supportive community—one that connects us as artists and intellectuals. Within my work, individuals may struggle until comfort is found or discovered through the support, trust, and care of others. Through modern dance and dynamic partner work, the dancers portray their personal relationships, in addition to the evolution of a supportive community.

Mentor: Kelly Ozust,  
M.F.A.

## Fight or Flight

Joshua Treyvon Pringle

Junior Choreography  
Showcase, Winthrop  
University | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Theatre & Dance)

(DANT 301 - Kelly Ozust)

The overarching theme of my research is the bio-psychological concept of fight or flight. Fight or flight, more formally referred to as acute stress response, is defined as the instinctual human response to confront or flee from danger. In this dance, performers embody the functional and emotional turmoil of the fight or flight response, creating a deeply-felt portrayal of survival instincts by exploring the perceived danger through movement. In addition, through music, visuals, and storytelling, the dance delves into the complexities of human nature and what it means to survive. It offers insight into the experience of fear, the courage to confront adversity, and the instinctual drive for self-preservation. This piece and the movements herein were choreographed with the intentionality to convey the tension, fear, and adrenaline rush associated with the response. Dancers use the medium of movement to depict the internal conflict between standing one's ground and fleeing from danger (aggression versus evasion), essentially capturing the dynamic interplay between these two choices. The performance serves as an exploration of the human mentality, inviting audiences to reflect on their own responses to danger and the resilience of the human spirit. To summarize, Fight or Flight is a raw and powerful artistic exploration that taps into primal instincts and highlights the universal struggle between confronting threats head-on and seeking safety through evasion. So I now compose the question to you: are you going to confront your fears or flee?

Mentor: Donna Nelson,  
Ph.D.

## Regulatory Orientation Predicts Efficacy of Reappraisal of Trauma

Porsha Nesbitt

Southeastern  
Psychological Association,  
Orlando, FL, March 2024  
| Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Psychology)

Emotion regulation is a vital skill for navigating social interactions and has significant implications for psychological well-being. Cognitive reappraisal is a form of emotion regulation involving reinterpretation of an event to reduce the intensity of associated negative emotions. Effective cognitive reappraisal has been associated with lower depression and anxiety. Our aim was to build on research documenting individual differences in *tendency* to utilize cognitive reappraisal by exploring individual traits that may enhance the *ability* to effectively manage emotions through deliberate reappraisal. Specifically, we examined how different styles of self-regulation may facilitate or impede the effectiveness of cognitive reappraisal in downregulating negative emotions. Participants were adults (67% female; 64% white; 67% heterosexual) with a mean age of 21 ( $SD=5.4$ ) who completed an anonymous online study. Participants wrote about a past traumatic event. Next, they were randomly assigned to a reappraisal condition, in which they were instructed to write about possible positive effects of the recalled event, or a control condition. They then completed a series of emotion ratings. Supporting our hypotheses, regulatory style predicted which participants were able to effectively leverage reappraisal. Those higher in locomotion and lower in assessment reported less negative affect following recall of a traumatic event. Our findings suggest that although reappraisal can be an effective approach for many individuals, it may be less advantageous for persons low in locomotion orientation and high in assessment orientation. Future research should investigate the value of alternate emotion regulation approaches (e.g., acceptance or suppression) for persons with different regulatory orientations.

Mentor: Kelly Ozust,  
M.F.A.

## Where We Once Were

Madalin R. Beam

Junior Choreography  
Showcase, Johnson  
Theatre, Winthrop Uni-  
versity, April 19, 2024

(CVPA – Theatre & Dance)

(DANT 301 - Kelly Ozust)

As a double major in dance and psychology, I wanted to explore correlations within both fields of study. My piece, *Where We Once Were*, is looking to creatively research the psychological effects of childhood trauma and individual struggles on each person's outlook on their lives. *Where We Once Were* is a contemporary/ballet piece set to spoken word, rap/hip hop, and classical music. With creating this piece, I wanted to push both my boundaries as a choreographer and my dancers' boundaries by setting opposing dance and music styles. Research has shown that being optimistic, despite experiencing trauma or hardships in the past, is a protective factor against current and future distress as well as an adaptive coping mechanism for future stressors. My piece is seeking to communicate the duality of remembering where one came from, while also using one's personal experiences to embark on the journey of self-discovery through the growth of past traumas. I believe that it is important to look into the past and to use it to one's advantage instead of as a hindrance. My choreographic process began by drawing inspiration from my own individual struggles growing up. In addition to the hopeful feeling for future success, I began to improvise movements to juxtaposing music styles. As I developed ideas and phrases, I collaborated with my cast to piece my vision together, while keeping their individuality and showing their own personal experiences.



Mentor: Donna Nelson,  
Ph.D.

## Adverse Childhood Experiences Predict Adult Autonomy: the Mediating Role of Post-Traumatic Growth

Porsha Nesbitt

Adverse Childhood Experiences (ACEs) are major negative events in childhood that can cause detrimental effects lasting into adulthood. More than half of Americans have experienced at least one ACE, with individuals from marginalized groups at the greatest risk. ACEs have been linked to heart disease, cancer, depression, anxiety, and substance abuse. However, many of these negative outcomes may be mitigated by strong social support. Despite the profound negative effects of ACEs, recent studies indicate a possibility for post-traumatic growth (PTG). Our objective was to explore unique psychological strengths that may be associated with experiencing ACEs. Participants were ninety-three adults with a mean age of 28 (SD = 20). The majority were male (51%) White (52%) and heterosexual (70%). Participants wrote about an adverse childhood event and rated their perceptions of childhood trauma (PCT). They also responded to the revised PTG Inventory, the Multidimensional Scale of Perceived Social Support, the independent goal attainment subscale of the Sociotropy-Autonomy Scale and the self-reliance subscale of the BASC-3. Results revealed that greater childhood trauma was associated with more PTG and greater adult autonomy including independent goal attainment and self-reliance. We also found evidence that PTG acts as a partial mediator of the relationship between childhood trauma and adult autonomy. Finally, social support received at the time of the childhood adversity was a more robust predictor of PTG than support received during adulthood. Developing interventions to bolster social support for children who experience trauma may foster development of psychological strengths in the aftermath of adversity.

Southeastern  
Psychological Association,  
Orlando, FL, March 2024  
| Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Award for Distinguished  
Undergraduate Research,  
2024 Southeastern  
Psychological Association;  
Psi Chi Regional Research  
Award

(CAS – Psychology)

Mentor: Matthew Fike,  
Ph.D.

## Gender and Chastity in Britomart's Journey

Emmalynne Eshleman

In *The Faerie Queene*, Britomart challenges gender roles by embodying both femininity and masculinity to such an extent that she can be considered nonbinary. I explore how Britomart's nonbinary gender identity protects her chastity and contributes to her strength as a knight. While previous scholarship has individually addressed her gender, her chastity, and her time in the House of Busirane, I use a holistic analysis to better understand Britomart and her success. As she seeks to move from a virginal chastity to a generative, marital chastity, Britomart's nonbinary gender identity protects her and makes her a stronger, more capable knight who is free from the constraints of other binaries that fail weaker characters. Through an analysis of Britomart's personal background, her future with Artegall, her chastity, and her time in the House of Busirane, I find that Britomart's nonbinary gender allows her to unite the strengths of men and women while abandoning the weaknesses of either binary gender. She thus becomes capable of protecting her virginal chastity while she searches for Artegall and attempts to move to marital chastity. I conclude that Britomart's gender identity evolves alongside her chastity, making her a formidable knight who is capable of defying the boundaries that fail weaker characters such as Amoret or Busirane.

The Winthrop English  
Department's 16th Annual  
Undergraduate, Graduate  
Research Conference,  
Rock Hill, SC, February  
2024. | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – English)

(ENGL 550 - Matthew Fike)

Mentor: Dustin Hoffman,  
Ph.D.

## “Sometimes You Have to Tell a Story”: Folk-Literature and a Record of Queer IPV in *In the Dream House*

Emmalynne Eshleman

In *In the Dream House*, Carmen Maria Machado offers her own experience with queer intimate partner violence (IPV) to readers in an attempt to fill the void that exists in the archive. Machado largely relies on folk-literature tropes and structures to communicate the prevalence of queer IPV. Her use of folk-literature stories and structures establishes a clear link between the medium and her assertion that queer IPV is a timeless experience. I analyze *In the Dream House* by tracing Machado's progression from merely identifying IPV in a classic folktale to creating her own folktale about queer IPV and her use of folktale structures throughout the entire memoir. While the fractured style of the memoir has been commented on, criticism has largely failed to analyze how Machado's reliance on folk-literature augments her creation of a new archival record. I rely on structuralism and folklore theory to interrogate how and why an adaptation of a medium as old and universal as folk-literature can augment a modern memoir about queer abuse. By weaving folk-literature throughout the many genres of her memoir, Machado is able to position herself and her story alongside what is arguably the oldest known literary tradition. Machado's shameless reliance on and adaptation of classic folk-literature motifs and structures reinforces her message that queer intimate partner violence is as timeless as queer love.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – English)

(ENGL 500X - Dustin  
Hoffman)

Mentors: Timea  
Fernandez, Ph.D.; Kristen  
Abernathy, Ph.D.; Zach  
Abernathy, Ph.D.

## Machine Learning Enhanced Design of RNA-Based Fluorescent Biosensors for the Detection of the Neurotransmitter Dopamine

Emma Westmoreland, Lane Chamberlain

Dopamine (DA) is a neurotransmitter whose irregularities have been linked to several addictive behaviors and neurodegenerative disorders. Early detection of DA abnormalities is paramount for the effective diagnosis and treatment of these ailments, while real-time imaging of DA could assist in the comprehension of their underlying mechanisms. Our project aims to design a DA-sensing RNA-based fluorescent (RBF) biosensor for initial in vitro experimentation and characterization by fabricating RBF biosensors that combine ligand-sensing and fluorescent RNA aptamers to indicate the presence of dopamine. To date, we have designed, transcribed, purified, and tested the dopamine detection of eight sensor variants. Our project also utilized the assistance of machine learning algorithms based on other RNA sensor experiments. 102 published RNA sensor sequences were cataloged based on the following characteristics: melting temperature of the entire sensor and the length, entropy, free energy, hydrogen bonding pattern, and melting temperature of the transducer sequence. These thermodynamic parameters were input into a decision tree classification model to predict which of these parameters are most influential in producing a good sensor. This dataset was further used to predict the efficacy of novel sensor designs. The distinction between good and bad sensors was made at a 2-fold increase and a classification tree was constructed using 102 sensors. The model accuracy was found to be around .76 as measured by the area under the curve of the Receiver Operating Characteristics or about 76% accuracy rating when the AI tested itself against the 102 sensors that it could test against.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

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(CAS – Chemistry,  
Physics, Geology & the  
Environment)

Mentor: Jason Hurlbert,  
Ph.D.

SC INBRE 15th Annual  
Science Symposium,  
Columbia, SC, February  
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Rock Hill, SC, April 2024

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grant from the  
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General Medical Sciences  
(P20GM103499)

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

Mentor: Kelly Ozust,  
M.F.A.

Junior Choreography  
Showcase, Johnson  
Theatre, April 2024 |  
Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Theatre & Dance)

(DANT 301 - Kelly Ozust)

## Expression, Purification, and Crystallization of Human Acid Ceramidase 1

Elizabeth C. Ryerson

Ceramide, a lipid found in the cellular membrane, is central to many cellular response mechanisms, including the pathway which triggers apoptosis. When the cell is damaged, human acid ceramidase 1 (ASAH1) hydrolyzes the fatty acid tail from ceramide to convert it into sphingosine. Sphingosine kinase then converts sphingosine into sphingosine-1-phosphate. While ceramide and sphingosine favor apoptosis, sphingosine-1-phosphate favors cell survival. An overexpression of ASAH1 is found in cancer cells, which increases the concentration of proapoptotic sphingosine-1-phosphate and causes cancer cell proliferation. It is predicted that an ASAH1 inhibitor will increase the concentration of ceramide and force apoptosis of diseased cells. Therefore, previous research has been done to design such a molecule. To determine its effectiveness, the inhibitor can be added to purified ASAH1, and X-ray crystallography can be used to determine the protein-inhibitor complex. This research focused on the expression, purification, and crystallization of ASAH1 so that it can be analyzed alongside its potential inhibitor. *Escherichia coli* cells were engineered with the gene for ASASH1 and were grown to produce the recombinant protein. The protein was then purified using chromatography, and the inhibitor was added to the purified enzyme. Conditions for crystallization were then tested, with three solutions producing crystalline particles. With the discovery of these crystals, the next steps will be to identify the crystals and further optimize the crystallization conditions.

## Fading Despondence

LeNyah Bryan

My piece entitled “Fading Despondence” is based on research that explores the inhumane thoughts and emotions a human goes through when they are fixated on achieving something. The problem that my piece addresses is that it is very common for a person to ignore everything around them subconsciously when attempting to achieve a goal or obtain someone or even something in their lives. Humans have the capability to acquire very primal traits when it comes to dire need, whether they actually need this thing or not. It is important to address this topic because these inhumane behaviors can have lasting effects on the main support systems in a person's life. My piece mainly explores modern contemporary movements to explain how someone being so hungry for something can ignore everything around them, including the support systems that are carrying them throughout said processes. This theme is mainly represented in solo and duet work honing into the true hunger a human can have when they desperately need something. “Fading Despondence” drives its movement and research from the negative connotations of dopamine, and how it motivates people to do things they wouldn't normally do. Dopamine has the ability to put someone in a subconscious state of mind. It creates a feeling so euphoric that nothing else matters. I created this movement through research of the brain, specifically psychology to hone into the aboriginal state of mind.

Mentor: William Schulte,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(MCOM 441 - William  
Schulte)

Mentor: Bradley Young,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

## Embezzlement and Corruption in Chester County, South Carolina

Cheryl Ann Clack

Embezzlement is a huge concern facing the nation; especially in small towns where local governments have little oversight. A prime example of this problem can be seen in Chester County, SC. When investigating Chester's financial reporting, there is a clear gap in the deficiencies in financial reporting, mass media coverage of suspicious governmental activities, and SLED's constant probing into Chester's ongoings. To enhance my research on the topic, I have explored open records, public documents, submitted FOIA requests, interviewed economics experts, and other parties affected by governmental corruption in Chester. Through close examination of those resources, including Chester County's budgets, audits, and other documents, concerns are well founded. Public information like press releases, SLED embezzlement trends show a gap between what is reported in the media, rumored by the public, and what is shown in official arrests reports. Previous works from fellow journalists have probed into the ongoing issue of embezzlement in small towns, where most find that misuse comes from a limited amount of people handling city funds. These internal controls are also reported in Chester County. Chester's consistent internal control deficiencies followed by a lack of action on city hall's part leaves space for embezzlement to occur as it is historically shown in similar settings. While all discrepancies and dramatic financial changes cannot be directly linked to acts of embezzlement, there is reasonable cause for suspicion by the average tax paying resident.

## A Dose of Positivity

Mykaela Werdenie

Mihaly Csikszentmihalyi (1975) describes flow as “a state in which people are so involved in an activity that nothing else seems to matter.” A Dose of Positivity is a source of self guidance for young adults. The book contains a collection of mindsets, color by number pages, and short activities that work to promote a time for peace and positivity after a busy day away from the overstimulation of technology. It serves as an overall outlet for relaxation, stress relief, and self care. The featured color by number pages create a unique experience for my readers as they have the option to follow the provided color palettes or be creative in choosing their own. This book is intended to guide the viewer through the state of flow in providing them with activities that occupy their minds, eliminating any outside distractions. They are free to work at their own pace and utilize the different aspects of the book as needed. The activities I have included will be helpful in encouraging readers to build good habits in their daily lives. Through these exercises they will be able to reflect on positive aspects of their life experiences. Readers will be guided in creating personalized affirmations to view daily. They will also be provided with a manifestation guide as they work toward creating the life they want to experience. My goal for this endeavor is for my audience to refer back to A Dose of Positivity as they seek guidance throughout their daily lives.

Mentor: Kelly Ozust,  
M.F.A.

Junior Choreography  
Showcase Spring 2024  
| Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Theatre & Dance)

(DANT 301 - Kelly Ozust)

## Ephemera

Jayla A. Jamison York

Embarking on a deeply personal choreographic journey, "Ephemera" delves into the profound emotional odyssey of a woman sculpted by the absence of significant male parental figures. As a dance major immersed in creative research, I draw from my own experiences of growing up without a father, infusing authenticity into every movement. Backed by compelling statistics from the National Fatherhood Initiative and the U.S. Census Bureau, the dance serves as a powerful medium to highlight the far-reaching impact of paternal absence. Individuals without father figures, as revealed by statistics, face a 2.5 times higher likelihood of emotional or behavioral problems, influencing the delicate fabric of relationships. This socio-economic dimension intensifies, with children in father-absent homes nearly four times more likely to live in poverty, underscoring the intricate dynamics at play. In my choreographic process, these statistics are raw materials shaping a profound narrative. The contemporary movements and dynamic hip-hop elements intertwine to vividly express the inner conflicts and yearning within personal and romantic relationships. "Ephemera" transcends the cliché of using male dancers as the exclusive image of a father. Each dancer becomes a voice, amplifying a collective expression, resonating with the sojourn that weaves through fortitude. This dance is more than statistics; it is an intimate exploration, a testament to the lasting impact of a father's absence on emotional, social, and socio-economic well-being within the realm of romantic connections. It is a collective narrative, breaking free from stereotypes and embracing the diverse, nuanced expressions of the human experience.

Mentor: Katharine  
Hubbard, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(MCOM 301 - Katharine  
Hubbard)

## The Male Gaze in Reference to the “Female Mold”

Jasmine Diaz

This research looks to pinpoint the consistent headlines and mechanisms of the male gaze in the mainstream media and how it has adjusted to survive in today's society. The male gaze is far too often regarded as a thing of the past or as existing as a dilapidated version of itself. This idea is harmful to the work being done to dismantle the use of the male gaze. This study aimed to examine how the male gaze still persists today and what mechanisms it employs to do so. It also aimed to highlight how it has morphed to today's society through the appropriation and fetishization of characteristics of black, indigenous, and women of color, (BIWOC). This is done by examining key figures that emulate the male gaze throughout history using Laura Mulvey's coining of the phrase as a point of reference. The end goal is a deconstruction of the male gaze to its base tools in order to track its persistence in modern media.

Mentors: Arran Hamm,  
Ph.D.; Jessica Hamm,  
Ph.D.

UNCG Regional  
Mathematics and  
Statistics Conference,  
Greensboro, NC, Nov.  
2023; MAA SE Sectional  
Meeting, Knoxville, TN,  
March 2023 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Mathematics)

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

## Antimagic and Magic Labeling-Type Properties of Water Wiggler Graphs

Christian Alter, Matt Brunet, Juan De Castro Cabrices, Matthew Feldmann

A graph with  $m$  edges is said to have a magic labeling if the edges can be labeled with distinct numbers from 1 to  $m$  in which the value of the edges on each vertex sum to the same number. This notion is a kind of generalization of the idea of a “magic square”. Alternatively, a graph with  $m$  edges is said to have an antimagic labeling if the edges can be labeled with distinct numbers from 1 to  $m$  in which the value of the edges on each vertex sum to distinct numbers. Magic and antimagic labelings of graphs (and all of their generalizations) have been given an extensive amount of attention since their introduction in the 1960s and 1990s, respectively. Our work focuses on a family of graphs we refer to as “water wiggler graphs”. A water wiggler graph can be obtained by starting with a circle, placing  $r$  vertices on the circle, duplicating arcs of the circle between the  $r$  vertices as many times as you like, and finally placing vertices along each arc and duplicate arc with at least one vertex per duplicate arc. In this project we obtain partial and in some cases complete results on whether or not graphs in this family have antimagic labelings, magic labelings, antimagic  $(a, d)$ -face labelings, magic face labelings, antimagic orientations, and magic orientations (with each result depending in some way on the parameters of the graph).

## Injuries in Gymnastics: Minimizing Risk and Facilitating Return to Sport

Celina Burles

Gymnasts of all kinds, whether this is rhythmic gymnastics, trampoline artists, or men's and women's gymnastics, all suffer injuries at some point in their time in the sport. The most common injuries in the sport of gymnastics are Achilles tendon ruptures, spine injuries, stress-related injuries, grip-lock injuries, and ankle and wrist strain/sprains. Many avenues can be taken into account to avoid the risk of some of these high-end injuries. For example, physical preparation, spotting, education, and performance techniques can be utilized. Warming up, conditioning and flexibility training before practice or competition are very important and can reduce the risk of injuries. Correct spotting technique is also highly important. Poor spotting from coaches can lead to an onset and increase of injuries. Misuse of equipment can also cause a risk of injury. This means that there could be gaps between the mats which can cause ankle injuries or mats that bottom out to the ground which can also cause lower extremity injuries. When gymnasts are injured, there is always a process of returning to the sport. Treatment, medical screening, and rehabilitation need to take place before the gymnast is fully able to return to sport. These are usually called return-to-play protocols and these protocols must be followed in each of their steps to return safely back to the sport and have a full recovery.

Mentor: Hope Lima, Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Human Nutrition)

(NUTR 400 - Hope Lima)

## The Impact of Multiple Freeze/Thaw Cycles on the Microbial Content of Human Milk

### Alex McGinty

Human breast milk is considered the gold standard when it comes to the nutritional requirements for infants aged 0-6 months. So, rather than using formula or other milk alternatives, donor milk has become a popular and viable option for mothers who cannot produce enough of their own breast milk to keep up with the nutritional requirements of their babies. Donor milk is most commonly used for supplementation in Neonatal Intensive Care Units (NICUs) due to the preventative effects it has on necrotizing enterocolitis (NEC). When these mothers and NICUs receive this donor milk, it is frozen, and must be thawed prior to feeding to the infants. However, there are guidelines in the United States dictate that once donor milk has been thawed, it cannot be refrozen and used again at a later date. The aim of this study was to determine how multiple freeze/thaw cycles would impact the microbial content of pasteurized human milk. Pasteurized donor milk samples were purchased from WakeMed Mothers' Milk Bank (Cary, NC) and shipped to Winthrop University. Samples were subjected to four freeze/thaw cycles over the course of four weeks. After each thaw, total lactose, total protein, fat content, caloric content, and bacterial analysis (total coliform, total aerobic, and *S. aureus*) was performed on each of the samples.

Mentor: Sangwon Sohn,  
M.S.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(INDS 488 - Sangwon  
Sohn, INDS 487 - Deborah  
Dunlap)

## Little Safari Children's Museum

### Bailey Butler

Little Safari Children's Museum is a children's museum located in Columbia, South Carolina that is focused on daily life and occupations. The museum is geared toward children with disabilities by recreating public spaces for them to explore and learn about daily life. There are two sections of exhibits. One is the "mock-up" spaces of common public spaces that people go to on a frequent basis such as a grocery store, bank, and restaurant. The goal of these exhibits is to provide a safe space for children with disabilities to learn how to navigate and problem solve in daily life in a world that is not built for them. The other section of exhibits is for all kids, designed with accessibility. These exhibits are all based on occupations that children are interested in. The goal is to educate and spark interest in children in different areas and fields of the workforce. The exhibits include a doctor's office, fire station, police station, and news room. This children's museum is different from others because of its focus for daily activities and occupations, and it will be accessible and inclusive for all children, regardless of physical or cognitive ability.

Mentor: Joseph Kasko,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(MCOM 441 - Joseph  
Kasko)

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

## Diverse Hiring Practices Through Higher Education (Winthrop University)

### Portia Blackman

Throughout our education system, diversity has always been a topic of conversation. At Winthrop University, we recognize multiple nationalities within our school's demographic (i.e. students). However, we see a lack of women, more predominantly, women of color, sitting in high roles. Throughout MCOM 441, led by Professor Joseph Kasko, I was moved to speak and research on the matters of lack of diversity within Winthrop's professors and administrators. Amidst my research you will recognize interviewees that have made an impact on our beloved campus, that happen to be of a minority. Quotes from the Vice President of Student Affairs, the Dean of Arts and Sciences, Interim Dean for University College, Department Chair and Associate Professor of the Mass Communications Department, and lastly, a student who is of a minority group, make appearances to further advance the knowledge of my topic. The majority of the women sitting in these administrative roles, had taken the previous role of men, after they had been in those roles for more than a decade. The first African American woman to grace Winthrop, came in 1964. The school opened and began their schooling in 1823. It took more than a century for diversity to first hit Winthrop's doors. In conclusion, we have come very far in terms of seeing diversity in education and administration, however, we can go farther. There are a number of different nationalities stepping upon Winthrop's campus every year. It would be amazing to see that reflected in higher education.

## Maximizing Strength Gains in Women Through Periodization Models Tailored to Menstrual Cycle Phases

### Fiona L. Buehler

Women who engage in fitness routines may face difficulties related to their menstrual cycles, which can affect their performance and overall progress. These difficulties may include changes in energy levels, hormonal fluctuations, and mood swings during different phases of the menstrual cycle. However, by tailoring workout intensity, volume, and exercise selection to align with hormonal fluctuations, women can optimize their training outcomes. This approach, known as personalized periodization, allows women to take advantage of their strengths during specific phases of the menstrual cycle. This presentation will discuss how the menstrual cycle affects training and how personalized periodization can help women achieve their fitness goals by addressing the unique challenges they face.



Mentor: Eric Bingbauer,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Biology)

(BIOL 471 - Eric Bingbauer)

## Chick RGC and DRG Growth Cone Collapse Response to Semaphorin-3A

### Layla GM Herndon

Visual stimuli from the eye must travel long distances along retinal ganglion cell (RGC) axons to be processed in a tangible manner by the brain. RGCs send out axons during neural development that form the optic nerve. While growing, these axons are tipped by growth cones, which are developmental subunits responsible for axon motility and guidance. Growth cones contain many receptors that will respond to both positive and negative guidance cues. *In vitro*, a repulsive cue will cause growth cone collapse. One repulsive guidance cue is semaphorin-3A. Previous studies have proposed that semaphorin-3A is a repulsive cue for chick dorsal root ganglion (DRG) growth cones, but not chick RGC growth cones. However, our lab has found that semaphorin-3A also causes growth cone collapse of chick RGC growth cones. There are several hypotheses that could explain the differences in results between our lab and prior research. I am testing the hypothesis that there is a difference in sensitivity to semaphorin-3A between RGC and DRG growth cones. To test my hypothesis, I quantified the collapse of both RGC and DRG growth cones treated with the same range of concentrations of semaphorin-3A *in vitro* to create a dose response curve. Preliminary results show that semaphorin-3A caused a dose-dependent growth cone collapse response in DRGs, but this was not seen in RGCs. I am investigating this response using time lapse microscopy, which will provide real time results.

Mentor: Daniel Stovall,  
Ph.D.

SAEOPP, June 2023  
Southeast Regional IDeA  
Conference, Sept 2023

Supported by  
SC-INBRE grant from  
the National Institute  
for General Medical  
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U.S. Department of  
Education McNair Grant  
P217A180094 Scholars  
Program, Winthrop  
University Research  
Council Grant

2nd Place Oral Talk in  
Category at SAEOPP

(CAS – Biology)

(BIOL 472 - Daniel Stovall)

## Promoter Methylation Contributes to RYBP Down-Regulation in Glioblastoma Cells

### Michelle Aguilar-Gaspar, Emi Umemoto

Glioblastoma multiforme (GBM) is a deadly cancer of the central nervous system with a median survival of under 15 months. Dysregulation of gene expression is a major driver of GBM progression. RING1- and YY1-binding protein (RYBP), a member of the Polycomb family of chromatin modifying transcription factors, is crucial in regulating gene expression and maintaining cell identity. However, approximately 50% of GBM patients have reduced RYBP expression, preventing it from exerting the tumor-suppressive effects it has been shown to have in multiple cancer types. Therefore, determining the pathways leading to aberrant RYBP silencing may offer insight into the development of more effective therapeutic strategies for glioblastoma. We hypothesized that methylation of the RYBP gene promoter contributes to the aberrant silencing of RYBP in GBM. U-118 and T-98 glioblastoma cells were treated with a DNA methyltransferase (DNMT) inhibitor, 5-aza-2'-deoxycytidine (5-aza), or DMSO vehicle for 72 hours. Then, protein and RNA were isolated and quantified using a Modified Lowry assay and Nanodrop, respectively. Western blot analysis showed increased RYBP expression in U-118 and T-98 cells at both mRNA and protein levels upon DNMT inhibition with 5-aza. Analysis of the RYBP promoter by methylation-specific PCR revealed the promoter was indeed directly methylated in both cell lines. Therefore, DNA methylation likely directly contributes to RYBP transcriptional silencing in GBM cells. Future objectives include replicating methylation PCR using additional primer pairs to assess the RYBP gene promoter's methylation status in various regions and investigating the impact of other epigenetic modifications on RYBP regulation.

Mentor: Kiyoshi Sasaki,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
grant from the  
National Institute for  
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(CAS – Biology)

Mentor: Virginia Williams,  
Ph.D.

Source Conference 2024  
| Winthrop University  
Showcase of Under-  
graduate Research and  
Creative Endeavors, Rock  
Hill, SC, April 2024

(CAS – History)

(DVS 490 - Virginia  
Williams)

## Habitat Use by Eastern Box Turtles (*Terrapene Carolina Carolina*) at Southern 8ths Farm

### Emily Hansford

Human land use has modified more than three quarters of Earth's ice-free surface, destroying or degrading wildlife habitats. With most of the Earth's surface being disturbed, restoration of human-modified lands is necessary for native wildlife conservation. Accordingly, understanding how animals respond to different management types is a first step for developing effective restoration plans for quality wildlife habitats. To understand how woodland box turtles respond to different habitat types and management practices, I tracked the movement of 13 eastern box turtles (*Terrapene carolina carolina*) equipped with radio transmitters in summer 2023. Preliminary analyses indicated that box turtles used forested areas for the most part regardless of forest types (pine plantation, hardwood forest, and mixed forest). Prairies were used infrequently. Turtles were rarely found in open fields. These results suggest that forests are important habitat for eastern box turtles. Accordingly, the management should aim to increase the extent of forests and minimize open fields.

## Crossing Lines: Immigration in the U.S.

### Jared Washington

Exploring the impacts of illegal immigration in the United States reveals a complex interplay of social, economic, and political dimensions. Each of these dimensions heavily contributes to the nation's evolving landscape and influences the future trajectory of immigration policy and public perception. It has become increasingly important to understand why so many people are polarized from this topic and how an interdisciplinary approach can help develop a solution to the challenges posed by both sides of the "illegal" immigration debate. Scholars within the Political Science discipline explore how legislative actions, party politics, and international relations influence and are influenced by immigration trends. Political scientists also delve into the role of immigration in shaping voter behavior and political identities, providing insights into the deeply polarized nature of the immigration debate. In the realm of Economics, the focus shifts to the impact of illegal immigration on the labor market, public finances, and overall economic growth. Economists can assess the contributions and costs of illegal immigrants to the economy, exploring issues such as job competition, wage levels, and the demand for public services. This discipline helps to quantify the economic benefits and challenges posed by immigration. The third discipline, Sociology, offers a more in depth look into the role cultural and individual ideologies play in this topic. To address the issues pertaining to immigration in the United States, we must utilize an interdisciplinary approach to effectively analyze the socio economic impacts on communities, political discourse surrounding policies, and the role of perception shaping outcomes.

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

## How to Optimize Muscle Hypertrophy Through Manipulation of Training Variables

Nicholas Ryan Parker

Hypertrophy, or increase in muscle size, is a common goal of many resistance training programs. Resistance training programs utilize a multitude of variables that can and often must be manipulated to achieve certain results. Training programs can be structured in almost countless different ways, variables such as training volume, intensity, exercise selection and order, repetition duration, and many more must be taken into account when designing a program. In some cases, improper manipulation of training variables can lead to less significant results or even injury. Therefore, it is important to understand how to manipulate training variables to achieve a certain goal, and how to implement them safely. Using science-based information on resistance training and hypertrophy will help to improve understanding of training variables and their importance. This presentation will examine resistance training with the goal of hypertrophy and determine which training variable manipulations likely will lead to maximum/optimal muscle hypertrophy.

Mentor: Anna Romanova,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CBA – Computing and  
Information Sciences)

(BADM 571 - Anna  
Romanova)

## The Psychology of Discounts and the Effects of Promotional Sales on Consumer Behavior

Alyssa Douglas, Ashley Moraski, Mary Grace Bryan, Ashanti Hill, Blake Williams, A'Kasha Hampton

The goal of this study is to gain insight into consumer purchasing patterns and to better understand consumer behavior in response to promotional sales using a dataset from Kaggle that describes 3,900 e-commerce transactions. The dataset includes demographic information for each customer, their purchase history, product preferences, subscription status, payment methods, and an indicator variable specifying whether a discount was applied to the current transaction. The dataset also provides information about customer satisfaction with the purchased item in the form of a numeric review rating. Understanding consumer decision-making processes and their responsiveness to promotions helps businesses create more effective marketing strategies, optimize their product offerings, and enhance customer satisfaction. We employ cluster analysis techniques to identify potential customer segments that have common traits and characteristics, both in terms of customer demographics and purchasing habits. We create cluster profiles for each customer segment and summarize them on a radar chart. We also examine geographic market segmentation and analyze between- and within-group differences for various customer segments.

Mentor: Kiyoshi Sasaki,  
Ph.D.

Catawba Nation  
Internship Presentation,  
Rock Hill, SC, August 2023

First Place (with a \$500  
scholarship) in Catawba  
Nation Internship  
Presentation, August  
2023, Catawba Nation

(CAS – Biology)

## Impacts of Human Land Use on the Habitat Use of Eastern Box Turtles (*Terrapene Carolina Carolina*) on the Catawba Reservation, South Carolina

Paiton Funderburk

With three quarters of the world's ice-free land surface having been altered by humans, wildlife are increasingly being exposed to different land use. Therefore, understanding wildlife responses to land use is important for the planning and development of effective conservation strategies. The Catawba Reservation located in Rock Hill, SC, is undergoing extensive developmental projects, potentially threatening local wildlife. Eastern box turtle (*Terrapene carolina carolina*) populations are declining in much of its range. However, how eastern box turtles use their habitat is currently unknown on the Catawba Reservation. To understand the space use of eastern box turtles, we radio tracked 16 turtles (8 male and 8 female) using radio telemetry from late May 2023 to present day and recorded GPS coordinates of relocations. We found that female box turtles have a larger home range than males ( $2.5 \pm 1.16$  and  $0.60 \pm 0.44$ , respectively). Turtle activity was mostly confined within forest boundaries and rarely extended into residential and other developed areas. Many tracked locations were near creeks, wetlands, or other moist environments. We suggest avoiding development near these habitats is important to minimize negative impacts of human land use on the eastern box turtles.

Mentor: Sangwon Sohn,  
M.S.

Little Architecture |  
Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(INDS 488 - Sangwon Sohn)

## Sozo Healing Center

Haley Vecchio

In response to the pervasive issue of sex trafficking and the intricate challenges faced by survivors, this senior thesis project proposes the design of a dedicated establishment aimed at addressing their multifaceted needs, emphasizing the pivotal role of interior design in fostering holistic recovery and successful reintegration into society. The project aims to integrate therapeutic interventions, skill-building programs, and community building within a thoughtfully crafted physical environment designed to promote healing, prioritizing safety, comfort, and empowerment through spatial aesthetics, color psychology, and sensory elements. Flexible and adaptable spaces will accommodate various therapeutic activities and support services, balancing privacy with opportunities for social interaction. Incorporating nature-inspired elements and access to the outdoors, such as natural light and greenery, aligns with research suggesting their positive effects on mental health. By emphasizing thoughtful design elements, the proposed center seeks to empower survivors on their journey towards recovery, reintegration, and the establishment of a resilient and supportive community.

Mentor: Kunsiri Grubbs,  
Ph.D.

Association of  
Southeastern Biologist,  
Chattanooga, TN,  
March 2024 | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by SC-INBRE  
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General Medical Sciences  
(P20GM103499)

(CAS – Biology)

## **An Investigation of a Potential Subspecies of the Schweinitz's Sunflower (*Helianthus schweinitzii*, Asteraceae)**

Casey L. Green, Leighton Shehan

Schweinitz's Sunflower (*Helianthus schweinitzii*) is a federally endangered sunflower species. The species is native to the North and South Carolina Piedmont regions and is commonly seen in disturbed areas, prairies, and under power lines. While collecting plant samples for the molecular study, we found great variations among the populations. These variations included the leaf shape, size and base. We used voucher specimens and new collection from various populations in both North and South Carolina. After gathering data for the vegetative and reproductive parts, we found leaves from North Carolina populations formed lance shape, while the populations from South Carolina had round base and much broader. Additionally, length and width of involucre bracts were seen to be larger in South Carolina populations, whereas the number of ray florets did not differ in either. The differences found in these two forms could lead to the division of the species to two varieties or subspecies.

Mentor: Sangwon Sohn,  
M.S.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(INDS 488 - Sangwon Sohn)

## **Emerald Village: Holistic Senior Living Community**

Emma Robichaud

The project is a holistic senior living community called Emerald Village. Its goal is to improve the overall quality of life and life expectancy within Gastonia, NC. This community will provide educational resources about health and wellness to the residents. It will allow space for positive influences to flourish. This will encourage intentional daily living and make health and wellness an easy journey. Emerald Village embraces the principles of green design to create healthy and engaging environments that foster strong wellbeing with a connection to nature. The community promotes sustainable and responsible living through mindful design choices such as incorporating environmentally friendly materials and products as well as promoting energy efficiency to reduce waste. The community will incorporate natural colors and materials to become an extension of the environment and provide its residents with enriching experiences that promote independence. Emerald Village strives to enhance lifestyles and quality of life.

Mentor: Michael Sickels,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Sociology,  
Criminology, &  
Anthropology)

(SOCL 471 - Michael  
Sickels)

Mentor: Anna Romanova,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CBA – Computing and  
Information Sciences)

(BADM 571 - Anna  
Romanova)

## **Understanding Latine College Aspirations Among Recent High School Graduates in South Carolina**

Michelle G. Aguilar-Gaspar

This study investigates the factors influencing college aspirations among recently graduated Latines in South Carolina. Despite American societal emphasis and Latine cultural views on higher education, many individuals in this demographic do not go to college. Recent research has found that socioeconomic status, discrimination, and a lack of representation may simultaneously contribute to the lack of Latines in higher education. This research uses autoethnography and in-depth interviews to uncover the multifaceted influences on college decision-making. The autoethnographic component draws from my own experience as a Mexican American student to explore the socioeconomic circumstances that shaped my own college aspirations. I also use in-depth interviews with 4-6 recently graduated Latine students, comparing both those who attended college and those who did not. Findings will reveal socio-cultural, economic, and institutional factors shaping college aspirations. Familial expectations and cultural identity significantly impact these aspirations. Economic constraints and limited resources further challenge Latine youth. This study contributes to understanding college aspirations among young-adult Latines in South Carolina.

## **Using Linear Regression to Determine Key Factors for the Housing Prices in California**

Matthew Funderburk, Bryanna Washington, Andrew Proteau, Rachel Brown, Austin Kent

Housing prices are influenced by a myriad of factors, including, but not limited to location, house size, age and condition, population density, median household income, and housing market trends. Understanding these multifaceted factors and their impact on housing prices is essential for stakeholders in the housing market for informed decision-making in buying, selling, and investing in real estate. This study is an attempt to build a linear regression model for the housing prices in California using the data available from the 1990 census and identify historically significant predictors of the home prices in that state. In the first stage of the analysis, we create numerical and graphical data summaries, perform outlier diagnostics, and examine existing correlations in our dataset using a heat map. Our initial exploratory data analysis reveals a strong association between the ocean proximity and home prices in California, indicating the enduring significance of ocean proximity as a key determinant of the housing costs in the state. Among other predictor variables that we include in our regression model are location, age and size of a home, population, number of households, and median income. In the next step, we use a backward variable selection method and lasso regression to identify the best sets of predictors for the housing prices. Once the two sets of predictors are determined, we perform model selection and report our findings for the final model.

Mentor: Anna Romanova,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CBA – Computing and  
Information Sciences)

(BADM 571 - Anna  
Romanova)

## What's in Your Starbucks Cup? Starbucks Beverage Nutrition Analysis

Greyson Barger, Emilie Marie Marceliussen-Dahl, Mason Tucker, Kate Hanni, Corbin Wilde, Jada Ryce

Starbucks is the most popular coffee shop in the world with over 33,000 locations worldwide, which is 5,000 more than its closest competitor. Outside of selling coffee, Starbucks has been successful marketing their brand and made itself into the empire it is today. With the very high and still growing popularity of the brand, millions of people are ingesting Starbucks products every day. With that, we believe it is very important that Starbucks' customers understand the nutritional value of their drinks. We aim to explain and show which of Starbucks products are the highest and the lowest in nutritional value, along with everything in between. We examine how the caloric contents of Starbucks' beverages vary across different beverage categories, what impact beverage preparation methods have on the nutritional profiles of Starbucks drinks, what trends can be identified in consumer preferences for Starbucks beverages based on their nutritional content, and how these preferences reflect broader dietary trends. We use clustering algorithms to detect nutritional commonalities across different beverage categories and profile beverage clusters based on their sugar, fat, and cholesterol content, as well as their overall caloric value. We also develop a regression model that describes caloric value of a Starbucks beverage based on its size, category and ingredients.

Mentor: Anna Romanova,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CBA – Computing and  
Information Sciences)

(BADM 571 - Anna  
Romanova)

## A Study of Health, Sleep, and Lifestyle Data

Brandon Beck, Jack Hardie, Sarah Wilcox, Isaiah Jackson, Wesley Gazaway, Kaylah Cardarelle

An individual's lifestyle significantly influences both their health and sleep patterns, impacting various aspects of physical, mental, and emotional well-being. This study aims to explore the specific lifestyle factors that impact sleep quality. The dataset we use in our study is sourced from Kaggle and focuses on 12 key variables: gender, age, occupation, sleep duration, sleep quality, physical activity levels, stress level, BMI, blood pressure, heart rate, daily steps, and sleep disorders. We analyze data from 374 diverse individuals to uncover patterns in their lifestyle factors and sleep outcomes. Do high stress levels contribute to weight gain? Can sleep duration negatively affect physical health? How do different lifestyle factors, such as the amount of exercise, interact with sleep patterns and contribute to the overall stress levels for adults? Are there gender differences in the way these factors affect sleep quality? These are some of the questions we attempt to answer using various data summaries and visualization tools. We identify groups of individuals with similar characteristics, examine their profiles, and study within- and between group differences. The patterns and associations we discover provide valuable insights into improving health outcomes and quality of life for both individual consumers and wellness industry professionals.

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

Mentor: O. Jennifer  
Dixon-McKnight, Ph.D.

Winthrop University  
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Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – History)

(HIST 590 - O. Jennifer  
Dixon-McKnight)

## Relationship Between Athletic Trainers and Sports Psychologists

Sarah Beth Walden

Although this topic is uncommon to discuss, student-athletes tend to struggle with mental health issues and disorders post-injury and into the rehabilitation phase. Athletes experience anxiety, fear of reinjuring, depression, eating disorders, etc. However, the athletic trainer needs to be able to recognize these patterns and behaviors in the patients that are being treated so that a certified sports psychologist may be recommended. It is also important for the athletic trainer to be a part of the athlete's support system throughout this process. Communication skills, goal setting, and time management are the three main aspects of getting an athlete ready to return to play. Small accomplishments in the athlete's rehabilitation process should be rewarded so that it allows them to feel more confident and motivated to continue with treatment. Overall, this presentation will demonstrate how sports psychologists and athletic trainers should work together more often for the well-being of the athlete.

## The Impact of African American Female Educators on the South Carolina Civil Rights Movement: A Recognition and Analysis of Women's Unique Roles as Grassroots Activists

Leland Flake

When discussing the Civil Rights Movement, many people point to the major figures of the movement without acknowledging grassroots and local activism that created the platform for the major players to build upon. In particular, when analyzing the southern Civil Rights Movement during the mid-twentieth century, the role of women at the grassroots level is often overlooked or minimized. Additionally, the role of educators, which were mostly women, within the movement is often misunderstood or overshadowed by more public demonstrations. However, education created the foundation for broader political participation in the time of limited citizenship and civil rights for African Americans. Educational programs, such as the Citizenship Schools and historically black schools like the Avery Institute served as community hubs that fostered literacy and studies related to voting rights, registration, and citizenship. The purpose of my research is to approach the Civil Rights Movement from the local level in order to analyze the unique roles and pedagogical approaches of African American women within the broader movement. How did the specific pedagogical approaches of women revolutionize educational activism, and how is it different from male approaches to educational activism? Using disciplines such as sociology and history, this study aims to focus on educational activism within the southern Civil Rights Movement through the lens of gender, addressing how education supplied a means to liberation from oppression. The impact of African American female educators can be demonstrated through unique grassroots approaches to activism that use education as a tool to politicize the community.



Mentor: Lauren Kohut,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by NSF Award  
#2243118 (Kohut)

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

## Historical Texts and Modern Technologies: Uncovering 17th Century Social, Demographic, and Economic Patterns in An Indigenous Peruvian Village

Ambar M. Nunez-Gomez, Joseph Metcalf, Sydney E. Lyons

Visitations, or *visitas*, carried out by the Spanish Colonial government are an important source of social, demographic, and economic data for 16th and 17th century Indigenous populations living in the Viceroyalty of Peru. While many of these colonial documents have been transcribed and published, they remain difficult to formally analyze as text. To address this challenge, we developed a relational database to store, manage, and query data recorded in these *visitas*. As a proof-of-concept, we digitized historical records from a single village—the village of Achoma in the Colca Valley of Peru—that span from 1604 to 1617. Through the use of a relational database model, we constructed a multi-table schema comprising of entities for villages, *principales* (leaders), households, individuals, and properties (crops), each linked through well-defined relationships and constraints to ensure data integrity and facilitate complex queries. Primary data from the text were methodically entered into an Excel spreadsheet, then exported to CSV format and imported into a SQL database where further data normalization processes were applied. The data was then used to analyze economic and demographic patterns. Future research directions include comparative analysis with neighboring villages to uncover broader regional trends and the impact of Spanish colonial policies on Indigenous communities. This database not only serves as a vital resource for historians and environmental scientists but also establishes a replicable framework for digitizing and analyzing historical records.

Mentor: Lauren Kohut,  
Ph.D.

Winthrop University  
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Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(ENVS 495 - Lauren Kohut)

## Mapping Winthrop Farm

Brady Harmon

Winthrop Lake and the surrounding woods are often referred to as Winthrop Farm. The name Winthrop Farm comes from the area's history as a dairy farm prior to its transformation into a recreational facility in the late 1950's. We know little about the layout of the original farm as most of the original structures were demolished or relocated, and the only maps of the farm are partial. In particular, the locations of cropping and livestock areas are largely unknown. This study focuses on the wooded area near the Winthrop Coliseum known as the Winthrop Woods, which has been preserved as a research area. Prior research here has identified distinct plant communities that are hypothesized to reflect prior land uses. This project reconstructs the farming uses of this area by combining archival maps and GPS survey. Maps of the Winthrop Farm were obtained from the Louise Pettus Archives, digitized, and georeferenced into a Geographic Information System (GIS). Additional evidence of land use was gathered through pedestrian survey and integrated into the GIS. The results reveal extensive livestock pens throughout the Winthrop Woods. This research contributes to a greater understanding of the history of land use within the Winthrop Woods that will allow for further insight into how historic land use shapes ecosystems today.

Mentor: Anna Romanova,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CBA – Computing and  
Information Sciences)

(BADM 571 - Anna  
Romanova)

## Analyzing Stock Market Performance and Forecasting Stock Prices

Parker Kruglewicz, Sadie Guest, Hailey Roether, Nathan Wheaton, Kaniya Simpson

This study aims to analyze and compare the performance of several large companies based on daily changes in their stock prices and trading volumes during the period between July 2013 and July 2023. The dataset used in this study is provided on Kaggle and sourced by web scraping NASDAQ stock market data. It includes daily stock prices and trading volumes for Apple, Starbucks, Microsoft, Cisco Systems, Qualcomm, Meta, Amazon.com, Tesla, Advanced Micro Devices, and Netflix for 10 years prior to July 2023. We start with analyzing the distribution of stock prices and trading volumes for each company over time and visualize trends, seasonality and other patterns using time series plots, side-by-side box plots, and heat maps. We identify the top-performing companies based on their stock price growth and trading volumes and perform volatility analysis for each company. In the next step, we employ moving average and exponential smoothing algorithms to create a short-term forecast for Apple stock prices. We evaluate our models' forecasting accuracy using their mean absolute percent errors and root mean square errors from the training and the holdout samples and provide the final model description and its forecast for the stock prices.

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

## Identifying Overtraining in Athletes

Jewel Cooper

Countless athletes can attest to being subject to intense workouts to the point where it feels like their bodies physically cannot work anymore. Having poor sleep quality but waking up and doing the same workout all over again with their bodies in pain, not knowing that this could be a possible sign of overtraining. Many years of research on overtraining have been conducted; however, one major issue with identifying overtraining is that there are many different terminologies and definitions used when referring to the same idea (e.g., overreaching, non-functional/functional overreaching, and overtraining syndrome). In this study, overtraining will be defined as an individual's inability to recover from intensive exercise in a reasonable time and/or a person who has trained more than their body has time to recover. The purpose of this review is to address two questions: 1. effects of overtraining on athletic performance and 2. how to identify the onset of overtraining. The findings of the study may be beneficial to the athletic community in ways of potentially working to avoid future injuries.

Mentor: Joseph Kasko,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(MGOM 441 - Joseph  
Kasko)

## Diversity Dynamics: Unveiling Representation Gaps in Winthrop University's Academic Leadership

Portia Blackman

Diversity has been a longstanding discourse within the education system, including at Winthrop University, where our student body reflects multiple nationalities. Despite this diversity, there is a noticeable underrepresentation of women, particularly women of color, in senior leadership positions. In MGOM 441, under the guidance of Professor Joseph Kasko, I embarked on research regarding the lack of diversity among Winthrop's faculty and administrators. My inquiry involved interviews with influential figures, all belonging to minority groups, including the Vice President of Student Affairs, the Dean of Arts and Sciences, Interim Dean for University College, Department Chair and Associate Professor of the Mass Communications Department, and a minority student. A significant finding was that many women in administrative roles succeeded men who had occupied those positions for more than a decade. The arrival of Winthrop's first African American woman in 1964, over seventy years after the institution's inception in 1886, marks a pivotal moment in its diversity journey. While progress has been made in fostering diversity and inclusion within education and administration, there remains room for improvement. With diverse nationalities joining Winthrop's campus each year, it is imperative to see this diversity mirrored in higher education leadership roles.

Mentors: Joanna  
Jackson, Ph.D.; Larry  
Stevens, Ph.D.

Southeastern  
Association of  
Educational Opportunity  
Program Personnel,  
Atlanta, Georgia, 2023  
| Winthrop University  
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Rock Hill, SC, April 2024

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Program

(CBA – Management &  
Marketing)

## Effects of Structural Racism and Discrimination on Black College Students in Gynecological Health Decision-Making

Morgan Moore

Exposure to structural racism and discrimination (SRD) is a leading risk factor for adverse maternal health outcomes among Black women, who are three times more likely to die of pregnancy-related causes. However, little is known about how SRD influences gynecological health decision-making in emerging adulthood. This study examines the relationships between SRD and gynecological decision-making of Black college students. Primary quantitative data were collected from female college students aged 18-29 to assess the relationship between exposure to SRD and gynecological decision-making. This study can inform the development of pre-pregnancy interventions for Black women that will improve maternal health outcomes.

Mentor: Sangwon Sohn,  
M.S.

Winthrop University,  
Rock Hill SC | Winthrop  
University Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(INDS 488 - Sangwon Sohn)

## Fob Wellness Center: A Military Wellness Center

Tierra M. Thomas

In all my designs, practicality, user experience, and a sense of community are vital. I prioritize accessibility, comfort, and belonging, with aesthetics designed to engage both mentally and physically. My primary design focus revolves around community-based design, where people's unique needs and preferences take center stage. My secondary design focus, universal design, is rooted in creating inclusive environments and products. I am committed to enhancing the well-being and support of military personnel, veterans, and their families. Overall I want this facility to be a sense of structure for those who are affected by the military. As their daily lives are an emotional struggle this facility will be used as a communal gathering space that allows users to take a break from reality. This break from reality will be used as a central hub for those who are seeking help and learning how to better their lives with therapy and healthy habits used in this facility.

Mentor: Silvia Wozniak,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Biology)

(BIOL 461 - Silvia Wozniak)

## Experiential Learning at Arcpoint Labs

Hannah E. Duncan

Experiential learning opportunities are essential components of the college experience, as they give students the opportunity to learn what a career is really like. This is especially true for career fields like biology, in which coursework often looks different from the career. Because of this and my interest in lab work, I completed an internship at ARCpoint Labs, a medical collection and testing facility in Rock Hill. I collected urine samples from each donor and prepared them for complete testing at off-site laboratories by pouring the samples into appropriate tubes, sealing the tubes into bags, and obtaining the donors' signatures. I also learned how Tuberculin skin tests are placed and read, what substances are screened for in a drug analysis profile, how far back different sample types (urine, hair, nails, and oral fluid) are capable of detecting substances, and the various reasons drug testing may be ordered, such as for the Department of Social Services, the Department of Transportation, or pre-employment screening. I learned how a blood sample from a pregnant mother can reveal an unborn baby's sex and how DNA testing can identify paternity and other family relationships. Results from these tests can guide future patient management for primary providers and indicate the presence of substances to help ensure safety for all. Learning about this facet of biological application enhanced my studies by introducing me to a potential career field in medical testing and giving me experience in the workplace.

Mentor: Janet Wojcik,  
Ph.D.

## Methods to Improve Athletic Performance

Kamren Gunn

Winthrop University  
Showcase of  
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and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

Athletes might use a range of techniques targeted at improving their general capabilities in order to improve their athletic performance. Using periodized training regimens, which progressively increase volume and intensity while taking into consideration each person's needs and recovery capacities, is one important strategy. In addition to exercise, healthy eating and hydration practices are essential for maximizing strength and endurance gains, maintaining muscle recovery, and refueling after workouts. Also, routine evaluations of technique and biomechanics can offer insightful information for improving motions and lowering the chance of injury. By focusing on various muscle groups and movement patterns, cross-training exercises improve athleticism even more while encouraging coordination, agility, and flexibility. The many different tactics used for improving athletic performance are strength training which is mainly resistance training which can help build muscle, muscle endurance, and muscle strength. Cardiovascular conditioning like running, swimming, cycling, and/or HIIT training (high-intensity interval training). Next is flexibility and mobility training by doing yoga, dynamic stretching, and Pilates which can help prevent injuries in athletes. Probably the most important factor is improving their nutrition and their habits with food. Athletes need a well-balanced meal plan with all of the macronutrients and micronutrients. Finally, rest and recovery which is extremely important to prioritize quality sleep to help with physical and mental recovery it also helps prevent overtraining in athletes and it also promotes muscle repair and muscle growth.

Mentor: Sangwon Sohn,  
M.S.

## Exchange Community Center

Amelia Nichols

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(INDS 488 - Sangwon Sohn)

This senior thesis project encompasses a dynamic community center targeting individuals aged 18-30 living in or near the city of Charlotte, North Carolina. The purpose in designing this center is to create a functional space that gives this specific age group transitional assistance whether it be from school into the working world, or simply to build a sense of community among similar-aged peers. This space includes services that provide valuable life skills such as interviewing, home management, budgeting, and more. Additionally, the facility offers the opportunity for users to connect through dining, fitness, and education, with an important focus on safety through comfort, security, and social connectedness. The design of this space fosters community-based living and unity among its users. Emphasizing the surrounding community of Charlotte, the project features a rich blue as its primary color, along with deep reds and neutrals to create a balancing effect for the visitors. The space utilizes natural light to promote a positive atmosphere and relies on the use of curved elements in both architectural elements and furniture choices to create that sense of community. These rounded and curved units connect to the idea that we are all connected as one.

Mentor: William Schulte,  
Ph.D.

## Suicidal Rates Within College Students

Rachel Griffith

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(MCOM 441 - William  
Schulte)

This research investigates the alarming rates of suicide among college students, examining factors such as academic pressure, isolation, financial burdens, and more. Despite the additional impact of the COVID-19 pandemic on mental health, existing challenges in university mental health services have contributed to the rising rates. The American Foundation for Suicide Prevention reports suicide as the third leading cause among young people from ages 15 to 24, emphasizing the urgent need for comprehensive mental health support in educational institutions. Through a case study approach, this research focuses on institutions with high suicide rates. By analyzing public documents and information, the study seeks to understand how universities are responding to being labeled with high suicide rates by examining their prevention measures, support systems, and internal analyses of contributing factors. Further, the research explores the legal implications of universities' responses, considering cases where students may have felt neglected or lacked proper support, resulting in legal actions. By requesting documents related to demographic information, internal reviews, communication strategies, and prevention programs, the study aims to provide a comprehensive overview of the university's efforts

Mentor: Sangwon Sohn,  
M.S.

## 501 Village: Empowering Transitional Age Foster Youth Through Community-Centered Affordable Housing

Jena Tolley

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

501 Village is an interior design project that provides affordable housing and a community center dedicated to supporting youth aging out of the foster care system in Charlotte, NC. This project addresses the critical need for stable housing and comprehensive support services for transitional age foster youth, who face significant challenges in transitioning into adulthood. By providing affordable housing, employment training, education, mental health services, and community connections, 501 Village aims to break the cycle of homelessness, incarceration, and other negative outcomes prevalent among this vulnerable population. The design philosophy of 501 Village focuses on promoting comfort, stability, and empowerment through trauma-informed design principles. By creating a low-rise affordable housing building with high-density units and inclusive amenity spaces, the project addresses the shortage of affordable housing while fostering a sense of community and well-being among residents. The project emphasizes the benefits of an urban, mixed-use, multifamily housing model prioritizes sustainability, accessibility, and connected neighborhoods, ensuring a positive impact on residents' health and quality of life.

Mentor: Brent Woodfill,  
Ph.D.

Society for American  
Archaeology, New  
Orleans, LA, April 2024  
| Winthrop University  
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and Creative Endeavors,  
Rock Hill, SC, April 2024

Supported by Winthrop  
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Council Grant

(CAS – Sociology,  
Criminology, &  
Anthropology)

## **Visualizing Salt Production Below, Above, and on the Ground in Ixtapa, Chiapas, Mexico: Insights from Ethnography, Aerial Photogrammetry, and Geochemistry**

**Lauren Norton**

The Ixtapa saltworks in highland Chiapas have the distinction of being one of the last Precolumbian saltworks in the interior Maya world that is still in use, and members of Proyecto Arqueológico Sak B'alam y Salinas del Interior de Chiapas and Winthrop University's Environmental Studies Program have been conducting investigations there for the past five years. While earlier work focused on geochemical analysis and ethnography to understand the techniques used in salt production and the elemental and nutritional properties of the salt itself, during the 2023 field season, project members began a formal investigation of neighboring archaeological site, La Tortuga. The results of preliminary excavations, materials analysis, and UAV photogrammetry will be discussed in relation to the insights gleaned from reconstructing the history of salt production, changing patterns of social organization, and interregional ties.

Mentor: Andrew Besmer,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CBA – Computing and  
Information Sciences)

(CSCI 453 - Andrew  
Besmer)

## **Correlations in Habitual Change in User Security Routine: Victims of Cyber Incidents**

**Michaela Lynne Madison, Conner Bolin, Devin Breeden**

With the increasing amount of cyber attacks and threats, it is plausible to state that many people will experience some kind of attack during their use of online environments. These attacks can affect many peoples' lives due to the extensive implementation of technology in all sectors. Currently, there is no defined relationship on whether people have experienced a change in habitual user security practices post-cyber attack(s). In this paper, we aim to explore the connections between users' security behavior and the cyber incidents that they've experienced to further understand the possible security measures that mitigate cyber attacks. This behavior change can consist of using stronger passwords, VPNs, and password managers. We further discuss the possible causes and solutions of those specified user-reported cyber attacks. We report on the results of an online survey utilizing expert-created questionnaires on commonly known cyber security practices. Our study was divided into two groups: cyber attack victims and non-victims. The study yielded 64 participant responses measured on an expert-curated likert scale. Our findings show no statistically significant discrepancies between victim and non-victim habitual online security practices.

Mentor: Scott Werts,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(ENVS 495 - Scott Werts)

## **Salinity Gradients in Vegetated Sand Dunes in North Florida Atlantic Coastlines**

**Livia Zephyrah Biondo**

The coastal environment of Florida has been ever-changing through both storm events and sea level rise due to climate change. The shores of Jacksonville are no different. A section of Little Talbot Island State Park's beachfront habitat has seen dune migration and tree mortality in recent years, pushing the forested area that protects the land further inward. We are investigating the causes of tree mortality in this area with a special focus on salinity transects of the sediments from the shoreline to the forest edge. Little is known about the correlation between salinity and vegetation within this area and what allows some plants to survive in similar environments while others begin to die closer to the shoreline. Sand was collected from three different 50-meter transects every 5m from the shore to the vegetation. Salinity was measured in the field with a Hannah Salinity Meter and recorded to be compared to the vegetation along the shoreline. We reran salinity measurements in the laboratory with a Thermo Scientific Orion Star A322 Salinity Meter and obtained far more accurate results. We are now mapping different species of foliage in each transect in association with the salinity collection to be contrasted, as well as contrasting the accuracy between the different salinity meters. Learning the accuracy of equipment as well as what affects each species of plant life allows for a better understanding of environmental function within these areas. In turn, this knowledge will benefit protection efforts within the state park.

Mentor: Joseph Kasko,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

## **Repairing the Future: Examining Right to Repair**

**Nathan E. Hildebrandt**

In the spring semester of 2023, I researched the topic of right to repair throughout taking MCOM 441 with my professor Joseph Kasko. During the research, I wanted to better understand the circumstances surrounding technology and how it interacts with the economy, particularly with the inclination of companies to allow planned obsolescence with their products. I did a multitude of research by interviewing people local to Rock Hill, as well as through online interviews with knowledgeable experts. Because the project was for a reporting and public issues class, I was required to send FOIA requests, which I unfortunately never got a response from. Nonetheless, the research I was able to conduct with the many subjects I interviewed over the span of the project gave me enough information to complete my stories on right to repair. The conclusion I came to was that the technology industry -- including phones, tablets, laptops, and even medical devices or farm equipment, has been highly volatile for consumers who wish to repair these devices. Even though they purchased them, these companies often make it difficult or even against their terms to repair the devices their consumers buy if they may break them, requiring that consumers use "trusted" and certified repair locations which are not always easy for businesses to acquire the certifications for. Those that fight for the right to repair movement fight for transparency with companies like "Apple," "Samsung," "Nintendo," and more, for the wellbeing of consumers around the world.



Mentor: Joseph Kasko,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CAS – Mass  
Communication)

(MCOM 441 - William  
Schulte)

## The History of The Courtyard at Winthrop

Mari Olivia Pressley

This project was part of a course on the reporting of public issues through investigative journalism. This work is based on a review of primary and secondary source documents and a number of in-depth interviews, covering the history of The Courtyard at Winthrop University. The findings of this research suggest The Courtyard at Winthrop, built in roughly one year, was built “quickly and quickly usually means cheaply,” as VP of Facilities Management James Grigg said. Grigg went on to say “some of the material selected is going to have to get replaced earlier than we would hope.” The Courtyard was built by Capstone Development Partners, a builder with a history of similar projects on college campuses around the nation. The developer has at least two previous projects including Fairways apartments and Oak Street Hall, which both have encountered similar issues like mold and flooding, raising student concerns. The Courtyard is missing some of its blueprints due to a fire at the end of construction, causing documentation limitations and calling for “exploration” for proper maintenance. With an increase in over 400 work orders from 2021 to 2022, Grigg now is using temporary solutions like installing HVAC units for students’ needs until he can get a project through the Winthrop foundation board for a building-wide replacement. The Facilities VP stresses an overall need for continuous investment and maintenance in The Courtyard in order prevent the building from degrading faster than a 50-year lifespan.

Mentor: Eric Birgbauer,  
Ph.D.

SC INBRE Science  
Symposium in Columbia,  
SC, February, 2024.

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103499)

(CAS – Biology)

(BIOL 471 - Eric Birgbauer)

## SDF-1 Decreases the Repellent Activity of LPA on Chicken Embryo Retinal Ganglion Cells (RGCs)

Ana Wingham

During the visual system's development, axonal guidance is required for axons from retinal ganglion cells (RGC) to reach their target in the brain. In the development of the nervous system, the tips of axons, called growth cones, are motile structures that explore the extracellular environment and guide axon growth. Some molecular cues have been shown to be repulsive to the growth cone. This repulsive effect induced in the growth cone can be observed in an in vitro assay, causing the growth cone to collapse in the presence of repellent molecules. Lysophosphatidic acid (LPA) has been shown to cause a dose-dependent growth cone collapse of embryonic mouse and chick retinal neurites in vitro. However, growth cone responses may need to be modulated, and previously, the chemokine SDF-1 was shown to reduce the effectiveness of the axonal repellent slit-2 on RGCs via a cyclic nucleotide-dependent signaling pathway. Our research investigates whether the modulatory effect of SDF-1 extends to other axon guidance molecules, specifically the bioactive lipid lysophosphatidic acid (LPA), and if it is a dose-dependent effect. We examined the responses of embryonic chick retinal growth cones to LPA in the presence and absence of SDF-1 in an in vitro retinal explant culture system. We found that LPA causes a dose-dependent growth cone collapse, but treatment with SDF-1 prevents the growth cone collapse by LPA.

Mentors: Sangwon Sohn,  
M.S.; Quintel Gwinn, M.A.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CVPA – Design)

(NDS 488 - Sangwon Sohn)

## Breathe Wellness Center

Nicole A. Riera

Breathe Wellness Center improves the quality of its patients' lives by providing access to professional resources and promoting a balanced lifestyle. Its design embraces a warm and welcoming atmosphere, achieved by incorporating nature-inspired colors such as green, brown, and beige. The facility's harmonious design, characterized by the use of natural materials like wood and stone, reflects a seamless integration with its surroundings in Ponte Vedra, FL. The space's intentional simplicity promotes a profound connection with one's soul, enabling users to embrace the transformative benefits of each program at Breathe. Moreover, the mindfulness spaces are thoughtfully composed, serving as dedicated sanctuaries for meditation. This intentional design empowers patients to engage in a practice that nurtures spiritual well-being and reinforces the commitment of Breathe Wellness Center to a comprehensive and holistic approach to healing. Breathe Wellness Center goes beyond conventional well-being practices, creating an environment that not only enriches lives but also fosters harmony, mindfulness, and holistic rejuvenation. The picture below is one of the programs that Breathe offers: a teaching kitchen. The main goal of this design platform is to explore food and learn about nutrition, which helps students make healthier food choices and improve their lifestyles. Class participants can use the fresh vegetables from the small garden outside this kitchen to prepare their meals during class. The project's overall design concept is supported by how this space is designed and the materials and colors selected.

Mentor: Janet Wojcik,  
Ph.D.

Winthrop University  
Showcase of  
Undergraduate Research  
and Creative Endeavors,  
Rock Hill, SC, April 2024

(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

## ACL and Achilles Tears on Artificial vs Natural Grass Playing Surfaces

Tyler Reese

Over the past couple of decades, there has been a move towards artificial turf and away from natural grass playing fields. This move is due to the easier upkeep and lower price, but artificial turf appears to take a toll on the athletes' bodies. Artificial turf and natural grass affect the body in different ways that could lead to increased injuries. During the same time as this movement to artificial turf, there has been an increase in non-contact Anterior Cruciate Ligament (ACL) and Achilles tears. This rise in injuries has led to the effects of artificial turf on the body being investigated. This investigation has highlighted the pros and cons of artificial turf and brought about many questions about artificial turf. This presentation will discuss the likelihood of ACL and Achilles tears on turf and grass and the potential mechanisms for them.

# Annual Undergraduate Juried Exhibition

36th Annual Undergraduate Juried Exhibition April 2024

## Winthrop University Galleries

Under Winthrop's new gallery director, Mike Gentry, the annual tradition of the gallery's Undergraduate Juried Exhibition continues into its 36th year. Students enrolled in a fine arts or design class qualify to submit their work to a guest Juror. If accepted, the students have the opportunity to display their work in a gallery setting and the chance to win monetary awards. In the 36th Undergraduate Juried Exhibition, students exhibited a variety of mediums such as painting, sculpture, fiber arts, printmaking, photography, videography, and ceramics. The juror for this year, Kristen van Diggelen Sloan, is experienced in large-scale painting and sculpture where she investigates the complexity of humans. She earned her BA in Visual Art from UCLA and her MA in Painting from the San Francisco Art Institute.

**Michael C. Gentry**

Director, Winthrop University Galleries

**Box Sculpture 11**

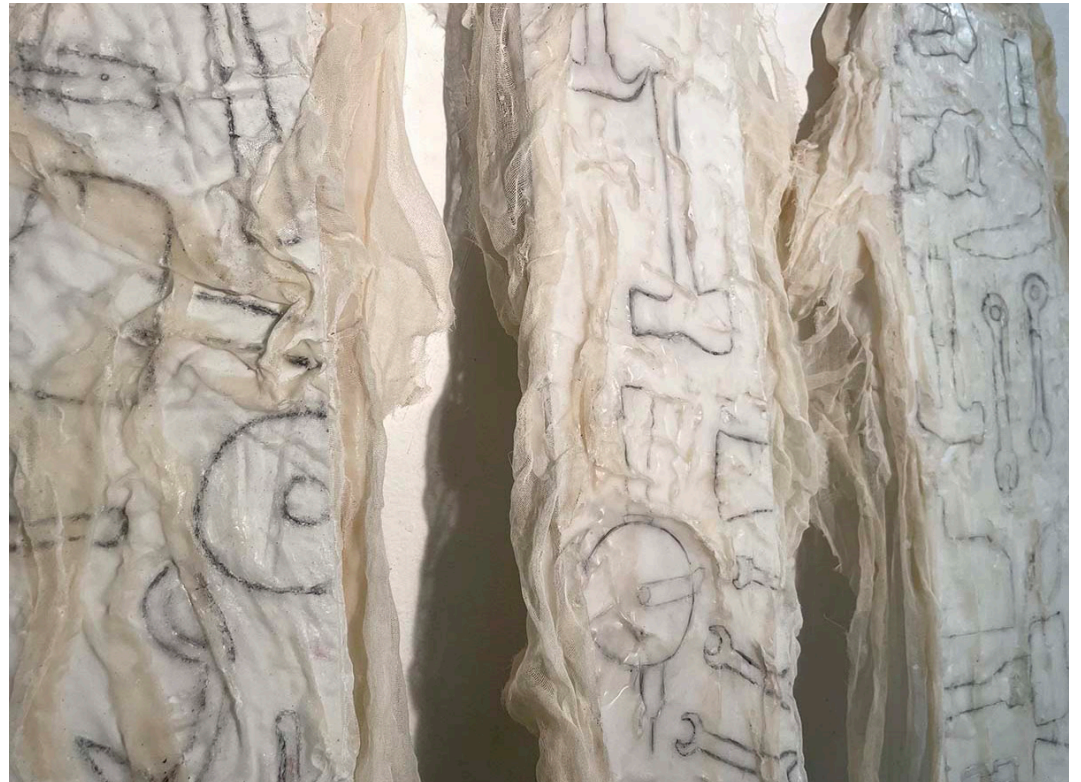
Elaina Poli

**Waterfall**

Nora Finnegan

**Bachman's Warbler**

Jeshaiah Green



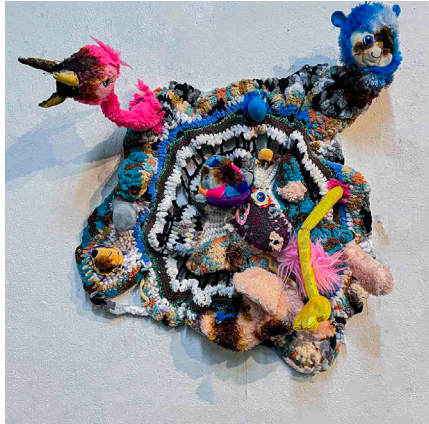
**Untitled (Archive)**

Sarah Cranford



**Feverasaurus**  
Olivia Wearing

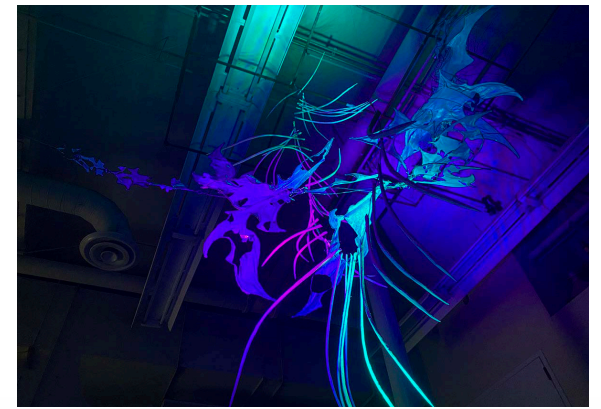
**Bird, a Noun**  
CJ Jeffcoat



**How To Train The Eye Towards Optical Association:**  
Samuel Pach

**Metamorphosis**

Zoe Margaret Gumangan



**Seven Views of Substrate in Steel Frames**  
Samuel Pach

**Laundry Day**  
Adelle Pruitt





**Supple**

Adelle Pruitt

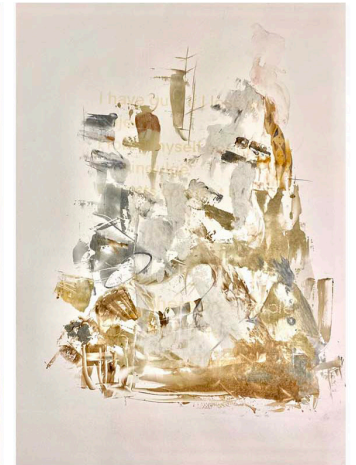
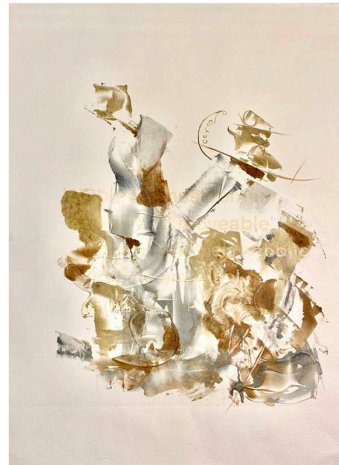


**Pulling into the Driveway**

Audrey King

**Rules/ Admissions/ Regulations**

Kenny Ray



**Where's Frank?**

Jeshaiah Green



**Time Has Run Out**

Sarah Cranford



# Capstone Exhibition

The exhibition *Under The Fluorescents* serves as an archive of the human experience through an observation of rituals. The artists of the 2024 Senior BFA Exhibition explore the experiences of loss, introspection, contemplation inspired by historical imagery, and concepts related to holding onto memories. Artist Sarah Cranford asks a key question: "How do you preserve the memory of a person who's no longer there?". Artists archive and physically preserve abstract concepts of grief, ritualistic practices, and liminal space. In CJ Jeffcoat's work, the artist honors the subject matter through the presentation of photographs and artifacts. These artists open up space for honoring the vulnerability of art and life. The viewer is invited to reflect upon their own feelings around concepts of loss and self. Seen in the work of Hannah Ali, the artist expresses vulnerability by revealing a self gaze where the viewer is invited to return the gaze and share the mutual vulnerability. The artists create an in-between space of liminality through creating and displaying the human psyche itself. Artist Kenny Ray implements the fluidity of both the body and mind through self reflection coinciding with feelings of grief.

Alongside is artist Isabelle Kern, who analyzes with narrative the grief of losing self identity and the trauma of grief itself. These artists create a contemporary form of archiving human feeling through their creative process and self reflection. Through his contemporary forms, artist Craig Stevens gestures towards past lives through historical motif. Devotion to art and ritual is referenced with imagery of worship and classical themes. Artists of the 2024 Senior BFA Exhibition refer to past, present, and future to convey the complexity of the ever-changing human psyche. The exhibition opens up space for the viewer to contemplate and reflect upon their own human experience.

## **Radio McAda**

Senior Art History Major

## **Claudia O'Steen, M.F.A.**

Associate Professor of Fine Arts

Faculty Coordinator

## CJ Jeffcoat

### Fair Winds and Following Seas

Mentor: Claudia O'Steen, M.F.A.

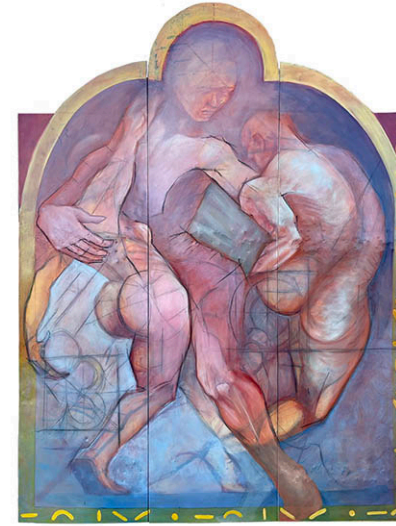


*Fair Winds and Following Seas* is a multimedia installation that portrays a physical journey and documents the discarded things observed along the way. This journey is the distance I have driven during the school year and the discarded takes the form of roadkill and churches. While driving, I have been finding, archiving, and taking photographs of these two subjects using black and white film. These photographs are the repeating prints seen throughout the wall collage. They surround a map that charts the areas where I drive. The prints are repetitive, featuring one larger print and multiple smaller prints representing the number of times I have driven past the specific subject. Repetition is in almost every element of this project; it is found in the process of driving, the ritual of religion, developing and printing in the darkroom, the process of scrimshaw, and the act of observation. Hung throughout the collage, there are bones with scripture and images carved into them. These are deer bones that I have cleaned from roadkill and they are carved using scrimshaw, which was a technique historically used by whalers out at sea. The use of scrimshaw is a reference to the history of travel, while the presence of the car acts as a modernization of the boat. Every day we drive past the neglected and the ignored. Roadkill represents a plea for humanity while the church represents silence. This piece exposes what I have found to be the discarded and asks for some compassion.

## Craig Stevens

### Layers in Grace

Mentors: Claudia O'Steen, M.F.A.; Andrew Rouser, Ph.D.



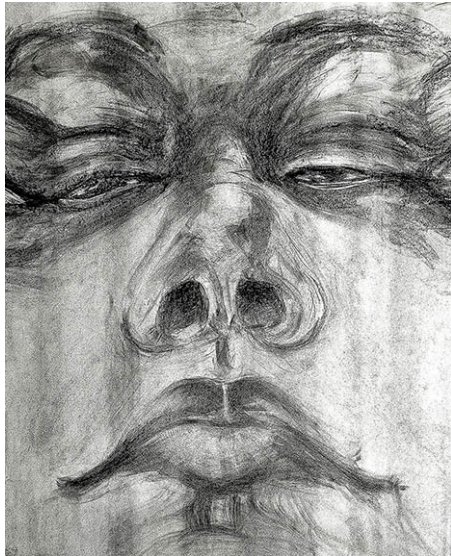
In this work I use the Three Graces idea as an homage to the history of drawing. People have been drawing since man found a way to make marks in the dirt or on a cave wall. Centuries ago, humans saw the order and mathematical relationships in nature, in response developing geometry emulating the language of their deities and the natural order. This geometry is an integral part of my practice. This piece uses the Three Graces as a metaphor. The Three Graces have been tethered to the idea of beauty since ancient Greece. In my work, beauty is not solely reserved for the female form but can also be found in the process of mark making, the large gestural curves of the figures playing off one another, the balance of positive and negative spaces, and the repeating of directional emphasis to lead the eye in a dance from point to point. *Layers in Grace* is a palimpsest, if you will, of marks, brushstrokes, proportions, techniques, and geometry passed down through history. My profession as a sign painter is reflected in the work through the use of recycled galvanized billboard panels and elements of hand lettering. I work in translucent layers revealing the geometry and construction lines, allowing the viewer to find connections. When drawing I find my pencil moving and making these marks intuitively. The act of making art becomes a ritual. This process allows me to find the muse, taking advantage of "a state of grace".



## Hannah Ali

### I See You, Do You See Me?

Mentors: Stacey Davidson, M.F.A.; Claudia O'Steen, M.F.A.

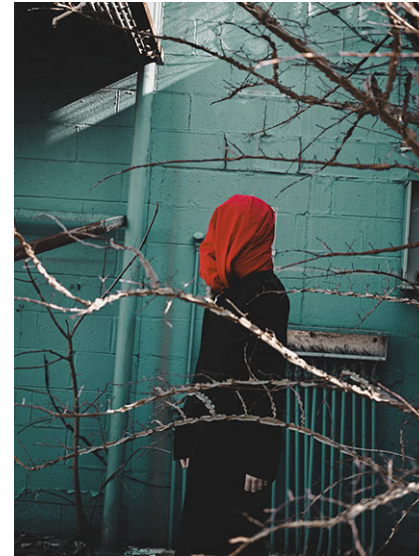


My work addresses my dissociation and the subsequent derealization of self that stems from it. I create works that explore my inner self and the world around me to find out what it means to feel, and to understand my emotions instead of looking at them through a one-way mirror. *I See You, Do You See Me?* is an interrogation of self, and works with parts of the human figure: a breaking down and rebuilding of the components of my being. Each piece contains a conglomeration of self-portraits where the movement, mark-making, and layering of charcoal creates a unified expression of myself. The work stems from my detachment from intense emotions, leading me to question how this loss of connection affects my perception of self. The works are done primarily in charcoal with the use of an eraser for highlights. The constant layering and going back and forth between additive and retractive drawing plays into my struggle to understand why I can't seem to feel a connection between my being and the face in the mirror. The geometry of the eraser marks coupled with the loose, intuitive charcoal markings correspond with the emotional loss and imbalance that happens in this disillusionment. *I See You, Do You See Me?* is a personal experiment, but the audience bears witness to the final product of this investigation. A multitude of faces that mesh and fold into each other stare back and around the viewer asking them to question who they are.

## Isabelle Kern

### Think of Me once in Awhile

Mentors: Claudia O'Steen, M.F.A.; Mark Hamilton, B.F.A



Within the work *Think of me once in awhile*, I have created a series of digital photographs that represent the concepts of grief and loss. Throughout these photos I include imagery of cloaked/hooded figures. These faceless individuals play the role of the human soul. These souls act as conduits that portray moments of grief from different perspectives and situations. The American Psychological Association describes grief as often inducing physiological distress, confusion, separation anxiety, obsessive dwelling on the past, and in extreme cases-cannibalism. Through the investigation of these themes I portray these souls' stories. Each photo contains variations of suggestive iconography to represent stages of grief and serves as a window into a narrative that I manipulate to disrupt the peace of the viewer. I ask for vulnerability when stepping into the space of these images, as they are sharing a vulnerability themselves. In *Think of me once in awhile* I possess the space with the emotion and the power the photos generate and through this evoke contemplation from the observer. I intend for them to hunger for more context, and to view the images from a personal perspective. This series is an exploration into different experiences of grief through the eyes of the souls, the viewer, and I.



## Kenny Ray

### Epicene Reverberations

Mentors: Myles Calvert, M.A.; Claudia O'Steen, M.F.A.



*Epicene Reverberations* is a reference to the cycle of inward grief. Each piece was crafted with certain moments of emotional turmoil in mind. Much like outward grief, inward grief is a difficult, confusing, and at times, both painful and healing process. This internal grief manifests itself by deteriorating the anatomy that sustains it. Through my experience with my body thus far, it has been a battle for control. Mind over matter. Who will win? The entity that controls the vessel, or the vessel that sustains the entity? This body of work proposes a thought I hold true. There is no control. The body ebbs and flows with the mind. What the mind feeds the body and what the body feeds the mind is what powers the agency of self. Within the confines of the self, I reflect much on the cycles I have gone through. I lapse from self-hatred to self-care to self-indifference. This process has caused quite a bit of pain and anguish amongst myself and those involved. Through every struggle, there is an end to the feeling, but it will return. There is always a dread accompanied by a confident air of knowing the pain will subside. Existing in a gray area, the works bring a somber feeling, one of both understanding and compassion.

## Sarah Cranford

### Traces: Exploring Home's Ability to Preserve Memory

Mentors: Shaun Cassidy, M.V.A.; Claudia O'Steen, M.F.A.



In *Traces: Exploring Home's Ability to Preserve Memory*, I investigate memory and its relationship to physical remnants. Remnants, such as a stained coffee mug are evidence of connection and are traces of someone no longer present. This research is inspired by the processing of grief since the death of multiple family members. Within the house multiple generations have called home, there are 60 years of memories and stories absorbed by floral wallpaper and warped hardwood floors. Much like the pages of journals my grandmother filled as her memory began to fail, the physical traits of the house serve as the record keeper of all of our lives. Through the collection and examination of fragments from my grandparents' home, I explore the ways in which the home serves as a vessel for memory. I use meticulous and repetitive processes that engage in memory making, such as tracing and sewing. The time spent with the creation of a piece reinforces the memories the work represents. The use of wax paper to create a veil calls upon memories' transient or hazy nature. They are never seen as exact replicas of the creation of the memory and the wax paper materializes the forgetting involved in remembering.

# Department of Theatre & Dance

## Festivals and Showcases

### Fall Dance Showcase, December 2023

Faculty Coordinator: Meg Schriffen

This showcase of modern dance works features the choreographic talents of senior dance majors.

<b>Me vs Me</b>	Choreographed by <b>Trinity Robinson</b>
<b>Hold That Pose for Me</b>	Choreographed by <b>Alena Brown</b>
<b>In the Spotlight</b>	Choreographed by <b>Rachel Peterson</b>
<b>Bodies in the Closet</b>	Choreographed by <b>Steffan Mayrides-Jolon</b>

### Spring Dance Showcase, April 2024

Faculty Coordinator: Kelly Ozust

<b>The Power of Love</b>	Choreographed by <b>Rachel Peterson</b>
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### Student Choreography Showcase, April 2024

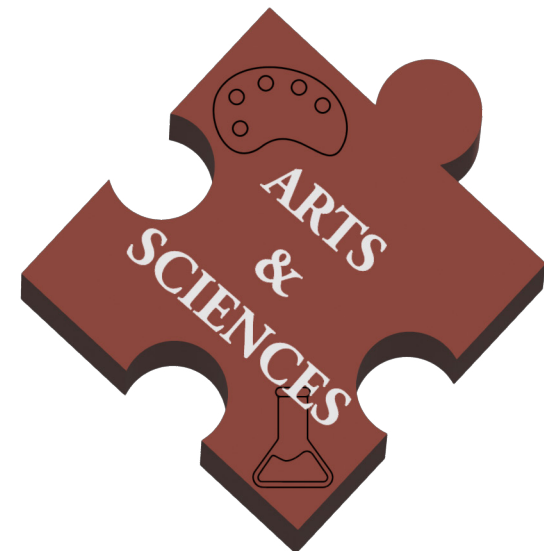
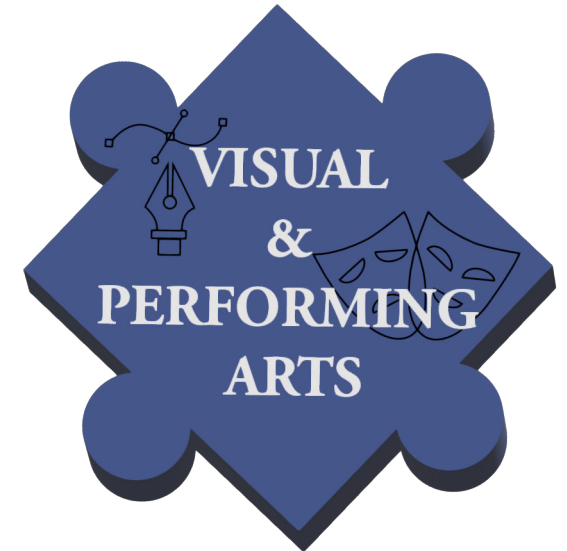
Faculty Coordinator: Kelly Ozust

Enjoy modern dance works choreographed by advanced dance majors.

#### Student choreographers:

**Madalin Beam**  
**Morgan Belton**  
**Elloise Bethea**  
**LeNyah Bryan**  
**Hannah Hayman**  
**Jayla Jamison York**  
**Cassandra Jaramillo**  
**Tymia Lamb**  
**RJ Lee**  
**Czarkaveus O'Neal**  
**Joshua Pringle**

# Additional Projects



Mentor: Melissa Carsten,  
Ph.D.

(CBA – Management &  
Marketing)

(BADM 391 - Melissa  
Carsten)

## **How Does Social Media Influence the Culture of a Company and Employees?**

**Kenji L. Kaneko, Matt L. Bostic, Claire E. Witmer, Grayson E. McKenzie**

The purpose of this study was to explore how social media impacts employee's performance, satisfaction, and motivation. This is an important topic because in today's age, social media plays a large role in society and how we subjectively feel about work, activities, and life in general. Our study hypothesized that the use of enterprise social media has a positive impact on employee satisfaction, performance, and motivation. We tested these hypotheses using a cross-sectional survey methodology sampling with 33 individuals working full-time or part-time in organizations. We analyzed our data with correlations, regression analysis, and Chi-Squared analysis. Our results show a positive relationship between engagement with enterprise social media and satisfaction with work ( $r = .27, p < 0.01$ ) and satisfaction with supervisor ( $r = .30, p < 0.5$ ). Additionally, the correlation table shows a significant relationship between engagement with enterprise social media and satisfaction with pay ( $p < 0.01$ ). These results have implications for the way organizations use social media to engage with customers and employees. Future research may elaborate on these findings by exploring employee engagement with enterprise social media and employee's desire to stay with and recommend the organizations with others.

Mentor: Melissa Carsten,  
Ph.D.

(CBA – Management &  
Marketing)

(BADM 391 - Melissa  
Carsten)

## **Entrepreneurial Leadership Style and Its Effects on Morale, Productivity, and Counterproductive Work Behavior**

**Noah Marz, Rebecca Wolff, Adam Morrison, Jalen Dye, Alisha Barber**

The purpose of this study is to explore how entrepreneurial leadership is related to employee morale, performance, and counterproductive work behavior. We asked a series of questions to individuals in managerial roles across many different organizations regarding their level of entrepreneurial leadership, as well as their own morale, performance, and counterproductive work behaviors. This study is relevant because it examines the importance of entrepreneurial management behaviors and how they influence individual work attitudes and behaviors in an organization. Our study hypothesized that entrepreneurial leadership is positively related to employee morale and performance, and entrepreneurial leadership is negatively related to counterproductive work behavior. We tested these hypotheses using a cross-sectional survey methodology, sampling 52 individuals who are in managerial roles in many different organizations. Results from these tests show that our hypotheses are not supported. In our limited sample of managers, entrepreneurial leadership was not positively associated with performance or morale, and it is not negatively correlated with counterproductive work behavior. These results have implications for how an organization's leadership style affects employee behavior. It also has implications for researchers wanting to study entrepreneurial leadership in the future.

Mentor: Melissa Carsten,  
Ph.D.

(CBA – Management &  
Marketing)

(BADM 391 - Melissa  
Carsten)

## **Maternity Leave Policies and Their Effects on Employee Organizational Commitment & Job Satisfaction**

**Ariana Donaldson, Cashara Green, Quinterra Z. White, James R. Hawkins, Brookelynn M. Thomas**

The purpose of this study was to explore the relationship between maternity leave policies, employee organizational commitment, and job satisfaction. Previous research shows that acceptable durations, clear leave policies, a strong balance in work/family culture, and healthy relationships with upper management contribute to satisfactory maternity leave, and in turn positive job satisfaction and organizational commitment. Our study hypothesized that those given the opportunity to take maternity leave would report greater job satisfaction and organization commitment. We tested these hypotheses with a cross-sectional survey methodology sampling 39 individuals who were offered leave with compensation to measure satisfaction and organizational commitment. Data was collected from respondents who took leave with their current and/or previous organization. Statistics showed that 57% of our sample group took maternity leave with their current organization, while only 26% took leave with a previous company. From this we concluded that only 61% of our respondents were compensated for maternity leave with their company. Results from our regressions showed that respondents who had the opportunity to take maternity leave did not report significantly greater job satisfaction or organizational commitment. The results of this study have implications on future researchers who want to understand the effect of maternity leave policies on organizational commitment and job satisfaction.

Mentor: Melissa Carsten,  
Ph.D.

(CBA – Management &  
Marketing)

(BADM 391 - Melissa  
Carsten)

## **Effects on Customer Relations from Fraud**

**Matthew Hendrix, Stefan M. Fevrier Sildor, Nyla S. Keough, Bryant Jimenez Pearce, Alvaro Munoz Lopez**

The purpose of this study is to understand how consumer trust is affected when financial firms commit fraudulent activities. Among all corporate fraud in the United States, fraud among financial institutions seems to be the most egregious and troubling to society. Thus, our study aims to understand how trust in financial institutions is affected when consumers learn about fraudulent activity. We have designed an experiment with 3 different manipulations of varying fraudulent activity. Sixty-seven participants (53% male) were asked to read one of three different scenarios conveying fraudulent activity at a bank, and place themselves in the position of a bank customer. The results show that, compared to the control group, the groups who read the scenarios with moderate and high-level fraudulent activity demonstrated significantly less trust in their particular bank, the employees of the bank, and the banking industry more broadly. Intentions to continue banking with the organization named in the scenario was lowest among the high-fraud group. These results have implications for banking institutions working to maintain quality control, and ensure that employees are abiding by appropriate ethical standards.



Mentor: Melissa Carsten,  
Ph.D.

(CBA – Management &  
Marketing)

(BADM 391 - Melissa  
Carsten)

## Effects of Promotion on Employees in the Workplace

John T. Mugabe, Matthew J. Bradley, Jacob Chan, Rachel Brown, Court Wrenn

This study aimed to analyze the effect of promotion on various prominent workplace variables for different groups of modern workers. Promotion is ever present in the workplace and our research can enhance the knowledge of both the positive and unexplored negative impacts of promotions. Our study hypothesized that employees who receive a promotion will report a positive increase in performance, morale, motivation, and a decrease in intent to turnover. We tested these hypotheses using a cross-sectional survey methodology sampling of 41 adults. These tests demonstrate that employees who received a promotion did not report significantly higher morale, performance, motivation, or lower intent to turnover. Despite previous research findings suggesting that the majority of the findings had significance toward changes in higher morale, performance, motivation, or lower intent to turnover. Our findings suggested the opposite opinion on the matter. Future studies should focus on finding larger sample sizes and clearer wording to increase the understanding of this subject and earn more significant results.

Mentor: Melissa Carsten,  
Ph.D.

(CBA – Management &  
Marketing)

(BADM 391 - Melissa  
Carsten)

## Managerial Styles Among Managers Affect Productively, Job Satisfaction, and Turnover Rate

Austin Kent, Ryan Fischer, Omari Singleton, Will Humbert, Peter Guardino

The purpose of this study was to determine how different managerial styles affect self-reported performance, work satisfaction, and turnover rate. Our research is going to help pave the way for organizations to improve the performance of its employees depending on the style of their managers. Our study hypothesized that depending on the managerial style, employees would be positively or negatively impacted in terms of their performance, work satisfaction, and negatively related to turnover intention. We tested these hypotheses using a cross-sectional survey methodology sampling 72 employees ranging from Baby Boomers (1946-1964) to Generation Z (1996-2012). Results from these tests show that Authoritative leadership styles had a positive relationship with productivity, and significantly impacted employee work satisfaction and turnover rate. Democratic leadership styles have a negative correlation with productivity, but positively affect work satisfaction and turnover rate. Laissez-faire leadership style had a positive impact on productivity and work satisfaction but a negative effect on turnover rate. These results have implications for the way that organizations can evaluate and pursue certain leaders depending on their leadership style that would best suit their organization's goals. There are also future implications that would lead us to believe that each managerial style affects each generation independently.

Mentor: Janet Wojcik,  
Ph.D.

(CESHS – Physical  
Education, Sport &  
Human Performance)

(EXSC 511 - Janet Wojcik)

## Exercise Prescription for Women with High-Risk Pregnancies

Chloe Murphy

A high-risk pregnancy is defined as pregnancy where there is increased risk to the life of the mother or the fetus. Exercise has been shown to improve high risk conditions such as gestational diabetes, preeclampsia, placental abruption, and preterm birth. A randomized controlled trial looked at the effects of yoga in the prevention of pregnancy complications in women who were considered high risk. The study showed that the women doing yoga greatly benefitted and complication incidence decreased greatly. Other studies have also found that walking and stretching decreases preeclampsia and hypertrophy incidence. For these high-risk pregnant women, yoga has been shown consistently to be very beneficial in decreasing incidence occurrence. For a woman with a high-risk pregnancy, exercise can be extremely helpful, but it is also very important to pay close attention to the mother and fetus as their health is number one priority. Using the FITT-VP (frequency, intensity, time, type, volume, and progression) model for exercise is a start to prescribing safe and appropriate exercise. Doing low or moderate intensity exercises (50-70% of 1RM or 6-12 RPE on the Borg scale) 2-3 days per week has been shown to improve multiple high-risk conditions across the board. Low weight resistance training, yoga, and cycling are good, and generally safe exercises to do for these women. Exercise can be beneficial to an array of health problems, especially for pregnant women. This information can be used as a first line of treatment for women with higher health risks when pregnant, saving time, money, and lives.

Mentor: Janet Wojcik,  
Ph.D.

(CESHS – Physical  
Education, Sport &  
Human Performance)

(EXSC 511 - Janet Wojcik)

## Cancer in Adolescents

Kathryn Pike

Pediatric oncology has shown that physical activity leads to better physical, psychosocial, and cognitive outcomes. The subjects were placed in trials, but only if they met the requirements. The ages were 4-19 years of age. Some subjects were post-pediatric cancer and others were diagnosed with cancer more recently. In the end, all studies indicated how exercise would increase their ability to function. Aerobic FITT-VP (frequency, intensity, time, type, volume, progression) for a cancer patient should be at least 3 days a week with a light to moderate (RPE 9-13) intensity. Each session should be at least thirty minutes a day but could be longer or shorter if needed. Time can also be broken up into 10-minute increments in between the 30-minute intervals to help the patient not become as fatigued as quickly. The exercise patients should participate in any weight-bearing activities like walking or playing with a ball. The patient should be able to increase frequency by 1-2 days to reach the goal of being active daily. There should also be considerations with a patient in this condition, the time should be broken up into increments to help avoid inactivity and provide fun activities. In conclusion, all articles had different ways of studying the body of a former pediatric cancer patient and a present one. The results of these trials brought awareness to the need for exercise. and the more these patients get their bodies moving they are to show better cognitive development along with increased muscle strength.

Mentor: Janet Wojcik,  
Ph.D.

## DASH Diet for Hypertension

Aliyah Lee

(CESHS – Physical  
Education, Sport &  
Human Performance)

(EXSC 511 - Janet Wojcik)

The Dietary Approaches to Stop Hypertension (DASH) diet was first introduced in 1997 and promoted by the United States National Heart, Lung, and Blood Institute to prevent and control hypertension. The diet is rich in whole grains, fruits, vegetables, and low-fat dairy foods. Several research studies evaluated its effectiveness, such as a study of 48 stable patients with chronic symptomatic (stage C) heart failure. No significant differences between the DASH and comparison groups were found for weight, body mass index, BNP, or oxygen saturation at baseline or for hemodynamic parameters during the study. Another study evaluated the relationship between the DASH diet and oxidative stress in patients diagnosed was found to be inconclusive. When looking specifically at blood pressure, lifestyle interventions are the first line of treatment in hypertension, and decreased blood pressure (BP) effects may be related to changes in autonomic nervous system (ANS) function. A Frequency, Intensity, Time, and Type (FITT) program for a 65-year-old male with hypertension will do aerobic fitness 4-5 times a week, moderate (50-75%) intensity, each exercise will be 20-30 minutes. His exercises could be walking, cycling, swimming, and jogging.

Mentor: Janet Wojcik,  
Ph.D.

## Lung Disease in First Responders

Ashton VanHouse

(CESHS – Physical  
Education, Sport &  
Human Performance)

(EXSC 511 - Janet Wojcik)

In the line of duty firefighters experience exposure to deadly chemicals and gasses. The exposure to these harmful particles could cause damaging effects on the respiratory system. Several studies have been conducted looking at chronic respiratory illnesses and deaths in firefighters. The overall purpose of the studies was to evaluate the relationship between the exposure of smoke and the risk of lung disease (LD), cancer, and chronic obstructive pulmonary disease (COPD) in firefighters. To estimate the lifetime risk of LD, a database search included 1.2 million adults with an exposure response relationship and estimated the breathing rates. The search included firefighters that worked an average of 13.6 hours per shift. Results show an increased risk in LD and cardiovascular disease for wildland firefighters. Other factors include the duration of the career and amount of wildfire incidents that occurred. Using the FITT-VP principles (frequency, intensity, time, type, volume, and progression) it is possible to develop a safe and effective exercise program. For the firefighters with COPD, lung disease, or cancer an aerobic FITT program would consist of 3-4 times a week of moderate pace brisk walk on a treadmill to avoid the disturbance in outdoor air quality at 40-60% of maximum heart rate (11-14RPE) for 30 minutes. The results of the studies indicate there is an increased risk of developing lung cancer, cardiovascular disease, and COPD in firefighters and may or may not be occupational.

Mentor: Janet Wojcik,  
Ph.D.

## Special Considerations Regarding Injuries Associated with Women's Sports

Erica Tobin

(CESHS – Physical  
Education, Sport &  
Human Performance)

(PESH 381 - Janet Wojcik)

Injuries that are often associated with women's sports present unique challenges. For example, the phases of the menstrual cycle can affect the performance of female athletes. The change of playing surfaces from natural grass to artificial turf may also influence performance and injury risk. All of these can impact the mechanism of the anterior cruciate ligament (ACL) injuries. This work investigated how all of these contribute to the management of injuries in women's sports.

Mentor: Janet Wojcik,  
Ph.D.

## Asthma and Exercise in Older Women

Alexis Snyder

(CESHS – Physical  
Education, Sport &  
Human Performance)

(EXSC 511 - Janet Wojcik)

Asthma is a condition caused when an individual's airway becomes inflamed and creates extra mucus to make it difficult to breathe. Older women with asthma have reduced intensity until symptoms get better from cardiorespiratory endurance, muscle strength and flexibility. Therefore, it is important to improve symptoms before progressing into more difficult stages. In the Nurses Health Study 2,818 women with asthma were monitored for 2 years. Physical activity levels were self-reported with a questionnaire in a 7-day activities diary. They recorded time spent per week at a variety of different types of physical activities. Another study evaluated a 12 week study of high intensity interval training that included 12 older women. They used body composition, cardiac function and inflammation of the airways to examine results. Last, was an Australian study that examined older women with asthma impact on mortality rate. Aerobic FITT-VP (frequency, intensity, time, type, volume, and progression) should include 3-5 days per week, begin with moderate intensity (40%-59% maximum heart rate) then progress to (60%-70%) progressively increase 30-40 mins. Large muscle groups should be worked by walking, running, cycling, swimming or pool exercise. Start volume with weekly levels that can be tolerated and then gradually increase the duration 5% - 10% per week. Make sure to always include a warm-up and cool-down. The results shown in all studies that physical activity and aerobic training will reduce the risk of exacerbations in older women with asthma. Mortality rate will be higher in older women who have asthma.

Mentor: Michael Sickels,  
Ph.D.

(CAS – Sociology,  
Criminology, &  
Anthropology)

(SOCL 519 - Michael  
Sickels)

## **Technology in Higher Education: The Effects of Technology on the Academic Performance, Student Engagement, and Sociocultural Interaction on Winthrop University Students**

**Jakob M. Miller, Riley Oglevie, Almetha Long**

Our study involved an in-depth analysis and examination of technology usage and its lasting positive and negative effects on the academic performance, student engagement, sociocultural interaction, etc. on Winthrop University undergraduate students. We hypothesized that technology would be largely negative on higher education, which we accepted. Fourteen participants (eleven students and three professors) were interviewed through the use of a semi-structured interview guide, where interviews were conducted over approximately thirty-minute intervals. Through the use of a mix of hand and A.I. transcription, we were able to create a codebook reflective of the broadly defined themes and data of our research. These transcripts were then coded using the codebook and broken down into categories for data analysis. We found that instruction format (in-person versus online asynchronous classes), artificial intelligence, and cheating stemming from artificial intelligence played a significant role on the academic performance of students, with artificial intelligence and cheating giving strictly negative findings from both students and professors. In terms of student engagement, we found that instruction format, social media usage, and distractions associated with technology (social media in particular) played a significant role in the habits and level of classroom involvement of students. Social media was determined to be a positive factor in building communication and relationships with peers. Lastly, sociocultural interaction was largely affected by the preferred communication method of the student (in-person versus online), and feelings of alienation and dissociation contributing to the level of interaction of students.

Mentor: Janet Wojcik,  
Ph.D.

(CESHS – Physical  
Education, Sport &  
Human Performance)

(EXSC 511 - Janet Wojcik)

## **Childhood Obesity**

**Taylor B. Fields**

Childhood obesity is increasing, simply because the number of physically active youths is decreasing in addition to changes in the food and physical activity environments. Often obesity tracks from childhood through adolescence and adulthood. It is best to address childhood obesity now before it gets worse. Within every article, every video, anything surrounding the topic of childhood obesity exercise is a major component of treatment. Getting parents, coaches, pediatricians, etc. involved as a team will help the youth to at least maintain weight as they grow. Exercising along with developing healthy eating habits is the most important thing to do to start. At least 60 minutes of physical activity daily is recommended. Some aerobic exercises can be walking, riding a bike, swimming, jogging, and dancing. Intensity should be moderate (60% of maximum heart rate reserve), and they should increase exercise volume by 10% a week. They should also include resistance training and other bone strengthening exercises at least two days per week. We live in a busy world where everybody is always on the go, but it is important for youths that everybody starts to become more physically active while also changing their eating habits to live a better and healthier life at all ages.

Mentor: Jennifer Disney,  
Ph.D.

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Jennifer  
Disney)

## **Happiness in Denmark**

**Hannah Smith**

Based on the World Happiness Report, Denmark has ranked as one of the three happiest countries in the world for the past 11 years. While briefly touching on the Gallup World Poll subjective well-being measurements used for the World Happiness Report, this paper focuses on the six explanatory variables and predictors of happiness also used (GDP per capita, healthy life expectancies, social support, freedom to make life choices, generosity, and perception of corruption) and how they correlate with Denmark. Much research already exists that examines Denmark and its Nordic neighbors for their successful welfare states, though very little specifically addresses the intersection of Denmark and the World Happiness Report. By providing a deeper look at Denmark and using the six variables as lenses, readers will take away a better understanding of the country and the aspects of its culture and characteristics that contribute to the consistently high happiness rankings.

Mentor: Jennifer Disney,  
Ph.D.

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Jennifer  
Disney)

## **Ambiguity in Marx: An Analysis of the Differences Between Theoretical and Practical Marxism**

**Alexander Logusch**

This paper seeks to understand theoretical Marxism and its relationship with practical Marxism. Specifically, by looking at the Soviet Union, I aim to understand how Marx's theories were applied and why the USSR ultimately devolved into a despotic state. Beyond the introduction, the paper is broken down into two main components. The first details the general differences between the Soviet model of communism and Marx's initially theorized Marxism, articulating the common viewpoint that Soviet leaders like Lenin and Stalin altered Marxism to fit their own needs. The second argues my position, namely that Marx's theories contained some critical ambiguities that created the space necessary for Soviet manipulations to occur. I do this by outlining some of the essential axioms of revolutionary Marxism before identifying a lack of clear direction for the proletariat and the vague advocacy of violence as two ways Marxism failed to provide practical utility. Ultimately, I conclude that the ambiguity in Marx's revolutionary theories makes this portion of his political theory too risky to be relied upon.

Mentor: Josephine  
Koster, Ph.D.

## Dr. Joan Watson: The Better Watson

Lynzi Cooke

(CAS – English)

(ENGL 310 - Josephine  
Koster)

In the Elementary TV show series, Dr Joan Watson, played by Lucy Liu, proves that she is more academically and emotionally intelligent than any of the other Watsons, which is shown in times of great stress by demonstrating maturity and resourcefulness. By having a medical background as a surgeon and sober companionship, Joan's technical skills contribute to her abilities in the field with her partner, Sherlock Holmes. Not only is she a powerful female figure in the show, but also outside of it by being a person of color portraying diversity in a role that has been historically cast to white men. Joan Watson represents what a new age of television could be by revolutionizing Dr. John Watson's character and building a new world for herself. In the series, Sherlock Holmes is finally not the lead. The two characters are each other's co-pilots, you could say. Both have equal opportunities, their own deductions, clientele, and influence over private detection. By focusing the analysis on the first season, the series demonstrates Joan Watson's academic intelligence by putting her in Sherlock's shoes, then challenges her emotional intelligence when it comes to Sherlock's weaknesses. Through research in other materials such as Doyle's novels, BBC's *Sherlock*, and how the media responded to *Elementary*, it was concluded that Dr. Joan Watson excelled at everything she wanted to try by becoming an expert at it. Lucy Liu then established a great foundation for new Watsons (and, dare I say, new Sherlocks) to arise.

Mentor: Josephine  
Koster, Ph.D.

## The Woman in "A Scandal in Bohemia" and BBC's *Sherlock*: A Feminist Reading of Irene Adler

Maddison K. Bosch

(CAS – English)

(ENGL 310 - Josephine  
Koster)

Sir Arthur Conan Doyle's Irene Adler, despite only appearing in one short story in the *Sherlock Holmes* canon, has become an incredibly prominent figure in modern adaptations, likely because she is the only canonical female character to defeat Sherlock Holmes. My paper explores Adler's character in both her original 1891 short story, "A Scandal in Bohemia," and in one modern adaptation, the 2012 BBC *Sherlock* episode "A Scandal in Belgravia." Drawing from several academic literary sources, as well as an opinion piece exploring Adler's portrayal in BBC *Sherlock*, I explore both renditions of Adler through a feminist lens. Ultimately, I build an argument for Doyle's Adler as a protofeminist character, especially focusing on her ability to outsmart Holmes in his own field and her role in forcing Holmes to confront his biases against women. Although Doyle's Adler is fundamentally and undeniably impacted by Victorian views of gender that see her happiest as a wife and treat her intelligence as a masculine trait, her character is very progressive for her time. On the other hand, I argue that *Sherlock's* Adler leaves much to be desired: this modern interpretation of her character sexualizes her, strips her of her agency, portrays her as dependent on men, and robs her of her ability to outsmart Holmes, all while falling back on problematic stereotypes of women and femininity, including the idea of women as inherently emotional and thus inferior to men, as well as tropes like the femme fatale and the damsel in distress.

Mentor: Josephine  
Koster, Ph.D.

## Abstract for Martin Freeman's Portrayal of Dr. John Watson

Genesis Pratt

(CAS – English)

(ENGL 310 - Josephine  
Koster)

Sir Arthur Conan Doyle's writing sparked a legacy of adaptations of his character, Sherlock Holmes, who is occasionally accompanied by a 'sidekick' Dr. John Watson. Dr. John Watson is Sherlock's emotional core and conscious since he is often blunt. A lot of adaptations tend to show Watson as bumbling and clumsy, a poor example of intelligence so Sherlock's genius shines. However, in Doyle's original writing, Watson is loyal, intelligent, and caring. He's more than just a sidekick. One of the more recent adaptations of Doyle's stories was done by BBC, and it was titled *Sherlock*. Watson in that adaptation was played by Martin Freeman. This paper looks into where both Freeman and the writers of *Sherlock* drew the inspiration for this interpretation of Watson. It then looks to the first in both series, *A Study in Scarlet*, and BBC's interpretation, *A Study In Pink*, and compares how Watson is presented between them. This adaptation is different than most because it takes the same plotlines from Doyle's work but places them into the modern time and adapts them to fit into that time. While all characters differ in some ways, this paper will focus only on Watson and his adaptation from Doyle's writing to the production of BBC's show in this one specific plotline. While there are differences and similarities between the two, I think the differences were chosen well and exemplify some of the characteristics given to Watson by Doyle. For example, his loyalty and his caring nature are exemplified.

Mentor: Bradley Young,  
Ph.D., Jason Tselentis,  
M.F.A., John Hairston Jr.,  
M.F.A.

## 2D Video Game Demo and Art

Reagan E. Woodward

(CVPA – Design)

(VCOM 486 - Bradley  
Young, VCOM 487 -  
Bradley Young)

Since childhood, the allure of video games has been a constant companion throughout my journey. They fueled my imagination, prompting me to explore uncharted realms and perpetually rescue princesses who always seemed to get kidnapped. These virtual experiences equipped me with essential tools, teaching me to navigate, adapt, and use the resources available for survival. Video games ignited my creativity early on, and that flame continues to burn brightly within me. I aspire to contribute to endeavors that evoke the same emotions video games have elicited in me – a desire to be part of something that resonates with others just as profoundly. This is the driving force behind my thesis. I've crafted a video game as my introduction to this digital realm – a nostalgic nod to the 2D platformers of my childhood. Within this small demo, I not only exhibit my illustrative abilities but also unveil my vision for a game I aspire to bring to life in its entirety.



Mentor: Janet Wojcik,  
Ph.D.

## Prevention and Treatments of Lateral Epicondylitis in Athletes

Maelle Dreyer

(CESHS – Physical  
Education, Sport &  
Human Performance)

College athletes or even professional athletes can experience diverse upper body injuries. In the case of lateral epicondylitis, the main cause is a repetitive movement that causes friction at the elbow joint and can sometimes cause pain down to the wrist joint. This type of injury is often seen in athletes that have repetitive movement in their sport like baseball, golfers, or even tennis player. Athletes are used to the pain, but without treatment lateral epicondylitis can worsen and cause tremendous pain and sometimes even cause the athletes to end their careers. Physical therapists, trainers, or even occupational therapists can help with the appropriate treatment. This presentation will discuss the possible preventive care that is offered when the first symptoms are discovered as well as new treatments for lateral epicondylitis.

(PESH 381 - Janet Wojcik)

Mentor: Kelly Ozust,  
M.F.A.

## I'm Getting Better

Cassandra Jaramillo

(CVPA – Theatre & Dance)

The general topic of my research is how mental health in dance has become serious and common to dancers. The central problem of my research is that in today's society, teachers have become more toxic and hurtful with their words. It is expected from dancers to use that type of "criticism" as something that would help them in the near future. It is important to address this topic because viewers do not see the behind the scenes very often of what goes on in a studio. In my opinion, dancers have become more sensitive to themselves to where they would go beyond extreme measures to fulfill their "role models" expectations. With some experiences, I too have found myself becoming more sensitive as to where I am dealing with a deadly disease. I was hospitalized due to a heart attack that I endured last semester which made me have to stop school and go home to better myself before I could come back. I experienced severe depression and anxiety just from the thought of not being able to dance on a stage ever again due to the rare autoimmune disease I am dealing with right now. With my choreographic process, I communicated with my cast of their experiences and how it affected them mentally. We concluded that not only would this piece talk about my journey, but also of their journeys.

Mentor: Kathryn Kohl,  
Ph.D.

## Characterization of *Drosophila Melanogaster* Mutagen-Sensitivity Gene *Mus311*

Kaylee E. Mills

(CAS – Biology)

(BIOL 472 - Daniel Stovall)

Mutagen-sensitivity (*mus*) genes in *Drosophila melanogaster* are genes thought to be involved in DNA repair. All mapped *Drosophila mus* genes are orthologous to human genes, providing insight into the highly conserved nature of repair mechanisms. One such gene is *mus311*, and this study aimed to characterize *mus311* through mutagen-sensitivity and meiotic assays. *Mus* assays included several DNA-damaging agents: methyl methanesulfonate (MMS), camptothecin (CPT), and hydroxyurea (HU). Sensitivity to mutagens indicates that mutant flies are unable to repair the damage caused by that damaging agent. For each agent, the two alleles of *mus311*—*mus311<sup>01</sup>* and *mus311<sup>02</sup>*—were crossed with one another. Ten or more vials were set up for each cross, with brood 1 being treated with the damaging agent and brood 2 being mock-treated. For each cross, relative survival was calculated as the ratio of *mus* mutant to non-mutant flies in brood 1, normalized to the corresponding ratio in brood 2. As seen in prior research, *mus311* flies were found to be sensitive to MMS, an alkylating agent that stalls replication forks. For the meiotic assay, *mus311<sup>01/02</sup>* females were crossed to male flies with the X-linked marker Bar translocated to the Y chromosome. White-eyed females were also crossed with Bar males to serve as a control. These flies will be scored to determine whether X-chromosomal nondisjunction is occurring at a higher rate in *mus311* flies with respect to wild-type flies. Future directions include recombination crosses to narrow down the locus of *mus311* within the *Drosophila* genome.

Mentor: Michael  
Lipscomb, Ph.D.

## Syrian Baath Party and Russian Relationship Before and After the Fall of the Soviet Union

Ella L. Miller

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Michael  
Lipscomb)

The relationship between the Syrian Baath Party and Russia has evolved after the fall of the Soviet Union, marked by an ideological break between the two, concerns about upholding regional security, and the rise of Russian paramilitary group involvement. Through an extensive literature review, this paper analyzes the Baath party-Russia relationship before and after the fall of the Soviet Union. These areas include the evolution and history of the Baath party, the relationship before the fall of the Soviet Union, Assad's ascension into power and relationship with the Soviet Union, the relationship after the fall, the impacts of the Syrian Civil War, and the emergence of Russian paramilitary groups in Syria. To augment the analysis of these historical dimensions, a quantitative analysis will be used that looks at the number of weapons given to Syria, different forms of aid given, how that aid has fluctuated over time, casualties in the Syrian Civil War, and the impact of the Wagner private military group.

Mentor: Michael Lipscomb, Ph.D.

## Second Wave Feminism and the Role of Minorities in the Healthcare System

Brie Charles

This paper engages in an in-depth analysis of the second wave of feminism in the United States and asks if it was able to create change in the healthcare system. More specifically, this paper asks if the second wave of feminism was able to successfully address women of color and poorer women's concerns with access to healthcare. Through an extensive literature review, this paper contends that in addition to the stereotypical white upper-middle class feminist movement, there were many movements and coalitions that worked with women of color and poor women during the second wave. This analysis reveals the role women of color and poor women played in helping reform the healthcare system and greater access for women during this period.

(CAS – Political Science, Philosophy, Religion & Legal Studies)

(PLSC 490 - Michael Lipscomb)

Mentor: Michael Lipscomb, Ph.D.

## The 2024 Farm Bill and Its Effects on the Virginia Crop Farmer

Taylor Hubbard

The 2024 Farm Bill has an expiration date in September. Congress will need to reauthorize this bill in order to maintain American farm policy and programs that are vital to producers across the country. This reviews which Farm Bill policies will impact Virginia farmers that produce crops. The biggest issues to Virginia producers will be migrant labor, conservation programs, crop insurance, reference prices, the Inflation Reduction Act, and foreign adversaries owning land within the state. Through an extensive literature review, focusing on policies related to the farm bill and interviews conducted with Virginia producers, state-level politicians, and policy experts, I concluded that migrant labor, crop insurance, and conservation programs are the most influential policies found in the upcoming farm bill renewal.

(CAS – Political Science, Philosophy, Religion & Legal Studies)

Mentors: Jennifer Disney, Ph.D.; Hobert Tony, Ph.D.

## Healthcare Between Japan, Switzerland, and United States

Cali Deane Gore

The health care systems in Japan, Switzerland, and the United States are substantially different. This paper will examine the differences between insurance accessibility in those three countries. This paper hypothesizes that health care systems that provide better access to healthcare insurance will typically perform better in terms of doctor-patient relationships, maternity benefits, and lower health care costs. Through an extensive literature review, this paper compares and contrasts Japan, Switzerland, and the United States across these three measures. Japan's and Switzerland's healthcare systems prioritize patients' needs over total annual revenue, which has led to Japan having a \$8,000 less in healthcare costs per capita compared to the United States, and Switzerland having a \$5,000 less in healthcare costs per capita. The experiences gained from Japan's and Switzerland's systems offer suggestions for how the United States might be able to improve their health care system. These suggestions include better accessibility to health insurance and different ways to lower health care costs, along with finding better ways to improve the maternity leave process.

(CAS – Political Science, Philosophy, Religion & Legal Studies)

(PLSC 490 - Michael Lipscomb)

Mentor: Lauren Kohut, Ph.D.

## A Spatial Analysis of Homicide Rates in the State of Louisiana

Lauren Norton

Over the past decade, the state of Louisiana has had the highest homicide rates in the United States. Analysis of the spatial patterning of homicide has tended to focus on urban areas, such as New Orleans and other hot spots for crime. Although this information is important, it fails to analyze other parts of the state that may suffer from disproportionate crime rates. To address this gap, this research examines the spatial patterning of homicide rates across the state of Louisiana over a five-year period (2017-2021). Hot spot analysis is used to identify areas where homicide rates are statistically more or less prevalent. These results are evaluated against social, demographic, and geographic factors such as crime location, race, ethnicity, and poverty rates. The overarching purpose of this project is to identify areas and populations disproportionately impacted by homicide in the state of Louisiana. Identifying disparities in exposure to homicide is an important step in guiding public policies to reduce homicide rates and their impacts on communities. Moreover, it could aid in expanding access to resources for victim's families and victims of related crimes.

(CAS – Chemistry, Physics, Geology & the Environment)

(GEOG 501 - Lauren Kohut)

Mentor: Lauren Kohut,  
Ph.D.

## Sustainable Chain Clothing Brands and How It Relates to Census Demographics

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

### Brooke Werts

As environmental issues become more widely known, the urge to shop more sustainably is becoming more popular. Large brands are making changes to be more sustainable in order to help our environment. Prior research has shown that certain demographics are more likely to shop sustainably, including middle-aged adults, college-educated individuals, and those with higher incomes. My goal is to see if there are relationships between demographics, such as age and income, and sustainable big clothing brands. Sustainability ratings are sourced from "Good On You," a social impact business focused on the fashion industry. Good On You rates the sustainability of clothing brands based on publicly reported information from companies and considers sustainability across three domains: people, the planet, and animals. These issues are then weighted equally to make an overall rating. To research this, I mapped clothing stores in the greater Los Angeles area and their sustainability rating. The spatial patterning of clothing brand sustainability is evaluated against social, demographic, and economic data. This is important to see if there are any relationships with shopping sustainably and age or income. With the information from this project, I hope to see what kind of area higher ranking sustainable clothing store are in. This can be important to see the kind of demographics are shopping at these places.

(GEOG 501 - Lauren Kohut)

Mentor: Veronica  
Ahadzie, Ph.D.

## Dynamics of Gun Ownership Between LGBT and Heterosexual Marriages

(CAS – Sociology,  
Criminology, &  
Anthropology)

### Malaki Watson

Most studies on gun ownership in the US have focused on the vulnerability of white, heterosexual, and cisgender men in relation to violence. Little is known in relation to the vulnerability of LGBT families and how that influences their gun ownership. This study fills in the knowledge gap by determining the relationship between weapon ownership in LGBT and heterosexual marriages. Based on that, this study uses the General Social Survey data to examine the gun ownership patterns of individuals in LGBTQ and heterosexual marriages. Findings show differences in gun ownership rates among LGBT and heterosexual households. In conclusion, this study adds to our knowledge of how one's sexual orientation influences their decisions about gun ownership.

(SOC 516 - Veronica  
Ahadzie)

Mentors: Michael  
Lipscomb, Ph.D.; Jennifer  
Disney, Ph.D.

## Higher Education with Political Implications: An Analysis of the Political Composition of Winthrop Students

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

### Zachary Ray Ligon

This capstone project addresses the political demographics of Winthrop University's current student body. I will be referencing data on the compositions of political leanings present in the student body in the hopes of comparing with other published surveys on the political demographics of other similarly sized colleges and universities. This focus is important for two reasons: first, to see how the student body compares statistically with the political demographics of other similarly sized colleges and universities in the United States, and, second, to examine the changes in the political leanings of young adults since 2004 in the hopes of seeing if any significant changes in political demographics of young adults have occurred. The paper is divided into four sections. The first two sections will examine the very narrow political spectrum that the United States operates around and test my hypothesis, "higher education within the United States, in particular colleges and universities, skew vastly towards the left in terms of political demographics." Sections three and four consider changes and continuities in the political leanings of young adults in the United States since 2004. The last two sections of the paper address the hypothesis, "an increasing number of young adults attending colleges or universities identify as leaning more right of center."

(PLSC 490 - Michael  
Lipscomb)

Mentors: Kelly Ozust,  
M.F.A.; Gabrielle Tull,  
M.F.A.

## Behind the Barries

(CVPA – Theatre & Dance)

### Morgan Kyla Belton

The general topic of my research is the physiological response of not being able to express vulnerability from past experiences of hurt and pain. After these experiences, people start to build barriers to protect themselves. My research stems from the book "The Body Keeps the Score" and this book made me realize the central problem. The central problem is the amount of barriers that can create a false sense of safety. In this generation, there is a new level of emotionless behavior. It is important to address this topic because of the misleading narrative of impassive behavior that social media and other influences portray towards young minds. I had conversations with my dancers before I began choreographing for my piece. I was interested in learning more about their individual lives and experiences. Along with their experiences, I also used my own help to create a baseline of where I should start. Following my personal story and everyone else's, I read a poem I had written about being emotionally inaccessible due to past events. Additionally, I had them improvise to various soundtracks while feeling various emotions. Disorientation, annoyance, rage, depression, and acceptance are some of the feelings that were meant to be portrayed in their dancing. Through all this research, I have been able to educate myself and learn that vulnerability is not a weakness. Vulnerability is about resilience and strength. This visual of vulnerability needs to be shared with young minds.

(DANT 301 - Kelly Ozust)

Mentor: Amy Clausen,  
Ph.D.

(CESHS – Counseling,  
Leadership and  
80Educational Studies)

(EDUC 495 - Amy Clausen)

## **Enhancing Academic and Behavioral Skills Through Social Emotional Learning: Interventions for Young Children with Autism**

**Emma C. Fogle**

There is a necessity for effective interventions within educational settings for students with ASD. This proposal aims to investigate the effectiveness of social-emotional learning interventions in academic and behavioral outcomes for young children with autism in school settings. This research aims to observe and analyze the academic and behavioral behaviors of young children with autism in a school setting, focusing on the implementation of social-emotional learning interventions. The study seeks to assess the impact of SEL interventions on enhancing socio-emotional competence, academic engagement, and reducing challenging behaviors among children with autism. The research will be conducted in collaboration with a field classroom as part of a severe disabilities course. Observations will be made on children with autism during structured learning activities incorporating SEL interventions. Data collection will involve systematic observation of academic engagement, social interactions, emotional regulation, and challenging behaviors. Qualitative analysis will be employed to identify patterns and themes in observed behaviors. The study expects to provide insights into the effectiveness of SEL interventions in promoting socio-emotional competence and improving academic and behavioral outcomes for young children with autism in school settings. Additionally, it aims to identify key factors contributing to the success of these interventions and highlight areas for further research and improvement. Understanding the impact of SEL interventions on young children with autism is crucial for developing inclusive educational practices that support their socio-emotional development and academic success. This study aims to inform educators and policymakers about effective strategies for supporting children with autism in school settings.

Mentor: Kelly Ozust,  
M.F.A.

(CVPA – Theatre & Dance)

(DANT 301 - Kelly Ozust)

## **Supported Struggles**

**Czarkaveus O'Neal**

The general topic of my research is the support systems one needs when dealing with their mental and emotional health. The central problem that my research addresses is that in today's society having any mental ailment is seen as taboo and just brushed aside or rather ignored completely. People with these ailments are told to rise up and get over it but can one do that without a support system that really is there to better their health? It is important to address this so that viewers are made aware that anyone can be suffering through these ailments. My goal with this piece is to cause the viewers to be more active in their support of their friends or family members. Studies have shown that social ties are a survival mechanism. We need friends to make us feel safe, supported, and loved. Data from 148 of these studies has shown that people with stronger social and personal connections are 50% more likely to survive. The main driving factor behind my movement would come from my dancers and I's own experiences with the topic. As someone suffering with my own mental ailments, I figured having a safe and welcoming atmosphere would help get the creativity flowing with this piece. Through improvisation and collaboration with the music, the movement for this piece will represent some internal struggles with the weight of those struggles being shared between every dancer in the piece.

Mentor: Kelly Ozust,  
M.F.A.

(CVPA – Theatre & Dance)

(DANT 301 - Kelly Ozust)

## **My Test(Ty)Ment: An Ode to Womanhood**

**Tymia Lamb**

For my research I decided to expand on the intricate details of womanhood and explore these details in the storytelling movement. To portray this idea I felt it would be best to share my personal experience, my dancers personal experiences, and experiences I have heard about from women. The reason I feel like this piece was a story that needed to be told, is because we are in a time where women are trying to be controlled now more than ever, whether that be mentally, physically and even emotionally. A major example of this would be the most recent overturn of Roe v Wade. Employing contemporary movement, the piece seeks to encapsulate the transient essence of womanhood, depicting it as a dynamic and ever-evolving entity. Along with this, another driving force for the piece which pushes forward my ideas would be picking and editing the music to help portray the story and ideas from my head to the stage. The dancers symbolize the diverse responsibilities and societal expectations placed upon women, while the choreography interweaves themes of strength, vulnerability, resilience, fragility, and various other facets that contribute to the intricate beauty of womanhood. The movements exhibit a smooth transition between moments of reflection and empowerment, emphasizing the duality inherent in the female experience.

Mentor: Michael  
Lipscomb, Ph.D.

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(HONR 490)

## **U.S.-Eurasian Relations and Great Power Competition: Can a Second Cold War Be Avoided?**

**Joshua T. Simon**

Following the end of the Cold War, the United States enjoyed a period of unprecedented military and economic dominance. However, 33 years later, rhetoric of a new Cold War is common. This project explores US-Eurasian relations through a comparative study of the critical relationships between their respective foreign policy concerns. In particular, this paper focuses on the global rise of the Peoples' Republic of China (PRC) and Russia, and the way the power of these countries has affected United States (US) foreign policy culture. While the US is focused on its global prospects, Russia and China have focused on and found common ground regarding regional security concerns. While the PRC and Russia have gained influence in regional interests, the US' influence has decreased. This re-emergence of powerful economic and security blocs outside of US control could be the beginning of a new Cold War. This thesis argues that US market competition has come into conflict with Russian and Chinese desires to deal with policy issues in an independent, self-determinant way.



Mentor: Lauren Kohut,  
Ph.D.

## Using GIS to Target HIV Prevention and Care Resources in the Greater Charlotte Area

Dyron J. Clark Jr.

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(GEOG 501 - Lauren Kohut)

It is estimated that 13% of people with HIV in the US do not know about it. These rates are highest amongst minoritized populations and those with less access to healthcare. Access to testing and other public health measures are crucial for diagnosing, treating, and limiting the spread of HIV. In this project, I use census data and Geographic Information Systems to identify areas in the greater Charlotte, NC, metropolitan area that have a greater likelihood of underdiagnosis. This study uses social and demographic data alongside access to treatment facilities to identify areas at greatest risk for underdiagnosis. Key socio-demographic characteristics considered include age, gender, race, income, education level, and healthcare access. These results are mapped in relation to the location of existing HIV healthcare services and outreach facilities to assess disparities in access to important health resources. In doing so, this project aims to increase HIV/AIDS awareness and diagnosis rates in the greater Charlotte region in order to reduce the disease's burden and promote equitable access to healthcare services for diverse populations. Overall, this research provides crucial insights for public health officials, healthcare professionals, and community organizations.

Mentor: Michael  
Lipscomb, Ph.D.

## Global Defense Policy Changes Post 2022

Matthew Goeldi

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Michael  
Lipscomb)

The return of state-on-state warfare in Europe with the Russian invasion of Ukraine in 2022 has sent shockwaves throughout the global system. The impacts from Russia's decision to launch this invasion have been felt around the entire world, and the impacts it will have in the long term are not yet determined, but there are short-term effects that we can see today. A decoupling of western nations from the Russian hydrocarbon market has been one of the more eye-catching headlines attributed to the invasion, especially in the wake of the explosion of Nord Stream 2. As a result of these events, this research hypothesizes that most nations with significant relations or proximity to Russia would seek to distance themselves from her. Through an extensive literature review, this research has found that different states have responded to Russian aggression in various ways: 1) strengthening existing alliances with other world powers in the case of Japan and Germany, 2) bolstering their own domestic capabilities to become less reliant on Russian imports such as India seeks to do, and 3) in the cases of Finland and Sweden, abandoning decades or centuries of neutrality and non-alignment. All of these responses can be understood as hostile or defensive reactions towards the Russian Federation's recent actions.

Mentor: Josephine  
Koster, Ph.D.

## The Adventures of Sherlock Holmes and His Questionable Detective Skills

Rebecca C. Walton

(CAS – English)

(ENGL 310 - Josephine  
Koster)

The greatest detective known is Sir Arthur Conan Doyle's fictional detective Sherlock Holmes. Throughout the many years since his first appearance in 1887, the beloved detective has quickly risen in popularity all around the world. While there have been many volumes written by Doyle himself, there have also been film adaptations. One of the more popular ones is the BBC version titled *Sherlock* which stars Benedict Cumberbatch as Sherlock Holmes and Martin Freeman as Dr. John Watson. The common thread connecting the literature and films is Sherlock Holmes's investigative techniques and his lack of ability to interview witnesses. Holmes's techniques were analyzed based on psychological articles by researchers who explored how questions can affect the recall of eyewitnesses, memory and cognition, and the mental health of eye witnesses. Some of these researchers helped to set up the framework for the science of investigation that is used by real detectives. The analysis of Sherlock extended from Doyle's original works to episodes from the BBC's *Sherlock*. There was also an analysis of why fictional detectives might use different techniques compared to real detectives. All of this ultimately led to the argument about whether or not Sherlock being fictional affects who he is as a character. It was concluded that just because Holmes is fictional does not mean that he gets a pass at being a bad detective with unethical techniques. While there are moments when Sherlock presents himself as a worthy detective, it does not outweigh his overall methods and abilities.

Mentor: Kelly Ozust,  
M.F.A.

## It's All in Your Head

Hannah G. Hayman

(CVPA – Theatre & Dance)

(DANT 301 - Kelly Ozust)

The general topic of my research is about the complexities of anxiety, and how it affects the person struggling with the illness. The central problem that my research addresses is that people struggling with anxiety are often overlooked and told that "it's all in their head". These people often don't get the help that they need and have to fight this battle all on their own, feeling trapped in their own mind. It is important to address this topic so that viewers can gain insight to what occurs in the anxious mind. It is my belief that there's a misunderstanding when it comes to mental health. It is not until one experience the issue for themselves or is educated on the issue that they can understand what really goes on in the mind. Through reading articles, analyzing the different characteristics and factors relating to anxiety, gaining insight on different experiences, and taking note of my own experiences, I have been able to educate myself on multiple perspectives within my chosen topic. With this I was able to explore what anxious thoughts may look like in a physical form. Through discussion with my supportive cast, and collaborating with Music Tech Major, Joshua Frye, to create the composition for this piece, I am able to create material that can give people struggling with mental health a voice and educate others on the reality of anxiety.

Mentor: Michael Lipscomb, Ph.D.

(CAS – Political Science, Philosophy, Religion & Legal Studies)

(PLSC 490 - Michael Lipscomb)

## Russian Foreign Policy Under Putin: A Byproduct of Western Influence

Gabriel Ivan Bradley Powell

Since 1999, Vladimir Putin has molded Russia into his own image, changing Russia's domestic and foreign policy to combat Western hegemony. Since the fall of the USSR was in Putin's eyes the greatest catastrophe of the 21st century, he has aimed to rebuild the power of the Russian people. His grasp for power has been threatened by institutions such as NATO, which he has used to justify his recent actions in Ukraine. Although these actions are recent, indicators of Putin's aggression towards the West have been showing for much longer. This paper aims to understand Russian foreign policy under Putin as a byproduct of foreign policy of the West and particularly the US, Russia's primary competitor for power. The paper looks at Russian culture to complement the foreign policy. The research entailed an analysis of different policies and historical events to understand the reactions of both Western governments and Russia as part of a dynamic interaction and leads to the conclusion that Putin's policies can best be understood as a set of rationally understandable reactions to his perception of US policy towards Russia.

Mentor: Michael Lipscomb, Ph.D.

(CAS – Political Science, Philosophy, Religion & Legal Studies)

(PLSC 490 - Michael Lipscomb)

## Student-Athlete Viewpoints on Trans People Inclusion

Sydney Semel

This project looks at the attitudes of collegiate athletes competing in the Big-South Conference towards trans people (specifically trans women) in the athletic community. The hypothesis is that there is discrimination expressed from a majority of these athletes. Student-athletes were interviewed through voluntary video interviews, and through an anonymous questionnaire. The investigation builds on previous research that revealed Winthrop athletes have a bias against trans athletes. This research extends that previous research by surveying athletes throughout the Big-South conference. This research shows that Big South Conference student-athletes hold negative, discriminatory attitudes towards trans people. The research further revealed that male student student-athletes also tend to have negative biases against lesbian and gay communities.

Mentor: Janet Wojcik, Ph.D.

(CESHS – Physical Education, Sport & Human Performance)

(PESH 381 - Janet Wojcik)

## Exercise and Maternal Education During Pregnancy

Kiersten Gutierrez

Pregnancy and birthing can be a daunting experience for women, causing a spiral of anxiety, fear, and eventually labor interventions. Birthing classes and pregnancy exercise groups are popular, but most women do not realize the benefits that participating in preparation for birth through exercise, education of physiological changes and biokinetics, and meditation or breathing exercises can hold. Professionals, such as midwives and labor and delivery workers, can attest to the advantages these activities can have on a woman preparing for childbirth. Current research continually supports that women who participate in exercise, especially during pregnancy, are more likely to deliver vaginally, which is ideal, without pain management, and have a sense of autonomy and empowerment during labor. Educating women on pregnancy, specifically the importance of physical activity for mind and body, should be a mainstream topic with the mindset that it is an empowering experience rather than a condition or ailment. Not only are these topics important for labor and delivery but also for maternal wellbeing throughout pregnancy. Pregnant women need regular exercise for their physical and emotional health throughout pregnancy. Pregnancy can impact women with pain and disrupt day-to-day activities, but exercise can help alleviate these common issues. Teaching women the physiological and psychological changes that occur during pregnancy and giving them control over their pregnancies is crucial, as women then understand how to care for themselves as well as their developing children.

Mentor: Kiyoshi Sasaki,  
Ph.D.

Supported by SC-INBRE  
grant from the  
National Institute for  
General Medical Sciences  
(P20GM103498)

(CAS – Biology)

## Effects of Invasive Plants on Movement of Woodland Box Turtles (*Terrapene Carolina Carolina*)

### Noah Wilkes

Hundreds of these species have been identified as invasive in their new habitats, raising concern for their impacts on native resident animals. Studies on invasive plant impacts on animals have primarily focused on population or community responses. Behavioral responses of individuals remain understudied but are critical in developing an understanding of the processes and mechanisms underlying the population and community level change. To determine how the movement of the woodland box turtles (*Terrapene carolina carolina*) are affected by invasive plants, we mapped the distribution of major invasive plants in an urban forest, Rock Hill, SC) and examined the effects of invasive plants on box turtle habitat selection based on the movements of 16 individual, which were tracked with radiotelemetry from May to October 2021. Generalized linear mixed effect models showed that the probability of home range occurrence (second-order selection) declined with increasing densities of *Elaeagnus umbellata*, *Vinca major*, woody species, and herbaceous species, but not with *Ligustrum sinense*, *Microstegium vimineum*, or *Wisteria sinensis*. Within home ranges (third-order selection), the probability of individual occurrence declined with increasing densities of *E. umbellata*, *L. sinense*, *M. vimineum*, *V. major*, woody species, and herbaceous species, but not with *W. sinensis*. These results suggest that eastern box turtles avoid areas that are densely covered by invasive plants regardless of their growth forms. The avoidance of invaded patches implies that plant invasion can diminish available habitat for resident animals, thus plant invasion can have long-term impacts on population persistence.

Mentor: Veronica  
Ahadzie, Ph.D.

(CAS – Sociology,  
Criminology, &  
Anthropology)

(SOCL 516 - Veronica  
Ahadzie)

## Public's Perception on Racial Profiling in Relation to Race and Social Class

### Cierra Haynes

Racial profiling is a major issue of concern in the U.S. Many citizens have divergent perceptions of racial profiling by the police. Using the Seattle Neighborhoods and Crime data, this study examines how police treatment by class (wealthy and poor people) and race (African American and White people) influences racial profiling in the neighborhood. Correlation analysis revealed that police treatment by class (wealthy and poor people) and race (African American and White people) show significant association with racial profiling in the neighborhood. In conclusion, this study indicates that the police have different treatment of individuals based on their social class and race.

Mentor: Sangwon Sohn,  
M.S.

(CVPA – Design)

(INDS 488 - Sangwon Sohn)

## Vitality Kitchen

### Sabrina Morris

The design of interior spaces holds significant sway over the health and well-being of its occupants. Vitality Kitchen, a pioneering blend of office and restaurant, epitomizes this notion by placing a strong emphasis on sustainability, community engagement, and holistic wellness. Beyond simply serving as a place to work and dine, Vitality Kitchen strives to be a beacon of innovation and inspiration in the realm of interior design. Vitality Kitchen seeks to draw people into the office by employing a hybrid design approach that seamlessly integrates work and leisure spaces. By embracing LEED and WELL Building Standards, both the office and restaurant areas prioritize the occupants' health and well-being. This commitment is exemplified through design elements meticulously curated to enhance the overall experience. In addition to promoting physical health, Vitality Kitchen endeavors to raise awareness about the environmental impact of food choices and foster a sense of community involvement. Through its restaurant concept, it serves as an educational platform, empowering patrons with knowledge about sustainable food sourcing and ecological stewardship. By incorporating educational elements into its dining experience, Vitality Kitchen not only nourishes its patrons with wholesome food but also encourages them to make mindful choices that benefit both themselves and the planet. Furthermore, the design of Vitality Kitchen goes beyond aesthetics to create an atmosphere that nurtures the soul. Thoughtfully chosen lighting, color psychology, and biophilic design principles evoke a sense of harmony and tranquility, while sustainable materials and an inviting indoor-outdoor atmosphere further enhance the overall ambiance.

Mentor: Janet Wojcik,  
Ph.D.

(CESHS – Physical  
Education, Sport &  
Human Performance)

(EXSC 511 - Janet Wojcik)

## Exercise Program for Those with Bleeding Disorders

### Sarah Beth Walden

Bleeding disorders, such as Hemophilia or Von Willebrand's, can result in bleeding episodes in joints, which, over time, can lead to arthritis and permanent joint damage. It is important to recognize what exercises and physical activities will help strengthen muscles and joints so that one can ensure joint health and avoid debilitating side effects of bleeding disorders. Healthy muscles and joints help the body become more resilient to injury and ensure quality of life for those affected. Failure to recognize and adhere to proper and safe exercise routines can lead to hemophilic arthropathy, which is severe joint disease typically requiring joint replacement and is caused by repeated bleeding into the same joint. Developing proper technique and a consistent exercise routine coupled with prophylaxis as needed are essential to any individual affected with a bleeding disorder.

Mentor: Lauren Kohut,  
Ph.D.

## Land Management and Conservation in the Appalachian Mountains

Brady Harmon

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(GEOG 501 - Lauren Kohut)

Protected lands play an important role in conserving natural habitats, managing environmental resources, protecting native species, and maintaining spaces for outdoor recreation. The loss of natural environments has become a growing concern over the last several decades, primarily as a result of human activities such as logging, coal mining and urban development. To address these concerns many areas of land have been dedicated for the management and conservation of these natural environments. In the United States, protected lands include a broad range of designations and are managed by a diversity of federal, state, and local authorities, as well as private programs such as land trusts. This diversity in designations and management results in levels of protection that can vary significantly. The Appalachian Mountains of eastern North America includes over 14 million acres of protected and managed lands. The Appalachian Mountains face many conservation risks from human industry such as mining, logging, and urbanization. Nonhuman risks are also present, including wildfires, invasive species, and climate change. This study examines the effectiveness of the different protected land designations in the Appalachian Mountains area in mitigating conservation risks. Through this study the most effective protected land designations can be found; the reasons for each designation's effectiveness can then be determined and other designations encouraged to implement them.

Mentor: Michael  
Lipscomb, Ph.D.

## The Effect of a Person's Disability on Their Political Voice and Voter Turnout

Joshua McCutcheon

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Michael  
Lipscomb)

This paper examines the relation between someone's disability and their political voice. I have over eight years experience working with the disabled community, and it made me curious about how they fit into today's catawampus political world. In this paper, I am also looking at how a person's physical disability affects their ability to vote. So, with everything in consideration, my question is, How does a person's disability, physical or intellectual, affect their their decision and ability to vote? I hypothesize that the voter turnout rate among individuals with disabilities would be considerably lower than those without a disability. I also hypothesize that the reason for this is that government-mandated accommodations are not met. These accommodations range anywhere from polling machines that read the options aloud to accessibility ramps. The findings indicate that this is, in fact, an ongoing problem. The disabled are less likely to vote, and the polling locations do not meet the standards imposed by the federal government. The findings show that four percent of people with disabilities have trouble just making it into the polling location, compared to zero percent reported amongst people without disabilities, lending support to the hypothesis that individuals with disabilities have a significantly more difficult time just completing the task of voting.

Mentor: Lauren Kohut,  
Ph.D.

## Effects of Urbanization on Bird Populations of Mecklenburg County, North Carolina

Joseph Metcalf

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(GEOG 501 - Lauren Kohut)

As human settlements expand, wildlife is forced to adapt. Birds are one of the most common and well-adapted animals living in urban environments. This project tracks changes in Mecklenburg County bird populations over ten years to better understand how the rate of urbanization affects local wildlife. Mecklenburg County, North Carolina was chosen due to its records of tree cover changes and large population size. Bird observations were compiled from the iNaturalist, and Cornell lab databases. Observations from these databases are taken on an app by users in the area. The apps record timestamps and spatial coordinates, allowing for analysis of both temporal and spatial patterns. These patterns will be examined in relation to time-series data on tree cover made available by Mecklenburg County. Maps will be created to explain to city planners and wildlife management agencies the changes wildlife populations face. Human settlements will expand over time. Creating this map showing urbanization will allow officials visualize change over time and the best method to mitigate the negative effects on wildlife in the future.

Mentor: Sangwon Sohn,  
M.S.

## Sabi Springs Holistic Wellness Center for Young Adults Suffering with Mental Health and Well-Being

Meredith M. Carroll

(CVPA – Design)

(INDS 488 - Sangwon Sohn)

Nestled just outside Charleston, South Carolina, Sabi Springs Holistic Wellness Center draws inspiration from the Japanese aesthetic and lifestyle principles of wabi-sabi, celebrating imperfection and the beauty of natural simplicity. The center caters to young adults seeking mental health support and a sense of community. In response to the COVID-19 pandemic's impact on young adults' mental health and well-being, Sabi Springs provides a safe and nurturing environment. Its design seamlessly blends organic elements with modern functionality, incorporating natural materials like reclaimed wood and stone. Sabi Springs offers a diverse range of wellness modalities, including pilates, yoga, massage therapy, and nutritional counseling, all aimed at promoting holistic well-being. Additionally, it provides traditional therapy and specializes in psychedelic-assisted psychotherapy to support mental health. Sustainability is a core focus at Sabi Springs, with eco-friendly practices integrated into every aspect of the center's design. More than just a space for physical and mental rejuvenation, Sabi Springs serves as a community hub where young adults can connect and find support. It embraces the principles of wabi-sabi, reminding visitors of the beauty in imperfection and the importance of embracing the present moment.



Mentor: Sangwon Sohn,  
M.S.

## Lake Wylie Animal Community Center

Madison Marie Steigerwald

(CVPA – Design)

(INDS 488 - Sangwon Sohn)

Interior Design can have a huge impact on the way we interact and feel within spaces. Like humans, animals want comfortable places to sleep and to feel secure, which contributes to how they behave when they interact with humans. Research has shown that there are several factors that can greatly affect users of a space. When it comes to animal facilities its important to consider how lighting, acoustics and air circulation will affect not only humans but the animals who live within its walls. The goal of The Lake Wylie Animal Community Center is to not only to provide a place for more homeless animals to get adopted and receive care but to provide a place the community can come support these animals. Animal shelters operate solely on the community's volunteers and donations. This center will be a place that produces funding within itself by offering a cat café, doggy yoga, a supply store, and veterinary care. These spaces will invite in not only pet owners and those seeking pet ownership but those who maybe cannot own pets but still enjoy their presence

Mentor: Lauren Kohut,  
Ph.D.

## Tornados and Climate Change

Kamron Hill

(CAS – Chemistry,  
Physics, Geology & the  
Environment)

(GEOG 501 - Lauren Kohut)

Research has shown that extreme weather events are starting to become more common due to climate change. This is due to the El Nino/Southern Oscillation. These patterns are reasonable for the variability in the weather. As we track weather patterns over time we have noticed an increase in frequency in extreme weather events and their intensity. These can lead to an increase in people moving from areas in order to escape these events.

Mentor: Sangwon Sohn,  
M.S.

## Constance Billard Montessori Academy

Riley M. Rogers

(CVPA – Design)

(INDS 488 - Sangwon Sohn)

This senior thesis project responds to the lack of accessible, high-quality childhood education in Greenville County by creating an innovative and immersive environment inspired by Maria Montessori's holistic methodology. Montessori's approach, renowned for its emphasis on self-directed growth and respect for each child's natural curiosity, serves as the foundation for this initiative. The envisioned Montessori Academy seeks to provide children with transformative experiences that shape their development through learning, exploration, and growth. Spaces within the academy are designed to encourage community interaction, instill fundamental life skills, and promote a healthy lifestyle through incorporation of natural elements. Emphasizing multifunctionality, these spaces facilitate continuous learning from both peers and environment. Moreover, environmental consciousness is paramount in the design process, with sustainability, green design, adaptive reuse, color psychology, and environmental psychology principles integrated to create a holistic learning environment. By prioritizing such principles, the academy not only enhances the educational experience but also fosters a deeper connection to and responsibility for the world around them.

Mentor: Tony Hobert,  
Ph.D.

## The Projected Legitimacy of Qualified Immunity

Terry Millett

(CAS – Political Science,  
Philosophy, Religion &  
Legal Studies)

(PLSC 490 - Michael  
Lipscomb)

In 1871, President Ulysses S. Grant requested Congress to create a statute so he could intervene on the violations of African Americans' constitutional rights. This statute, passed as the Klu Klux Klan Act, later became known as Section 1983 when it was adopted into the US Code as a non-positive law. Section 1983's wording was changed to be made more concise in 1874; this process explicitly retained the original meaning of the law. The Supreme Court of the United States ruled in *Pierson v. Ray* (1967) utilizing the version of Section 1983 found in the US Code where they failed to incorporate the original, legal version of the statute. SCOTUS held that because Congress did not explicitly state in Section 1983 that the law abrogated common law immunities, Congress must have meant to implicitly adopt them. In *Pierson*, SCOTUS effectively created both qualified and absolute immunities to constitutional provisions. Recent scholarship discussed the original text of Section 1983 and how it included a clause that specifically abrogated such immunities. SCOTUS, despite citing this clause in cases before *Pierson*, chose to proclaim such a clause did not exist and that its absence is proof of their decision; this paper demonstrates the intention behind SCOTUS' convenient omission.

# Eagle STEM Scholars Program

Winthrop University's Eagle STEM Scholars Program merges the campus's commitment to undergraduate research and promoting the success of students from groups that have been historically underrepresented in the sciences. Biology, chemistry, computer science, environmental science, and math majors receive the academic support and research training needed to pursue graduate studies in either health professions or life sciences. Student support services are modeled after the nationally acclaimed Meyerhoff Scholars Program at the University of Maryland, Baltimore County, and employ the nation's best practices in STEM training and student retention (e.g., an intensive summer bridge experience, rigorous curricula in science and mathematics, academic monitoring, intramural and extramural research experiences, and career guidance). Since its inception, the program has served 174 Winthrop students. Eagle STEM Scholars have successfully competed for top positions in graduate and medical programs, with Eagle STEM alumni at universities such as Alabama, Auburn, Clemson, Duke, Emory, Florida, Georgetown, Georgia, Marshall, Maryland, Nebraska, North Carolina, Notre Dame, Pennsylvania, Pittsburgh, South Carolina, Temple, Virginia Commonwealth, Virginia Tech, UCLA, UCSF, and the Medical University of South Carolina.

Eagle STEM Scholars are recruited to Winthrop based on their outstanding academic performance and potential to pursue graduate degrees. Each year, the Eagle STEM Advisory Board selects the members of each cohort. These incoming freshmen take full advantage of the program and later distinguish themselves as winners of national awards.

We are grateful for the support of the Advisory Board, the research mentorship by Winthrop faculty, and the ongoing support of the broader Winthrop community for this excellent program.

Scholars that submitted abstracts on their work for inclusion in this compilation:

<b>2023 Cohort</b>	<b>2022 Cohort</b>	<b>2021 Cohort</b>	<b>2020 Cohort</b>	<b>2019 Cohort</b>
Chisolm, Chastity	Atkinson, Alexis	Fogle, Jada	Helms, Sydney	Gebbia, Alexandra
Duncan, Hannah	Bowers, Abby	Lyons, Sydney	Miller, Courtney	
Green, Kalli	De Castro, Juan	Umemoto, Emi		
Johnson, Amari	Ellis, Kamari	White, Jamia		
Tomlin, Gwendolyn	Kuehn, Be			
	Little, Kaylyn			
	Peralta, Lidia			
	Phu, Julianne			
	Ryerson, Elizabeth			
	Scott, Maya			

## **2023-2024 Eagle STEM Advisory Board:**

### **Amanda Cavin**

Eagle STEM Director

### **Jason Hurlbert**

Eagle STEM Assistant Director

### **Victoria Frost**

### **Jennifer Schafer**

Biology Department Representatives

### **Kathie Snyder**

Chemistry Department Representative

### **Marguerite Doman**

Computer Science Department Representative

### **Scott Werts**

Dalton Endowed Chair of Environmental Sciences and Studies

### **Tom Polaski**

Math Department Representative

### **Takita Sumter**

Dean of the College of Arts & Sciences

# McNair Scholars

The Winthrop University McNair Scholars Program prepares outstanding first-generation college students from low-income families and undergraduates from underrepresented racial and ethnic backgrounds to be successful in doctoral programs. Services include a summer research internship, workshops, graduate admissions test preparation, graduate school application support, interview guidance, travel to present research and explore graduate programs, and more. Winthrop's program is funded through 2028 by its fourth multi-year, renewable TRiO grant from the U.S. Department of Education. \$272,364 in federal funding is provided each year for programming, staff, and materials that will help 30 eligible students complete high-quality research and prepare for doctoral study. This represents 74% of program costs. Winthrop contributes the remaining 26% of the budget in cash and in-kind matches.

Being a McNair Scholar is a prestigious, nationally recognized honor. Scholars are actively recruited by graduate schools across the country because of their intensive research experiences and preparation for graduate study. Our program boasts 30 doctors so far. Alumni are currently completing PhDs at prestigious universities around the country including Alabama, California, San Francisco, Colorado State, Florida, Illinois, North Carolina, Notre Dame, University of the Carolinas, and the U of SC. Each year, the twelve-member Winthrop McNair Advisory Board selects new Scholars through a highly competitive application and interview process. Please visit <http://www.winthrop.edu/mcnair> to learn more.

In addition to the director and faculty mentors, the following staff support the Scholars' research and graduate admissions efforts before, during, and after the summer research experience.

**Stephanie Bartlett**, Writing Coach

**Dr. Matt Hayes**, Statistics and Methods Coach

**Shyanne Hamrick**, 2024 Graduate Associate, and **Madison Bray**, 2023 Graduate Associate

**Amanda Cavin, Director**, Eagle STEM Program, McNair Programming Coordinator, and Winthrop McNair Alumna

## 2023-24 Advisory Board

**Michelle Aguilar-Gaspar**

McNair Senior, Biology Major

**Dr. Victoria Frost**

Associate Professor, Biology

**Rose Gray - Director**

TRiO Achievers Program

**Dr. Wenonah Haire**

DMD; Executive Director of the Catawba Cultural Preservation Project

**Dr. Jason Hurlbert**

Professor, Chemistry, Physics, & Geology, & the Environment

**Dr. Joanna Jackson**

Associate Professor, Management & Marketing

**Dr. Willis Lewis**

Professor, Economics

**Dr. Nicholas Moellman**

Assistant Professor, Economics (Univ. of Oklahoma McNair Alumnus)

**Dr. Tenisha Powell**

Professor, Early Childhood Education and Human Development and Family Studies  
Program Director (NC A&T McNair Alumna)

**Dr. Karen Stock**

Professor, Fine Arts

**Dr. Janet Wojcik**

Professor and Exercise Science Program Director

**Dr. Cheryl Fortner (ex-Officio)**

Director, McNair Scholars Program and Professor, Psychology

**Dr. Leigh Poole (ex-Officio)**

Interim Dean of University College, Director of the International Center and  
Assistant Professor PDSO/RO

**The following students completed the 2023 Winthrop McNair Summer Research Experience with the exceptional support of their faculty mentors.**

Each Scholar presented their findings at the Winthrop McNair Research Symposium in conjunction with SURE and at the annual meeting of the Southeastern Association of Equal Educational Opportunity Program Personnel in Atlanta.

**Michelle Aguilar-Gaspar**, Mentor: Dr. Daniel Stovall  
The Role of Promoter Methylation in Regulating RYBP Expression in Glioblastoma Cells

**Skyler Allen**, Mentor: Dr. Michelle Aaron Livek Garner  
Art Therapy Minded Interventions as a Means for Restorative Classroom Management

**Leliana Bohanan**, Mentor: Dr. Salvatore Blair  
Effects of Titanium Dioxide Nanoparticles on Goldfish Upper Thermotolerance

**Ryan Carr**, Mentor: Dr. Joanna Jackson  
The Use, Benefits and Satisfaction of Electronic Health Records for Healthcare Managers in Mental Health Facilities.

**Morgan Dukes**, Mentor: Dr. Nicholas Grosseohme  
Exploring the Impact of Cadmium (II) on the Function of the Troponin Protein Complex

**Be Kuehn**, Mentor: Dr. Jason Hurlbert  
Investigating the Function of DUF 3310 Containing Mycobacteriophage Gene CAIN55

**Maryah Lance**, Mentor: Dr. Joni Boyd  
Exploring the Impact of Movement on Mood

**Rachel Layens**, Mentor: Dr. Hope Lima  
Impact of Multiple Freeze/Thaw Cycles on Nutritional Integrity of Human Milk

**Abby Mervine**, Mentor: Dr. Zach Abernathy  
Time Series Forecasting Models for Local Light Pollution

**Morgan Moore**, Mentor: Dr. Joanna Jackson  
Effects of Structural Racism and Discrimination on Black College Students in Gynecological Health Decision-Making

**Julianne Phu**, Mentor: Dr. Timea Fernandez  
Fabrication of gold-nanoparticle-ampicillin conjugate as drug delivery vehicles against E. coli

**Carrie Vaughn**, Mentor: Dr. Jennifer Disney  
The Implications of the Straight-Ticket Voter Option (STVO) on Residual Voting: A Comparative Study Using Gaston County, NC and York County, SC

**Jamia White**, Mentor: Dr. Nicholas Grosseohme  
The Dimerization of RitR Under Stable Oxidation Conditions



# Office of Nationally Competitive Awards (ONCA)

Winthrop University's Office of Nationally Competitive Awards (ONCA) identifies and assists highly motivated and talented students in applying for nationally and internationally competitive awards, scholarships, fellowships, and unique opportunities, both at home and abroad. ONCA supports students by gathering and disseminating award information across the campus community, and serves as a one-on-one resource for students, faculty, and staff throughout the nationally competitive award nomination and application process. Our office is here to come alongside Winthrop University students during the difficult and rewarding challenge experienced when applying for some of the most prestigious scholarships in the nation and the world. Award nominees and winners for 2023-24 will be posted at <https://www.winthrop.edu/onca/award-winners.aspx>.

Whether or not our students “win,” the process of personal reflection involved when completing applications for a nationally competitive award often transforms a student's self-awareness and confidence as they transition to the competitive processes of landing the right job or acceptance into graduate school. When scholars apply for these prestigious awards, they spend countless hours writing and revising personal statements, proposals, essays, resumes, and paragraph length answers to challenging “short answer” questions. We are very proud of each Winthrop student who enters these competitive processes for highly sought-after scholarships and fellowships.

For our outstanding Winthrop students “who dare to” strive for challenging adventures and awards, ONCA and University College want to acknowledge and applaud your hard work and say how much we enjoyed having the opportunity to work with you this year. ONCA also relies upon so many members of the Winthrop University community to encourage these applications, recommend a student for ONCA, promote ONCA opportunities to students, or host an ONCA presentation in their classroom or an organization's meeting. Competitive scholarship and fellowship applications often require members of Winthrop faculty and administration to invest time and attention as they prepare detailed letters of recommendation. Carefully constructed words of praise often result in two- to three-page letters that vividly describe from personal experience the outstanding character and persona of a Winthrop student, their capabilities, and their potential. For going that extra mile with your time and effort, your students and I thank you.

**LeeAnn Pounds, JD, MA**

Director, Office of Nationally Competitive Awards

## AWARD NOMINEES AND WINNERS, 2023-2024

**Benjamin A. Gilman International Scholarship:** The U.S. Department of State's Benjamin A. Gilman International Scholarship Program enables students of limited financial means to study or intern abroad, up to \$5,000 per semester, providing them with skills critical to our national security and economic prosperity.

**Winthrop University Winner: Austin Turley**

**Winthrop University Winner: Ty'teona Shannon**

Winthrop University Nominee: McKynzie Bailey

Winthrop University Nominee: Alexis Becht (award pending)

Winthrop University Nominee: Sarah Countiss (award pending)

Winthrop University Nominee: Noemi Gaitan

Winthrop University Nominee: Katelyn Kirk (award pending)

Winthrop University Nominee: Lily Meisten (award pending)

Winthrop University Nominee: Silvia Quiroz Velasquez (award pending)

**Benjamin A. Gilman Critical Need Language Award:** Applicants who are studying a critical need language while abroad can apply for a supplemental award of up to \$3,000, for a combined total of \$8,000. The Critical Need Language Award is competitive and offered to a limited number of Gilman scholars each year.

Winthrop University Nominee: McKynzie Bailey

Winthrop University Nominee: Alexis Becht (award pending)

**Benjamin A. Gilman Foreign Policy in Focus:** Global Food Security: Gilman Alumni can apply to participate in a hybrid program where they attend virtual seminars and then one of four in-person follow-on seminars taking place in Washington, DC, Colombia, New Zealand and Zimbabwe. The in-person seminars will offer concrete examples of global food security policies, challenges and careers.

Winthrop University Nominee: Logan Pender (award pending)

**Bridging Scholarship:** The Association of Teachers of Japanese Bridging Project offers scholarships to American undergraduate students participating in study-abroad programs in Japan. Bridging Scholarship recipients receive a stipend of \$2,500 for semester programs or \$4,000 for academic year programs.

Winthrop University Nominee: Nicole Curtis (award pending)

**Freeman Asia:** Freeman Awards for Study in Asia (Freeman-ASIA) provide scholarships for U.S. undergraduate students with demonstrated financial need to study abroad in East or Southeast Asia.

Winthrop University Nominee: Alexis Becht (award pending)

**Fulbright Award for Teaching English Abroad:** Among the most widely recognized academic honors, Fulbright awards provide support for graduate students and young professionals to teach English abroad. Awards include full grants for an academic-year teaching assistantship in English.

Winthrop University Nominee: Ashunti Ishmell

**Fund Education Abroad Scholarship:** FEA was established in 2010 to address the need for an independent study-abroad scholarship provider. FEA is expanding access to study abroad by raising awareness of its benefits to the individual and value to the collective, and by granting scholarships of up to \$10,000.

Winthrop University Nominee: Rachel Burroughs

Winthrop University Nominee: Sarah Countiss

Winthrop University Nominee: Lily Meisten

Winthrop University Nominee: Ty'teona Shannon

**Gaither Junior Fellows Program at Carnegie:** This program provides an opportunity for approximately 14 students who desire careers in international affairs to have a substantive working experience in Washington, D.C. Junior Fellows serve as research assistants to scholars working at the Carnegie Endowment for International Peace.

Winthrop University Nominee: Shivani Dahya

**Going Abroad Scholarship:** This scholarship's mission is to help students travel and experience the world. Since 2017, they have helped young travelers get out there and get going. Twice a year, two outstanding students will win \$1,500 scholarships towards their upcoming study abroad program.

Winthrop University Nominee: Kit Crosby (award pending)

**Goldwater Scholarship:** By providing scholarships to college rising juniors and seniors who intend to pursue research careers in the natural sciences, mathematics, computer science, and engineering, the Goldwater Foundation is helping ensure that the U.S. is producing the number of highly qualified professionals the nation needs in these critical fields.

Winthrop University Nominee: Alli Brophy

**Hope for Healing Scholarship:** The Hope for Healing Scholarship is a \$5,000 offering awarded to two recipients annually. The purpose of the scholarship, awarded to one undergraduate and one graduate student each year, is to encourage more of America's best and brightest to pursue a vocation in the field of addiction and mental health.

Winthrop University Nominee: Eliza Ackerman

**ISA Diversity Scholarship:** Study Abroad program provider offers a scholarship intended for students with identities historically underserved in education abroad to assist with the cost of Service-Learning placements designed to meet the needs of the local community while developing skills relevant to the participant's field of study.

Winthrop University Nominee: Sarah Countiss (award pending)

**Jay Holstine STEM Scholarship:** The Jay Holstine STEM Scholarship supports STEM students who are eager to learn and succeed with three scholarships for those demonstrating economic need to complete their education and excellent academic records.

Winthrop University Nominee: Lily Meisten

**Korea National Assembly Exchange Program:** This Exchange Program, sponsored by the U.S. Department of State and the Republic of Korea National Assembly, broadens the perspectives of Korean and American young people on: the legislative process, the history of U.S. - Korean relations, and current economic, political, and security aspects of the bilateral relationship with a U.S. delegation of eight American students made up of young adults between the ages of 21 and 27, selected through a competitive application process.

Winthrop University Nominee: Logan Pender (award pending)

**Pat Tillman Foundation Scholarship:** The Tillman Scholars program supports our nation's active-duty service members, veterans and military spouses by investing in their higher education. The scholarship covers educational expenses, including tuition and fees, books and living expenses. The program unites the best talent and leadership in the military to make a significant impact in the fields of medicine, law, business, policy, technology, education and the arts.

Winthrop University Nominee: Jeremiah Barwick

Winthrop University Semi Finalist: Chazz Velez

**Phi Kappa Phi Graduate Fellowship:** Every year, the Honor Society of Phi Kappa Phi awards 50 Fellowships of \$8,500 each, six of \$20,000 each, and two of \$35,000 to members entering the first year of graduate or professional study. Each Phi Kappa Phi chapter may select one candidate from among its local applicants to compete for the Society-wide awards.

Winthrop University Nominee: Morgan Moore (award pending)

**Phi Kappa Phi Study Abroad Scholarship:** Phi Kappa Phi Study Abroad Grants are designed to help support undergraduates as they seek knowledge and experience in their academic fields by studying abroad. One hundred twenty-five \$1,000 grants are awarded each year.

Winthrop University Nominee: Kit Crosby (award pending)

Winthrop University Nominee: Nicole Curtis (award pending)

Winthrop University Nominee: Lily Meisten (award pending)

**South Carolina Humanities Student Scholarship:** The scholarship provides up to \$2,000 for a student who is enrolled or has been accepted to a Master's degree program with a major in a humanities discipline and will begin coursework in the following semester. South Carolina Humanities seeks to encourage students to explore humanities fields as they pursue their academic careers.

**Winthrop University Winner: Shyanne Hamrick**

**Tortuga Backpack Study Abroad Scholarship:** The Tortuga Study Abroad Scholarship is a \$1,000 scholarship awarded biannually to passionate students who want to explore the world.

Winthrop University Nominee: Rachel Burroughs

Winthrop University Nominee: Alexis Becht (award pending)

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