

University College—soon to be the Office for Student Success—and Winthrop University are proud to present Undergraduate Scholarship and Creative Activity 2025. This fourteenth annual, university-wide compilation highlights the outstanding achievements of undergraduate students and their faculty mentors across the institution. The exceptional work featured within these pages spans nearly every academic department and reflects the diverse scholarly and creative pursuits within all five colleges: the College of Arts and Sciences (CAS), the College of Business and Technology (CBT), the College of Education, Sport and Human Sciences (CESHS), the College of Visual and Performing Arts (CVPA), and University College (UC).

We are confident that you will find inspiration in the breadth and depth of scholarly and creative endeavors presented within these pages. Each project represents a distinct academic journey—emerging from coursework, co-curricular initiatives, or independent inquiry—and supported by a range of internal and external funding sources. Winthrop students have shared their work through a variety of impressive platforms, including publication in peer-reviewed journals, presentations at regional, national, and international conferences, performances of original compositions, and participation in juried exhibitions. Regardless of its origin, each contribution exemplifies Winthrop University's mission to serve as a transformational institution. These projects highlight some of the most impactful and enriching educational experiences available to our students.

We extend our sincere congratulations to all student scholars for their significant contributions to the creation of new knowledge, the advancement of creative expression, and the cultivation of professional competencies. These achievements have positioned them to pursue nationally competitive awards, advanced academic and professional degrees, and meaningful careers in their respective fields. To our graduating seniors, we trust that these formative experiences have equipped you to enter the broader world with intellectual curiosity, a steadfast pursuit of truth, and a commitment to excellence as you assume roles of leadership and impact.

We especially wish to recognize undergraduate Marianne Jenkins, a gifted graphic design major, whose Synergy concept so perfectly captures the essence of our Showcase of Undergraduate Research and Creative Endeavors (SOURCE) and whose artistic vision is reflected throughout the design of this publication. We are also deeply grateful to Dr. Nick Grossoehme, Dean of Honors College and former Director of Undergraduate Research, for his steadfast support and technical expertise, which proved invaluable during this year's transition. Additionally, we acknowledge the many faculty members who served as mentors, coordinators, thesis readers, and reference writers. Their dedication and guidance were instrumental in fostering student success and sustaining a dynamic and intellectually rich campus environment. Finally, we extend our sincere thanks to Jess Peeples, administrative assistant in University College, for her exceptional editorial skills and vital contributions to the layout of this book and the preparations leading up to SOURCE.

We hope you find this publication both engaging and inspiring—a reflection of the synergy among students, faculty, and staff whose collective dedication and effort have culminated in a distinctive and meaningful experience. This collaborative endeavor is one we deeply value and look forward to celebrating each year.

Salvatore Blair, Ph.D.

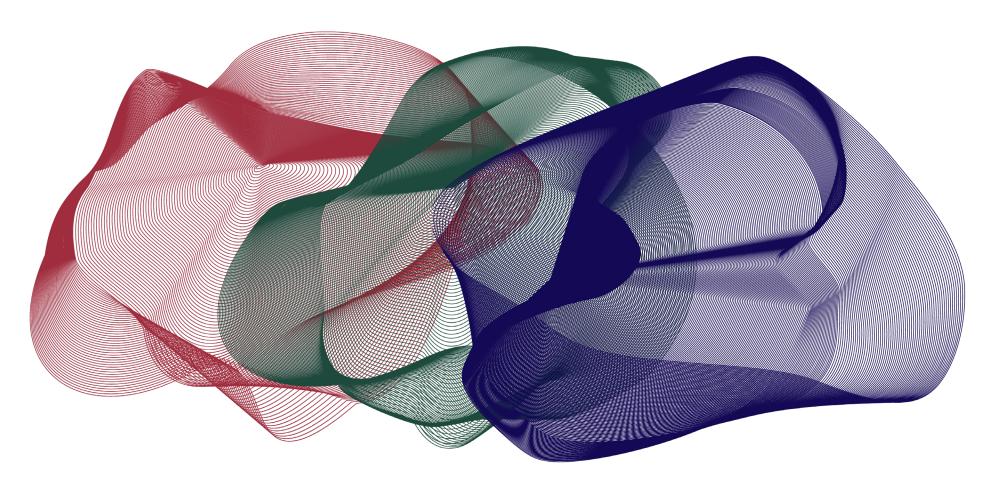
Director of Undergraduate Research

Leigh Poole, Ph.D., MBA

**Assistant Provost** 

The theme of this book, "Synergy," is meant to represent the power of students from all backgrounds, fields, and disciplines coming together to create a collective knowledge that is far greater than any individual's. The repeating, overlapping, and interconnecting lines form a unique web pattern that would be far less effective if there were gaps or fewer lines. In the same way, our community within and beyond Winthrop's campus would be far worse off without valuing every individual's contribution and significance.

#### - Marianne Jenkins



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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:**

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College of Arts & Sciences

Merry Sleigh, Ph.D.

College of Arts & Sciences

Janet Woicik. Ph.D.

College of Education, Sport, and Human

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Human Nutrition. Committee Chair

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Salvatore Blair, Ph.D. Biology

Matthew Fike. Ph.D. English

Arran Hamm. Ph.D. Mathematics

James Hanna, Ph.D.

Chemistry, Physics, Geography and the Fnvironment

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

Kristin Kiblinger, Ph.D.

Political Science, Philosophy, Religious, and Legal Studies

> Greg Oakes. Ph.D. Associate Dean

Kiyoshi Sasaki, Ph.D. Biology

William Schulte, Ph.D. Mass Communication

Aubrey Sejuit, Ph.D. Social Work

Michael Sickels, Ph.D.

Sociology, Criminology, & Anthropology

Merry Sleigh, Ph.D. Psychology

Ephraim Sommers. Ph.D. English



# **Honors Theses**

This year marks an important landmark for the Honors Program at Winthrop University – as of July 1st, 2025, the Honors Program will transition to the Honors College, an exciting new initiative founded on the principles of leadership, community, scholarship, and service. The Honors Program has been an important component of the Winthrop community 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 over 400 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.

**Advisory Committee:** 

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. J.D.

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: Donna Nelson, Ph.D.; Jeffrey Sinn, Ph.D.; Merry Sleigh, Ph.D.

SOURCE April, 2025

(CAS – Psychology)

(HONR 449H - Nicholas Grossoehme)

#### Optimism and Hope After Adversity: The Power of Strengths Anniya Mays

Adverse Childhood Experiences (ACEs) refer to traumatic or distressing events that occur during childhood, such as abuse, neglect, and poverty. ACEs exert a significant impact that extends into adulthood, increasing the risk of chronic health issues, substance abuse, and mental health conditions such as anxiety, depression, and post-traumatic stress disorder (PTSD). Although a robust literature confirms that ACEs strongly predict lasting negative outcomes, individuals who experience ACEs can show resilience and growth despite their unfavorable past. This study aims to explore whether reappraising ACEs through the lens of strengths development fosters resilience and optimism for the future. Participants completed an ACE survey and briefly wrote about their past trauma. They were then randomly assigned to a control group or an experimental group that tasked them with linking their past trauma to development of their personal strengths. Next, they completed emotion ratings and measures of benefit-finding and optimism. We hypothesized that those in the strengths intervention group would perceive more benefits from their ACEs and report greater optimism about the future. Results revealed that participants in the experimental group reported a more optimistic outlook and greater hope. These findings support the value of strengths-based interventions as an avenue for promoting resilience following childhood adversity.

A Treatment Approach to HIV using Virotherapy Alli Brophy

Human immunodeficiency virus (HIV) is a virus that spreads through contact with the bodily fluids of an infected individual. Once infected, the virus attacks the body's immune system, sometimes causing flu-like symptoms to occur. If left untreated, HIV can lead to acquired immunodeficiency syndrome (AIDS), increasing an individual's susceptibility to other serious illnesses. This weakening of the immune system has shown to be fatal, with most individuals having an expected life span of 2-10 years after infection. HIV has led to approximately 42 million deaths worldwide since the start of the HIV/AIDS epidemic. In this project, we consider the dynamics of a HIV virus under the effects of virotherapy and an immune response. We model these dynamics using a system of ordinary differential equations in which we track the populations of healthy cells, latently infected HIV cells, actively infected HIV cells, free HIV virions, natural killer immune cells, doubly infected cells, and free recombinant virions. With our model in place, we calculate basic reproductive ratios for the HIV virus and a recombinant virus, and use these ratios to establish existence and stability criteria for disease-free, single-infection, and double-infection equilibria. We utilize Lyapunov functions to prove the global asymptotic stability of the disease-free and single-infection equilibria. For the double-infection equilibrium, we explore its stability through numerical simulations and provide evidence of a Hopf bifurcation. We conclude with a discussion on the effects of using a recombinant virus to control HIV infected cell populations.

Honors Thesis Committee: Crystal Glover, Ph.D.; Joy Stapleton, Ph.D.; Shelley Hamill, Ph.D.

(CESHS - Curriculum and Pedagogy)

(HONR 451H - Nicholas Grossoehme)

#### For the Love of Expression: Understanding Expressions of Black Students in the Education World

Jayla E. Council

In this project, I will be providing information and extensive research, including personal experiences, and multiple field observations about the misinterpretation and understanding of black joy/expressions of black students in the education system. Often, when black students show their expressions of joy, it can be seen as a disruption, confusion, or weirdness of how they express themselves in a positive manner. This project will help educators understand the importance of understanding the cultural background of their black students and to provide a different and positive intake and point of view the next time they witness joyful expressions from their Black students rather than seeing it as "weird" or "indifferent".

Honors Thesis Committee: Daniel Stovall. Ph.D.; Kathryn Kohl, Ph.D.; Salvatore Blair, Ph.D.

American Society for Biochemistry and Molecular Biology, Chicago, April 2025 SOURCE Research Conference, Winthrop, April 2025

Supported by INBRE

Award for Best Poster in Stem. April 2024. Source

(CAS - Biology)

(BIOL 471 - STOVALL)

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

Lannea Brown

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. RING1- and YY1-binding protein (RYBP) 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. 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 T-98 glioblastoma cell lines with the G4-stabilizing ligands TMPYP4, PHENDC3, and Pyridostatin, along with a vehicle control. After 48 hours, we isolated and quantified RNA using the Nanodrop 2000 and subjected samples to RT-aPCR to detect differences in RYBP RNA levels. Subsequently, we examined RYBP expression at the protein level by performing protein isolation and quantification on treated and untreated cells, followed by SDS-PAGE and Western Blot. In T-98 cells, treatment with the G4-stabilizing ligands PHENDC3 and Pyridostatin, but not TMPYP4. significantly increased RYBP mRNA levels compared to the vehicle-treated control cells. However, despite the increase in mRNA, PHENDC3 and Pyridostatin surprisingly led to a decrease in RYBP protein levels compared to the DMSO-treated control cells. It is possible that G4 stabilization may increase RYBP mRNA expression, but that post-transcriptional mechanisms may compensate to suppress RYBP protein synthesis.

Honors Thesis Committee: Kristen Abernathy, Ph.D.; Zach Abernathy, Ph.D.; Trent Kull. Ph.D.

SOURCE, Winthrop University, April 2025

(CAS - Mathematics)

(HONR 451H - Nicholas Grossoehme, MATH 450H -Kristen Abernathy)

Honors Thesis Committee: Kathryn Kohl, Ph.D.; Evan Dewey, Ph.D.; Victoria Frost, Ph.D.; Daniel Stovall, Ph.D.

Supported by Research Council Grant

(CAS - Biology)

(BIOL 450H - Kathryn Kohl, HONR 451H - Nicholas Grossoehme)

Honors Thesis Committee: Crystal Glover, Ph.D.: Jov Stapleton, Ph.D.; Elke Schneider Ph D

(CESHS - Curriculum and Pedagogy)

(HONR 450H - Crystal Nicholas Grossoehme)

#### Characterization and Mapping of Mutagen-Sensitivity Gene mus311 in Drosophila melanogaster

Kaylee E. Mills

All living organisms are subject to intrinsic and extrinsic DNA damage, which, if left unrepaired, could potentially result in deleterious mutations and diseases such as cancers. DNA repair mechanisms are used to correct or overcome various types of damage, with many repair pathways being conserved between organisms including the fruit fly *Drosophila melanogaster* and humans. As such, *D. melanogaster* is commonly used in the study of DNA repair. A subset of *Drosophila* genes known as mutagen-sensitivity (*mus*) genes have been linked to DNA repair. Many of these genes. such as mus311, have yet to be studied in depth to elucidate their roles in repair. This study aimed to characterize the effects of mus311 mutations and to map the locus of this gene within the *Drosophila* genome. It was determined that flies trans-heterozygous for the two extant alleles of mus311 (i.e. mus311<sup>D1</sup> and mus311<sup>D2</sup>) are hypersensitive to the chemical agent methyl methanesulfonate. Transheterozygous mutants were also observed to be insensitive to the damaging agents hydroxyurea and camptothecin. The *mus311* gene was previously mapped between the genetic markers *scarlet* and *curled*, and this study more precisely mapped the gene between the markers pink and curled, narrowing the region from 5.3 Mb to 2.5 Mb. Interestingly, it was also determined that *mus311* mutants showcase an increased amount of X-chromosomal nondisjunction. These results suggest that this gene may play a role in meiotic recombination in addition to its mitotic DNA repair effects. Deletion mapping will be used to determine potential gene candidates for mus311.

#### The Short-Term Effects of the COVID-19 Pandemic on Elementary Students

#### Abigail Lynn McCrea

The purpose of this study was to assess the short-term effects of the COVID-19 pandemic on elementary students by investigating the differences in students behavior, grades, social skills, and use of technology. These data were collected through a survey sent to over 500 teachers across the Rock Hill school district aiming to obtain data from experienced teachers' perspectives. This survey featured four different categories of "agree or disagree" questions relating to COVID-19's effects on student behavior, grades, social skills, and use of technology. The results demonstrated that teachers of Rock Hill believe that students' behavior issues have increased, overall math, reading, and writing skills have decreased, social skills have declined, and technology is being used more frequently than before the pandemic. Though the overall results of the study were statistically insignificant because of small sample sizes received, the findings suggest a relationship between the pandemic and children's behavior worsening after the conclusion of the pandemic. Moreover, students' math skills decreased while ELA skills may have increased, and students' social skills worsened because of social isolation. Furthermore, teachers found they are more likely to have their students use technology in their classroom than they did before.

Honors Thesis Committee: Daniel Stovall, Ph.D.: Laura Glasscock. Ph.D.; Jena Chojnowski, Ph.D.

Biology Seminar- in SIMS 215 Presented on November 20th, 2024

(CAS - Biology)

(HONR 451H - Nicholas Grossoehme, BIOL 450H Daniel Stovall)

## The Effect of G-Quadruplex Stabilization on RYBP Expression in Glioblastoma Cell Lines

Farah Tabassum

Glioblastoma multiforme (GBM) is an aggressive tumor of the glial cells located in the central nervous system and has a median survival rate of around 15 months. GBM cells undergo epigenetic modifications that lead to RING1- and YY1-binding protein (RYBP) gene silencing. RYBP is a member of the Polycomb group of proteins, which play an important role in balancing cellular development, differentiation, and death. Disruptions to PcG protein expression levels can activate uncontrolled cellular proliferation and growth in GBM. While the mechanisms by which RYBP transcription is inhibited in GBM remains unknown, previous studies have shown that RYBP is significantly downregulated in GBM. G-quadruplexes (G4s) are guanine nucleotidestabilized structures found in gene promoters, where G4s regulate transcription. Therefore, we tested the effect of the G4 ligand PHENDC3, which binds and stabilizes G4s to limit G4 unwinding, on RYBP gene expression in GBM U-87 cells. We also studied the effects of inhibiting the G4 resolvases DEAH-box helicase 36 (DHX36) and RecQ-like helicase 4 (RecQL4) by RNA interference on RYBP gene expression in U-87 cells. Our results showed that PHENDC3 significantly increased RYBP gene expression in U-87 cells, but DHX36 and RecQL4 knockdown does not increase RYBP.

Honors Thesis Committee: Dustin Hoffman, Ph.D.; Casey Cothran, Ph.D.; Ephraim Sommers, Ph.D.

(CAS - English)

(HONR 451H - Nicholas Grossoehme)

#### Storytelling: The Essence of Finding Meaning in Film and Literature Olivia H. Jeffries

Storytelling has been an intrinsic part of the human experience, serving as a vital means of understanding the world, forging connections, and constructing meaning in our lives. This thesis explores the dynamic interactions between literature and film, examining how narrative techniques shape audience experiences and cultural representation across various genres such as psychological thrillers and dramas. By analyzing the literature-to-film adaptation process in modern-day entertainment, I recognize the creative facets of filmmaking, emphasizing the literary influences that transcend into cinematic storytelling. By reflecting on my sources of inspiration including prominent works of art: The Bluest Eve, Get Out, Euphoria, Emma, Clueless, and Queenie, I will illustrate the essential role of strong narratives in creating meaningful work. Additionally, I reflect on the process of creating my own short film, highlighting the interplay of storytelling elements that bridge the written word and visual narrative. Ultimately, this project aims to highlight the interconnectedness of storytelling across film and literature, underscoring its contributions to cognitive. social, and emotional development as they encompass the power to inspire change and shape our identities. Through this in-depth analysis. I hope to deepen our understanding of storytelling not only as a form of entertainment but also as a powerful tool that can profoundly impact lives. By exploring its role in serving as a form of resistance, I hope to underscore the importance of preserving storytelling as a vital force for change and expression.

Honors Thesis Committee: Dustin Hoffman, Ph.D.; Casey Cothran, Ph.D.; Amanda Hiner, Ph.D.

(ENGL494H - Josephine Koster)

#### Shrapnella: Stories

#### Paige Abercrombie

In her seminal 1975 essay, "The Laugh of the Medusa," Hélène Cixous argues that women should seek to reflect their lived experiences through the written word, a realm of self-expression from which women have been historically barred. She compares the exclusion of women from writing to the exclusion of women from their own bodies through objectification. Shrapnella is a triptych of short stories that seeks to situate the experience of dissociation within a feminist context as described by Cixous. Each story, ordered chronologically according to the age of the female leads, centers girls and women who struggle to feel at home in their own bodies. Through Shrapnella, I seek to investigate how out-of-body experiences might, for some women, be a learned coping mechanism against the suppression of women's voices and desires. Along with "The Laugh of the Medusa," case studies conducted by S. Schoppmann et al. and Claudia Schnupp et al. largely inform the triptych. The final story, a retelling of "Rapunzel," draws from analyses of the fairytale as a cultural document, especially essays by Steven Swann Jones and Elizabeth G. Gitter. In the spirit of Cixous's essay, I have also endeavored to bring my own lived experiences as a woman into each story.

Honors Thesis Committee: Michael Lipscomb. Ph.D.: Jennifer Disney, Ph.D.; Amanda Covington, M.A.

Southern Political Science Association Meeting, San Juan, Puerto Rico, January 2025

Best in SOURCE Oral Presentation, 2024 (tied)

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

## "Nothing About Us, Without Us": Challenging the Exclusion of **Disability from 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.

Honors Thesis Committee: Yi Shen. Ph.D.: Adrianna Cordis, Ph.D.: Bradley Kopp

Honors Culminating Thesis Presentations. DiGS Room 114, Winthrop University, Rock Hill, SC, December 2024

(CBT - Accounting, Finance, & Economics)

(HONR451H - Nicholas Grossoehme)

## The Time Value of Money: How to Ensure Financial Freedom Against the Odds

Samson Wolding

The Time Value of Money is a financial concept used widely in all quantitative areas of business. The concept is rooted in the idea that a dollar today is worth more than a dollar tomorrow. It involves certain variables to function, those being the current dollar value, the rate of interest amongst asset classes, the cashflows into your investment portfolio, and the end-goal value for your money. There are many ways that you can influence these variables in order to leverage the equation for favorable results. Time Value of Money can be applied to any investable asset class such as real estate, stocks, bonds, mutual funds, etc. It can also be used to calculate mortgages and loan payments. Although inflation decreases the value of the dollar over time, the Time Value of Money says that you can set aside your money by investing it in many asset classes in order to increase that same dollar's value as time passes. With all of these things to be considered, the Time Value of Money is crucial to a college student's livelihood because college students struggle with not only rising inflation, but nearly insurmountable amounts of student loans which leverage the Time Value of Money. By understanding this concept, college students will have the necessary capabilities to overcome the oncoming financial hurdles and thrive in the economic situations of today and the future.

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

(CAS - English)

(ENGL494H - Josephine Koster, HONR451H -Nicholas Grossoehme)

#### Femininity as the Mother of Insanity in Horror

#### Emmalynne Eshleman

This paper analyzes the role of masculinity in horror. It takes inspiration from recent trends in horror literature that focus on what can only be called Weird Girl Horror, where much of the psychological horror comes from explorations of how social expectations placed on women drive them to violence. This idea that female violence is a result of the pain of femininity does not come with an analogous belief that male violence is a result of the expectations of masculinity. In order to analyze the masculinity of male horror, I will use Stephen King's The Shining and Bret Easton Ellis's American Psycho as my primary texts. The Shining's Jack Torrence is representative of the classic, familial masculine role. His mental break is the result of the expectation to be a strong, trustworthy father, husband, and provider. His violence and cruelty are restricted to the family sphere, inflicted only on his wife and child. American Psycho's Patrick Bateman, on the other hand, is representative of the newer, corporate masculine role. His insanity is the result of the depersonalizing nature of the socially useless work he does. His violence and insanity are thus also depersonalized, enacted randomly and without real meaning. I will argue that horror and violence cannot be socially neutral and are inherently results of social expectations of gendered behavior.

Honors Thesis Committee: Aaron Hartel, Ph.D.; Cliff Calloway, Ph.D.; Christian Grattan, Ph.D.

Supported by Research Council Grant

(CAS - Chemistry, Physics, Geology & the

(CHEM552H - James Hanna, CHEM551 - James Hanna)

## Formation of y-Ketooximes Via the Brook Rearrangement Using **Acylisoxazolines and Silyllithium Reagents**

Kenzie E. Paul

This honors thesis project continues previous research on the synthesis of y-ketooximes, which are versatile intermediates in organic chemistry. This will be done using a silicon-based reagent known as a a silvllithium reagent. v-Ketooximes serve as precursors to important compounds such as pyrroles, pyrrolidines, y-diketones, and 1,4-y-amino alcohols, providing applications in the fields of medicine and materials science. For example, the anti-anxiety medication Prozac is a 1,4v-amino alcohol, and Lipitor, a medication prescribed to lower cholesterol, contains a pyrrole unit that can be derived from a y-ketooximes as well. The synthesis involves the addition of a sillylithium reagent to a starting isoxazoline. During this reaction, the Brook rearrangement, or the migration of a silicon group from a carbon to an oxygen, is initiated. This facilitates further reactions in situ to generate the desired y-ketooxime. The product is guenched using a weak acid, extracted and then purified using column chromatography. Previous work determined optimized conditions, as well as providing a foundation for the scope and limitations of substrate and product formation. This study focuses on further optimizing the synthesis method and investigating effective isolation techniques for y-ketooximes. It also expands the scope and limitations of v-ketooximes formation. Modern spectroscopic tools, including proton-NMR and GCMS, are employed to verify and analyze the results of both substrate and product. This research aims to contribute to the field of organic chemistry by advancing the synthesis of y-ketooximes, which can be further transformed into various valuable compounds.

Honors Thesis Committee: Merry Sleigh, Ph.D.; Ida Oesteraas, Ph.D.; Brad Tripp, Ph.D.

Southern Sociology Society, Charlotte NC, 4/12/25

(HONR451H - Nicholas Grossoehme)

## Effect of Race and Trauma Background on Perceptions of Juvenile **Offenders**

Jordan Palma

This study examined the influence that race and childhood victimization have on perceptions of juvenile delinquency. Participants (n = 141) were randomly assigned to one of four conditions where they read a scenario about an adolescent offender committing a robbery that unintentionally results in a death. The conditions varied by the adolescent's race (White or Black) and background (childhood abuse or no abuse). Participants provided their perceptions of the appropriate sentencing, offender guilt, rehabilitation potential, and their sympathy level. Participants also responded to scales to assess their own experiences with childhood trauma, empathy, and fear of crime. Results revealed that participants were most sympathetic and lenient toward the adolescents in the trauma conditions versus the no trauma conditions. Similarly, the adolescents in the trauma conditions were perceived as less responsible for their actions than the adolescents without trauma. Participants who were more politically conservative were less lenient, less likely to blame society for the crime, and more likely to agree that the adolescent would be a lifelong criminal. Participants' fear of crime, empathy, trauma background, and religious involvement did not influence their perceptions of the adolescent. These findings suggest that the offender's background was more influential in driving perceptions than was the offender's race. Perceiver characteristics did not emerge as strong predictors with the exception of political ideology. The data reflect the fact that perceptions of juvenile offenders depend on both the juvenile and the perceiver.

Honors Thesis Committee: Daniel Drane. Ph.D.; Jason Chung, Ph.D.

(CESHS - Physical Education, Sport & Human Performance)

(HONR450H - Daniel Drane, HONR451H - Nicholas Grossoehme)

## The Impacts of eNASCAR on the Motorsports Industry and the **eNASCAR College Series on Universities**

Christian V. Tennariello

eNASCAR, the official gaming organization of NASCAR, was created to grow stock car racing and bring in different audiences through video games and esports competitions. Over the past few years, eNASCAR has had a significant impact on the motorsports industry and will likely result in lasting changes within NASCAR. eNASCAR primarily uses iRacing for its esports competitions as it creates a highly competitive and realistic driving experience that real-life drivers often use as a training tool. One of the series that uses iRacing, called the eNASCAR College Series, was created to build a stronger fan base of college students and provide an opportunity for universities to become affiliated with the motorsports industry. With its increasing popularity among college students, eNASCAR can provide interest in both motorsports and esports for college students, a significant target market for NASCAR. Finishing well in the College Series also can bring in potential revenue from sponsorships and prize money. This paper discusses the experience of competing in eNASCAR and explores the series' impact on the motorsports and esports industry. The information that is documented provides valuable insight into NASCAR industry trends and explores how universities could leverage the series.

Honors Thesis Committee: Janet Wojcik, Ph.D.; Silvia Wozniak, Ph.D.; Jennifer Bossi, Ph.D.: Nicholas Grossoehme, Ph.D.

(CESHS - Physical Education, Sport & Human Performance)

## Muscle Growth Outcomes in Progressive Volume Training Versus **Block Undulating Periodized Training: A Pilot Study**

Camden S. Davis

Long-term microgravity exposure causes decreases in size or density in muscle, bone, and cardiac tissue that have not yet been properly remedied by exercise science. Resistance training focused on progressively increasing volume proximal to muscular failure maximizes hypertrophy versus training with fewer sets. This is very likely due to inherently increased muscular tension with volume training. Despite this, some recreational and professional bodybuilders opt for a periodic variation of both training styles in what is best described as a block undulating periodization (BUP) approach. Since these reports are anecdotal, it is the purpose of this study to compare hypertrophy outcomes in the upper and lower body with volume training versus monthly undulating periodized training within a mixed training population. It is hypothesized that volume-focused training will result in similar muscle gain versus BUP training, as both are essentially different methods of achieving high muscular tension within the most motor units. Elucidating the superior hypertrophic training method will have direct carry over to program design for astronauts.

Honors Thesis Committee: Virginia Williams, Ph.D.: Adolphus Belk, Ph.D.; O. Jennifer Dixon-McKnight, Ph.D.

SOURCE Conference, Rock Hill, SC. April 2025

(CAS - History)

(HONR451H - Nicholas Grossoehme, IDVS490H -Virginia Williams)

Honors Thesis Committee: Bradley Young, Ph.D.: Nicholas Grossoehme, Ph.D.; Chris Doehling, M.F.A.; John Hairston Jr., M.F.A.

(CVPA - Design)

(VCOM487H - Bradley Young, VCOM486 - Bradley Young, HONR449H -Nicholas Grossoehme. HONR451H - Nicholas Grossoehme)

#### Black Male Comedians and the Cosplaying of Black Women Kvla Hutchinson

From the Flip Wilson Show to Tyler Perry's Madea, Black male comedians exploited stereotypes of Black women to garner laughs. However, they failed to acknowledge the effects of depictions on a group that already faces a lack of media representation. Black female caricatures that represent early American minstrelsy stereotypes such as the jezebel or the mammy harm the identity and mental health of Black women. Black male comedians use exaggerated appearances that paint their counterparts as unattractive, leading to feelings of insecurity. This paper aims to answer the question of how depictions of Black women in media by Black male comedians affect them socially and psychologically. The disciplines of mass communication, sociology, and psychology help to understand the negative effects of Black male comedians cosplaying as Black women. Mass communication encompasses all forms of media including films to social media, the two biggest areas where Black men showcase stereotypical Black female caricatures. The discipline examines how Black men portray Black women through skits and the potential impact on their identity. Psychology hones into the effects on Black women's psyche, specifically their mental health. Sociology understands the relationships between Black women and society, which often perpetuates stereotypes of the demographic. All three disciplines together recognize the representations of Black women in media along with the sociological and psychological effects of stereotypical depictions. Black male comedians cosplaying stereotypical Black female caricatures negatively affect Black women by distorting their public and self-perceptions, leading to emotional suppression and diminished self-esteem.

#### Stardust to Stardust: An Animated Short Film

#### Mariana Beltran

The project will involve the creation and development of an animated short film that explores the star cycle and the process of stellar evolution, bringing these cosmic phenomena to life through compelling visuals and storytelling. Inspiration will be drawn from traditional Colombian outfits and symbolism from Wayuu and Arhuacan artisan bags to celebrate the researcher's heritage through motifs, patterns, and rich symbolism. It is intended for general audiences, specifically for a college-age and adult demographic. This research captures the wonder of the cosmos through animated film and encompasses themes such as mortality and humanity's place in the universe through a predominantly Catholic lens. The narrative tells the story of an astronaut who encounters living stars in different stages of the star cycle as she journeys to find their creator. Ultimately, the short film intends to entertain the viewer while fostering an appreciation for astronomy and the beauty of space, leaving the audience with something to reflect on. Character ideation was sketched on paper in pencil. The script was written on Celtx and the storyboards were composed on Storyboarder. Lineups, backgrounds, and polished character sheets were rendered in Procreate and the animation was produced in Procreate Dreams. Additional software utilized in the development pipeline included Adobe Premiere Pro for the animatic and Adobe Audition for the dialogue. Instagram updates and posts served as a visual record as well as promotional. Its distribution includes local and national film festivals and subsequently YouTube for broader exposure.

Honors Thesis Committee: Virginia Williams. Ph.D.: Jennifer Disney, Ph.D.; John Holder, Ph.D.

(CAS - History)

(IDVS490 - Virginia Williams)

#### The Digital Trojan Horse: The Hidden Influences and Consequences of Social Media on Politics

Seth P. Harrison

My topic is about the current state of radicalism within the United States Political arena, and how social media has contributed to and directly accelerated this radicalism. As the foremost leading power in the world and a bastion of liberty, political extremism presents an existential threat to both the citizens of the US and the countries of the world itself. Understanding the extent to which social media has created this dilemma is of utmost importance, as well as understanding the full consequences of this radicalism – should it be left unchecked. My research question is accordingly to figure out the extent to which social media has radicalized US politics, and to further highlight what the consequences of this radicalism will lead to. To help with this, I will make use of the disciplines of political science and history. The former is crucial for gaining analytical data about the impact of social media on the rise of extremism outside of legacy media; while the latter is important for understanding the historical context behind how media itself influences thinking, as well as setting precedent for the consequences of unrestrained radical movements as it has applied to the wider world. My thesis is that social media has directly influenced U.S. politics by facilitating echo chambers, spreading propaganda, and allowing the dissemination of terroristic messages, the consequences of which can and have led to anything from terrorism to civil war.

Honors Thesis Committee: Michael Lipscomb. Ph.D.: Scott Huffmon, Ph.D.: John Holder, Ph.D.

SOURCE, Winthrop University, April 11, 2025

(CAS - Political Science, Philosophy. Religion &

(PLSC490H - Michael

## A Changing Southern Electorate: Hypothesizing the Formation of a **New Moderate Conservative Party**

Donald B. Horack

The American South has been a consistent stronghold for the Republican Party's presidential candidates since the partisan realignment of the 1960s, but there is evidence that as migration from other countries, emigration from within the United States, demographic changes, and population growth within the South continue into the second quarter of the twenty-first century, the certainty of this GOP stronghold may be fading. This thesis posed three main questions: Is the GOP losing its electoral grip on the South, how would different political groups react to such a loss in support, and what is the most likely outcome for the political landscape of the South and the nation should the GOP lose its Southern base of support? This study hypothesizes that the most likely outcome of this scenario is the formation of a new moderate conservative political party that will replace the Republican Party of today as the dominant political organization in the South. This thesis utilized previous scholarly work from experts on Southern politics and data from a South-wide survey conducted in November 2024 by the Winthrop Poll, which included several questions specially curated for this project, to conduct an analysis of the Southern electorate and its attitudes towards this hypothetical scenario.

Honors Thesis Committee: Daniel Stovall, Ph.D.: Laura Glasscock. Ph.D.; Kathryn Kohl, Ph.D.; Eric Birgbauer, Ph.D.

Supported by Other, SC INBRE 5P20GM103499-21 and NIH 1R16NS14172-01

(CAS - Biology)

(BIOL471 - Daniel Stovall)

Honors Thesis Committee: Bradley Young, Ph.D.; Jason Tselentis, M.F.A.; Tamara LaValla, B.F.A.

(CVPA - Design)

(VCOM487 - Bradley Young)

#### Effects of Ectopic RYBP Expression on Glioblastoma Cell Proliferation

Rachel A. McCollum and Norah B. Kay

Glioblastoma multiforme (GBM) is a central nervous system cancer that is very aggressive and has low survival rates. Ring1- and YY1-binding protein (RYBP) is a transcription factor that regulates cell growth by keeping chromatin closed and modulating gene expression. Because GBM cells frequently decrease RYBP expression, we hypothesized that introducing ectopic RYBP into GBM cells would decrease cell proliferation. We first determined the endogenous RYBP expression levels among five GBM cell lines using a Western Blot. The two GBM cell lines, U-87 and U-251, with the lowest amount of RYBP were selected to study the effects of induced ectopic RYBP expression via lentiviral transduction. Because the lentiviral vector confers puromycin resistance, these cells were first treated with varying concentrations of puromycin to determine the lowest concentration needed to kill 100% of cells. Viral transduction was further optimized by determining the multiplicity of infection (MOI) required for each cell line. Finally, we infected U-87 and U-251 GBM cells with a lentivirus expressing RYBP or a GFP-only control at the optimized MOI and isolated single-cell clones under puromycin selection. These cells will be used to determine differences in proliferation between RYBP-expressing and control GBM cells, and RYBP expression levels in transduced cells will be confirmed using a Western blot. Overall, we have developed a cellular model to investigate whether RYBP is a tumor suppressor gene in GBM cells and its mechanistic effects.

## Re-Envisioning Public Transit In Rock Hill

Cameron Williams

This thesis focuses on the branding and marketing of a modern train and bus system in Rock Hill to support the projected sustained growth in the region. With the population increasing from 66.154 in 2010 to 75.654 in 2023, the need for an effective public transportation system has become increasingly apparent. This research focuses on representing the local identity in relation to the larger Charlotte metro area connected via Pineville. This ambitious project examines different elements of crafting new transit systems, brand style guides, established proposed maps, and a 3D visualization of the stations and routes. Working primarily in Illustrator, Photoshop, InDesign, TwinMotion, Unity, and Blender, the project aims to develop a visual identity that incorporates historical elements within Rock Hill while presenting them in a modern light. As a Winthrop student, a question arose regarding why the development of Rock Hill's public transportation is not discussed more. Despite the city's rapid growth and transformation into a regional hub, aspects of its urban planning and historical evolution often go unaddressed. Exploring this gap could reveal the reasons behind the city's development trajectory and why such an important part of Rock Hill's identity is overlooked. It is essential for Rock Hill's brand to represent its railroad heritage, as the city was founded on railroads and remains a satellite of the Charlotte metro area. This project exemplifies how the transportation system can benefit both Rock Hill residents and surrounding areas. A long-term objective is to apply design skills to address public needs.

Honors Thesis Committee: Jason Hurlbert, Ph.D.: Christian Grattan, Ph.D.; Cliff Calloway, Ph.D.

Supported by INBRE

(CAS - Chemistry, Physics, Geology & the

(CHFM552H - James Hanna)

## Structure/Function Studies of the Bacterial Effectors from Xanthomonas, XopJ2a and XopJ2b

Hannah D. Bendure

Tomato and pepper plants are susceptible to bacterial spot, a disease caused by four species of Xanthomonas, including X. perforans (Xp). Infection by the phytopathogen leads to necrosis, damaging vegetation and lowering yields. Our collaborators at the University of Florida have identified two bacterial effector genes, xopJ2a and xopJ2b, hypothesized to enhance the virulence of Xp. A binary regression model developed using field data indicates that Xp strains carrying xopJ2 are 9.3 times more likely to be carried to the next crop cycle due to their ability to spread guickly across a field. Due to its conserved structure and role in pathogen fitness, XopJ2 is a key target for in-field treatments and resistance breeding in tomatoes and peppers. Prior to this study, the crystal structures of the XopJ2 variants had not been determined. However, homology models, developed using AlphaFold and Phyre2, have provided key insights into the structure of the active sites and binding clefts. This research aims to express the recombinant XopJ2 proteins in E. Coli, develop a chromatographic purification protocol, determine their structures via X-ray crystallography, and characterize their functions using acetyltransferase assays. By confirming in silico structural predictions, this study could inform the development of strategies to inhibit XopJ2a and XopJ2b, mitigating the destructive effects of Xanthomonas. These findings may help protect crops, reduce losses for farmers, and contribute to global food security.

Honors Thesis Committee: Jena Chojnowski, Ph.D.; Laura Glasscock, Ph.D.; Estelle Newton, Ph.D.

(CAS - Biology)

## The Mechanisms of Ocular Immune Privilege in Relation to Innate and Adaptive Immunity

Khamryn A. Pollock

Ocular immune privilege is the ability of the eye to mitigate and deter the immune system responses from having negative effects on the eve. such as detrimental diseases that can affect your vision. Immunity is the body's response to maintain the integrity of the senses; however, sometimes its response can be negative and cause the reduction of our senses. The immune responses that occur within our bodies that are supposed to help can cause harm to the eye and affect vision. Our immune system can respond through two systems: the innate immune system and the adaptive immune system. The innate immune system uses responses, such as inflammation, macrophages, and proteins, to respond to pathogens while the adaptive immune system uses responses, such as thymus derived cells, bursa derived cells, and antibodies, to respond to pathogens. Although these responses are effective in other parts of the body, in the eye, they can have an alternate effect. Ocular immune privilege utilizes the mechanisms of the ocular blood barrier, macrophages, and regulatory T cells to moderate these responses. When the mechanisms of ocular immune privilege do not work, they can cause different diseases to occur within the eye, affecting vision. With the knowledge of these mechanisms, we could apply them to the pharmaceutical field to better supply medications that can boost the effectiveness of ocular immune privilege or aid the ocular system in maintaining its immune privilege mechanisms.

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

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

(PLSC490H - Michael

### Cultures Affecting Mental Health Policy in the United States, South Korea, and Singapore: A Comparative Analysis

#### Parker L. Short

The intricacies by which culture affects mental health policy are multifaceted and vague. While previous literature provides robust evidence of a movement in mental health care policy in the United States and globally, actual policy rarely goes beyond the general policy movement of deinstitutionalization that unfolded after World War II. Utilizing a comparative analysis of Singapore and South Korea, both with more collectivist cultures and with differing means on addressing mental health policy in the past 5 years, and the United States, a generally individualistic nation with some collectivistic subcultures, this research analyzes how culture influences mental health policy both at a micro-level, such as provider/client relationships, and at a macro-level, looking at general legislation. The evidence suggests that there are differences in general policy that are informed by the different ideologies and practices of collectivist and individualistic cultures. Getting clear about these differing influences can profitably inform U.S. mental health care policy. The practices of collectivist cultures may have important lessons for individualist cultures like the U.S., and it can help modifications to U.S. to approaches to collectivist cultures within their borders, such as the Deep South or from abroad.

Honors Thesis Committee: Sarah Reiland, Ph.D.: Matthew Hayes, Ph.D.; Jennifer Disney, Ph.D.

(HONR451H - Nicholas Grossoehme)

## How We Judge Victimless Crime: What Shapes Public Perception?

#### Georgia E. Gosselin

Crime can be divided into two subcategories: non-victimless and victimless. Non-victimless crimes involve direct harm to a nonconsenting party (i.e., assault). whereas victimless crimes only involve consenting participants (i.e., prostitution). This literature review examines how political ideology, religious affiliation, gender, race, and other influences shape public perceptions of victimless crimes, with a specific focus on prostitution. While direct research on these perceptions is limited, existing studies on crime attitudes reveal patterns and trends. Political conservatives generally favor stricter legal enforcement, while liberals tend to support decriminalization. Religious individuals often view victimless crimes through a moral lens, influencing their punitive attitudes. Gender plays a role in perceptions, particularly regarding prostitution, with women facing more ethical turmoil. Racial and cultural backgrounds also shape attitudes, with historical and systemic biases affecting views on crime and law enforcement. Furthermore, people may have general attitudes toward crime (of any sort) that contribute to their perceptions of victimless crimes. These broad attitudes toward crime may be influenced by factors such as fear, beliefs about the value of punishment, and media exposure. However, there is a notable gap in research directly focusing on perceptions of victimless crime. Understanding these factors is essential for directing legal branches towards better deterrence protocol and future research in criminology and psychology.

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

(CAS - Political Science. Philosophy, Religion &

(PLSC490H - Michael

#### Anti-abortion Politics in the Context of Majority Support for **Abortion Protections**

#### Hailey Bennett

In 2022, the Supreme Court decided that instead of having federal protections, abortion laws should be decided by state governments through their ruling in Dobbs v. Jackson Women's Health Organization. Since then, many states across the country have established laws completely banning abortion for any reason after six weeks of pregnancy. Research over the years, however, has shown that the majority of Americans actually support women's access to abortion, at least in some cases if not all cases. If the majority of the country disagrees with the laws actively being passed by state legislatures, how is America operating democratically? And, if the majority of Americans actually do support abortion, why is it such a pressing topic in modern politics? This paper considers the shifts over time in the antiabortion and more modern pro-life movements, as their ideology and leadership developed over time in order to argue for a total ban of abortions. This paper analyzes landmark Supreme Court cases that have guided abortion laws, such as Roe v. Wade, Planned Parenthood v. Casey, and Dobbs v. Jackson, in order to examine how the anti-abortion movement responded to those decisions at the time. Abortion has been one of the most argued topics among American politicians, and pro-life politicians are regularly elected and pushing for laws limiting abortion access. This paper argues that the reasons for this are party-line voting and the alignment of pro-life ideology with the Republican party in the context of the United State's federal system.

Honors Thesis Committee: Karen Stock, Ph.D.: O. Jennifer Dixon-McKnight, Ph.D.; Katharine Hubbard, Ph.D.

(CVPA - Fine Arts)

## Japanese Prints and Aesthetics in America: Artist Perceptions and Creative Influences, 1850-1920

#### Liliana Zayas

An artist's perception is shaped by both their creative practice, which hones their visual cognitive abilities, and their cultural background, which influences their worldview and approach to visual observations. Culture, in particular, plays a significant role in shaping an artist's sense of taste, guiding their understanding of aesthetics. This research paper aims to explore how the introduction of foreign visual arts and materials—specifically Japanese art—affected American artists between the 1850s and 1920s. By examining the cultural context of America during this period, including orientalist ideology and media representations, this paper will track the artistic and cultural shift that occurred with the arrival of Japanese aesthetics. Japanese art introduced a fresh perspective to American artists, reshaping their perceptions and approaches to visual expression. From the opening of Japan's borders in 1853 to the height of Japonisme, this paper will study the early history of Japan-U.S. relations and the American public's perceptions of Japan, alongside the works of James McNeill Whistler, John La Farge, and Helen Hyde. Ultimately, there will be three key questions answered: 1) How do cross-cultural upbringings shape perception and aesthetic sensibilities? 2) How did American artists perceive and respond to Japanese art? 3) What does this reveal about the power of perception in the artistic process?

Honors Thesis Committee: Jennifer Schafer, Ph.D.: Salvatore Blair, Ph.D.; Lauren Brasington, Ph.D.

(CAS - Biology)

(BIOL450H - Jennifer

#### The Effect of Anthropogenic Air Pollutants on Insect **Pollinator-Plant Interactions**

Sam R. Williamson

Pollination is a vital ecosystem service. It is essential for the reproduction of flowering plants, many of which are important to human well-being based on our consumption or use of one or more parts of the organism. An overwhelming number of the pollinators of agricultural plants are insects. Insect pollinators primarily rely on floral odor cues, made up of volatile organic compounds (VOCs), in order to find and recognize flowers. Because of this reliance on VOCs, air pollution can have an intense effect on the ability of insects to pollinate and obtain nectar from flowers. Many studies have shown the impacts airborne pollutants such as tropospheric ozone and diesel exhaust have on plant VOCs and the impact this can have on insect pollinators. However, a comprehensive review and synthesis of these studies to combine and evaluate this knowledge has not been done. This review aims to synthesize the current knowledge about the impact of tropospheric ozone and diesel exhaust pollution on insect pollinators and to provide some potential paths forward.

Honors Thesis Committee: Diana Boyer, Ph.D.: Dustin Hoffman. Ph.D.; Casey Cothran, Ph.D.

(CAS - Chemistry, Physics, Geology & the

#### The Trash on 95

#### Genisis K. Pratt

This thesis follows Sebastian, a true 'red-blooded American' that subsistence hunts. fishes, and regularly camps out with his family. This family-man is sentenced to collect trash on the interstate after being found guilty of causing mass pollution, despite being completely innocent on a judicial level. He wanders into the woods where he meets Mother Nature. She takes him to show him the destruction his actions have wrought - scenes like animals struggling in oil spills, birds choking on plastic, habitat destruction, and other examples of pollution and climate change. These scenes are specifically pulled from situations happening in the world today. Research to back up scientific portions will follow the creative portion to show that these parts aren't fiction. While the characters and the magical elements aren't real, the effects of human behavior are. Sebastian sees what his inaction has wrought and wants to do better. This story intends to open people's eyes to reality and show how they impact the environment, whether it's direct involvement or just standing by and watching it happen. Instead of only showing Sebastian's despair, which has the effect of perpetuating no hope because people don't see the point, they are given a point to look toward, which makes them more likely to make a change for the better. Sebastian must come to terms with his actions and the detriment he has indirectly had on the environment he grew up in and loves. He has to change for the better, so the readers can believe they could as well.

Honors Thesis Committee: Jason Chung, Ph.D.: Daniel Drane, Ph.D.

(CESHS - Physical Education, Sport & Human Performance)

## The Influence of Sponsorship on Fan Perceptions, Attitudes, and **Behaviors Within the Winthrop Athletics Community**

Maddy Hodgson

This study looks at the influence of sponsorship on fan perceptions, attitudes, and behaviors within the Winthrop Athletics community. Survey data from 82 respondents, primarily aged 18-24 years but also representing a diverse age range, highlights how sponsorship affects overall brand perception and consumer decision-making. Key findings indicate that most fans hold positive attitudes toward sponsors, with 76% agreeing that sponsorship improves their perception of the sponsoring company (mean = 4.05, SD = 0.96). A majority expressed pride in utilizing sponsor products (mean = 4.26, SD = 0.81). Behavioral influence was moderate, with 60% of respondents indicating they are likely to switch brands to support sponsors (mean = 3.68, SD = 1.01) and 48% confirming prior purchases inspired by sponsor exposure (mean = 3.45, SD = 1.13). Fans showed a preference for choosing between similar brands when sponsorship is a deciding factor (mean = 2.52, SD = 0.72) and e xpressed moderate likelihood to recommend sponsor brands to others (mean = 2.46. SD = 0.65). However, loyalty to sponsors diminishes if sponsorship ceases (mean = 2.30, SD = 0.62). These findings suggest that sponsorship enhances brand perception and short-term behavioral changes but may not guarantee long-term brand loyalty. This research shows valuable insights for sports marketers within college athletics. specifically emphasizing the importance of emotional connections and sustained engagement to maximize sponsorship impact.

Honors Thesis Committee: Salvatore Blair, Ph.D.: Evan Dewey. Ph.D.: Daniel Stovall, Ph.D.

Biology Seminar, Sims

(CAS - Biology)

(HONR451H - Nicholas Grossoehme, BIOI 450H -Salvatore Blair, BIOL450H - Salvatore Blair)

#### Superoxide Dismutase (SOD) Activity in Goldfish (Carassius auratus) exposed to Titanium Dioxide Nanoparticles Ravyn A. Torres

Titanium dioxide (TiO<sub>2</sub>) nanoparticles have become a widely used material over the years. They are produced and utilized globally in many different industries such as medicine, cosmetics, paint, and more. They are cost-effective materials. However. since these materials are small (15-710 nm), they easily find their way into the environment, causing massive amounts of pollution. The toxicity of the nanoparticles has not been fully understood. Due to their small size, aquatic organisms are more vulnerable to this type of pollution and are more susceptible to harm. Goldfish (Carassius auratus) are commonly used model organisms to analyze water parameters and determine the toxicity of substances on aquatic organisms. They have a well-known physiology, making it easy to distinguish between normal and abnormal structures and functions. A previous study in our lab demonstrated that TiO, nanoparticle injections in goldfish altered the fish's gill morphology and triggered immune responses. Treatment groups included non-injected control, saline-injected control, TiO<sub>2</sub> nanoparticle injected, and empty nanocapsule injected fish. Fish were sacrificed and tissues were sampled after 1, 7, and 14 days post-treatment for analysis. While the previous study focused on the gills, the current study will examine the effect of the TiO<sub>2</sub> nanoparticles on superoxide dismutase (SOD) activity in the kidneys of goldfish one day post-injection. Along with enzymatic activity, this study will also observe any histological changes occurring at the kidney across treatments. We anticipate that fish injected with TiO, nanoparticles will have increased SOD activity and will display altered kidney histology.

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

SOURCE, Spring 2025, Winthrop University

(CAS - Political Science, Philosophy, Religion &

(PLSC490H - Michael

Honors Thesis Committee: John Hairston Jr., M.F.A.; Bradley Young, Ph.D.; Bridget Connell (Professional Comic

(CVPA - Design)

Artist)

(VCOM486 - Bradley Young)

#### Electoral Districting: Reforming the Electoral College and the Pathway to the Presidency

David Ibragimov

Every four years, the American people vote to determine the President of the United States. Even though millions of Americans vote, the system under which we cast our votes, the electoral college, denies citizens a substantive and effective voting power. Currently, 48 states within the union have a "winner-take-all" policy. This has created a set of political circumstances that have created "Red" and "Blue" America, a political division that has created a binary absolute and neglects to address the desires of a state's political minorities. This paper demonstrates the inherent weaknesses of this system and suggests a plan for reforming the Electoral College by implementing what I will call Electoral Districts (ED). The Electoral Districting will reform the electoral college, splitting each state into proportional districts based on the State's electoral vote number; whoever wins in each respective district will receive that district's electoral vote. This research addresses the question of whether an Electoral Districting reformation will allow substantive representation for political minorities all over the country, as well as whether this system, if it had been implemented in the previous two elections, would have changed the results. In addressing the hypothesis that this reformation would be superior to our Electoral College, this paper assesses the benefits and potential drawbacks of this system. In an age of political absolutism, this research can serve as a proposal to improve a method of Presidential elections that has divided the country with historical controversies and through silencing of political minorities.

#### The Final Breath

Kayla Simon

In a post-apocalyptic landscape, ravaged by devastation and loss, the narrative of *The Final Breath* is a comic centers around Aesira, a courageous young girl from a once-thriving village. After a tragic event annihilates her family and community, she vows to seek vengeance against the forces that tore her world apart. Set against the backdrop of a Medieval era plagued by a sinister virus, Aesira embarks on a perilous journey that tests her resilience and combat skills. As she traverses this dark, desolate world, Aesira encounters a twisted variety of adversaries, including grotesque and mutated creatures and desperate humans driven to madness by the relentless curse of the virus. The monsters are not just physical threats: they embody the horrors that plague her mind as well. With every battle, Aesira showcases her extraordinary talent in swordsmanship, wielding her blade with the precision of a true warrior. This grim yet captivating comic diverges from traditional narratives by placing a formidable female protagonist, spotlighting her strength and determination in a world steeped in Medieval horror. The intertwining elements of action and psychological depth create a rich tapestry that sets The Final Breath apart from other comics, inviting readers to explore the depths of courage, loss, and the relentless pursuit of justice.

Honors Thesis Committee: Daniel Stovall Ph.D.(Sponsor); Laura Glasscock, Ph.D.; Eric Birgbauer, Ph.D.

American Society of Biology, Chicago, IL in April 2025

Supported by Other, 1R16NS14172-01 and 5P20GM103499-21

(CAS - Biology)

(BIOL450H - Daniel Stovall)

Biochemistry & Molecular

Honors Thesis Committee: Adam Glover, Ph.D.: Dustin Hoffman. Ph.D.

(CAS - World Languages and Cultures)

(ENGL494H - Josephine Koster, HONR451H -Nicholas Grossoehme. ENGL471H - Adam Glover)

#### Detection of Novel G-quadruplex Structures in the RYBP Gene Promoter in Glioblastoma Cells

Emi Umemoto\*, Michelle Aguilar-Gaspar, Alexandra Gebbia, Erin Adams

Glioblastoma multiforme (GBM) is the most common tumor of the central nervous system and has a median survival of under fifteen months. GBM tumors frequently display reduced expression of the tumor suppressor gene RING1- and YY1-binding protein (RYBP), which encodes a chromatin-modifying transcription factor. Guanine-containing nucleotides constitute 33% of the RYBP gene promoter sequence, suggesting that it may form G-quadruplexes (G4s), which are stacked, planar secondary structures in DNA and RNA that can modulate transcription. To determine whether G4s form in the RYBP gene promoter, we first analyzed the promoter sequence using an online G4-prediction tool and identified two putative sequences at -226 and -455 with strong G4-forming potential. We then synthesized oligonucleotides (oligos) bearing these wild-type sequences or mutated versions that abrogated intramolecular and/or intermolecular G4s. We transfected these wild-type and mutant oligos into T-98 glioblastoma cells and immunostained the cells using the BG4 antibody, which specifically binds G4s. We successfully detected G4 formation by oligos with the wild-type -226 and -455 sequences. Interestingly, we also detected positive staining by oligos bearing mutations that ablated intramolecular G4s, but which still permitted intermolecular G4 formation. As expected, no G4s were detected in cells transfected with oligos bearing mutations that disrupt all G-tracts. Next, we wondered whether these exogenous G4s influenced RYBP expression by competing (e.g. as transcription factor binding sites) with endogenous G4s in the native gene promoter. However, transfection of the wild-type oligos did not significantly change RYBP mRNA expression, compared to non-transfected control cells, as measured by RT-qPCR. Overall, our data suggest the RYBP gene promoter can form novel G4 structures, and that these G4s or their inappropriate resolution may contribute to RYBP silencing in glioblastoma cells.

#### **Brenda Lozano: Translations**

**Gwen Pregnall** 

For my culminating honors project, I use the skills I have learned from my English and Spanish majors to translate two Spanish language short stories into English. The stories I translated are titled "Cómo piensan las piedras" and "Cables." Each of these stories come from the short story collection *Cómo piensan las piedras* by Brenda Lozano. In addition to the translations themselves, I elaborate on and annotate much of my translation to explain my thought process and the theory behind the act of translation. The final product of this process consists of footnotes to accompany the actual translated stories and an essay discussing the overall translation process and importance of translating short stories, specifically from Spanish into English. In translating, the translator has to pay attention to each word, the connotations of each word, the way each word fits with the next, and what impact any changes will have on the piece as a whole. In order to demonstrate the theory and importance of translating Spanish language short stories like Lozano's, my introductory essay to the two translations argues for a balance between literal, direct translation, and more interpretive, artistic translation.

Honors Thesis Committee: Daniel Stovall, Ph.D.(Sponsor); Laura Glasscock, Ph.D.; Eric Birgbauer, Ph.D.

American Society of Biochemstry and Molecular Biology in Chicago, IL on April 2025

Supported by Other, 1R16NS14172-01 and 5P20GM103499-21

(CAS - Biology)

(BIOL471 - Daniel Stovall. BIOL371 - Daniel Stovall. BIOL450H - Daniel Stovall)

## Exploring the Mechanisms of RYBP Downregulation in Glioblastoma Cells

Israel Bellinger\*, Ariyana Felder-Grooms, Evonna Kinloch, Kate Monaghan, Emi Umemoto\*, Lannea Brown, Melanie Williams

Glioblastoma multiforme (GBM) is a fatal brain tumor that frequently alters expression of the Polycomb (Pc) family of proteins. In particular, the Pc protein RING-1 and YY1-binding protein (RYBP) is commonly downregulated in glioblastoma cells, but the mechanisms behind this are unknown. We hypothesized glioblastoma cells inhibit RYBP transcription by abnormally resolving G-quadruplexes (G4s) in the gene promoter and they further suppress RYBP protein synthesis by overexpressing microRNAs (miRNAs). We analyzed endogenous RYBP levels in five parental GBM cell lines and determined that RYBP is lowest in U-251 and U-87 cells and highest in LN-229 and U-118 cells. Previous studies in our lab have indicated that stabilization of G4s increases RYBP expression. Therefore, we transfected oligos bearing the wild-type or mutated versions of two putative G4-forming sequences from the RYBP promoter into LN-229 and U-118 cells to confirm that these sequences could form detectable G4s and to determine whether these exogenous structures competed with G4s on the RYBP gene promoter for cognate proteins. Because GBM cells often overexpress G4-resolving enzymes like DHX36 and RecQL4, we asked whether knocking down these enzymes in U-251 cells would stabilize G4s and increase RYBP transcription. However. a robust knockdown of DHX36 or RecQL4 did not significantly increase RYBP mRNA levels, consistent with our previous observations in U-87 cells. Finally, we asked whether post-transcriptional suppression of RYBP by miRNAs could contribute to RYBP silencing. We transfected U-251 cells with inhibitors of specific miRNAs and measured changes in RYBP protein expression, but these data are inconclusive.

Honors Thesis Committee: Edward Charles Randle, Ph.D.: Hannah Richards, Ph.D.; Parker Kevin, Ph.D.

SOURCE, Winthrop University, April 2025.

(CBT - Accounting, Finance, & Economics)

(HONR450H - Edward Charles Randle, HONR450H -Edward Charles Randle)

## An Examination of the Perceptions of Effectiveness Based on **Compliance Auditing Modality**

Steven T. Mennie

The objective of this study is to evaluate whether measures of effectiveness defined by practicing audits in the profession translate from an on-site landscape to hybrid and virtually exclusive environments. Personally conducted surveys and the perusing of audit performance reviews will determine how successful proposed audit engagements are. Additionally, a literature review was completed to summarize, evaluate, examine the methodologies of, synthesize, and prognosticate how impactful and efficient the measures are in comparison to field data. Traditional audits allow for improved observation and following inquiry to evidence but may result in high expenditures and calendar conflicts for clients. Virtual or remote audits facilitate audit analytical efficiency, refrain from disrupting client operations, and truncate costs. Nevertheless, cloud-based documentation and diminished human interaction represent negative attributes of virtual audits. Hybrid auditing procedures exhibit both. This thesis combines the modality of compliance with key performance indicators that accentuate punctilious audits, such as costeffectiveness, technological integration, and risk assessment to assess which type of approach firms, depending on their size and situation, prefer. Although several confounding factors in communication and technological prowess exist, audit effectiveness hovers around these principles outlined within the Statements on Auditing Standards (SAS) for private companies, Auditing Standards (AS) for public companies, and the Committee of Sponsoring Organizations of the Treadway Commission (COSO) released in 2013. As a result, the study performed will enhance and refine processes that should be executed to ensure secure compliance audits occur even when not performed at the site of operations for a client.

Honors Thesis Committee: Virginia Williams, Ph.D.; Gregory Bell, Ph.D.; Margaret Gillikin, Ph.D.: Nicholas Grossoehme Ph D

SOURCE 2025, April 2025

(CAS - History)

Williams)

#### How Did American Consumerism Impact The Fall Of The USSR? Nicholas Yonkin

The Cold war is complicated and intricate, especially when it comes to what actually ended it - was it America, internal conflict, or some other outside source? Historians and Economists themselves have a wide range of beliefs, but most of the time fail to look at the other disciplines to get the full image of what occurred at the end of the Cold War. Research into this topic will use a combination of History and Economy that could lead to a more open and clear answer as to how the Cold War ended. Another topic looked at during the research paper will be how American Consumerism impacted the fall of the USSR. The simple answer to this question is: American Consumerism showed USSR citizens a life they could have outside of communism, leading to them wanting a capitalistic society. It is important to clarify that I am not arguing that American consumerism was the most important event that led to the fall of the USSR, but instead I'm arguing that it is one of the many aspects that broke down the USSR. Everything these disciplines argue are correct, so it is pointless to argue which was more important, since all of them are important when looking at the downfall of the USSR.

Honors Thesis Committee: Gabrielle Tull. M.F.A.: Brian Franco-Winn. M.F.A.

Senior Choreographer Thesis Showcase Fall 2024

(HONR451H - Nicholas Grossoehme, DANA442H -Gabrielle Tull)

#### emergence

Elloise T. Bethea

The literal meaning of emergence is the process of coming into view or becoming exposed after being concealed. Throughout my senior year in college, I have faced many obstacles regarding my future career. I have been pressured by my family to change my career path and conform to their societal standards and strict expectations. This choreography explores the internal and external self through observation, realization, temptation, and reality. I conducted creative movement research through the choreographic process to make a work that explores biases, perspectives, and perceptions of societal expectations. My piece seeks to communicate the importance of the multi-dimensional complexity of being human. I drew my original inspiration from a Japanese proverb known as "Mitsu no Kao," which is a statement of a psychological commonality about the notion of persona or different masks. I want to convey the concept of creating an outward image that we produce for others, which is unlike our true self. I am also inspired directly by my music choice, a collaboration of selected songs from Pink Floyd's album "Dark Side of the Moon." In my work, the dancers execute repetitive yet precise arm positions and phrases to represent the repetitive daily tasks within society's strict routines and schedules. The piece comprises seven dancers and a rectangular table to serve as the barrier between the internal and external self.

Honors Thesis Committee: Nicholas Grossoehme, Ph.D.: Victoria Frost, Ph.D.; Daniel Stovall, Ph.D.

SOURCE Research Conference, Rock Hill, SC, April, 2024. SC INBRE 15th Annual Science Symposium, Columbia, SC, Feb. 2024. SURE Research Symposium, Rock Hill, SC, Oct. 2023. Southeast Regional IDeA Conference, Columbia, SC, Sept, 2023. SURE Research Symposium, Rock Hill, SC, June, 2023. 20th Annual SAEOPP McNair/SSS Scholars Research Conference, Atlanta, GA, June, 2023.

Supported by McNair Scholars Program, INBRE

2nd Place, 2023, SAEOPP McNair/SSS Scholars Research Conference

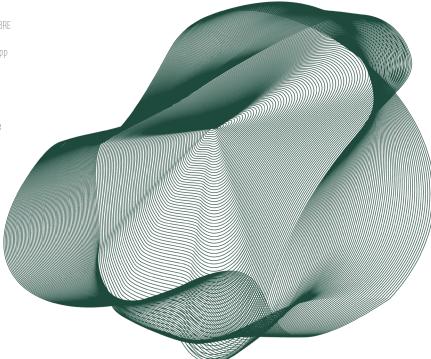
(CAS - Chemistry, Physics, Geology & the

(HONR450H - Nicholas Grossoehme)

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

Jamia Monique White

Iron homeostasis is essential for the growth of all living organisms. Iron aids in important cellular processes, including cellular respiration and oxidative stress response. However, its ability to alternate between the +2 and +3 charge states increases irons potential to be harmful for the cell. Consequently, cells have regulatory systems in place to regulate iron uptake. A common bacterium, Streptococcus pneumoniae, affects the lives of millions of individuals every year by causing infections including, but not limited to, pneumonia, meningitis, strep throat, otitis media, etc. Streptococcus pneumoniae is particularly interesting due to its lack of an efficient iron regulating system. Most bacteria have metal sensing systems from the FUR and DTXR regulatory families that are involved in managing their iron accumulation. This pathogen does not have an iron sensing system from either of these regulatory families. Alternatively, evidence suggests that an orphan response regulator, RitR, represses iron uptake within this pathogen. More specifically, dimerized RitR appears to inhibit iron uptake further. This project aims to quantify the amount in which dimerized RitR can repress transcription compared to a single RitR molecule. Previous evidence suggests that upon iron +3 binding to DNA, RitR dimer binds. This study is exploring current efforts to increase the yield of RitR Dimer in order to reproduce these results.



Honors Thesis Committee: Victoria Frost. Ph.D.: Daniel Stovall, Ph.D.; Kathryn Kohl, Ph.D.

Association of Southeastern Biologists, Myrtle Beach, South Carolina, March 2025

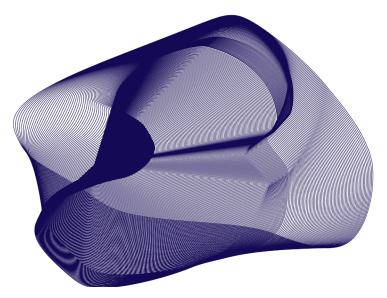
Supported by INBRE

(CAS - Biology)

#### Phage-Host Interactions: Getting Closer to Discovering Phage Gene **Functions**

Jessica E. Morgan

ExplosioNervosa is a bacteriophage that infects *Mycobacterium smegmatis*. Through both sequencing and amplification techniques, two different populations of ExplosioNervosa have been identified: a Wild-Type and a Mutant. In the mutant population, 11 annotated genes have been deleted out of the genome, the majority of which have no predicted function. This has posed questions about the effect of gene loss on overall phage biology, and phage-host dynamics. All 11 genes missing in the mutant population have been amplified, assembled into a plasmid, and sequence confirmed. These 11 genes then proceeded through a characterization technique called a cytotoxicity assay, which provides a visual indication of an interaction occurring between the phage gene product and host proteome. Cytotoxicity is identified through a decrease in host growth. Of the 11 genes, gp80 and gp81 displayed this cytotoxic character. To investigate the possible function of these genes, each proceeded through a Bacterial-2-Hybrid (B2H) Assay. A B2H assay utilizes a specifically engineered dual hybrid system that allows for the identification of the host protein that is interacting with the phage gene product. One plasmid contains the phage gene and the other contains random fragments of the *M. smegmatis* genome. If gene products from both plasmids interact, stabilization of the RNA polymerase occurs and allows for the expression of the reporter genes. We then "pick" bacterial colonies expressing the reporter genes (termed "hits") and sequence the plasmid containing the *M. smegmatis* fragmented genome. This allows us to identify which host protein(s) the phage gene product is interacting with, and provides clues to the potential role of the phage gene under investigation. Ongoing inquiries are also examining any differences in infection timelines with regard to the presence of this mutation. In tandem, these experiments provide a glimpse into phage-bacterial host interactions, potential phage gene function, and relevance.





Mentor: Janet Wojcik, Ph.D.

Showcase of Undergraduate Research and Creative Endeavors. Rock Hill, SC, April 2025

(CESHS - Physical Education, Sport & Human Performance)

(PESH 381 - Janet Wojcik)

## The Importance of Prehab and Strengthening the Muscles in the Legs to Avoid Knee Injuries in Sports Performance

#### Olivia Reál

In sports today, knee injuries are the most common type of injuries that an athlete suffers from. Understanding the importance of prehab and strengthening the muscles around the knee can help prevent those knee injuries that occur every day. Numerous knee injuries occur due to overuse, trauma, and lack of flexibility and strength. Many athletes suffer from torn ACLs, torn meniscus, osteoarthritis, torn ligaments and more. Maintaining a good prehab routine before games and practices, for example, straight leg raises, chair push-ups, along with others, can help reduce the risk of acquiring a knee injury. It is also crucial that athletes strengthen their muscles around the knee to reduce the stress that's on an athlete's knee joint. When an individual's leg is strong, it allows the leg to have more stability, which provides the leg with protection to the ligaments and cartilage, avoiding any injury. Creating good habits such as stretching, doing exercises. and strength training cannot fully prevent the knee from ever getting injured, but it can definitely reduce the risk of gaining injuries. For an athlete, it is important to avoid any knee injuries as it can affect them down the road or cause other injuries. Prehab and strength training not only reduces injury, it boosts sport performance by allowing the athlete to dig deep in the sport without hesitation that they are going to get injured. Creating these positive routines allows an athlete to perform at their best without the worry of getting injured.

Mentor: Janet Wojcik, Ph.D.

April 2025 Showcase of Undergraduate Research and Creative Endeavors

(CESHS - Physical Education, Sport & Human Performance)

(PESH 381 - Janet Wojcik)

#### How Sports Psychology Plays a Role in Periodization in Lacrosse

#### Scarlet M. Cifarelli

**Gwen Pregnall** 

Sports psychology is arguably the most overlooked factor in the effectiveness of an athlete's overall performance through periodization. Implementing sports psychology impacts the physical well-being of a team, but more importantly, strengthens mental resilience and adaptability through adverse times. Sports psychology is the foundational work that must be properly established to enhance lacrosse performance and shape each individual player both mentally and physically. Lacrosse is a very high-impact and fast-paced sport requiring each player to think quickly in intense and pressure-filled times. This is when sports psychology comes into play because if one does not know how to learn certain skills and techniques, they will crumble with this sport almost immediately. Sports psychology focuses on meditation, visualization, staying in control of emotions, and to become overall concentrated and confident in their abilities on the field. The game of lacrosse is mentally and physically demanding and can take a negative toll on both of these factors if not treated correctly. Most teams focus mainly on the treatment of the athlete's body and not their mind, but an athlete's mind is much more powerful than their body's performance. Sports psychology also addresses each team as a whole. Team comradery and dynamics are crucial to creating a powerful team because they highlight communication skills, trust, and connections. Sports psychology throughout periodization is a key component in addressing the mental aspects of lacrosse, it transforms an individual and a team into a complete power unit.

Mentor: Janet Woicik. Ph.D.

(CESHS - Physical Education, Sport & Human Performance)

(EXSC 511 - Janet Wojcik)

## **Aging Comfortably: Best Prescription Practices**

#### Camden Davis

There has historically been some disagreement over the proper exercise and nutrition guidance for older populations. Some evidence has shown that in rare instances, weight loss can be appropriate, and for others the opposite is true. It is also unclear whether unknown (at the time) causes contribute to mortality found in study results that confound the protocols tested. However, recent years have shown an emerging consensus on the proper approach when it comes to exercise and diet prescription for older populations. It is more safe and healthy to maintain weight as old people age than to initiate even mild weight loss regimes. In addition, training for old people must generally be slower progressing as muscle and strength gains aren't as marked as in younger populations. In addition, structural and connective tissues adapt slower than muscle in response to exercise, increasing the risk of injury. The optimal program for health and quality of life should include maintenance of weight, slow and steady gains in strength training at a moderate intensity (5-7 RPE) at least three times per week with an emphasis on axial loading for maintenance of bone density, and moderate intensity (12-14 RPE) aerobic training for at least 30 minutes five times per week with varying machine modalities to spread joint stress. Additional balance training is advisable to maintain balance and coordination with aging. This program will allow for the comfortable aging of older populations with an increase in quality of life.

Mentor: Leslie Bickford, Ph D

English department's conference on March 1st, 2025

(ENGL300 - Leslie Bickford)

# Catherine Morland: An Autistic Heroine in an Ableist World

Catherine's character in Jane Austen's novel Northanger Abbey supports the key claim of disability theory: the problem lies not in the disabled person, but in the society that created the concepts of normalcy and disability. Catherine Morland is one of Jane Austen's most strongly autistic coded characters. She struggles to understand social cues and sarcasm, has a special interest in gothic novels, and presents evidence of masking. On top of showing how regency era England does not accept autism, Austen shows that despite the problems society causes, Catherine succeeds in becoming Northanger Abbey's heroine and obtaining true friendships. While other critics have done well in identifying Catherine as an autistic-coded character, very few have approached her character from a disability theory perspective. This results in problematic interpretations of Catherine's character; ones that fight against Austen's intentions. These interpretations suggest that Catherine must change her autistic self to adhere to the neurotypical construction of normalcy in order to become the heroine of the novel. This essay aims to fight against that claim using disability theory. As Austen implies, it is not Catherine's identity that prevents her from the heroine role, it is the role itself. The heroine role is a construction of normalcy, which is part of ableist ideology. While Austen demonstrates the ways in which ableist society causes difficulties for Catherine, she also shows that Catherine's autistic traits allow her to succeed despite an ableist society.

Mentor: Tony Hobert, Ph.D.

South Carolina Political Science Association Conference in March 2024

Southern Political Science Association Conference in Jan. 2025.

The Stephen Smith Award for Civically and Politically Engaged Undergraduate Research Award

(CAS - Political Science. Philosophy, Religion &

Mentor: Merry Sleigh, Ph.D.

Southeastern Psychological Association conference in Atlanta, GA

(CAS – Psychology)

(PSYC302 - Merry Sleigh-Ritzer)

#### Two Birds One Stone: Securing Homeless Voting Rights as a **Counteractive Measure to Inequity**

Olivia Whitfield

Anatole France once noted that "[T]he majestic equality of the laws [...] forbid rich and poor alike to sleep under the bridges, to beg in the streets, and to steal their bread" (1924, 91). In the U.S.-in accord with philosophical forbearers like Locke, Montesquieu, and Tocqueville—the law is said to apply equally to all, and all should have equal opportunity, which would mean equal possibility of outcome, but this is not the case. Root inequities create a harsh divide between haves and have-nots in the U.S. Homelessness is a self-reinforcing cycle that has proven difficult to break, in part due to false assumptions that homeless people have the same opportunities and same possibilities of outcomes as other Americans. Until this false assumption is laid bare. we will make little headway to create equitable opportunities for all. Of course, as John Rawls recognized, a society without inequities does not exist, and that inequities should only be permitted in the case in which they would benefit the least privileged members of society. Sociologist T.H. Marshall also recognized inequities must exist for a functional society, but asserted that citizenship is continually undermined by political, civil, and social inequities, as citizenship lays the groundwork for rights to be established. This article examines how these ideologies manifest at the intersection between social, political, and civil rights and duties. These rights and the inability to fulfill the corresponding duties aid in creating and perpetuating the circumstances that keep homeless Americans homeless.

#### College Students' Perceptions of Athlete and Non-Athlete **Romantic Relationships**

Riley Schroeder, Amy Glowatch, Zoe Lexovsky

We examined college students' perceptions of athletes' romantic relationships. We hypothesized that male athletes would be perceived as having the most relationship advantages, especially when paired with a female non-athlete. Participants (n = 117) were college students. The majority were women (74%) and Caucasian (58%). Thirty-five percent were Division I college athletes. Participants were randomly assigned to one of four experimental conditions. They read a scenario about a relationship between college students that varied in whether the man was an athlete, the woman was an athlete, both were athletes, or neither were athletes. Participants provided their perceptions of the relationship and then rated a list of adjectives on how well each matched college students and student-athletes. Results revealed that students perceived athletes to have more power, and exert less effort, than non-athletes in their romantic relationships. This finding was especially true for female athletes. which contradicted our prediction that male athletes would be perceived as most advantaged. Participants attributed positive adjectives more strongly to athletes than to non-athletes. Perhaps reflecting their esteemed status on campus, athletes' self-perceptions were also more favorable than non-athletes' self-perceptions. The characteristics most highly attributed to non-athletes were academic in nature (e.g., intellectual), while those for athletes were not. These findings indicate that athletes are still challenged by negative stereotypes on today's college campus.

Mentor: Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025

Supported by Research Council Grant

Showcase Session, Awarded April 2025. Southeastern Psychological Association

(CAS - Psychology)

(PSYC302 - Merry Sleigh-

#### Effect of Valence Priming on Cognitive Appraisals of Traumatic **Events**

Isabel Sherrill, Kat Efird, Macey Delaney, Madalin Beam

We hypothesized that priming adults with a message that trauma promotes growth would lead to more positive perceptions of traumatic experiences, while priming adults with a message about trauma leading to victimization would lead to more negative perceptions. Participants (n = 162) were primarily women (75%) and Caucasian (87%). We assessed participants' past trauma and then randomly assigned them to one of two groups. They read either a prime describing trauma as a growth opportunity or a prime describing trauma as a victimization experience with long-lasting negative impact. Participants then responded to scales to measure post-traumatic growth, self-esteem, and resilience. We found that intense trauma was associated with lower self-esteem, reflecting the long-term impact of early childhood experiences. We also found that greater levels of childhood trauma predicted greater post-traumatic growth, and greater poster-traumatic growth predicted higher self-esteem. These positive outcomes emphasize the potential to thrive following adverse events and mirror previous research recognizing the potential for growth after trauma. Adults' perceptions of their childhood trauma experiences were not modified by a brief priming exercise, suggesting that short-term interventions may not be as effective as longer-term strategies such as cognitive reappraisal and self-identifying as a survivor. Compared to men, women were more vulnerable to trauma and were more likely to experience growth. Race did not emerge as an influential variable. These findings add to our growing understanding of both the negative impact of childhood trauma as well as the potential for post-traumatic growth.

Mentor: Aaron Hartel.

Research Council Grant

(CAS - Chemistry, Physics, Geology & the

(CHEM351 - James Hanna)

## Utilizing the Brook Rearrangement to Form y-Ketooximes and Their SilylEnol Ethers from Acylisoxazolines

Jaylin S. Sypolt

y-Ketooximes are versatile synthetic intermediates and can be used as precursors to a variety of important structures including pyrroles, pyrrolidines, and y-amino alcohols. Additionally, the corresponding silyl enol ethers of these useful structures have potential for the preparation of more highly-substituted v-ketooxime variants. We have developed a method for the preparation of v-ketooximes and their silvl enol ethers from acylisoxazolines using silyllithium reagents. The reaction utilizes a Brook rearrangement: the migration of a silvl group from a carbon to an oxygen. By adjusting reaction parameters such as solvent, silvllithium reagent, and temperature, the reaction can be tuned to favor either the y-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 y-ketooxime or silyl enolether can be isolated using column chromatography.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025

(CAS – Psychology)

(PSYC471A - Merry Sleigh-Ritzer, PSYC472 - Merry Sleigh-Ritzer)

Mentor: Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference in Atlanta, GA. 2025 SAEOPP McNair/ SSS Scholars Research Conference in Atlanta GA 2024

Supported by McNair Scholars Program

(CAS - Psychology)

#### Social Media Addiction, Identity Instability, and Paranoia Predict **Gender Stereotyping**

Brailyn Radcliffe

We hypothesized that social media addiction, paranoid thinking, lower self-esteem. and identity instability would predict greater acceptance of posts depicting men as emotionally or physically dangerous to women. Participants (n = 93) were adults, primarily women (77%) and heterosexual (68%). Participants responded to the following scales: Social Media Addiction, Identity Instability, Self-Esteem, and Paranoid Thoughts. Participants provided their opinions about four popular TikTok posts that each pictured a young woman with a quotation about: 1) marriage being scary because men are lecherous, 2) preferring to be in the woods with a bear rather than a man, 3) creepy men making women feel unsafe, 4) a boyfriend cheating despite his girlfriend's vigilance. The more participants engaged with social media, the more they agreed with characterizations of men as physically and emotionally dangerous to women. Ironically, when we asked our participants what factors influenced their opinions, they ranked social media third out of four choices. We also found that paranoid thinking and identity instability predicted belief in the "dangerous men" themes. Women seemed more vulnerable to the stereotypes than did men, even though men and women reported similar levels of social media addiction. Self-esteem seemed to be somewhat of a protective factor although it did not decrease belief in all of the "dangerous man" themes. These findings add to our understanding of the inter-related factors that contribute to modern, media-promoted gender stereotypes.

#### Post-Traumatic Growth Following Parentification in Black and White Women

Jazlyn N. Wilson

Parentification happens when children are forced to take on adult responsibilities in the household, such as caring for siblings, grocery shopping, or financially contributing (Lewis, 2021). We focused on whether women who lived through childhood parentification experienced psychological growth as a result. We hypothesized that increased parentification would predict greater growth and that Black women would experience more growth than White women. Participants were 91 women, with a mean age of 35.54 (SD = 7.74). Half were Black and half were White. The majority (65%) were heterosexual. Participants responded to the following scales: Trauma and Life Events. Brief Resilience, Post-Traumatic Growth, and Parentification. We found that both Black and White women were vulnerable to being victims of childhood trauma. Higher levels of trauma led to higher levels of growth for all women, and Black women grew the most. Higher levels of parentification predicted higher levels of post-traumatic growth, especially for Black women. Our qualitative data offered one possible explanation. Black women in our study viewed parentification as an opportunity to gain maturity and life experience, and they were proud of their accomplishments. In contrast, White women took longer to process and move past their early experiences, perhaps a luxury of time that reflects societal privilege. The longer processing could also explain why White women had less post-traumatic growth. Our study offers some of the first empirical evidence that parentification can lead to post-traumatic growth, especially for Black women.

Mentor: Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025

(CAS – Psychology)

(PSYC471A - Merry Sleigh Ritzer, PSYC472 - Merry Sleigh-Ritzer)

Beliefs about Cheating Predicted by Social Media Addiction and **Observer Personality** 

**Brailyn Radcliffe** 

We examined whether social media use, identity instability and paranoid thinking predicted cheating beliefs. Participants were adults (n = 88), recruited online, with a mean age of 24.82 (SD = 7.89). Participants responded to the following scales: Bergen Social Media Addiction, Identity Instability, and Paranoid Thoughts. Next, participants were randomly assigned to one of three conditions. Participants read a narrative about a romantic, heterosexual relationship that differed on whether the man was cheating (n = 30), the woman was cheating (n = 30), or no cheating was mentioned (n = 28). After a manipulation check, participants provided their opinions about the narrative. Results revealed that adults, in general, did not think they would be a victim of cheating in their romantic relationships. However, supporting our hypotheses, behavior and personality modified these beliefs. Participants who were addicted to social media believed that men cheat and it made them sad when a woman cheated. Participants with high identity instability believed that men cheat, felt sad about a woman cheating, and felt angry about a stable relationship. Participants with paranoid thinking felt sad when a woman cheated and felt angry about a stable relationship. These findings suggest that social media exposure may be influential in individuals' beliefs about partner infidelity. We also found that identity instability and paranoia may create relationship challenges as they predicted anger toward successful couples.

Mentor: Merry Sleigh, Ph D

Southeastern Psychological Association Conference in Atlanta, GA. April. 2025

(PSYC302 - Merry Sleigh-Ritzer)

#### Afterlife Beliefs and Belief Confidence Predict Well-Being and **Death Anxiety**

Kasev Long, Brenna Yeary, J'Nya Whaley, Kayli Fogle, Claire McLewee, Yasin Yildiz

Death anxiety refers to the emotional and cognitive discomfort caused by the anticipation of dying or death. Research on this topic is limited and contradictory. Thus, we re-examined previously studied variables simultaneously. We hypothesized that higher well-being and lower death anxiety would be predicted by: 1) a strong afterlife belief, 2) expectations of a rewarding afterlife, or 3) confidence in afterlife beliefs. Participants (n = 110) were adults with a mean age of 29.41 (SD = 14.99). The majority were women (66%), Caucasian (67%), heterosexual (72%) and affiliated with a Christian faith (66%). Participants responded to the following scales: Afterlife Expectation, Belief in Afterlife, Death Anxiety Beliefs and Behaviors, and Centrality of Religion. Our results supported our hypotheses. Adults' well-being was predicted by a stronger belief in the afterlife, expectations of a joyful afterlife, and confidence in those beliefs. Conversely, higher death anxiety was predicted by a weaker belief in the afterlife, low expectations for a pleasant afterlife, and low confidence in those beliefs. In other words, envisioning a pleasant outcome following death not only helped adults face death more peacefully, it enhanced their current sense of well-being. Death anxiety was higher for women, atheists, and younger adults, and these groups shared the associated thought patterns of unpleasant expectations and low belief confidence. These findings offer additional evidence in the context of conflicting data and suggest that changing death-related thoughts can alter adults' immediate well-being as well as reduce their fears about death.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025

(CAS – Psychology)

(PSYC302 - Merry Sleigh-Ritzer)

### Social Media Consumption Predicts Increased Materialism and Fear or Missing Out

Destiny West, Brooke Price, Helen Murray

We investigated social media use, materialism, and fear of missing out (FOMO). We hypothesized that the more social media adults consumed, the more they would report experiencing materialism and FOMO. Participants (n =184) were young adults, primarily women (73%) and Caucasian (59%). Participants responded to the following scales: Digital Media Overuse, FOMO, Materialism, and Social Desirability. Our hypotheses were supported. People with increased social media interaction placed more value on and experienced greater feelings of pleasure from material possessions. Perhaps social media, which is characterized by advertisements and images of others' possessions, encouraged materialistic desires in viewers. Conversely, materialistic individuals may intentionally use social media to display their possessions to others. Our participants provided evidence that materialism was not viewed as a healthy trait, as only participants low in social desirability admitted to being materialistic. Our data also matched our prediction that increased social media consumption would relate to higher levels of FOMO. Social media may create FOMO when viewers compare their everyday lives to an idealized, and false, version of what others are experiencing - including others' material possessions. Alternatively, adults who struggle with FOMO may actively seek social media to stay socially connected to others. Age was our most significant demographic predictor, with younger adults being the most engaged with social media and most vulnerable to materialism. These findings expand our understanding of the interconnectedness of social media use, FOMO, and materialism and are relevant in a society where social media use is the norm for young adults.

Mentor: Kunsiri Grubbs, Ph.D.

Association of Southeastern Biologists, Myrtle Beach, March 2025

Supported by INBRE

(CAS - Biology)

#### Application of microsatellite markers in the conservation of Helianthus schweinitzii

Zofia Gordon, Gwendolyn Tomlin

Helianthus schweinitzii, a federally endangered sunflower, is native to the Carolina Piedmont. This tetraploid hybrid, derived from *H. microcephalus* and *H. giganteus*. reproduces both sexually through pollination and asexually via tuberous rhizomes. Asexual reproduction is beneficial for survival, particularly in response to habitat loss. However, this dependence on asexual reproduction might contribute to reduced genetic diversity within the species. Therefore, understanding the genetic composition of different populations is crucial for its conservation. This study examines genetic diversity within and between populations of *H.schweinitzii*. We have utilized simple sequence repeat (SSR) methods with a universal M13 tail and 19 potential molecular markers, enhanced with various phosphorescent dves for increased efficiency. The resulting information will reveal insights into clonality, genetic diversity, and population structures of *H. schweinitzii*. Consequently, we can develop tailored conservation plans addressing the specific genetic diversity needs of each population.

Mentor: Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference, Atlanta. GA. April 2025

(CAS - Psychology)

#### Narcissism and Imposterism Predict Judgmental Behaviors and **Attitudes on Social Media**

Makelya M. Stevens

We hypothesized that social media addiction would predict imposter feelings and narcissism. We also hypothesized that narcissism and imposter feelings would predict more concern about being judged and more judgment of others on social media. Participants (n = 90) were adults with a mean age of 21.14 (SD = 2.87). The majority were African American (60%), women (84%), and heterosexual (62%), Participants responded to the following scales: Imposterism, Social Media Narcissism, and Social Media Addiction. Next, we randomly assigned participants to one of three experimental groups. They were asked to imagine their social media posts being seen only by 1) friends, 2) employers, or 3) enemies. After a validity check, participants responded to scales to assess their perceptions of judging and feeling judged on social media. Results revealed that the intended audience did not modify social media judgment and feelings of judgment. Perhaps young adults do not carefully consider their social media audience, or alternatively, they believe their posts are acceptable for all audiences. Supporting our hypothesis, social media addiction predicted imposter feelings and narcissism. Imposterism and narcissism were not correlated, suggesting that social media addiction is uniquely related to these two unhealthy tendencies. Social media addiction, imposter feelings, and narcissism predicted high levels of social media judgment and sensitivity to judgment, with narcissism being the strongest predictor. Ironically, those who were most sensitive to being judged on social media were also the most judgmental. These findings confirm that excessive social media use relates to a range of unhealthy outcomes.

Mentor: Sarah Reiland. Ph D

Southeastern Psychological Association, Atlanta, GA, April 2025.

Supported by Research Council Grant

(CAS - Psychology)

(PSYC471A - Merry Sleigh Ritzer)

#### Self-Efficacy and Distress in Students With Low vs. High PTSD Scores

Parker L. Short, Rilev B. Schroeder

Social support is linked to better mental health post-trauma, but studies are often limited by reliance on self-report measures of social support. In the current study, PTSD symptoms were assessed in 133 college students prior to exposure to a challenging task, during which low or high support was offered. Results demonstrated that perceptions of support correlated strongly with actual levels of support. Additionally, in the low support condition, students who scored high on a PTSD screener reported more distress and lower self-efficacy after the task compared to students with lower PTSD scores. Self-efficacy and distress following the challenging task did not differ significantly between the low- and high-PTSD groups in conditions of high support. Although levels of distress and self-efficacy remained similar for students with low PTSD scores regardless of the support received during the challenging task, higher support during the challenging task was associated with better mental health outcomes in students with high PTSD scores. Although more research needs to be done with larger sample sizes to confirm these findings, this study provides preliminary support for the notion that perceptions of support are indeed linked to actual levels of support. The findings also highlight the tangible benefits of providing a supportive environment for students with PTSD.

Southeastern Psychological Association Conference in Atlanta. GA, April 2025

(CAS – Psychology)

(PSYC302 - Merry Sleigh-Ritzer)

### Love Addiction Predicts Social Comparison and Poor Self-Esteem in Young Adults

Adriann L. Robertson, Malana E. Washington

We examined love addiction in the context of social comparison behaviors, including the realm of social media. We hypothesized that higher levels of love addiction would predict higher levels of social media comparison, need to belong, and sensitivity to criticism. We also expected love addiction to negatively correlate with self-esteem. Participants (n = 137) were young adults. The majority were women (71%), Caucasian (47%), and heterosexual (64%). Participants responded to scales that measured: love addiction, social media usage, need to belong, self-esteem, and sensitivity to criticism. Although love addiction did not occur at high rates, we found similar rates across demographic categories. This finding mirrors the fact that love addiction is showing up more and more frequently in therapeutic settings. We also found support for our hypotheses. Young adults who experienced love addiction also struggled with lower self-esteem, sensitivity to criticism, and need to belong. Adults high in love addiction spent more time comparing themselves to others on social media. Because these are correlations, it is impossible to tell if one of these factors causes the others. Perhaps unhealthy self-esteem and social sensitivities create the addictive pressure to find meaning in romantic relationships. Conversely, perhaps having addictive love strategies results in unsatisfactory romantic outcomes and exacerbates behaviors of social comparison, relational needs, and poor self-image. These findings might be useful for those who counsel young adults, create social media, or want to foster healthy relationships. The data also contribute to our growing understanding of this increasingly prevalent behavior.

Mentor: Jennifer Schafer. Ph.D.

Association of Southeastern Biologists, Myrtle Beach SC. March 2025

Supported by Research Council Grant

(CAS - Biology)

(BIOL471 - Jennifer

## Allocation to Carnivory and Prey Trapping in Pink Sundew (Drosera capillaris) in Seasonal Ponds in Florida

Nicholas Stalford, Amber Mercer, Sabrina Rocha

Carnivorous plants capture prey to supplement low soil nutrient availability. The goal of our research was to investigate the effects of time since fire on allocation to carnivory and prey trapping in pink sundew (Drosera capillaris), which uses glandular trichomes to capture prey. We conducted our research in the Florida scrub ecosystem at Archbold Biological Station, where the ecosystem is managed with prescribed burns. Pink sundew occurs in seasonal ponds in the Florida scrub ecosystem. We haphazardly searched for pink sundews in seasonal ponds 1 to 16 years post-fire, established plots, and selected focal individuals in and near the plots. We measured the length and width of the pink sundews, collected the individuals, and counted the number of leaves and the number of trapped arthropods. There was a negative relationship between time since fire and the total number of leaves and pink sundew area. There was no relationship between time since fire and the number of arthropods trapped on pink sundew, but there was a positive relationship between pink sundew area and the number of arthropods trapped. We were able to identify 68 of the 201 trapped arthropods. Of these, over 75% were in the order Diptera or Hymenoptera. Our results suggest that pink sundew allocation to carnivory is influenced by time since fire. Prey trapping by pink sundew could be related to arthropod abundance in addition to plant characteristics.

Mentor: Merry Sleigh, Ph.D.

Southeastern Association of Educational Opportunity Program Personnel in Atlanta, GA, June 2024.

Southeastern Psychological Association Conference in Atlanta, GA

Supported by McNair Scholars Program

SAFOPP Conference in Atlanta, Georgia. First Place, Poster Session.

(CAS - Psychology)

## Hispanic and Latino/e Adults' Generational Transmission, **Acculturation and Attitudes Toward Mental Health Resources**

Melissa Trejo Villa

We examined whether acculturation predicted Latino adults' perceptions of mental health resources. We also explored the possibility of parental influence on these attitudes. Participants (n = 102) were adults of Latino/e background with parents who immigrated to the United States. Participants had a mean age of 33.07 (SD = 7.37). Half were men and half were women. Participants took an online survey to assess perceptions towards 'Psychological Help' (ATSPPH-SF) and 'Mental Health' resources (MHSAS). We asked participants to respond to the MHSAS again but instructed them to answer the way their parents would. Participants then responded to scales to measure their native and U.S. acculturation. Supporting our hypothesis, Latino adults raised in the United States had more positive attitudes toward mental health resources than they believed their parents (who immigrated to the U.S.) did. In other words. Latino adults raised in the United States had attitudes more similar to their U.S. peers than to their parents. In fact, their parents' scores did not predict their scores. We found partial support for our second hypothesis. The higher their native and U.S. acculturation, the more receptive Latino adults were when the scale wording referred to mental health rather than to psychological problems. We also found that women were more receptive to mental health resources than men. These findings suggest that local culture may be more influential than family or native culture in driving attitudes. In addition, a healthy identification with both cultures seems to increase receptiveness to mental health resources.

Mentors: Bradley Young, Ph.D.; John Hairston Jr., M.F.A.: Dustin Hoffman. Ph.D.

Winthrop University Department of Design Senior Show. Free Range Brewing, April 25 2025

(CVPA - Design)

(VCOM486 - Bradley Young, VCOM486 - Bradley Young)

#### Star Guiders

Natalie Staub

This thesis project is the creation of Part One of an original fantasy graphic novel called Star Guiders. Star Guiders is set in a world where dragons control the universe's celestial objects. The Star Guiders are a group of people that serve as dragons' companions, joining the dragons in their roles in space. The story will focus on a few of these Star Guiders as they grapple with the uncertainty of what the future holds while also trying to find their place in the world. Star Guiders is primarily targeted towards young adults but can be enjoyed by a wider audience of middle grade and older readers. Beyond entertainment, I aim for Star Guiders to have important emotional meaning and as such communicate the importance of not letting your fears hold you back. Though it has many high fantasy elements with inspiration from global mythologies and fantasy media, the story is primarily character focused. It has an underlying theme of mental health, particularly anxiety and how larger issues in the world can affect it—much like issues such as climate change do for many individuals in the real world. Though this senior thesis work is only the first part of a larger story, it serves as an introduction to the world, characters, and conflict while itself being a full story arc. I aspire for Star Guiders to be a story that readers can connect with emotionally while also getting to experience an imaginative and fantastical new world.

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

Free Range Brewery. April 2025

(CVPA - Design)

(VCOM487 - Bradley Young, VCOM486 - Bradley Young)

# The Sandbar Studio - Graphic Design Studio Branding

#### Savannah Garrison

This project aims to create a distinctive brand identity inspired by the vibrant, island-style aesthetic of Hawai'i, while ensuring cultural sensitivity and respect. The brand will evoke the spirit of Hawai'i through modern design, without appropriating sacred or culturally significant elements. No sacred imagery will be used, maintaining the designs' respectfulness and avoiding exploitation. Drawing from Hawai'i's natural beauty, landscapes, and everyday life, the brand will feature tropical flora, coastal imagery, and island-style patterns that reflect the relaxed, sun-kissed lifestyle of the islands. These designs will be visually appealing, accessible, and culturally mindful. The target audience for this brand consists of young adults aged 18-30, who are passionate about travel, home decor, exploring new cultures, and seeking authentic island-inspired aesthetics. The brand aims to resonate with both those familiar with Hawai'i and those attracted to its island style from a distance. Sacred Hawaiian symbols will be avoided in favor of widely recognized elements of the "island style," such as palm trees, surf culture, ocean waves, and tropical florals, which embody the relaxed, beach-oriented lifestyle. The project will incorporate various branding materials, including print designs, social media graphics, style guide, and other brand collateral to create an inclusive brand that celebrates the spirit of Hawai'i while promoting cultural awareness. The ultimate goal is to foster a deeper appreciation for Hawai'i's natural beauty and island lifestyle, all while prioritizing cultural respect and sensitivity.

Mentor: Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025.

Showcase Session

(CAS - Psychology)

(PSYC302 - Merry Sleigh-Ritzer)

## Relations Among Social Media Intensity, Empathy, Loneliness, FOMO & Social Judgment

Summerlyn R. Mixson, Mars Murray, Alexis Nesbitt

We examined empathy while simultaneously examining social media users' social confidence and judgmental attitudes on social media. We hypothesized that young adults who spent more time on social media would exhibit lower levels of empathy. less confidence when comparing themselves to others, and a higher tendency to judge others online. We also examined whether time on social media predicted loneliness. Participants (n = 119) were adults with a mean age of 22.69 (SD = 5.64). The majority were Caucasian (43%), women (64%), and heterosexual (53%). Participants responded to the following scales: Social Media Intensity, Social Comparison, Fear of Missing Out (FOMO), Toronto Empathy, Loneliness, and Social Media Judgment, Our hypotheses were not supported. Social media use did not predict empathy, social comparison confidence, or social media judgement. One possible explanation is that all participants reported very high social media intensity scores; in fact, social media intensity and social media judgment was consistent across demographic categories. Although our hypothesis was not supported, we found that social media intensity predicted FOMO. We also found that loneliness was a powerful predictor. Lonely people felt inferior to others, excluded, judgmental, and less empathetic. Our findings provide additional data as researchers attempt to better understand social media use and emphasize the power that loneliness might exert even for individuals living in a context characterized by social media connectedness.

Mentor: Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference in Atlanta. GA, April 2025

(PSYC302 - Merry Sleigh-Ritzer)

Mothers' Parenting Style, More than Fathers', Influences Adult Relationships

Neveah Sutton, Maya Scott, Emma Calhoun

In a recent sample with Chinese adults, those with authoritarian mothers were less willing to compromise in their romantic relationships relative to adults who experienced other parenting styles. We examined this idea using a U.S. sample. Participants (n = 145) were young adults, primarily women (80%), and equally divided between African American and Caucasian. Participants responded to questions to categorize their mothers and fathers as authoritarian, authoritative or permisive and to the 'Relationship Sabotage Scale.' Sixty-six percent of mothers were authoritative, 25% were authoritarian and 9% were permissive. Forty-seven percent of fathers were authoritative, 32% were authoritarian, and 21% were permissive. We found that authoritarian mothering did not result in the worst outcomes. Instead, adults with permissive mothers reported the worst relationship skills, including withdrawal. Fathers' parenting style was not influential. One possible explanation is that children spent more time with their mothers than with their fathers. In fact, many of our participants reported having a mother but not a father figure in the home. We also had a disproportionate number of women in our sample, and woman might be influenced by their mothers more than their fathers. Our exploratory analysis evealed that African American adults and men reported some healthier (more secure) relationship tendencies than their Caucasian adults and women. These demographic-related findings, and the fact that our results differed from the Chinese sample, suggest that social and cultural factors exert more influence on adults' romantic relationships than those adults' parenting experiences in their childhood home.

Mentor: Chris Johnson, M Arch

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

(CAS - Chemistry, Physics, Geology & the

(ENVS 463 - Scott Werts)

#### Stochastic Simulations of *C. difficile* Spread in Assisted Living **Facilities**

Alli Brophy, Danielle Murphy, Andres Castellanos, Bryce Iversen

Clostridioides difficile, also known as C. difficile, is a bacteria commonly found in healthcare settings that spreads through touch and within the environment through colony-forming units of spores found on surfaces. Studies have shown that individuals with an advanced age are more likely to become colonized or diseased with C. difficile. The death rate from C. difficile has been reported to be one in 11 people with mortality in relation to the disease increasing with age. Many mathematical models, including agent-based models (ABMs), have been used to study the spread of *C. difficile* in hospital settings while few models have examined this transmission in long-term care facilities, such as assisted living facilities (ALFs). Residents in ALFs require care from staff for many activities of daily living, but often have a more social and active environment than in hospitals since residents may stay in their private rooms or visit common areas, especially during meal times. Due to the increased level of social activity in ALFs, model simulations of the spread of *C. difficile* will vary greatly when incorporating shared common spaces and how residents interact with them and each other. Our ABM accounts for these social behaviors and the assistance needs of residents in an ALF, the contamination on various surfaces, and the impact of healthcare workers and visitors as transmission vectors. In particular, we study how residents in ALFs are exposed to *C. difficile*, and how cleaning and staff protocols can be leveraged to mitigate the spread of this disease.

Southeastern Psychological Association Conference, Atlanta, GA. Arpril 2025

(CAS - Psychology)

(PSYC302 - Merry Sleigh-Ritzer)

Mentor: Timea Fernandez. Ph.D.

SC INBRE 16th Annual Science Symposium, Columbia, SC, February 2025

Supported by INBRE. FPSCoR, ADAPT In SC supported by NSF Award #0IA-22428

(CAS - Chemistry, Physics, Geology & the

(CHEM551 - James Hanna. CHEM552 - James Hanna)

#### Generational Differences in Perceptions of Inter-Religious, Inter-Racial and Inter-Political Relationships

Christian David Ray Herod, Andrew L. Krabbenhoft, Christopher Parkin

We examined Gen Z's perceptions of romantic relationships and their perceptions of how Gen X would perceive the same relationships. Participants (n = 97) were young adults with a mean age of 20.68 (SD = 2.86), primarily Caucasian (65%) and women (75%). Participants were randomly assigned to one of three conditions. They read a story about a romantic couple that were either of different races, political affiliations, or religious affiliations. Participants provided their perceptions of the couple and then responded to the same scale as their parents (i.e., giving us their perceptions of Gen X). Results revealed that young adults perceived racially diverse couples most positively and religiously diverse couples least positively. Young adults believed that their parents would agree with them by being most accepting of racially diverse couples; however, young adults also believed their parents would worry more about political differences than they did. These acceptance patterns may reflect societal changes where religious participation is decreasing while political tension is increasing. Young adults may perceive themselves as less reactive to political differences than their parents because they are newer to the voting process and the political landscape. Matching our hypothesis, young adults perceived themselves to be more accepting of diversity than their parents and other young adults. Race impacted these perceptions more than gender. Caucasian adults reported themselves as being more accepting of diverse relationships than African American adults did. African American adults' opinions may reflect a deeper understanding of discrimination and social relationships challenged by situational inequity.

#### Machine Learning Enhanced Design of RNA-based Fluorescent Biosensors for the Detection of the Neurotransmitter Dopamine Emma Westmoreland, Abigail Nation

Dopamine (DA) is a neurotransmitter that plays a role in the regulation of physical and emotional well-being. Irregularities in DA production have been linked to several addictive behaviors such as smoking, alcoholism, and obesity, as well as neurodegenerative disorders like Parkinson's disease. Early detection of DA abnormalities is paramount for effective diagnosis and treatment, while real-time imaging of DA could assist in the comprehension of their underlying mechanisms. As such, our project aims to design a DA-sensing RNA-based fluorescent (RBF) biosensor for initial *in vitro* experimentation and characterization. Using existing platforms. we can fabricate RBF biosensors that combine a ligand-sensing RNA aptamer with a fluorescent RNA aptamer to indicate the presence of biologically relevant molecules. Previous studies have used electrochemical and protein-based biosensors in the detection of neurotransmitters; yet, to our knowledge, no studies have developed a viable RBF biosensor for the detection of DA in vitro or in vivo. Previously, our collaborators in the Abernathy group developed an A.I. algorithm to predict which sensor is expected to be effective at detecting its ligand. The algorithm was based on analyzing the thermodynamic parameters of ~100 existing sensors coupled with their ability in detecting their ligand. Thermodynamic parameters included: entropy, ΔG. number of hydrogen bonds, length, melting temperature of the transducer, as well as the melting temperature of the sensor.

Mentor: Donna Nelson. Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025

(CAS - Psychology)

#### Positive Reappraisal of Adverse Childhood Events Increases Optimism, Hope and Life Satisfaction

Sera Crookes, Anniya Mays

Adverse Childhood Experiences (ACEs) refer to traumatic or distressing events that occur during childhood and can exert negative impacts extending into adulthood. ACEs have been linked to increased risk of chronic health issues, substance abuse. anxiety, depression, and post-traumatic stress disorder. However, individuals who experience ACEs can show resilience and growth despite their unfavorable past. This study explored the effectiveness of a strengths-based reappraisal intervention for promoting resilience following the recall of trauma. Participants (N = 69) were adults with a mean age of 19.63 (SD = 3.75). The majority of participants were White (51%) or Black (32%) and identified as women (71%). Participants responded to the 10-item ACE Scale. They then briefly wrote about their past trauma and were randomly assigned to a control group or an experimental group. In the experimental (strengths) condition, participants listed their top three personal strengths and described how their prior trauma may have fostered development of their strengths. In the control condition, participants wrote about the emotions they experienced in connection with their trauma, Participants also completed the Revised Life Orientation Test, the Trait Hope Scale and the Satisfaction with Life Scale. Results revealed that participants in the strengths condition reported greater optimism about their future, greater hope and greater life satisfaction than the control condition. Our findings demonstrate the value of a personalized strengths-based intervention, which engages individuals' inherent strengths to support emotional recovery. This approach shows promise as a targeted strategy for fostering resilience and adaptability in individuals with past trauma.

Mentor: Michael Lipscomb. Ph.D.

Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC. April 2025

(CAS - Political Science. Philosophy, Religion &

(PLSC490 - Michael

## The COVID-19 Pandemic and Refugee Insecurity at the U.S. - Mexico Border

Zella M. Woody

Title 42 is a U.S. public health policy created in 1944 and reinstated in 2020 upon the World Health Organization's declaration of COVID-19 as a pandemic. Although Title 42 is a public health policy in name, U.S. presidential administrations have weaponized the policy against refugees and asylum seekers from admission into the country through the U.S. - Mexico border. This research follows a timeline of the United States policy responses to COVID-19, including the Trump administration's reinstatement of Title 42 in 2020 and its expansion under the Biden administration in 2022. This research also includes an analysis of the realized effects these policies had on refugees' attempts to seek asylum and the reported migration data from the U.S. Customs and Border Control. Refugees, asylum seekers, and displaced peoples through the Western Hemisphere, with special attention to Latin American countries - namely Venezuela, Cuba, and the Northern Triangle countries of Honduras, El Salvador, and Guatemala – who are already facing domestic conflicts, including gang violence and authoritarian government systems, have experienced the harshest consequences of these U.S. policies. The U.S. administration's COVID-19 policies, particularly Title 42 and the suspension of refugee resettlement, exacerbated the insecurity of refugees and asylum seekers by restricting asylum access, worsening conditions of detention centers, and increasing vulnerability to economic, humanitarian, and health crises.

Mentor: Donna Nelson. Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025

(CAS - Psychology)

## Social Support Predicts Forgiveness, Self-Compassion, Growth and Hope Following Traumatic Experiences of Discrimination

Destiny West, Sera Crookes

Traumatic experiences of discrimination (TED) can have profound detrimental effects on emotional well-being. However, social support can provide a buffering effect against psychological harm caused by these experiences. While extensive research has documented the enduring negative impacts of discrimination, far fewer studies have explored the potential for growth following such experiences. Our objective was to explore connections between TED, social support, and post-traumatic flourishing. Participants (N = 127) were adults with a mean age of 25.52 (SD = 9.19). Approximately half were men (51%) and half were women (47%). The majority were White (51%) or Black (32%). Participants responded to the *Trauma Symptoms of Discrimination Scale*, the Revised Post-Traumatic Growth (PTG) Inventory, the Multidimensional Scale of Perceived Social Support, the Self-Compassion Scale, the Heartland Forgiveness Scale. the Trait Hope Scale, as well as demographic questions. Results revealed that participants who experienced high levels of TED with high social support reported greater PTG, more self-compassion, more forgiveness and more hope, compared to those with low social support. No differences were found as a function of social support for individuals who experienced low levels of traumatic discrimination. Exploratory analyses revealed that Black participants reported more TED, higher social support, more PTG, and more self-compassion. Our findings advance research on the critical role of social support in building resilience in response to adversity. Additionally, the significantly higher levels of TED reported by Black participants compared to White participants emphasize the importance of culturally responsive interventions to enhance resilience in marginalized communities.

Mentor: Timea Fernandez. Ph.D.

South Carolina Branch of the American Society for Microbiology Conference. Greenville, SC, November 2024

Supported by INBRE, EPSCoR, NSF, Winthrop University College of Arts and Sciences

(CAS - Chemistry, Physics, Geology & the

### Nucleic Acid Aptamer Gold Nanoparticle Conjugates as Trojan-Horse drug Delivery Vehicles in the Fight Against Bacterial Infections

Julianne V. Phu

Illnesses caused by bacteria are a major public health concern since microorganisms have become increasingly resistant to available antibiotics. Thus, rediscovering old drugs and using them for new purposes is becoming more important. The long-term goal of this project is to use nucleic acid aptamer-nanoparticle conjugates as vehicles for targeted delivery of antibiotics to bacteria that are resistant to them. Currently, we are investigating the therapeutic potency of nucleic acid-gold nanoparticle conjugates as carriers of tetracycline and ampicillin to treat infections caused by Gram-Negative model organisms. We hypothesize that attaching nucleic acids that binds to antibiotics and gold nanoparticles, the resulting conjugates will work as a "Trojan-horse" antibiotic-delivery vehicle that smuggles the antibiotic into the cell without being detected. Moreover, we reason that gold ions released by 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 nanoparticles. We are currently testing the antimicrobial effect of these aptamer nanoparticle conjugates using the Gram-negative model organism E. coli (ATTC strain 29522). MTS assays verified that the aptamer-nanoparticle conjugates do not harm mammalian cells. Recently we began using DNA aptamers developed for pathogen detection to target these antibiotic-nanoparticle conjugates to specific pathogens. Our studies indicated that Au nanoparticle antibiotic conjugates are more effective at reducing the growth of Gram-negative model organisms than the respective antibiotics alone without harming mammalian cells.

Mentor: Kelly Ozust, M.F.A.

Junior Dance Showcase

(CVPA - Theatre & Dance)

(DANT301 - Kelly Ozust)

#### "In Her Arms"

#### Miracle A. Etheridge

I am developing choreographic research to create movement by studying the relationship between a mother and daughter, using my own personal experience. There was a time in my life where I was severely depressed and was made to feel like I didn't have a support system. This broke me so much that it ultimately made me believe the fact that no one was there. My mom helped me in so many ways by getting me out of a depressive state, she tried hard to give me the strength that I needed to keep fighting. The topic that I am researching is very significant, as it will explore a bond that I believe that is unbreakable, everlasting, and shatterproof. The choreography presented will start with the heaviness the daughter feels by having this slouching movement. She feels the weight of her depression as it weighs her down. The daughter feels isolated and alone and this is causing her to pull away from everything including her moms help. When the mom enters, it's a warm feeling and uplifting movement trying to lighten her daughter by giving her the love and support that she needs. Ultimately at the end of the dance, the daughter breaks through the pull of the depressive state that she has gone through. Her mom was there to help her and lead her through this dark path she was on.

Mentor: Janet Wojcik, Ph.D.

(CESHS - Physical Education, Sport & Human Performance)

(PESH381 - Janet Wojcik)

#### **Preventive Exercises for Lower Back**

#### Karlee Adams

Lower back pain is a prevalent condition that can significantly impact daily activities and overall well-being. Preventive exercises have been shown to be highly effective in reducing the risk of lower back injuries and pain by strengthening key muscle groups, improving flexibility, and enhancing spinal stability. Core-strengthening exercises, such as planks and bridges, help support the spine and reduce strain on the lower back. Stretching routines, including hamstring and hip flexor stretches, improve mobility and prevent muscle tightness that can contribute to pain. Additionally, low-impact exercises like yoga, Pilates, and swimming promote proper posture, increase endurance, and reduce stress on the lumbar spine. Engaging in a structured and consistent exercise program tailored to an individual's needs can help prevent lower back injuries and enhance overall spinal health. This abstract explores the most effective preventive exercises and their role in maintaining a strong, flexible, and pain-free lower back.

Mentor: Jennifer Schafer. Ph.D.

Association of Southeastern Biologists, Myrtle Beach, SC, 03/2025

(CAS - Biology)

#### Post-fire Size Recovery of Sourwood (*Oxydendrum arboreum*) and Sassafras (Sassafras albidum)

Kerrington L. Norman, Nicholas Stalford

Plant species resilience after fire varies due to both species and habitat characteristics. We compared post-fire recovery of resprouting sourwood (Oxydendrum arboreum) and sassafras (Sassafras albidum) individuals in a temperate deciduous forest. We also compared sassafras between temperate deciduous forest and longleaf pine sandhills, which differ in fire return interval, soil resource availability, and topography. Sourwood and sassafras individuals were chosen haphazardly across a temperate deciduous forest site six months post-fire. We counted the number of resprouts and pre-fire shoots and measured the height and basal diameter of the largest resprout and dead stem of each individual. We found that the ratio of resprouts to pre-fire shoots was higher in sourwood than sassafras. Pre-fire stem basal diameter and resprout basal diameter were positively correlated across species and were larger in sourwood than sassafras. Sourwood and sassafras recovered their pre-fire diameter at a similar rate. We measured height and basal diameter of sassafras resprouts and pre-fire shoots in longleaf pine sandhills approximately six months post-fire. There was little variation between habitats in the proportion of pre-fire height and diameter recovered by sassafras. Overall, sourwood and sassafras recovered diameter at similar rates six months post-fire and neither species fully recovered their pre-fire basal diameter. Sassafras appears to be similarly resilient in temperate deciduous forests and longleaf pine sandhills as habitat has minimal impacts on post-fire recovery.

Mentor: Jennifer Schafer. Ph.D.

The Association of Southeastern Biologists, March 2025

Supported by INBRE

(CAS - Biology)

## Leaf it to the Herbivores: Effect of Species Identity and Time Since Fire on Insect Herbivory in Two Resprouting Plant Species

Amber L. Mercer, Sabrina Rocha, Nicholas Stalford

Plant characteristics and fire can influence insect feeding behaviors. Our research aimed to investigate the effect of plant species identity and time since fire (TSF) on insect herbivory in Licania michauxii and Palafoxia feayi. These plant species occur in Florida scrubby flatwoods and resprout after fire. Licania is a ground cover species with waxy leaves. Palafoxia shoots typically grow above surrounding vegetation and its leaves have trichomes. We haphazardly selected individuals of both species in scrubby flatwoods sites that differed in TSF. To assess plant characteristics and herbivory, we measured the leaf area, leaf mass per area (LMA), percent of leaves damaged by herbivores, and percent of leaf area lost to herbivory of each individual. In recently burned sites, there was no difference between species in the percent of leaves damaged or the percent of leaf area herbivorized. There was a significant relationship between TSF and LMA for Palafoxia, and there was a positive relationship between TSF and percent of leaf area herbivorized for Licania. Herbivory of Licania and Palafoxia was similar in recently burned scrubby flatwoods, which suggests that their different physical defenses and differences in LMA and foliar nitrogen do not influence insect feeding behavior. Our results also suggest that TSF has minimal effects on Licania and Palafoxia leaf characteristics and that the effect of TSF on herbivory is mediated by species identity.

Mentons: Knisti Westoven Ph.D.; Victoria Frost, Ph.D.

SEA Symposium April 2025 - Virtual

Supported by Other, Howard Hughes Medical Institute

(CAS - Biology)

(BIOL271 - Kristi Westover

## Prince Charming's Genomic Characteristics: From Soil to Sequence

Norah B. Kay, Olivia Morgan, Wyatt Reese, Asher Olivet, Simon Cherry

Bacteriophages are viruses that infect bacteria, using the host cell machinery to replicate. They are numerous in nature yet remain widely understudied. SEA-PHAGES is a two-semester program designed to discover, annotate, and dive deeper into the functions of genes of bacteriophages. PrinceCharming was discovered in soil near tree roots in the Hardin Garden at Winthrop University, Rock Hill, SC, Soil was collected at a depth of six inches at an ambient temperature of 32°C. Isolation was performed using bacterial host Mycobacterium smegmatis mc<sup>2</sup>155. PrinceCharming is a lytic phage as indicated by the clear plaques it produces. Phage DNA was extracted and analyzed using restriction enzyme digests and then sequenced at the University of Pittsburgh. PrinceCharming's genome has 67,429 base pairs with 92 predicted genes. It was determined to be in the B2 phage cluster due to percentage sequence homology with members of this cluster. Annotation occurred with software tools such as Phamerator, PECAAN, HHPred, NCBI Blast, PhagesDB, Genemark, and Starterator. These programs were used to identify open reading frames and determine coding potential and start sites. Amino acid similarity to genes in other phages and known proteins was assessed to propose gene function possibilities. The next steps will take place in the SEA-GENES iteration of this research program where we will further investigate the potential role of phage genes during bacterial infection.

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

Science Education Alliance National Symposium, Virtual, April 2025

Supported by Other, HHMI

(CAS - Biology)

(BIOL270 - Victoria Frost. BIOL271 - Kristi Westover)

#### Bacteriophages in our Backyard: Unearthing SVoro in Hardin Garden

Sasha J. Vorontsov, Aiyana E. Williams, Saachi Mehra, Kailyn C. Cabana, Mohammed Ridha Zvara

Winthrop University students conducted research sponsored by HHMI's SEA-PHAGES program on bacteriophages, which are abundant viruses that can only infect bacteria. Our phage, SVoro, was found in Hardin Garden at Winthrop University, Rock Hill, SC, where the soil was dark and moist at the time of collection. The phage was isolated on host bacteria Mycobacterium smegmatis mc²155. Once isolated, SVoro displayed plagues with a tiny, clear spot in the middle. SVoro was purified and then amplified to obtain a high titer lysate for genomic DNA extraction. After extraction, the DNA was characterized using gel electrophoresis to analyze how a suite of restriction enzymes cut the DNA. SVoro's restriction digest pattern was compared with other isolated phages and its genomic DNA was sent to the University of Pittsburgh to be sequenced. Using SVoro's sequenced genome, we investigated the open reading frames for putative genes and predicted their possible functions using bioinformatic tools: Starterator, HHPred, NCBI BLASTp, Phamerator, PECAAN, and the PhagesDB Database, SVoro, a lytic phage, was found to belong to the C1 subcluster with 227 predicted genes and 39 predicted tRNAs. Future plans will include working to gain a better understanding of the functions of these genes through SEA-GENES, the last course in the SEA program. It focuses on discovering the role phage genes play as they are expressed and interact with their bacterial host's proteome. Our efforts in SEA-GENES will continue to further our knowledge of phage-host interactions.

Mentor: Donna Nelson. Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. April, 2025.

(CAS – Psychology)

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

31st Annual SAEOPP McNair/SSS Scholars Research Conference (June, 2024) Winthrop McNair Summer Research Symposium (June 2024)

1st Place in Business Category, 31st Annual SAEOPP McNair/SSS Scholars Research Conference

(CBT - Management & Marketing)

### Priming Strengths Enhances College Students' Coping Efficacy and **Emotion Regulation**

Porsha Nesbitt

A growing number of college students face mental health challenges and identifying effective coping strategies is crucial. This study explored the role of a strengths-based intervention in enhancing emotion regulation and coping self-efficacy among college students, particularly those with a history of trauma. Participants (*N*=71) were adults with a mean age of 20.60 (*SD*=6.20). Approximately half of the participants identified as White (45%) and half identified as Black (45%). The majority were women (69%) and heterosexual (67%). Participants wrote about a prior traumatic event and were then randomly assigned to a control condition or a strengths intervention condition. The intervention emphasized awareness of personal strengths and highlighted their relevance to coping. Next, participants completed ratings of positive and negative emotions and then responded to the Coping Self-Efficacy Scale and the Regulatory Emotional Self-Efficacy Scale. We hypothsized that the strengths intervention would enhance self-efficacy in both coping and emotion regulation and reduce negative affect following trauma recall. Results revealed that participants in the strengths intervention condition, compared to the control group, experienced less negative emotion and more positive emotion. They also reported greater self-efficacy in managing emotions and coping. Additionally, significant differences were found across demographic groups, with Black paticpants reporting higher emotion regulation and coping self-efficacy. These findings suggest that strengths-based interventions can effectively promote resilience and emotional adaptability in students with prior trauma. Moreover, the observed demographic differences underscore the importance of tailored interventions to account for diverse coping resources and needs.

## The Perceived Barriers to Pursuing a Career in Medicine among Black Male Physicians in the Southeast United States

Tim E. Speaks

Black men make up less than 3% of physicians, decreasing the quality of care patients receive. This ongoing study investigates the influences of socioeconomic status and exposure to discrimination on Black men entering and completing medical school in the Southeastern U.S. This mixed methods study utilizes a concurrent triangulation design by conducting key informant interviews and a Qualtrics survey of physicians and current medical students. The study seeks to understand their experiences and perceptions of the lack of representation. Findings can be used to create programs that help increase the number of Black males in medicine.

Mentors: Cheryl Fortner, Ph.D.; Peter Cheimets; Edward Hertz

Southeastern Mathematical Association of America Meeting, High Point, NC, March 2025

American Astronoical Society Meeting, National Harbor, MD, Jan 2025

American Geophysical Union Meeting, Washington, DC, Dec 2024.

solar physics program at the Smithsonian Astrophysical Observatory

Walt and Susan Patterson Prize for Best Undergraduate Poster, March 1. 2025.

Mentors: Michael Lipscomb, Ph.D.; Stephen Smith, Ph.D.; Jennifer Disney, Ph.D.

SOURCE (April 11th, 2025)

(CAS - Political Science. Philosophy, Religion &

(PLSC490 - Michael Lipscomb, PLSC471 Jennifer Disney, PLSC471 -

#### Energy Performance as a Part of Developing a Grazing Incidence Telescope Design System Abigail Mervine

Prior to the development of optical systems, it's essential to understand their potential performance, thus allowing for a smoother development process. The performance of grazing incidence optical systems, used to collect x-rays, is generally less understood than that of most optical systems. This research focuses on understanding and modeling the energy performance of grazing incidence mirrors as a step towards developing a grazing incidence telescope design system. Currently, this work will assist in the development of metrics for the Lynx X-Ray Observatory: a novel x-ray system with the capability of achieving 10 times the effective area of the Chandra X-Ray Observatory at an equivalent or better resolution. Multiple linear regression and beta regression were used to generate a model for reflectivity given grazing angles of 0° to 2.5° and energies of 0.5 to 10 keV based on data from the Center for X-Ray Optics – X-Ray Database. The model was then used to calculate the reflectivity and effective area of grazing incidence mirror shells. It was found that energies of 0.5 to 10 keV and radii of 10 to 150 cm yielded effective areas of 0.03 to 220 cm2. It was observed that effective area decreases rapidly as energy increases and decreases more steadily as radii decreases. Following this work, a ray tracing program for Wolter-I type optics is to be developed as the next step toward developing a grazing incidence telescope design system.

#### Israel-Palestine: Addressing the Existence of Israel, and the Failures of Palestinian Statehood

TJ Carbon

Global conflicts are truly one of the few consistent and everlasting aspects of the world we live in. History lingers and affects the actions of leaders and beliefs of demographic groups across the world. Arguably, one of the biggest international conflicts is Israel-Palestine. This paper will be focusing on the historical context of Israel-Palestine through major events in order to answer the century long question of why Israel has a right to exist and defend itself. This research hypothesizes how historical events and Palestinian terrorism have proven the illegitimacy of a Palestinian state. Through an extensive literature review this paper analyses various conflicts such as the Six-Day War, Yom Kippur War, various rejections of two-state solutions. Palestinian expulsion from MENA nations, the founding of Hamas, and the October 7th Massacre to support our hypothesis. Israel is the only Jewish state and is home to roughly half of the world's Jewish population. In the context of widespread anti-semitism, global attention to this conflict is crucial for a better understanding of both Jewish and Israeli perspectives on this matter, which is important for broader conversations on this crucial moral and political matter.

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

MAA Southeastern Section, North Carolina, February 2025

Supported by EPSCoR

(CAS - Mathematics)

## Explorations of Machine Learning Methodologies to Enhance the **Design of RNA-based Dopamine Biosensors**

Matthew N. Lindsey, James C. Craven

In this project, we seek to understand how we can utilize machine learning (ML) to inform the design of biosensors to emit a strong fluorescence in the presence of dopamine. Dopamine is a neurotransmitter and plays a role in a variety of functions such as memory, learning, and reward systems. Detecting dopamine levels could help with diagnosing addiction, mental illness, and neurodegenerative disorders. We develop a framework for one-hot encoding nucleotide sequences for training ML models, create a data preprocessing pipeline to pad sequences and normalize output values, and construct neural net model architecture for training on both sequence and numerical data. Using a published toehold switch dataset along with a ribosensor dataset, we explore the accuracy of several different regression models in predicting biosensor effectiveness by training on both nucleotide sequence data and calculated thermodynamic parameter data. We find that a neural network model, specifically a multilayer perceptron, typically outperforms other regression models such as linear regression, random forests, and support vector machines in both datasets, and that training on sequence data appears to be more predictive than training on thermodynamic parameter data. We also suggest potential directions to pursue transfer learning between the two datasets.

Mentor: Victoria Frost, Ph.D.

SC INBRE 16th Annual Science Symposium, Columbia, SC, February 2025.

Supported by INBRE

(UC - Biology)

#### **Exploring the Host Range Potential of Bacteriophages**

Karissa M. Wilczak, Alexis R. Atkinson

Bacteriophages are viruses that specifically infect bacteria, often resulting in the destruction of the cell following phage replication. Practical applications of this behavior have influenced their use in the medical field, agriculture, and the food industry. Phages that are able to infect more than one host could be especially useful when targeting a range of different bacterial strains. Host range is defined as the number of hosts a phage has the capacity to infect. There were two main types of host range that this study focused on: narrow and broad. Narrow range describes when a phage can only complete its life cycle in one host. To date, this type of phage has been predominantly studied due to biased isolation techniques. Broad range is used to describe a phage that can complete its life cycle in more than one host. The majority of Winthrop's phage collection was originally isolated on bacterial host Mycobacterium smegmatis. In this study, Mycobacterium aurum and Mycobacterium nonchromogenicum were selected as alternative hosts. Using the alternative bacterial hosts, we tested 18 of Winthrop's sequenced phages that are predicted to exclusively use the lytic cycle to replicate. Serial dilutions of high titer phage were plated onto bacterial lawns. Using efficiency of plating calculations, we found that only B cluster phages were able to infect one alternative host: Mycobacterium nonchromogenicum. In the future, we plan to investigate additional bacterial hosts and phage from a variety of clusters, to increase our knowledge of phage that can infect multiple bacterial strains.

Mentors: Eric Birgbauer, Ph.D.(Sponsor)

Symposium for Young Neuroscientist and Professors of the SouthEast, Chapel Hill, NC March 2025.

Supported by INBRE

(CAS - Biology)

((BIOL471 - Eric Birgbauer

## SDF-1 Decreases the Repellent Activity of LPA via cAMP on **Embryonic Chicken 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 axonal repellents such as slit-2 on RGCs and sema-3A on DRGs. Although the signaling mechanism of SDF-1 is not completely clear, it has been suggested that SDF-1 acts via a cyclic nucleotide-dependent pathway. Hence, we investigated the response of growth cones from embryonic chicken RGCs to LPA in the presence and absence of SDF-1 in an in vitro retinal explant culture. We found that SDF-1 reduces the effect of LPA on growth cone collapse. Furthermore, to test the role of the cAMP cell signaling pathway, we used the inhibitor Rp-cAMPS. Treatment with Rp-cAMPS stopped the effect of SDF-1 on LPA activity, suggesting that SDF-1 activates cAMP signaling to modulate LPA responses. Thus, SDF-1 may be a general modulator of several repellents, including LPA, via a cAMP pathway.

Menton: Nicholas Grossoehme, Ph.D.

Southeastern Regional Meeting of the American Chemical Society, Atlanta, GA, October 2024

Supported by INBRE, McNair Scholars Program, NSF Award #2203467 (Grossoehme)

SOURCE 2024 Oral Runner Up, SAEOPP 2024 3rd Place in Oral Life Sciences Category

(CAS - Chemistry, Physics, Geology & the

## Exploring the Impact of Cd2+ on the Interaction Between Human Cardiac Troponin-C and Troponin-I

Cierra A. Randolph, Morgan Dukes

Cd<sup>2+</sup> is a toxic heavy metal known to negatively impact cardiovascular muscle function. Muscle contraction is a complicated mechanism that involves several proteins working synergistically to carry out and regulate the process. The troponin complex, composed of troponin-C, troponin-I, and troponin-T, serves as the link between brain signaling and muscle function. Upon nerve impulse, Ca<sup>2+</sup> binds to troponin and signals for muscle contraction to occur. Troponin-C is the calcium binding site of the complex and interacts with troponin-I when Ca<sup>2+</sup> binds. Specifically, troponin-I's switch peptide and 1-73 region are known to directly interact with troponin-C. Recent evidence shows Cd<sup>2+</sup> can bind to troponin in place of Ca<sup>2+</sup>. Our hypothesis is that the mechanism of Cd<sup>2+</sup> toxicity is related to the interaction between troponin and metal. The aim of our research is to understand how Cd<sup>2+</sup> impacts the interaction between troponin-C and the troponin-I switch and 1-73 peptides.

Mentors: Matthew Hayes, Ph.D.; Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025

(CAS - Psychology)

### Academic Priorities vs. Social Influences: A Comparative Study of Alcohol and Marijuana Use in College Students

Sean-Patrick McDonald, Andrea Rivera

Substance abuse among college students, particularly marijuana and alcohol, not only jeopardizes their health and safety but also leads to academic and social repercussions. To develop effective prevention and intervention strategies, it is essential to comprehend the factors that trigger this behavior. Social influence and college-related stress are among the key culprits behind substance abuse. Previous research has covered substance use within college students and how this has affected their academics, so not only are we looking into diving into literature that has already performed this research, but we are adding grade levels into the mix to see if this affects the outcome. By delving into the root causes of this problem, policymakers, educators, and administrators can devise new measures to tackle these issues and cultivate a secure and healthy environment for students. It is important to learn the causes of marijuana and alcohol abuse on college campuses because this knowledge forms the foundation for implementing evidence-based interventions.

Mentor: Amy Clausen, Ph.D.

(CESHS - Counseling. Leadership and Educational Studies)

(EDUC495 - Amy Clausen)

# Early Childhood Behavior Breakdown and Interventions

Ali Kowalski

Through a Literature Review of different Evidence-Based Practices, this presentation will discuss several aspects of early childhood behavior factors. This would include understanding The Multi-Tiered Systems and PBIS (Positive Behavior Interventions and Supports) and how educators in this setting can address challenging behaviors for the individual student. We will also discuss how to implement an FBA/BIP (Functional Behavior Assessment, Behavior Intervention Plan) in an early elementary setting, and the supports that are needed to create and implement a BIP like administrative support, effectiveness of the plan, resources, and alignment with values. This presentation will also discuss the ABCs of behavior (Antecedent, Behavior, and Consequence) along with the different types of functions that can cause a behavior. Lastly, different types of interventions like Explicit instruction, family involvement, prompting, visuals, and many others would be developmentally appropriate for this age group.

Mentor: Amy Clausen, Ph.D.

National CEC, 03/14/2025

(EDUC495 - Amy Clausen)

## Special Education Teachers' Knowledge of Multilingual Learners Evelyn Conran

The field of special education needs a better awareness of practices that serve multilingual learners (MLs) who are receiving special education services. This population is growing rapidly in the United States, but the dissemination of diverse educational practices does not appear to be growing in tandem. We have knowledge of evidence-based practices to support MLs and to support students with learning disabilities, but very few to support students who are both ML and receiving special education services. I surveyed the current knowledge and practices that special education teachers are using with this population of students. In my presentation, I will be covering some of the strategies that are not used as often as indicated by the survey and how practitioners within the field are able to implement these in their classrooms or in their instruction to future special education teachers. The strategies included in the survey are ones that have been proven to be effective in existing research and suggested in interviews with professionals at the collegiate level within the field (e.g., explicit phonics instruction, language priming, sentence frames).

Menton: Gihanee Senadheera Ph D

STARS Conference San Diego, California Science Symposium Columbia. South Carolina 2025 MAA Conference in High Point, North Carolina February 2025

Supported by INBRE

Walt and Susan Patterson Prize - Outstanding Student Presentation, February 2025, MAA

(CAS - Mathematics)

#### A New Generalization of the Continuous Bernoulli Distribution

Lucas Robenolt, Garrett Nix

The aim of this research was to create a new generalization of a recently introduced distribution known as the continuous Bernoulli (CB) distribution. Many known distributions are useful in modeling data but often have limited shapes, such as being right skewed, left skewed, or symmetric. These limitations make it difficult to use these distributions in broader applications, where data may not follow the shape of these models. By generalizing distributions, adding more parameters increases the flexibility of these distributions in most cases. This allows the new generalizations to have a wider range of applications than the original distribution. With this research, we propose a new generalization of the continuous Bernoulli distribution using the T-R{Y} framework, where we define random variables T, R, and Y that follow specified distributions. With this framework we introduce the T-CB{Cauchy} as well as the T- CB{logistic} families of distributions and investigate the properties of these families. We also investigate the properties of members within the families of these distributions, introducing the normal-CB{Cauchy} and the normal-CB{logistic} distributions.

Mentor: Darren Ritzer. Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025

(CAS - Psychology)

(PSYC302 - Darren Ritzer)

#### Religiously-Based Mental Health Resources on College Campuses

#### Sierra M. Smith. Lexi Girouard

As many as 25% of college students suffer from common mental health disorders such as anxiety. Research shows that while 93% of students are aware of mental health services on their campus, only 13% of those struggling actually use these services. Religiously-based counseling services are not commonly found on college campuses. Religiously-affiliated and secular universities' websites were assessed for mental health resources. Researchers calculated the amount of time it took for mental health resources to be found, number of mouse clicks it took to find these resources, and gave an overall rating of quality of mental health resources for the school. Of the schools assessed, 95% had some type of mental health services. However, only 17.5% had religiously-based mental health resources available. In fact, for the religiously-affiliated schools, only 35% had religiously-based mental health services listed on their websites. None of the secular schools listed any type of religiously-based resources. There was a significant difference in the number of (mouse) clicks it took to find mental health assets (t = -3.4(38), p < .001). It took more effort to find the mental health resources on secular schools' websites. The amount of time it took to find the resources (t = -1.56(36), p = .064) and the overall quality of mental health resources (t = -1.45(38), p = .078) approached significance, but showed no differences. The availability of mental health resources for all students is critical. Religious students may be of particular interest due to the hesitancy to use common resources.

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

MAA SF Mathematics Conference. High Point University, High Point, NC, February 2025

Supported by INBRE

(CAS - Mathematics)

## Aspects of Bootstrap Percolation on the Random Geometric Graph

Isaac Pelletier, Ethyl Sakyi, Gabe Tristano

Bootstrap percolation (BP) is a process on a graph which can be used to model the spread of an infection throughout a graph. For illustration, suppose G is a graph, k is the bootstrap parameter, and a set of active vertices at time zero is given. In the next time step, any inactive vertex with at least k edges to active vertices becomes active; the process continues until no new active vertices are created. The model. then, takes people as vertices, interactions between people as edges, and replaces "active" with "infected". The random geometric graph (RGG) is formed by choosing points from the unit square uniformly at random and joining points that are close enough with an edge. Bootstrap percolation on RGGs has been resolved for fixed bootstrap parameters. We focused on a handful of variations to this problem. First, we incorporated a classical SIR-type model wherein the S. I. and R stand for 'susceptible population', 'infected population', and 'recovered population', respectively. We then incorporated the idea of vaccinations into this problem which resembles a variation on the classical firefighter problem on graphs. We next allowed the bootstrap parameter to be time-dependent as in a recent research article ("Minimal percolating sets for mutating infectious diseases") which allows a disease to be more/less infectious over time. We also considered letting the disease spreading process be randomized in direct contrast with standard bootstrap percolation. Lastly, we considered various pairings of these variations. In each case, partial results were obtained.

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

SOURCE. Winthrop University, April 11th,

(CVPA – Design)

(VCOM487 - Bradley Young)

#### Moving Through Life with Figures and Mice

#### Daisy A. Koenig

In 2020, during the pandemic, I began to illustrate my perfect idea of comfort. The result was an elaborate mouse kitchen. I drew these small creatures to help reconnect with what I loved as a child, and to allow me to appreciate being inside my home. It has been four years since my original mouse illustration and so much around me has changed. In 2021 I left home to attend the University of South Carolina, only to come right back after one semester. Comfort was all I wanted, so I returned to the place where it resided in abundance. After two years of community college, I left my house once more for Winthrop University. The move was frightening, but I was surprised to find that this time, the comfort did not stay at my home, it came with me. It is time for my mice to come with me too. For my senior thesis, I am creating a set of eight blind boxes themed after and featuring the mice I love to illustrate. This product contains a fully designed house-shaped box, a custom photo card describing the figure, and one of eight styles of "Juni" figures. Each figure will come with unique accessories relating to pieces of my life present and past. To me, this project represents growing up, so these figures are a tribute to my childhood.

Mentor: Janet Woicik. Ph.D.

SOURCE Conference, Rock Hill, SC, April 2025

(CESHS - Physical Education, Sport & Human Performance)

(PESH381 - Janet Wojcik)

#### Professional Development in Athletic Trainers Balancing Stress

#### **Emory Jones II**

Recently within the healthcare field, athletic trainers have been recognized as healthcare professionals due to their graduate training and medical knowledge. These professionals are known to be the first line attending to an athlete. They are known to be fully committed to their athletes, making sure they can perform at their very best. This has played a role in the increased popularity and recognition of athletic trainers and their importance. While this is a net positive for athletic trainers everywhere, there are some areas that lack acknowledgment. Athletic trainers can often be overlooked in the sense of their work-life balance and mental health. Some secondary schools and collegiate-level schools have had their athletic trainers express their struggles with the profession. Some examples include dealing with stress and not being there for their family at home due to their job. Research has shown that having support groups and having a healthy work environment play a significant role in mental health for athletic trainers. This presentation will review how corporations and schools across the country are trying to improve the mental health of their athletic trainers.

Mentor: Salvatore Blair. Ph.D.

INBRE, Columbia SC, February 2025 and ASB, Myrtle Beach, March 2025

Supported by INBRE

(CAS - Biology)

(BIOL390 - Blair)

#### Physiological Effects of Dual Temperature and Salinity Stress on Redear Sunfish (Lepomis microlophus)

Sam R. Williamson, Andrea Vega

Freshwater fish are able to reversibly remodel their gill tissue in response to external stimuli. A compromise exists between the uptake of 02 and maintenance of osmotic balance, whereby the surface area of the gill tissue epithelium can be altered. Previous studies have shown that the interlamellar cell mass (ILCM) grows or is shed relative to environmental conditions. However, prior research does not make clear how gills respond to simultaneous competing stressors such as temperature and salinity. Therefore, the focus of this study was to use redear sunfish (Lepomis microlophus) as a model organism to compare ILCM levels between fresh and elevated salinity water (17 ppt) and hot (26°C) and cold water (10°C), as well as to determine a potential cellular and molecular mechanism responsible for the observed gill remodeling. In order to achieve this, fish were exposed to a matrix of temperture and salinity conditions as a series of experimental 48-hour treatments. Initial results indicate that there was a significant reduction in the interlamellar cell mass associated with the 26°C treatment. Furthermore, exposure to elevated salinity only resulted in heightened plasma osmolality when fish were exposed to either extreme temperature, not while under control temperature conditions. These preliminary results indicate that temperature is likely a stronger environmental stressor on the redear sunfish capable of stimulating changes at the gill. We conclude that fish are at higher risk of osmotic stress when simultaneously exposed to changes in environmental temperatures.

Mentor: Victoria Frost. Ph.D.

INBRE, USC, Columbia, SC, February 2025. ASB, Myrtle Beach, SC, March, 2025.

Supported by INBRE, McNair Scholars Program

(CAS - Biology)

#### Phenotypic Analysis of Phage-Host Interactions

#### Lidia Peralta

Bacteriophages compete among themselves to infect and gain control of their bacterial host. Once inside the cell it is evolutionarily advantageous for an established phage to protect the host for its own use. In our lab, we have been attempting to reveal which phage genes may play a role in this defensive process by using a phenotypic defense assay. Individual genes from mycobacteriophage ExplosioNervosa are transformed into the bacterial host Mycobacterium smegmatis. Lawns of the transformed host are created, ExplosioNervosa's gene of interest is induced, and dilutions of external phage lysates are spotted onto the lawn. Several phage lysates from both the same, and different, subclusters were applied in this way. ExplosioNervosa itself (wild-type and mutant variants) was investigated for its ability to infect the host as a specific ExplosioNervosa gene was expressed by the cell (homotypic defense). Other phage lysates tested include Ashballer (A1), Bombitas (J), and Jinnie (unclustered). We have studied nine of ExplosioNervosa's genes so far, including gp1, 19, 23, 32, 41, 55, 57, 73, and 75. Of this group, gp75 has shown potential defense of the host against external phage infection, which is particularly interesting as this gene product is predicted to be an immunity repressor. Immunity repressors are known to maintain lysogeny, as well as play a role in host defense. Understanding these phage-phage interactions can add to our knowledge of phage biology and behavior.

Mentor: Amy Clausen, Ph D

South Carolina Council for Exceptional Children Conference in Greenville SC - March 2025 National Council for Exceptional Children Conference in Baltimore MD - March 2025

Supported by Other, Jo Ann Huggins Cooper Dean's Fund

(CESHS - Counseling, Leadership and Educational Studies)

(EDUC495 - Amy Clausen)

#### Teaching Secondary Students with Intellectual Disability to **Comprehend Informational Text** Emily N. Ellis

inclusive postsecondary educational programs and beyond.

This presentation explores the effectiveness of self-questioning as a strategy to improve reading comprehension in three high school students with an intellectual disability. By fostering intrinsic motivation and engagement with informational texts, this approach aims to enhance their understanding and prepare them for success in Mentor: Bradley Young, Ph D

Winthrop University DiGiorio Center 221 April, 2025

(CVPA - Design)

(VCOM487 - Bradley Young, VCOM487 - Bradley Young)

#### Fight Hard: A Motivational Comic on How to Do Well in College Dominic Mohr

For my senior thesis project, I want to create a motivational comic for students who struggle to stay on track in college. I chose this idea because I want to inspire students to do well in college. I encourage students to never give up when going through hard times. My project will focus on two main characters, Zeke Carter and Colin Garcia. Zeke is a struggling student who's not focusing on his college work. Colin (Zeke's friend) wants to help Zeke get back on track. The rising action shows Colin working on college assignments while Zeke is not. Colin manages his time well and gives his best effort. On the other hand, Zeke has poor time management and is lazy. Colin encourages Zeke to not go out with his friends because he notices that Zeke is not doing well in college. At the climax, Zeke pauses, reviewing what he has done so far in college, then acknowledges that he is a failure. The Falling Action shows Zeke taking college seriously. The ending shows Zeke and Colin's last year in college. I hope my thesis will encourage students to share stories.

Mentor: Janet Wojcik, Ph.D.

Winthrop University SOURCE conference April 2025

(CESHS - Physical Education, Sport & Human Performance)

(PESH381 - Janet Wojcik)

#### The Pros and Cons of Platelet-Rich Plasma (PRP) in Knee Pain Management.

#### Teagan V. Sychterz

Platelet-Rich Plasma (PRP) therapy is an upcoming alternative solution for knee pain. PRP therapy uses a preparation from the patient's blood, concentrating platelets which are crucial during the healing process. These platelets carry growth elements that speed up tissue regeneration by increasing cell proliferation and blood flow, as well as lowering inflammation surrounding the joints to relieve pain. PRP therapy has several advantages, including its autologous nature, which reduces allergic reactions and problems associated with foreign chemicals. However, there are limitations; individual reactions differ, resulting in uneven outcomes. Furthermore, there is ongoing disagreement concerning the appropriate preparation methods and injection protocols. This presentation investigates the advantages and disadvantages of PRP therapy in the management of knee-related pain in contemporary orthopedic practices.

Mentor: Darren Ritzer. Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. 2025

(CAS - Psychology)

(PSYC302 - Darren Ritzer)

#### Cross-Cultural Comparison of Trauma Conceptualization and Treatment

Sarah Gonzalez, Samantha Willis, Kat Marshall

While there are some similarities in the core principles of trauma and post-traumatic stress disorder (PTSD) treatment, there is generally a lack of consistency in the frequency of types of interventions and their application that suggest gaps in prior research. Peer-reviewed journal articles that fit the above criteria were gathered from online databases PsycInfo and Google Scholar. Articles (n = 12) were then organized by the region the research took place: the United States, Latin America, or Europe and arranged by region specific variables, such as availability and cost effectiveness, to determine the efficacy of trauma treatment methods. The use of Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) in the United States was associated with improvements in emotional balance, reduced anxiety, and increased feelings of safety, as reported by both the participant and their caregivers. The cost of TF-CBT in Europe was 2,854 (\$3,607) and a combination of TF-CBT and SSRIs was 3,140 (\$3,968). Across Latin American, holding rates for these interventions were high, with TF-OBT showing an 85% retention rate and Eye Movement Desensitization and Reprocessing (EMDR) achieving a 92% retention rate. EMDR was shown to be effective in cost and reduction of trauma symptoms within every region studied.

Mentor: Kiyoshi Sasaki, Ph.D.

86th Annual Meeting of the Association of Southeastern Biologists, Myrtle Beach, SC, March 2025

(CAS - Biology)

(BIOL300 - Kiyoshi Sasaki)

#### Change in Abundance of Native vs. Introduced Lady Beetles Over **Five Decades**

#### Carolina Trejo

Many insect species have declined in recent decades, raising concerns due to their critical role in ecosystems. Non-native lady beetles, introduced for biological control, have been linked to declines in native species, though the impacts vary by region. Conflicting findings, particularly in the southeastern United States, highlight the need for further research. To investigate whether native coccinellid populations in the Southeast have experienced declines, and if so, whether introduced species are contributing to these declines, I analyzed 51 years of museum records (1966 to 2017) and modeled trends in population abundance over time. Introduced species-Coccinella septempunctata and Harmonia axyridis—increased annually by 5.2% and 10.2%, respectively, since ca. 2005 and 1995, while native species—Coleomegilla maculata, Hippodamia convergens, and Olla v-nigrum—declined by 5.1%, 6.9%, and 5.2% annually, with the last records in 2011 or 1997. This negative relationship between introduced and native species abundance supports the hypothesis that introduced lady beetles contributed to the decline of native species. However, establishing a causal relationship requires further investigation.

Menton: Salvatore Blain. Ph.D.

Southern 8ths farm April 4, 2025. Southern8ths is the sponsor of this

Supported by Other, carolina wildlands foundation

(CAS - Biology)

#### Illustrating Carolina Native Fish Species at Southern 8ths Farm: A Fish Guidebook

Abby G. Bowers

Knowledge of native fish is vital to the conservation and success of resident populations. The Carolinas contain roughly 250 resident freshwater fish species, from the diverse Cyprinidae family to the many important game fish species sought by anglers. Southern 8ths Farm is an ecological research area on the South Carolina/ North Carolina border where the piedmont and coastal plain meet. This property is dedicated to the creation of a "corridor of green" and dedicated to ecological preservation/documentation. One goal of the foundation is to catalog the rich biodiversity of the area and our lab has been involved in surveying the fish populations of Thompson Creek, a tributary of the Great Pee Dee River. In association with Carolina Wildlands Foundation, a series of digitally rendered images were created displaying the variety of species that have been recorded in Thomson Creek thus far, paired with photographs to create a fish field guidebook for the property. Illustrations were made in great detail, down to scale counts and fin rays, both characteristics useful in identifying individuals. Images were rendered using the online program clip studio paint, starting with research and compiling information to then create an original image. A total of 18 images were created and have been incorporated into the guidebook which is in its final draft stages to be published this Spring.

Mentor: Matthew Hayes, Ph.D.

Southeastern Psychological Association Conference, Atlanta, GA. April 2025

(CAS – Psychology)

(PSYC302H - Matthew

#### Impacts of Study Contexts on Academics

Georgia E. Gosselin, Alexiona Carwise, Gracie Wilson

Studying environments are linked to academic outcomes, but the nature of these relationships remains unclear. This study examined how privateness (private location vs. public location) and collaboration (individual study vs. group study) in study environments impact undergraduate students' academic self-confidence and achievement. We hypothesized that private and collaborative study contexts would positively influence these outcomes. Participants (N = 79) from Winthrop University completed a questionnaire assessing study preferences, academic self-confidence, and GPA. Contrary to our hypotheses, results revealed no significant correlation between the privateness of studying environments and students' academic performance, r (75) = .04, p = .71, or GPA, r (73) = .11, p = .36. Furthermore, there was no significant correlation between collaborative studying and academic outcomes. However, there was a significant correlation between individualistic studying and academic performance r (75) = .32, p < .01, and GPA r (73) = .40, p < .001. These findings suggest that while study location and collaboration were assumed to impact academic success, individual study habits played a stronger role. Students should prioritize effective study methods over specific environments or group settings, as individual studying may be the most beneficial approach to academic achievement.

Mentor: Darren Ritzer. Ph.D.

Southeastern Psychological Association Conference, Atlanta GA. April 2025

(CAS - Psychology)

(PSYC302 - Darren Ritzer)

#### Pornography Addiction Pre vs Post COVID-19 and Mental Health **Outcomes**

Natalie Schwartz. Daniel Escobar

Problematic pornography consumption (PPU) is becoming increasingly common due to a variety of factors relating to its increasing accessibility, affordability, anonymity and more recently, increased free time due to Covid. Pornography use has become increasingly common, in the United States alone, 46% of men and 16% of women intentionally accessed porn in the past week. Adolescents who utilize porn are more likely to develop permissive sexual attitudes, gender stereotypical beliefs around intercourse with the opposite sex, and a higher likelihood to experience sexual aggression. Previous literature suggests that there are negative outcomes assocated with the self-labeling of being addicted to porn. With the rise in accessibility, prevalence, and self-isolation, particularly due to COVID-19, the porn industry is thriving and will continue to thrive. We hypothesize that the amount of pornography consumed since COVID-19 has increased due to the medium of access and amount of people, leading to worsening mental health outcomes. An archival analysis was conducted with data collected from Pornhub's Year in Review, Substance Abuse and Mental Health Administration's National Survey on Drug Use and Health (NSDUH), and research articles. Results found a positive correlation between the number of people seeking mental health treatment and site visits annually: r(6)= .979. p<.001. The rise of mental health treatment corroborating with the isolation from COVID-19 has exacerbated the negative effects of pornography. The implications of these findings are discussed.

Menton: Eric Birgbauer, Ph D

Symposium for Young Neuroscientists and Professors of the SouthEast, Chapel Hill, NC. March 2025

(CAS - Biology)

#### Investigation of SDF-1's Receptor CXCR4 on Chicken Embryo Retinal Ganglion Cells' (RGCs) Response to LPA

#### Marsenia Chicas

Axonal guidance is necessary for the axons from retinal ganglion cells (RGCs) to ensure proper development of the visual system. During development, on the ends of axons are growth cones. These structures navigate through the extracellular environment via adhesion receptors and actin-based protrusions. Growth cones are responsible for axonal growth and guidance as they explore the extracellular environments. They have been shown to react to molecular cues, which include inhibitory molecules. Under previous investigation it has been shown that lysophosphatidic acid (LPA) causes a dose-dependent growth cone collapse in embryonic chicken retinal neurites. Previous experiments have also shown that the chemokine SDF-1 modulates this response to LPA, effectively preventing growth cone collapse. The chemokine SDF-1 binds to and activates the G protein-coupled receptor CXCR4, which leads to a signaling cascade within the growth cone. To investigate the role of the receptor CXCR4, we are using the antagonist AMD3100, which prevents the binding of SDF-1.

Mentor: Amy Clausen,

South Carolina Council for Exceptional Children - February 2025

Supported by Other. Jo Ann Huggins Cooper Dean's Fund

(CESHS - Counseling, Leadership and Educational Studies)

#### Considering the Impact of Parenting Methods on Students with **Emotional-Behavioral Disorders**

Kaela E. Branham, Ella L. Everett, Riley A. Brodie

In our poster session, we will be discussing the spectrum of conditions that children and adolescents with emotional-behavioral disorders may have. We will also be discussing both effective and ineffective parenting approaches and responses for children with EBDs.

Mentor: Janet Wojcik, Ph.D.

SOURCE, Winthrop University, April, 2025

(CESHS - Physical Education, Sport & Human Performance)

(PESH 381 - Janet Wojcik)

### Fueling Recovery: The Role of Nutrition in Enhancing Athletic **Injury Rehabilitation**

Camdyn Melin

Nutrition plays a fundamental role in enhancing recovery and rehabilitation for athletes following injury. By providing targeted strategies to support tissue repair, reduce inflammation, and bolster immune function, nutrition offers a non-invasive and accessible approach to optimizing healing outcomes. This literature review synthesizes current research on the nutritional components essential for recovery, focusing on macronutrients such as proteins and carbohydrates, and micronutrients including vitamins and minerals, which collectively contribute to cellular repair, immune support, and inflammation management. Additionally, it examines the benefits of key supplements like Omega-3 fatty acids and L-Glutamine, which have been shown to accelerate tissue regeneration, minimize muscle wasting, and improve joint health. Understanding the roles of these nutrients can empower athletes and healthcare practitioners to develop customized dietary protocols that facilitate guicker and more effective recovery, ultimately enabling a return to peak performance. This review not only emphasizes the science-backed connections between dietary practices and recovery outcomes but also highlights evidence-based dietary recommendations that can enhance rehabilitation potential. By integrating specific nutrients and supplements into recovery plans, athletes can foster a more comprehensive healing process, thereby reducing recovery time, diminishing injury recurrence, and improving long-term athletic performance. This synthesis provides valuable insights for athletes, coaches, and professionals in sports medicine. nutrition, and physical therapy, reinforcing the importance of nutrition as a crucial component in injury management and recovery.

Menton: Kelly Ozust, M.F.A.

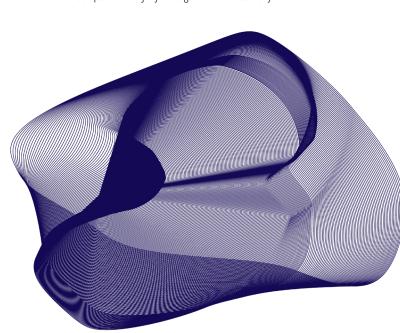
American College Dance Association, Charleston, South Carolina, March 2025

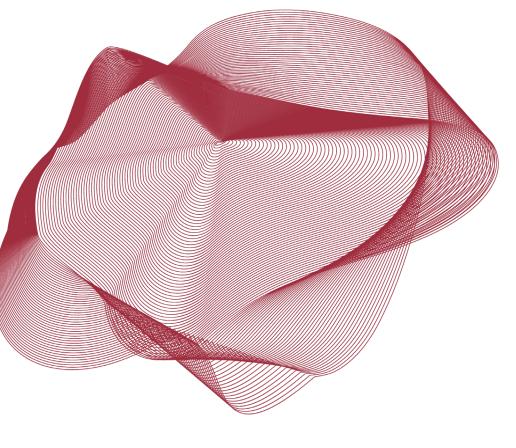
(DANT471 - Kelly Ozust, DANA442 - Gabrielle Tull)

#### Seraphimity

#### Madalin R. Beam

Seraphimity is a contemporary dance piece inspired by an interaction with a Seraphim- a six-winged angelic creature who is a divine messenger from heaven. Through research and movement exploration, elements of Seraphim imagery were integrated into the choreography, including sequences where multiple arms mimic the appearance of wings, among other motifs. The symbolism of the interaction with the Seraphim serves as a metaphor for the human experience of fear and risk-taking. The piece examines the tension between apprehension and trust, emphasizing the potential for unexpected and transformative outcomes when individuals embrace uncertainty.





# **Annual Undergraduate Juried Exhibition**

37th Annual Undergraduate Juried Exhibition April 2025

# **Winthrop University Galleries**

The annual tradition of the gallery's Undergraduate Juried Exhibition continues into its 37th 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 Winthrop's premiere Rutledge Gallery and the chance to win monetary awards. In the 37th Undergraduate Juried Exhibition, students exhibited a variety of mediums such as painting, sculpture, fiber arts, performance, printmaking, photography, videography, and ceramics.

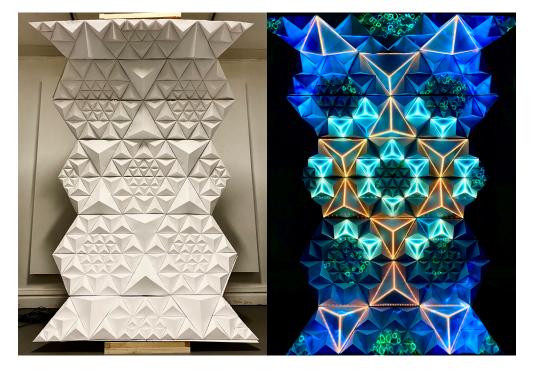
The juror for this year, Brittany Watkins, earned the South Carolina Arts Commission Fellowship in 2024 and South Arts State Fellowship in 2022. Watkins holds a BFA from University of West Georgia and a MFA in Studio Art from Florida State University.

Michael C. Gentry

Director, Winthrop University Galleries

# **Primoridal Dream**

# Forest Rain



**Penrose Solidius** Samuel Pach





i think i'm like a pomegranate (golden slumbers) Alia Kemp Davis

**Mending Through Sounds** 

Corina Leverett



# **Care Instructions**

Maggie Petermann



In Phoning 24 "CARNAL DESTRE"

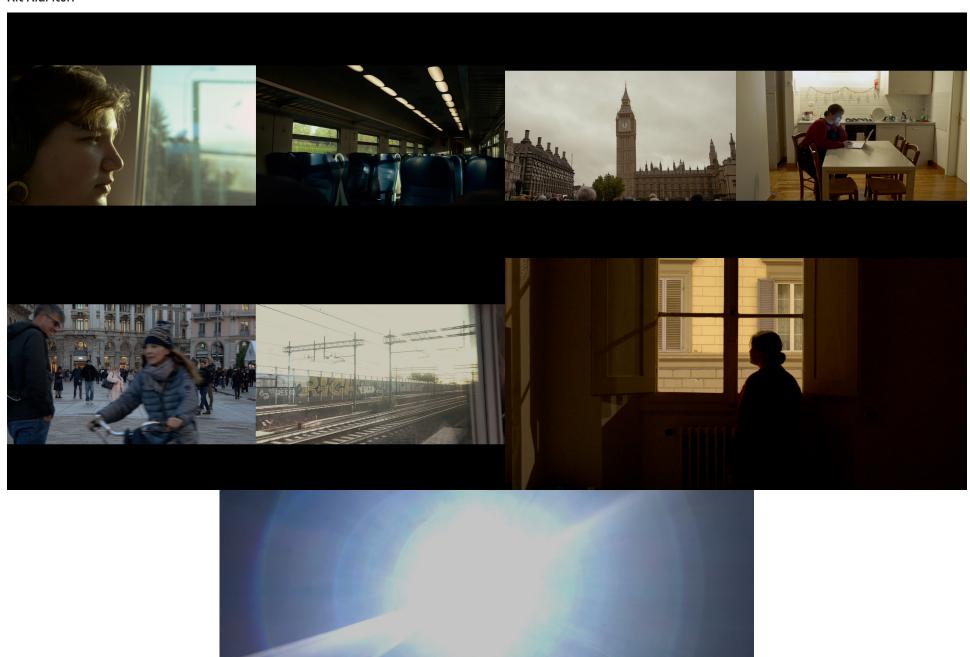
**Carnal Desire** Lee Blessing

Spinalicyte Claire Kirkley



# Train Travel Tizzy

Kit Aldritch



between life and form



Jubilation Corina Leverett







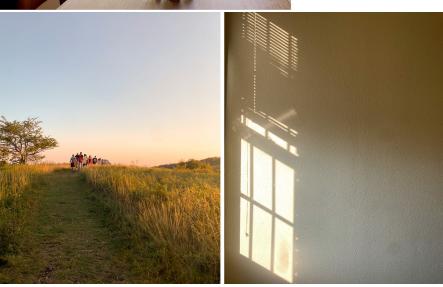


The Older I Grow, So Do You Adelle Pruitt



Virginia Dyptich Louisa Gene Elliott

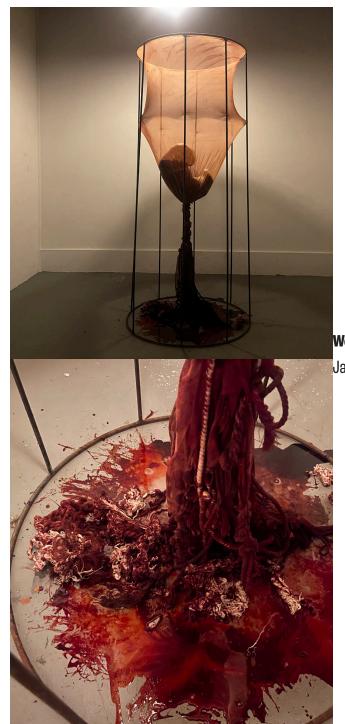




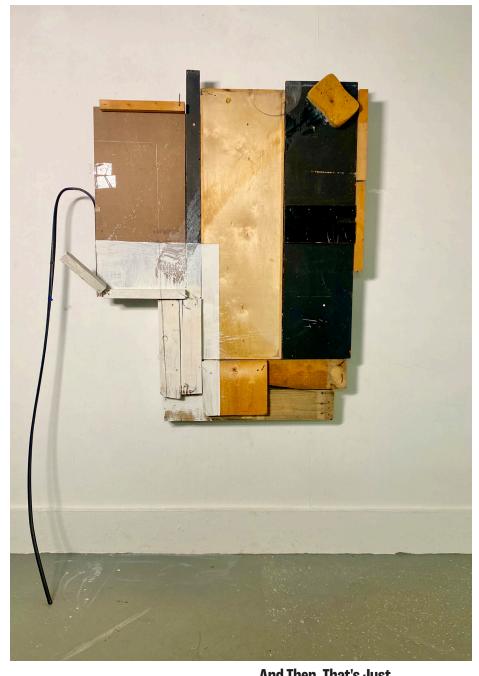




WRONG OLD MAN Mars Simpson



Womb of Wounds Jazmyn Quattlebaum



And Then, That's Just Mars Simpson

# **Department of Theatre & Dance Festivals and Showcases**

#### Fall One-Act Festival, November 2024

Faculty Coordinator: Rachel Dawson

# All Things Considered, Probably the Most Productive

**Meeting the EUSD PTA Ever Had** by A.J. Ditty

Playtime by Kent R. Brown Talkback by Sam Graber

**Princeps Dormiens** by Kay Robinson (student)

**Fifteen Minute Minimum** by Robert F. Ciccotelli

Katie and Frank by Theresa Rebeck

Directed by: **Aidan Tibbitt** 

Directed by: **Courtney Clark** 

Directed by: **Maddy Kouvolo** 

Directed by: **Kay Robinson** 

Directed by: **Destiny Gore** 

Directed by: Mason Hall

# **Spring Dance Showcase, April 2025**

Faculty Coordinator: Gabrielle Tull

Echoes of the Heart... **Working Title** 

Choreographed by: Josh Pringle Choreographed by: **LeNyah Bryan** 

# Senior Choreography Showcase, December 2024

Faculty Coordinator: Gabrielle Tull

**Working Title** 

When Did We Become Castaways

Status Vs. Love

Welcome to Cabaret

**Resilience Beyond Oppression** 

Seraphimity **Cool Culture** 

Reminiscence

Ritmo en el Alma

**Goodbyes Are Never Easy** 

**Emergence** 

Echoes of the Heart...

Choreographed by: **LeNyah Bryan** 

Choreographed by: **Tymia "Ty" Lamb** 

Choreographed by: **Hannah Pfenninger** 

Choreographed by: Miracle Etheridge

Choreographed by: Morgan Belton

Choreographed by: Madalin Beam

Choreographed by: RJ Lee

Choreographed by: Czar O'Neal

Choreographed by: Cassandra Jaramillo Choreographed by: Hannah Hayman

Choreographed by: Elloise Bethea

Choreographed by: Josh Pringle

# **Junior Choreography Showcase, April 2025**

Faculty Coordinator: Kelly Ozust

**Beyond Ourselves** 

**Decaying Individuality** 

In Her Arms

Between Shadows and Light: A Journey

**Through Loneliness and Solitude** 

**Confinement in Motion Amongst the Raptors** 

**Mechanical Monsters** 

Choreographed by: **Brandon Barrientos** 

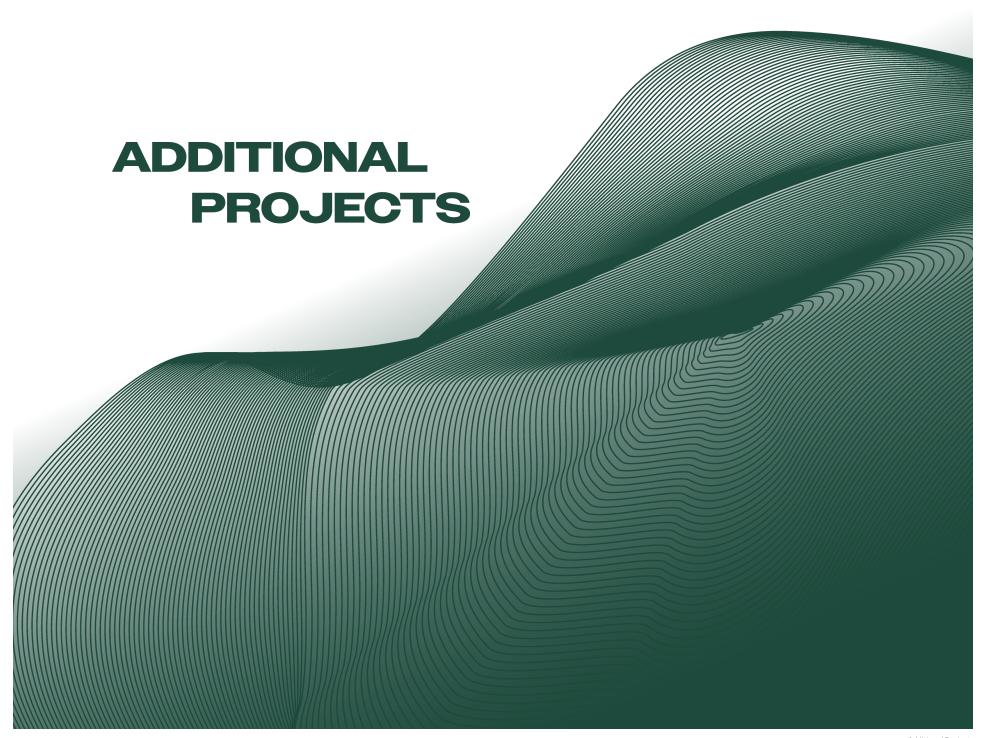
Choreographed by: Mikey Robert Kesler

Choreographed by: Miracle Etheridge

Choreographed by: Alicia Littlejohn

Choreographed by: **Hannah Pfenninger** 

Choreographed by: Melonda Sullivan Choreographed by: Kayelyn Wilburn



(CESHS — Physical Education, Sport & Human Performance)

## Impact of Diet on Exercise Performance

#### Josalyn Robinson

Diet is one of the most important aspects when it comes to exercise performance. It influences every aspect of physical activity - from an athlete's energy to endurance levels. Even the recovery of an athlete is influenced by diet. Three macronutrients that the body needs are carbohydrates, protein, and fat. The majority of the world gets macros from an omnivorous diet, which is a diet composed of meat and animal products. Although omnivorous diets have been the standard for a long time, the world is ever changing, and athletes have begun to look for alternative diets to better cater to specific sports needs and moral values. Therefore, this review will investigate the impact of vegetarian, intermittent fasting, and ketogenic diets on exercise performance. Research evaluated multiple criteria such as aerobic fitness (VO2 max), muscle strength and endurance, energy levels, macro/micronutrient intake, and body mass. In this literature review studies indicated there were no links to these specific diets and performance. This may be due to the term "exercise performance" being very broad. It is challenging to associate an increase in exercise performance solely to diet. Also, studies were determined based on the good faith that subjects followed diet guidelines; however, if subjects did not follow guidelines properly (which is often what happens) results will be biased. Overall, it appears that vegetarian, intermittent fasting, and ketogenic diets did not decrease exercise performance. More research is needed to conclude whether or not increases in exercise performance can be linked to specific diets.

Mentor: Janet Wojcik, Ph.D.

(CESHS — Physical Education, Sport & Human Performance)

(EXSC 511 - Janet Wojcik)

## The Effects of Exercise and HIV Positive Patients

#### Damien R. Poston

Exercise is important for all demographics, but specifically focusing on HIV positive individuals through the use of exercise supplementation for HIV positive patients to help reduce the duration of their antiviral therapy (ART). In this literature review of a cross-sectional study, which occurred in Vietnam, they analyzed the differences in ART duration based on if participants were physically active or inactive. The study had 1133 participants fill out an International Physical Activity Questionnaire (IPAQ) and compare them to their antiviral therapy durations to see any correlations, while also adjusting for socioeconomic and geographical status. The results showed that when participants participated in physical activity, 68% had a shorter duration of antiviral therapy (ART) compared to the 16% who were physically inactive. Overall, this study shows that exercise helps boost the body's immune system and requires shorter durations of ART, highlighting the importance of HIV-positive patients using physical activity as supplemental care along with the use of ART.

Mentor: Janet Wojcik, Ph.D.

(CESHS — Physical Education, Sport & Human Performance)

(PESH 381 - Janet Wojcik)

#### **Concussion Prevention**

#### Faith Wood

Concussions have been a trending topic in sports for the past ten years, especially in football. There are many outer protective gears that help prevent concussions such as helmets, mouth guards, etc. Although this gear may be useful, what can we do to prevent concussions without relying on head gear? One of the things we can look into are specific exercises that prevent further concussions as well as speed up recovery. Cervical strengthening exercises are a new and evolving form of concussion prevention that is continuing to be explored. The combination of these two will have athletes back competing in a more reasonable amount of time. This is important not only for contact sports such as football but also for every other sport because concussions can happen at any time. This presentation will discuss the different actions athletic trainers can take to prevent concussions but also to aid in the recovery.

Mentor: Janet Wojcik, Ph.D.

(CESHS — Physical Education, Sport & Human Performance)

(PESH 381 - Janet Wojcik)

# The Impact of Running Surfaces on Injury Rates and Performance

#### Griffin I. McNeish

This research examines how different running surfaces such as asphalt, trails, and synthetic tracks influence injury rates and performance among recreational runners. Each surface offers unique advantages and challenges, and understanding these differences is crucial for optimizing both safety and efficiency. By analyzing the effects of various running surfaces on biomechanics, impact forces, and recovery, this study aims to identify which surfaces promote better performance and reduce the likelihood of injuries. The findings from this research could help runners make more informed decisions about their training environments, ultimately improving performance and minimizing injury risks. These insights can also guide professionals in exercise science, providing evidence-based recommendations to support safe and effective training strategies. This project contributes to the broader understanding of how environmental factors affect physical performance and injury prevention, benefiting both recreational and competitive runners.

(CESHS - Physical Education, Sport & Human Performance)

(PESH 381 - Janet Wojcik)

# **Fueling for Collegiate Endurance Athletes**

#### Caroline F. Bend

Proper dietary fueling for collegiate endurance athletes is of utmost importance, although it can be difficult to determine the correct amount and types of foods to consume at the proper times. Collegiate endurance athletes participating in sports such as cross country, basketball, volleyball, soccer, and other aerobically inclined sports, work their bodies to the fullest potential at strenuous levels for hours every day. Due to this, fueling the body properly is vital for success in an athlete's performance in their sport, academics, and life. Food needs of collegiate endurance athletes are drastically different than those of a sedentary person. Further, serious health conditions such as eating disorders can develop if athletes are not properly fueled. This presentation will discuss how collegiate endurance athletes should be fueling their bodies, including all macronutrients and common supplements. Further, pre-, intra-, and post-workout fueling will be discussed, along with the dangers of underfueling. This discussion will be based on scientific findings and will provide examples of current endurance athletes' dietary patterns.

Mentor: Janet Wojcik, Ph.D.

(CESHS - Physical Education, Sport & Human Performance)

(EXSC 511 - Janet Wojcik)

#### Sickle Cell Anemia and Exercise

## Liana Negron

Sickle cell anemia is a genetic disorder defined by crescent-shaped red blood cells. This causes chronic fatigue and dizziness, along with complications of other organs. Special considerations must be taken when prescribing exercise routines. The purpose of the study was to evaluate the effects of endurance training on those with SCD on the microvasculature of their skeletal muscle. It consists of 32 sickle cell disease patients. The training was 40 minutes of moderate intensity on the cycle ergometer over 8 weeks, and a biopsy of the vastus lateralis was taken. FITT-VPP for aerobic exercise will consist of 3-4 days of moderate-intensity activity at 50-70% of HR max. Modes of exercise will be walking, cycling, and swimming, for 20-40 minutes. Resistance training will be 2-3 days a week nonconsecutive at 50-70% of 1 RM, for 20-30 minutes a day. Full-body workouts will be the best approach to ensure all major muscles are worked. Finding where moderate intensity improves capillary contact with muscle fibers (Angiogenesis), blood and oxygen supply, and muscular function as there was an increase in power output.

Menton: Janet Wojcik, Ph D

(CESHS - Physical Education, Sport & Human Performance)

(PESH 381 - Janet Wojcik)

# The Effect of Nutrition on Division I Women's Lacrosse Athletes

#### Lily C. Davis

Playing women's lacrosse at the division I level is an extremely accomplishing yet taxing thing. The stress put on the bodies of these athletes is very high and it requires optimal nutritional intake to replenish their bodies. Without this proper intake, the bodies of these women will not perform properly. Their bones and muscles will be weakened and will not be strong enough to perform the activities that they need to. Since their muscles and bones will not be working properly, their actual performance in the sport will not be at its peak. They will never be able to perform as well as they want to. They also will be greatly increasing their risk to be injured while playing or even preparing to play. They put themselves in many different situations to be injured for their sport, and when their body is not fueled properly, it is unable to protect them. It also will not allow them to recover from most injuries as quickly as they would be able to if they were properly nourished. The main cause of this improper nutrition is the lack of education on the topic. The athletes are extremely uneducated on what their bodies are truly doing and what they need to be doing to support themselves. The people around them, like their athletic staff, are also uneducated and can not provide optimal information on the topic. This lack of information can be detrimental to these female athletes.

Mentor: Aaron Hartel, Ph D

Supported by INBRE

(CAS - Chemistry, Physics, Geology & the

# Synthesis of 2,5-Dialkylpyrrolidines via Reduction of y-Ketooximes

#### Kayla A. Hall

y-Ketooximes are versatile synthetic intermediates that serve as direct precursors to several important compound classes. We are interested in transforming these valuable intermediates into 2,5-dialkylpyrrolidines, some of which occur naturally in the venoms of various species of *Solenopsis* ants. Related piperidine alkaloids from other *Solenopsis* species have shown significant antiangiogenesis activity and have been investigated as a potential treatment for cancer. The synthetic strategy involves the 1,3-dipolar cycloaddition of a nitrile oxide with an  $\alpha,\beta$  unsaturated ketone to give an acylisoxazoline, followed by a ring-opening Brook rearrangement. Selective reduction of the resulting oxime would then initiate an intramolecular reductive amination to give the target pyrrolidine. The project's current focus is determining conditions appropriate for the final reductive cyclization. Because the y-ketooximes required for the proposed syntheses can only be made in small quantities, the reductive cyclization was modeled using the inexpensive, commercially available reagents cyclohexanone and cyclohexanone oxime.

(CESHS - Physical Education, Sport & Human Performance)

(EXSC 511 - Janet Wojcik)

#### Nutrition

#### Marco Castro

Nutrition plays a critical role in overall health, supporting growth, development, and the maintenance of bodily functions. A balanced diet, rich in essential nutrients, helps fuel the body, regulate metabolic processes, and reduce the risk of chronic diseases. Macronutrients such as carbohydrates, proteins, and fats provide the energy necessary for daily activities, while micro nutrients like vitamins and minerals are vital for immune function, bone health, and the prevention of deficiencies. The quality of food consumed is just as important as the quantity; nutrient-dense foods, including fruits, vegetables, whole grains, lean proteins, and healthy fats, are essential for optimal health. Poor nutrition, on the other hand, can lead to various health issues, including obesity, cardiovascular diseases, diabetes, and malnutrition. In modern society, many individuals struggle to maintain a balanced diet due to factors such as processed foods, sedentary lifestyles, and limited access to healthy options. Proper nutrition is especially important during certain life stages, such as childhood, pregnancy, and older adulthood, where the body's nutritional needs may vary. Additionally, personalized nutrition approaches are gaining attention as they consider individual health conditions, genetic factors, and lifestyle habits. Addressing both the biological and environmental factors influencing nutrition can help individuals make informed dietary choices, promote healthy behaviors, and improve long-term health outcomes. As awareness grows about the relationship between nutrition and disease prevention, incorporating nutrition education into public health strategies has become an essential part of promoting well-being on a global scale.

Mentor: Andrew Besmer. Ph.D.

(CBT - Computing and Information Sciences)

(CSCI 453 - Andrew Besmer)

# Preferences in Two-Factor Authentication: How Context of **Account Type Influences User Choice**

Kelly Veintimilla, Jonathan Secrist, Madeline Wood, Jasmin Col-iteng

This study investigates user preferences for different authentication methods across various account types. We employed a within-group design, focusing on four account types: Banking, Social Media, Email, and Entertainment. The multifactor authentication methods tested included SMS Code Authentication. Email Authentication. Biometric Authentication, and Mobile App Authentication. Participants were recruited through Amazon Mechanical Turk and compensated with \$0.60 upon completing a survey. Key findings indicate statistically significant differences in preferred authentication types for each account. Notably, Biometric Authentication is preferred 13-16% more for banking over social media, e-commerce, and entertainment while SMS Authentication is preferred 8% more for e-commerce over social media. Overall, preferences are not strongly held, with the highest statistically significant difference being 16.6% for biometrics in banking versus entertainment. While biometrics offer convenience and are generally considered secure, they also come with unique challenges and risks. It can sometimes produce false positives (accepting an imposter) or false negatives (rejecting a legitimate user). Factors like environmental conditions, user behavior, and the quality of biometric sensors can affect accuracy. Our findings highlight the trade-offs a user makes between perceived security and convenience through different contexts. These insights can help innovate the promotion of certain authentication methods that integrate user needs of security, trust, and convenience.

Mentor: Virginia Williams, Ph.D.

(CAS - History)

(IDVS490 - Virginia Williams)

# Critical Race Theory Under Fire: The Fight Over Diversity in **American High School Classrooms** Will Boggs

As the political environment continues to attack Critical Race Theory and Diversity, Equity, and Inclusion, the importance of these diversity tools only increases. Since 2020, major events sparked the arguments around CRT and became the basis for eliminating DEI, especially the police killings and murders that brought the Black Lives Matter movement to the national stage and the publishing of the 1619 Project and its critics attacking the article. Shortly after, then Pres. Donald J. Trump published Executive Order 13950, which targeted CRT. Recently, during his 2025 Inauguration celebration, Pres. Trump signed multiple Executive Orders directly attacking CRT and DEI on his first day in office. Not only were actions taken against CRT and DEI in the federal government, actions have been taken to not only suppress diversity but to eliminate both CRT and DEI in U.S. schools, both in K-12 and higher education venues. The important question to ask is how has CRT and DEI become a target and how does the implementation of CRT and DEI affect students in U.S. high school education? Through using the lenses of political scientists, educational researchers, and social studies educators. I have determined that not only are CRT tenants and diversity-based curriculum important to high school social studies education, but that including these elements is beneficial to student learning.

Mentor: Kelly Ozust, M.F.A.

(CVPA - Theatre & Dance)

(DANT301 - Kelly Ozust)

## **Mechanical Monsters**

# Kayelyn A. Wilburn

I am utilizing choreographic research to further understand the emotions of fear driven by anxiety and excitement. I seek to demonstrate how similar the body reacts to anxious fear and excitement. The brain's reaction is different but the way the body responds to the brain is extremely similar and I want to investigate and demonstrate the ways that you can change the negative reaction found in fear into excitement, a positive emotion that has health benefits for the mind and the body. Fear driven by anxiety is a common emotion that many people experience daily, and this detrimental form of nervousness can hold individuals back from taking a risk or working towards a goal. In my research, I am analyzing movement patterns and body responses that correspond with fear and excitement as well as researching what occurs in the brain when these two emotions are experienced. Specifically, I have been looking into the psychology behind the rollercoaster experience. Some people love the thrill, and others are nauseous at the sight of these mechanical monsters, so I am researching these different reactions to help inform the movement in my choreography. I want to create an environment in my choreography that makes the audience feel afraid for the main character. Keeping fear inducing movement patterns, I am working to manipulate the environment surrounding the character that turns that fear into something exciting.

Mentor: Josephine Koster, Ph.D.

(CAS - English)

(ENGL 494 - Josephine Koster)

# Interviewing Immortality: Vampirism in Literary Culture

#### Sophie Pendergraft

The depiction of vampires in literary culture can be analyzed to further understand the ways in which the motif is presented as a whole. Works that include these depictions, such as Carmilla, Dracula, and Interview with the Vampire, all provide specific commentary on the ways in which vampires exist within the societal structures that are presented. The exploration of monstrosity and otherness is necessary to understand the ways that humans are ostracized, which creates complex systems of oppression. This essay focuses on these power structures through looking at the Marxist framework, the psychoanalytic framework, and the postmodern framework. These reveal different aspects of how the vampire as a motif is presented, particularly in relation to the human characters, social structures, and subconscious factors that influence the vampiric figure. Through looking at vampires in literature such as Count Dracula, Carmilla, Louis de Pointe du Lac, or Lestat de Lioncourt, the connections between their characterization and narratives can be understood. The motif of a vampire, a monstrous figure who was once human, exists to immortalize the reactions, attitudes, and beliefs that existed within these cultural climates. Vampire fiction depicts creatures who are created in response to the inevitability of change in the developing world. Vampires are predatory in nature, used to depict the subconscious fears of being othered and living in an ever-changing world. Vampires, and vampire fiction, provide authors and audiences with outlets to explore the ways that human culture can be limiting and imbalanced in cultural. societal, and interpersonal situations.

Mentor: Kristen Wonderlich, DSW

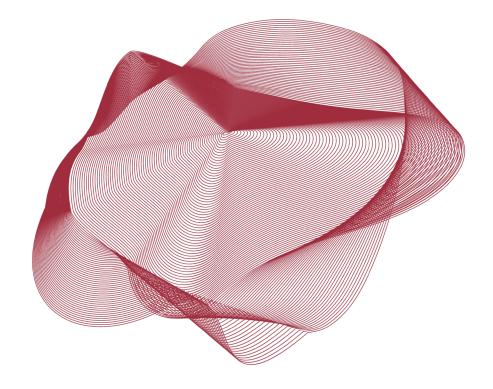
(CVPA — Music)

(MUST319 - Kristen Wonderlich)

# What I Wish I Learned in College: Vocal Health and Pathologies in Educators

Lilie Kyger

Teachers are at a higher risk of developing vocal health pathologies. Often, we find professional development seminars that emphasize the importance of prioritizing mental and physical health in teachers. However, there is a lack of knowledge and prevention when it comes to the subject of vocal health. Because educators are occupational voice users, they must practice good vocal health techniques to maintain workplace efficacy. Without proper care of the voice, teachers can experience vocal fatigue, loss of voice, and other voice pathologies. This results in less efficient teaching practices, absence from work, and worsened vocal disorders. This also leads to adverse effects on student learning and the school itself. Education programs in the United States are tasked with preparing the next generation of teachers for success in the field. They are preparing teachers in their content area knowledge and classroom management strategies but fail to educate future teachers on preventative health care, especially as it relates to teaching. With proper education in the care of the voice, teachers could prevent vocal disorders that affect not only the teacher, but the students and school as well. In this presentation, I will discuss the most common voice pathologies amongst educators, their causes, and prevention tactics.



Mentor: Veronica Ahadzie, Ph.D.

(CAS — Sociology Criminology, & Anthropology)

(SOCL516 - Veronica Ahadzie)

# How Political Affiliation Affects Public Perceptions on Police Use of Force

Archie Walker

I examined the relations between adults' political affiliation and their perceptions of police officers using force against physically violent suspects. Data was obtained from the 2022 General Social Survey. Results revealed that the majority of adults (77%) supported police use of force in that situation. Results also showed that individuals with right-leaning political affiliations were more likely to justify police use of force; in contrast, left-leaning individuals were more likely to oppose it. These findings highlight the influence of political ideology in shaping attitudes toward law enforcement and may be helpful for policymakers, law enforcement, and media organizations aiming to understand how society's attitudes toward policing are formed and improve discourse on police accountability and policy reform.

Mentor: Bradley Young, Ph.D.

(CVPA - Design)

(VCOM487 - Bradley Young)

# Styled By Cait

#### Caitlin N. Johnson

This project encompasses the complete brand proposal, website, style guide, brand identity, social media accounts, photos, and assets for Styled by Cait. It outlines the entire process of building the brand from beginning to end. Styled by Cait is a hair and makeup business founded by Caitlin Johnson, a passionate artist dedicated to enhancing natural beauty while celebrating individuality. What began as a hobby in Caitlin's youth-experimenting with hair and makeup and styling friends for local events—evolved into a professional career in 2024, when Caitlin officially launched her business. Styled by Cait offers personalized beauty services for clients preparing for special events such as pageants, weddings, etc. Styled By Cait's main goal is to make clients feel confident, comfortable, and empowered through customized hair and makeup that highlights their unique features. At Styled by Cait, inclusivity is central to the experience, ensuring a welcoming environment for everyone. The business incorporates the latest beauty trends, while still focusing on the timeless goal of enhancing each individual's natural beauty. Cait's services aim to foster self-expression and confidence with a commitment to transforming not only appearances, but also how clients feel about themselves. By providing a tailored approach to beauty, Styled by Cait seeks to be more than just a service—it is a space for self-love and personal fulfillment. As the business grows, Cait's vision is to continue to turn her lifelong passion for beauty into a space where clients can feel their best, inside and out, one client at a time.

Mentor: Monique Constance-Huggins, Ph.D.

(CAS - Social Work)

(SCWK473 - Monique Constance-Huggins)

# Exploring the Impact of COVID-19 on Black Women's Early College **Experiences**

Carilee M. Johnson

The transition to college is a critical period that shapes students' academic and personal development. For Black women, this transition was uniquely impacted by the COVID-19 pandemic, which introduced new challenges in education, mental health, and social adjustment. Understanding these challenges is essential for creating better support systems for students navigating higher education post-pandemic. This study explores the experiences of Black women who entered college during or shortly after the pandemic, focusing on the ways their race and gender influenced their adaptation. Using a qualitative research design, data were collected through in-depth interviews with participants at Winthrop University in Fall 2024. Several themes emerged from the narratives, highlighting the multifaceted impact of the pandemic. Among the common themes are: (1) gaps in college preparation, (2) disrupted education, (3) increased emotional strain, (4) avoidance and isolation, and (5) unhealthy coping skills. These findings have important implications for higher education institutions seeking to better support Black women in their transition to college.

Mentor: Virginia Williams, Ph.D.

(CAS - History)

Williams)

# Rural Lower-income Schools and Their Effects on Students Jessica Garcia

My research topic is the effects of the lack of opportunities and resources for rural lower-income public schools, regarding higher education and jobs after school, and the effects compared to urban schools in the United States. This is a critical topic today as education grows and lower-income schools are left behind. The lack of opportunities, funding, and support can be discouraging for students in rural, lower-income schools looking to achieve higher education. The question I have researched is how do rural lower-income schools in the South compare with urban schools with regard to higher education opportunities and long-term career opportunities? To research that topic, I have decided to focus on Economics, Sociology, and Education. I found educators who felt passionate about the situation and advocate for better education for all. My second discipline is Sociology, where we can see behavioral patterns in students. My third discipline is Economics. Economists can compare how the funding from urban and rural schools is used and look at past patterns to determine why rural schools get lower funding. My research aims to fill in the literature gaps within education, and it seeks to continuously bring up the issues within rural lower-income schools compared to urban schools in modern times. By addressing the challenges faced by rural lower-income schools in the United States. policymakers and educators can work towards creating equal access to higher education, opportunities, and resources that lead to long-term Job (and academic) success regardless of the school's geographic location or economic status.

Menton: Kelly Ozust, MFA

(CVPA - Theatre & Dance)

(DANT301 - Kelly Ozust)

# Between Shadows and Light: A Journey Through Loneliness and Solitude

Alicia J. Littlejohn

My choreographic research explores the emotional and physical distinction between loneliness and solitude through movement. My work investigates how spatial relationship and dynamic contrast explore the tension between feeling alone and choosing to be alone. This piece illustrates the emotional journey from isolation to self-acceptance. I once felt the weight of isolation pressed against me. Connection seemed distant, a language I could not fully grasp. In time, solitude became a sanctuary rather than a shadow that hovered over me at every waking moment. I discovered joy in my own presence, learning to embrace self-love when the world felt indifferent, but to also recognize when to open the door to let others in. The research process involves partner work, and structured exploration of spatial relationship to embody themes of disconnection and peaceful solitude. Drawing from credible sources such as the American Medical Association's insights on loneliness and my own personal experience, dancers will explore common signs of loneliness and how to truly know when you have found solitude. Dancers use asymmetry, fleeting connections, and changes in weight sharing to reflect shifting emotional states. The contrast between interwoven duets and isolated movements highlights the evolving perception of being alone not just as a struggle but as a space of self-discovery. This work is important because loneliness is a universal human experience and dance has the power to express what words often cannot.

Mentor: Virginia Williams, Ph.D.

(CAS - History)

(IDVS490 - Virginia Williams)

#### **Online Misinformation**

#### Forest Rain

Jaylin S. Sypolt

Online misinformation is a growing problem in our increasingly digital world. As the legacy media loses credibility and influence, more people turn to social media for news and information. Unfortunately, these platforms' algorithms and inentive structures, coupled with the lack of regulation and accountability, create an environment where misinformation spreads unchecked and faster than the truth. Misinformation is present in almost every category of information, from political news to science, health and emergency communication, and more. My research examines how misinformation impacts society, what purposes it serves, and what can be done to mitigate it. I studied literature from Digital Communications, Sociology, and Political Science to examine the issue. Digital Communications provides insight into the digital mechanisms that enable the spread of misinformation, shifts in mass communication, and the implications of human behavior in online social networks. Sociology emphasizes the importance of the broader social issues and distrust in authority that foster an environment where the spread of false information is incentivized. Finally, Political Science highlights changes in political campaign strategy that weaponize and institutionalize the proliferation of misinformation and its impact on democracy. A synthesis of these three disciplinary perspectives gives a more comprehensive picture of the problem and potential solutions. Given the scope of the issue and society's reliance on social networks for communication, there is no single solution. Instead, it will take coordinated efforts from policymakers, government programs, social media companies, and normal people to fight against misinformation.

Application of Standard Dilution Analysis with X-Ray Fluorescence

to Determine Concentrations of Copper in Water

(CAS — Chemistry, Physics, Geology & the

Mentor: Cliff Calloway.

Ph.D.

(CHEM552 - James Hanna)

X-ray fluorescent (XRF) technology is utilized to validate the Standard Dilution Analysis (SDA) calibration method. The use of handheld XRF spectroscopy sensors is an alternative method to inductively coupled plasma atomic optical emission (ICP-OES) spectroscopy which speeds up the analysis process, since this technique allows for implementation directly in the field. SDA coupled with the handheld XRF device is a completely unexplored area of research that poses great potential for portable analysis, specifically for water analysis. XRF measures emitted wavelengths, which correlates to specific chemical compounds/elements allowing for the identification of components in a water solution. Implementation of SDA from the XRF data would allow for an accurate determination of metal concentrations contained in the water samples, such as copper, nickel, sodium, and magnesium. Research is currently being conducted examining concentration calculations for copper metal in water.

Mentor: Virginia Williams, Ph.D.

(CAS - History)

(IDVS490 - Virginia Williams)

# The Degradation of US Public Education and the Effects of Capitalism on Secondary and Higher Education

Daniel J. Voell

The degradation of the United States public education system has been no secret. In modern discourse over the topic, many interested parties have thrown in their ideas and solutions to this ongoing problem. The topic has many causes and has to be a multi-pronged solution to curb the consequences of a declining educational system. This is a major problem due to the false idea of educational meritocracy and the hopeful idea that education is a place of equity to overcome other societal challenges. The truth is that education within the United States has often been a key part of keeping the systems of oppression and actively participating in the cycle of poverty due to its systemic failures. This paper will explore the overall degradation of public education in the United States and how capitalism has affected the education system along with the students. This idea is explored through educational, historical, and sociological perspectives. The educational perspective allows for an introspective view of how education is failing within capitalism and the pressures on education internally. The historical perspective gives a storyline for educational purposes with the United States and the patterns of capitalism and education working hand-in-hand, while the sociological views bring the impacts on the students and effects of capitalism from the outside in. The connection between education and capitalism has made students the product and consumer, along with structural changes toward privatization mirroring capitalistic values producing capitalistic consequences, making education a part of suppression within the system.

Mentor: Christian Grattan, Ph.D.

Supported by INBRE

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

# Modifications of Sphingosine-Kinase Inhibitors to Improve Bioavailability

Ravyn Torres

Sphingosine Kinase 1 (SPK-1) is a naturally occurring enzyme in the body derived from ceramides. It aids in forming sphingosine-1-phosphate (S1P) which can lead to the proliferation and survival of cells. In a cancerous system, S1P is overexpressed. This leads to the mass proliferation of cancerous cells causing tumors. To prevent this, an inhibitor needs to be developed to prevent cancer from being able to express S1P. Using a known template molecule of a sphingosine kinase inhibitor (SKI), eight inhibitors were synthesized in hopes of improving the oral bioavailability of the drug. Modifications were made on the first naphthaldehyde ring of the template molecule using various ring structures. The inhibitors made from these modifications will be tested to determine their efficiency at inhibiting SPK-1 against the template inhibitor.

Mentor: Eric Birgbauer, Ph.D.

Supported by INBRE

(CAS - Biology)

# Investigating the Effects of Semaphorin 3A, an Axonal Guidance Molecule, on Chick RGC and DRG neurons

#### Mallika Singh

During the development of the visual system, axons from the retinal ganglion cells (RGCs) in the eve must form connections with their targets in the brain in order to relay information. Molecules that act as axonal guidance cues aid in this development. The axon has motile, finger-like projections at its end known as the "growth cone". The growth cone is responsible for the exploration of the axon's environment. The growth cone induces a response to specific guidance molecules in its path. This response can be attractive or repulsive. The repulsion of the growth cone can be seen in the retraction of the projections which serves as the basis for the growth cone collapse assay. A guidance cue previously documented is Semaphorin 3A (Sema 3A), which has been shown to have induced in vitro collapse in the growth cones of dorsal root ganglion (DRG) cells in chicken. Previous literature found that while DRGs respond to Sema 3A, RGCs of the central nervous system did not. However, students in the Birgbauer Lab found that chicken RGCs did respond to Sema 3A and growth cones showed collapse. To study this discrepancy, we set up a series of blind treatments using varying doses of Sema-3A for retinal explants taken from chick embryos at E6. As a parallel control experiment, we also set up Sema 3A blind treatments for DRG explants from E7 chick embryos. We found that while DRGs were confirmed to have a dramatic response to Sema-3A, axons from RGCs did not have a dose-dependent response. This would indicate that Sema 3A may not play a role in the development of the visual system in chicken. To confirm this hypothesis, future experiments can use time-lapse microscopy to record the responses of growth cones to Sema 3A treatment.

Mentor: Christian Grattan, Ph.D.

Supported by INBRE

(CAS - Chemistry, Physics, Geology & the

(CHEM351 - James Hanna)

# Synthesis of Sphingosine Kinase 1 Inhibitors by Manipulation of Zone 2 and 4

#### T. Christian Grattan: Farah Tabassum

Sphingosine Kinase 1 (SK1) is a known enzyme which catalyzes the sphingolipid membrane metabolic pathway toward sphingosine 1-phosphate (S1P) formation. If the cell does not undergo apoptosis when the sphingolipid produces ceramide, sphingosine can form. Once this reaction has taken place, SK1 can catalyze a new reaction to form S1P. Once the cell undergoes this metabolic pathway then the cell will proliferate, causing cancer to spread in the body. To prohibit the SK1 from reacting with sphingosine to produce S1P, novel SK1 inhibitors are needed. Through the use of a template molecule known to inhibit this enzyme in vitro, we have designed a novel derivative in the hope of improving the oral bioavailability while maintaining or improving the interaction with the enzyme. This project involved the incorporation of a thiophene and a 3.4-dimethoxybenzene group in zone 4 (SKI-24d) in place of the central pyrazole ring and hydroxynaphthalene respectively in the SK1 template. Through product purification and analysis, the syntheses performed for SKI-24d were shown to be successful and the sought out end product has been obtained.

Mentor: Virginia Williams, Ph.D.

(CAS - History)

Williams)

# One Nation, Under One Narrative: How Nationalism in Social **Studies Shapes Political Ideology**

Thomas G. Lundquist

This paper examines how nationalism in U.S. social studies curricula shapes students' political beliefs. Amid growing political divides in education, the rise of nationalist ideas, and debates over history instruction, this topic is more relevant than ever. The way history is taught influences students' understanding of national identity, civic responsibility, and politics. A curriculum centered on traditionalist national narratives enforces a singular perspective, discourages pluralism, and stifles discussions on systemic inequalities. This lack of exposure affects students' political views, limiting their critical engagement with history. This study explores how nationalism in social studies impacts students' political development through an interdisciplinary approach, drawing from education, political science, and social studies. Education research examines schools' role in shaping political awareness, political science explores how curricula influence political identity and participation, and social studies literature highlights how textbooks construct national identity while omitting key historical perspectives. Together, these fields illustrate how nationalism in education reinforces traditionalist and one-sided historical views. This paper argues that nationalism in social studies curricula limits open discussions on systemic inequities and multiculturalism, shaping students' political ideologies by prioritizing national unity over democratic pluralism and critical thought. It underscores the need for a more inclusive and critically aware approach to history education to foster a well-rounded understanding of the past and its impact on society.

Mentors: Bradley Young, Ph.D.; John Hairston Jr., M.F.A.: Jason Tselentis. M.F.A.; Ashley Belote (Penguin Random House)

(CVPA - Design)

(VCOM487 - Bradley Young, VCOM486 - Bradley Young)

# The Haunted History Mystery Club: The Origins of Pumpkin Carving

# Haley E. Kivett

This senior thesis explores the halloween practice of pumpkin carving through the lens of children's literature and the naivety and beauty of the childhood genre. It achieves this by examining the traditional practices of pumpkin carving, and how it has evolved in the cultural context of North America. From the Irish festival of Samhain, and the practices of Irish settlers in North America this practice has been augmented and enhanced over the years to its present level of prominence. The Haunted History Mystery Club: The Origins of Pumpkin Carving story focuses on a group of children that are dedicated to uncovering the origins and stories of Halloween traditions. Key themes included are those of whimsy, warmth, and wonder that are in juxtaposition with spooky elements and characters. These themes allow for an intuitive imaginative, engaging educational experience, inviting young readers to have fun while learning. The creative process throughout was an emerging realization of the author's intersectionality as both a graphic designer and illustrator, and how both of these can be reconciled to coexist within the professional context of this research. The result of this is the production of a 32 page children's book for ages 4-9. The book will be professionally manufactured and submitted for publication. Mentor: Christian Grattan, Ph.D.

Supported by INBRE

(CAS - Chemistry, Physics, Geology & the

# Synthesis of BRAF Inhibitors—Derivatives of 4,5-dihydropyrazoles

#### Jessica 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.

(CAS - Political Science, Philosophy, Religion &

Mentor: Michael

Lipscomb, Ph.D.

(PLSC490 - Michael Lipscomb, PLSC490 -Michael Lipscomb)

# Crossing the Divide: the Effects of Social Media and Political Polarization in the United States

Henry M. Waldrep

As social media continues to dominate the arena of information sharing, the scope in which social media impacts the consumer's way of thinking is constantly increasing. Particularly in modern America, political polarization both within government, and across American communities, increasingly characterizes American politics. To what degree might this perception of polarization reflect real measures of polarization, and, furthermore, what role might social media have in this potentially divisive issue? It can be assumed that social media, along with its methodologies of deploying algorithms to determine content viewed, has a major impact on American political thought, and thus, a direct effect on either perceived or real increases of political polarization. Already, there has been a plethora of research done on these two dimensions of polarization and social media influence. By combining the results of the data compiled in each dimension, we can better understand the relationship between social media and political socialization, particularly as it pertains to polarization. As the American nation continues to face national and global crises, political communication across ideological divides will be crucial to solving those crises. Understanding the challenges and causations of division in politics and the perceived lack of coaction is crucial in becoming a more unified nation.

Mentor: Janet Wojcik, Ph.D.

(UC - Physical Education, Sport & Human Performance)

### **Fitness on Mars**

#### Camden Davis

NASA is launching the first manned missions to Mars in the early 2030s: if those missions are successful, colonization by the general population will likely begin in the second half of the 21st century. Over the past decade, advancements in our understanding of human strength, endurance, and hypertrophy have opened the door for less highly trained individuals to participate in space exploration. In order to ensure a healthy general population on the partial-gravity environment of Mars. space agencies will have to engineer effective exercise, recovery, nutrition, supplemental, and pharmacological regimens that also have high adherence for Martian settlers. Integrating behavior modification and marketing psychology into any Martian fitness program will be necessary for encouraging maximal exercise participation and fostering an intrinsic desire to do so. Crafting an exercise regimen that adapts to its participants and has a high rate of adherence will be crucial for a settlement on Mars to reach self-sustainability.

Mentor: Bradley Young, Ph D

(CVPA - Design)

(VCOM487 - Bradley Young)

# "What Happens Now?"

#### **Robin Chase**

"What Happens Now?" is a graphic novel featuring a series of conversations with younger versions of me, exploring the evolutions in my relationship with both art and myself. The story serves to reflect on the past, look to the future, and reconcile the differences between what my 6-year-old self hoped I would become and who I actually am. My art has shaped me just as much as I have shaped it, and this growth is explored using a combination of traditional and digital elements - including personal artifacts from childhood. This juxtaposition combines the past and present visually while navigating the shifts in style and medium that have shaped me into the artist - and person - that I am today. The second component of this thesis is a video compilation consisting of childhood home videos, bridging the gap between reality and artistic interpretation. While the graphic novel takes place in what is more akin to a mindscape, the home videos provide an unfiltered but lively look into my childhood, striking a balance between the real and the symbolic world. While this story is incredibly personal, growing up is universal, and I hope it connects with everyone who has found themselves somewhere unexpected or anticipated. Dreams are a part of life - as is not always achieving them, and engaging in these theoretical conversations can provide a sense of closure, helping us recognize that we may have made our past self proud in ways we were previously unaware of.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# **Examining Governmental Policies and Their Effects on Economic** Collapse and Recovery: A Comparison of Economic Crises, Governmental Policies, and Their Effects in the United States Rvan Noblett

This research examines and compares economic crises in the United States, governmental responses to these crises, and the effects these responses had on economic recovery. Examinations were thus made of the recession of 1920-1921, the Great Depression, the energy crisis of the 1970s, the recession of 1981-82, and the housing crisis initiated Great Recession of 2008. The goal of these examinations was to ascertain what effect governmental actions on the federal level had on economic crises and their associated recoveries. This includes policies that may have contributed causally to economic crises, policies that may have aided economic recovery, and policies that may have hindered economic recovery. There is disagreement among economists about the causes of the discussed economic crises and the effects of governmental responses, and various economic perspectives on the issue, including Keynesian, Monetarist, and Supply-side perspectives. The differences between the examined economic crises and the disagreements regarding causes and effects with respect to economic crises and governmental responses leads to the conclusion that not enough data was available to draw final conclusions about the effect of governmental policies on economic crises and recoveries. This research is important as there is ongoing political debate as to the role of the United States government in the economy and the extent to which governmental responses to economic crises aid recovery or exacerbate those crises.

Mentor: Michael Lipscomb, Ph.D.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# Dress to Impress?: A Deep Dive Into the Legitimacy of Fashion as a Representation of Historical Movements of the 20th Century

## Carrie A. Vaughn

Fashion, both as dress and as a cultural phenomenon, serves as a powerful lens for understanding the historical and social complexities of society over time. As an interdisciplinary field, fashion studies intersect with anthropology, history, and political science, offering critical insights into social hierarchies and power dynamics. This paper examines how the rise of capitalist ideals has shaped fashion—both as an expression of identity and as a tool for resistance—within 20th-century social movements. Drawing on Aspert, Patrick, and Gardart's definition of fashion as "the unplanned process of recurring change against a backdrop of order in the public realm," this study explores how moments of social change have generated distinct fashion trends that reflect and reinforce the goals of various movements. Using a longitudinal qualitative analysis, I trace patterns in the visual and ideological expressions of key 20th-century movements, including the women's suffrage movement, the civil rights movement, the Queer Liberation movement, and the Chicano movement. I argue that the ideals of autonomy, individualism, and social mobility manifest not only in these movements' public messaging but also in their fashion choices—strategically challenging and redefining dominant stereotypes. By demonstrating the ways in which fashion operates as both a symbolic and material force in social change, this research encourages future scholars to employ fashion as a critical framework for analyzing other historical and political movements.

Mentor: Michael Lipscomb. Ph.D.

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

(PLSC510 - Anthony Hobert, PLSC490 - Michael Lipscomb)

# The Dysfunctionality of the American Disability System and How to Improve It

John E. Seav

Disability protections in the United States are relatively few. Most specifically, the research asks, "should states implement and expand disability protections in their constitutions?" To support this claim, this research analyzes the U.S. Constitution, state constitutions, and relevant disability rights legislation, particularly in the context of demographic trends drawn from the U.S. census. I argue that states should strive for the implementation of disability protections in their constitutions, as amending the United States constitution requires a far more stringent process, and legislation such as The Americans with Disabilities Act can be repealed. This research is of ongoing importance, clarifying the current status of disability protections in the U.S. and providing guidance about how those pursuing the expansion of those protections might proceed.

Menton: Michael Lipscomb. Ph.D.

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

(HONR 490)

## **Confinement in Motion**

# Hannah Pfenninger

My research focuses on the effects caused by the lack of rehabilitation after incarceration. There are many people who get released from incarceration and then are let into society with nothing. Some people have a home, family, or job to go home to while others have nothing. There are places that help people rehabilitate back into society after being incarcerated but there are not enough programs. Society also has preconceived notions of those who have been incarcerated, which hinders those who have been incarcerated from receiving certain opportunities. This concept and idea hits close to home. I had a family member who was incarcerated. When she came home, she would tell me all about the friends she made. She would also tell me their stories of how some of them would have nothing to go home to, causing them to end up incarcerated again. Some of my research methods include conversations with said family members. I also had her draw out a life map of her journey from being incarcerated to being released, and that of her friends, so I could use them not only as inspiration but also as pathways throughout the dance. I have also done research on different rehabilitation centers and what they help with and how they help. I've also tried to create movements that show different points of view.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# Rethinking Israel's Occupation of Gaza and the West Bank: The **Drive for Power and Profit**

Caden Johnson

The Israeli-Palestinian conflict has been studied by scholars for nearly a century, yet there exists a lack of research centered around the basis of Israel's expansionist ideals. This paper examines the fundamental question of "to what extent is Israel's foreign policy based upon politically and economically driven goals as opposed to a perceived sense of self-security and the claims of upholding sovereignty". This research examines over 100 years of history regarding this conflict, starting by tracing the roots of Zionism and continuing to the current crisis in Gaza. This research posits that modern-day Israel, and even Israel historically, often takes active steps that impede the sense of security that it aims to create. In fact, Israel's actions ignore man-made humanitarian crises in order to ensure a thriving economy and expand its hold in the Middle East and the world, focusing on land, political stature, and economic prosperity. Drawing on an extensive literature review, and in particular, Antony Loewenstein's *The Palestine Laboratory*, this study concludes that Israel has used its role in the Middle East to weaponize its occupation of Gaza and the West Bank while exploring avenues to continue its annexation and occupation of more land. Israel's occupation of these territories allows it to test new weaponry and security measures that it subsequently seeks to sell openly on the foreign market. Understood through this lens. Israel's actions can be seen as that of an opportunistic oppressor as opposed to its proclaimed status as the sole democracy in the Middle East.

Mentor: Kelly Ozust, M.F.A.

(CVPA - Theatre & Dance)

(DANT301 - Kelly Ozust)

# **Amongst the Raptors**

Melonda Sullivan

In my choreographic work, Amongst the Raptors, I am exploring the concept of aggressive mimicry in birds, specifically in zone-tailed hawks. Aggressive mimicry is the act of a predator mimicking a harmless animal to lure its prey. In my creative research, I am conveying the process of aggressive mimicry in birds, but also the naïve nature of their prey. The main reason for my research is to connect the behaviors of nature to choreographic storytelling. As a result of my research, my goal is to leave viewers with an alluring understanding of this animalistic behavior, as well as the realization that we as humans are not much different from these birds. In my choreographic research, I have created movement that conveys my topic by observing videos of zone tailed hawks, taking note of how they fly, how they walk, and how they execute aggressive mimicry on their prey. I have also conducted my research based on various articles that describe how these birds move and the variety of animals within their diet. In this research-based choreographic work, I have created movement that has a predatory, eerie, and smooth quality accompanied by sporadic sharp moments.

Mentor: Michael Lipscomb, Ph.D.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# Hispanic Voters in Transition: The Rise of Individualism in Political **Preferences**

Dayanna M. Garcia

This research examines the evolving voting behavior of Hispanic voters in the United States, focusing on the transition from a community-oriented voting approach to one that is more individualistic. The central research question that guides this study is "How have the voting trends amongst the Hispanic community shifted over the last two decades, and what factors contributed to this shift?" The research hypothesizes that economic factors, individual identity, and the increasing influence of social media have played a significant role in this shift towards an individualist style of voting. Quantitative date from recent electoral studies, surveys, and demographic analyses have been utilized to keep track of voting trends within the Hispanic community. Furthermore, a review of the scholarly literature provides insight into the motivations of this demographic shift in voting trends. This evidence highlights the changes in priority behind the voting patterns of the Hispanic community. This research provides insight into key behavioral changes amongst Hispanic voters that can significantly influence policy makers, political strategists, and how community leaders interact with this specific group of voters.

Menton: Matthew Fike, Ph D

(ENGL305 - Matthew Fike)

# "More Flesh . . . More Frailty": The Role of Obesity in Falstaff's Death

Sophia Moore

The precise cause of Falstaff's sudden death in Henry V is never directly stated, and the complications preceding the event are ambiguous. Relying primarily on Mistress Quickly's secondhand account of Falstaff's expiration, previous critics such as Adam A. Mendilow. Robert F. Fleissner, and Harold Bloom have proposed three possible causes: pestilence, chlorosis, and syphilis. I argue that these diagnoses overlook evidence of obesity-induced health complications that Falstaff exhibits throughout the Henriad: his obesity contributes significantly to his demise. My position is informed by contemporary medical literature, especially that which concentrates on respiratory health, cardiovascular health, and obesity. Falstaff's death is likely compounded by his obesity, which at the very least may increase his vulnerability to pestilence and may also be the primary catalyst of his death via heart failure.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# Ratifications of Capital Punishment Based on Race and Charges

#### Cierra Havnes

The lenses of Public Policy and Public Administration theories frequently highlight how systemic inequalities can manifest in the application of the death penalty, especially when considering the race of both the defendant and the victim. A review of the evidence demonstrates that people of color are more likely to receive the death penalty. This paper asks, "Why is this the case"? In an effort to answer this question, this paper examines different theories that seek to explain those causes: the "victim's race effect", disproportionate impact on minority groups, jury selection bias, racial bias in the criminal justice system, and the perception of a crime's severity. This research looks at survey interviews from the scholarly literature that ask how the public understands the relationship between race and the death penalty. Survey respondents answered questions about how the criminal justice system determines death sentences and how race can influence the likelihood of being sentenced to death. This topic remains important because of racially driven inequalities in the application of the death penalty and is thus relevant to questions about the fairness of the U.S. justice system.

Mentor: Michael Lipscomb, Ph.D.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# Protecting the Outdoor Industry: Legal Limitations and Economic Impacts of Outdoor Recreation and Adventure in America

#### Madeleine Best

The outdoor recreation and tourism industry in America is one that is often overlooked, despite it being around for over a hundred years. While the outdoor industry has its followers and enthusiasts, lots of Americans do not know about the inner workings and the challenges that the industry faces, or how this industry is important to the American economy. While many may think the outdoor industry is well protected, the reality is that it is not. The laws and policy surrounding the outdoors are not as solid as they could be and need to be strengthened so that protections are not reduced or taken away; the outdoor industry can be better protected. To give a few examples, recent executive orders allowing drilling on public lands, logging in federal forests, and drastic reductions of National Park staff all demonstrate the fragility of current protections of the outdoors. Using a history of the laws and policy of the outdoor industry as well as economic data about the industry, this paper discusses how the outdoor recreation and tourism industry is important from an economic standpoint as well as a general environmental standpoint, and how it needs better protections. This is so that the outdoors can be preserved as an economic resource and for the overall enjoyment of future generations.

Menton: Kelly Ozust, MFA

(CVPA - Theatre & Dance)

(DANT301 - Kelly Ozust)

# **Decaying Individuality**

#### Mikey Robert Kesler

In my creative research I am exploring the aspects of self that are lost and/or taken away once an individual is corrupted by a group mindset. Through this lens I aim to present an eerie choreographic work that depicts that loss of individuality. Due to recent societal events and trends, I was inspired to further research both content and movement relating to this absorption of a person's humanity into a group consciousness. I am fascinated by the ways throughout recent history (specifically) that humans have been convinced/forced to commit atrocities. Events such as the rise of the Nazi regime and the Jonestown massacre are prime examples of this collapse of humanity in a corrupt and controlling collective. Through my physical research of events, I have developed concepts and themes that are commonplace in these histories. I have created movements, explorations of space, and gestures to represent aspects of group dynamics and the indoctrination process. This includes, but is not limited to, circular pathways and spirals to visually show a descent into darkness as well as unsettling shapes in the hands and arms. The goal of my research is to, through dance, illustrate the indoctrination process and its effects on human individuality while also showing the detrimental events that can occur.

Mentor: Janet Wojcik, Ph D

(CESHS - Physical Education, Sport & Human Performance)

# **Beyond the Mile**

#### Michael Mitchell

Participating in a marathon offers an exhilarating experience that requires extensive physical and mental preparation, along with an understanding of community and self- achievement. Training involves following carefully structured plans over several months, focusing on endurance runs, speed work, and recovery, while also maintaining a balanced diet. Mental preparation, which includes techniques like visualization and positive reinforcement, is necessary for building confidence. During race day, participants feel a mix of excitement and nervousness in a lively atmosphere filled with fellow runners and enthusiastic supporters. The event kicks off with an electrifying environment, complete with cheers and live entertainment. During the marathon, runners encounter many physical and mental hurdles, such as fatigue, which can lead to moments of self-doubt. Overcoming these challenges greatly contributes to personal growth. Marathons create a strong sense of community, as runners often train together and motivate each other. On race day, the support from friends, family, and spectators, along with access to hydration stations and medical assistance, is important for maintaining motivation. My presentation is about how to pace when running a marathon. I will explain ways to avoid injuries and share training tips from the top runners. Additionally, I will talk about the best weather conditions for running to boost performance. In the end, it will show how to successfully finish a marathon in the best way possible.

Mentor: Kelly Ozust, M.F.A.

(CVPA - Theatre & Dance)

(DANT301 - Kelly Ozust)

## **Beyond Ourselves**

#### Brandon Barrientos

In my creative research I am exploring two philosophical concepts through the choreographic process. These philosophical concepts include Stoicism and the idea of Sonder. With these ideas in mind, I strive to create a dance piece that showcases the journey of battling with control and what life could look like once one wins that battle. Not only will emotional resilience be found, but it may also lead to the realization that everyone is going through something and that everyone's life can be fulfilling. Through qualitative research, more specifically, observations of individuals in different settings. I gathered data that functioned as inspiration for my movement. For example, using celebratory gestures from a volleyball game to communicate the joyous moments in life and creating movement based on personal experiences to articulate the more serious ones. Following the observations. I began exploring with sharp movements to demonstrate the ongoing battle within oneself as well as the different forms that control can take. I also toyed with fluid-like movements to communicate the feeling of overcoming those dark thoughts and accepting that not everything can be controlled. The goal of my choreographic research is to produce an end product in which the audience can learn something and/or gain some introspection, ultimately leading to a more calm and pleasant outlook on life.

Mentor: Michael Lipscomb, Ph.D.

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

(PLSC490 - Michael Lipscomb)

# Preaching Politics: The Influence of Televangelists on American Voters

## Madison L. Harley

The intersection between religion, conservative agendas, and the media has expanded tremendously since the rise of televangelism. Beginning in the late 70s, evangelist ministers began using their personas to influence the masses, as seen through television broadcasts and the Moral Majority. As technology evolved, these prominent religious figures began to use their public platforms, such as digital media and prosperity preaching, to reach their audiences. Historically, evangelicals believe that moral legislation is the most effective way to guide individuals toward a holy life; therefore, they became increasingly politically involved. While some ministers may choose to engage in direct action, such as endorsements, fundraising, and participating in national events, others tend to focus on more subtle messages in an attempt to remain nonpartisan. This paper explores these indirect influences that prominent religious figures employ to align their audience with conservative candidates. Through a comparative analysis, I examine the online sermons and public statements of notable televangelists to identify recurring themes. Furthermore, I assess the use of loaded language and various theologies to persuade viewers toward or away from particular political affiliations. This research highlights the interaction between direct political activity and indirect ideological influence, contributing to a broader discussion of how televangelists have shaped the political identity of modern evangelical voters.

Mentor: Janet Wojcik, Ph.D.

(CESHS — Physical Education, Sport & Human Performance)

(PESH381 - Janet Wojcik)

# The Effects of Menstrual Cycles on Women's Game Performance

#### Megan R. Powell

Menstrual cycles in women's competitive sports often tend to be an excuse for their poor performance. Women go through four different phases of a menstrual cycle, which are menstruation, follicular phase, ovulation, and luteal phase. Exercise during the cycle can often lessen the symptoms of a cycle but could have negative effects on game performance, depending on what phase they are in during competition. It is proven that women can notice a decline in skill during early follicular and late luteal phases. This has led to many studies examining whether women athletes need modifications or exemptions made due to their menstrual cycle. This presentation will examine the factors that affect a woman athlete's game performance during her menstrual cycle.

Mentors: Jeremy Lopuch, Ph.D.; Crystal Glover, Ph.D.

(CESHS - Education Core)

# The Impact and Vision of Call Me MiSTER

Diego Rodriguez, Adriane Alston, Eli Allen, Melvin Mikell, Julian Simmons, Ernest Wesley

Recently celebrating its 25th anniversary, the Call Me MiSTER (Mentors Instructing Students Toward Effective Role Models) program was created to address the critical shortage of African American male teachers in K-8 education. Originating at Clemson University in partnership with three historically black institutions in South Carolina, the program is built upon five core tenets: Brother's Keeper/Stewardship, Ambassadorship, Teacher Efficacy, Personal Growth, and Servant Leadership. The purpose of our research is to provide a conceptual framework for understanding Call Me MiS-TER's impact. Through analysis of the core tenants and mission statement, we examine how the program has increased and broadened the pool of educators from diverse backgrounds, while also contributing to increased retention rates of teachers across South Carolina and institutions in other states. Participants will learn the history, importance, and conceptual framework of the Call Me MiSTER program. Participants will leave the presentation with a greater understanding and appreciation of how the program's influence in providing a more diverse representation of teachers within our school systems. Directions for future research about the program will be discussed.

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

(PLSC490 - Michael Lipscomb)

# Debt, Diversity, and Degrees: Examining Public Policy's Impact on Black Students in Higher Education

Sequan De'Vonta Dingle

Throughout the history of education in the United States, Black Americans have had fewer educational opportunities than White Americans. This research focuses on a particular aspect of that disparity by asking, "How have public policies, particularly financial aid policies and affirmative action, impacted Black student enrollment at Predominantly White Institutions (PWIs) vs. Historically Black Colleges and Universities (HBCUs)?" We hypothesize that public policy has predominantly harmed Black students pursuing higher education; however, public policy has also benefited many Black American applicants. Due to financial reasons, public policy has also negatively affected the decision-making of Black students about whether to attend a PWI vs. an HBCU. The analysis reveals the inadequacies that Black American students face in the American higher education system concerning public policy, the ever-changing enrollment trends between PWIs vs. HBCUs due to public policies, and the concurring and dissenting opinions of many Black Students across the United States of America regarding their higher education opportunities. In addition, the analysis reveals the views of Black American students in PWIs vs. HBCUs about affirmative action, considering both its benefits and underlying doubts about its efficacy in creating better educational and economic opportunities for Black Americans.

Mentor: Michael Sickels, Ph.D.

(CAS — Sociology, Criminology, & Anthropology)

(SOCL303 - Michael Sickels)

# The Social World of Rock Climbing

## Lily Sutton

Rock climbing produces unique identities unlike any other sport. It can be studied in the context of sociology by utilizing the theories of Erving Goffman and George Herbert Mead to identify how rock climbers form identities through interactions with others. This study examines the identities of rock climbers and staff members at the rock climbing wall in the Winthrop University West Center. The method consists of four days of observation as an active participant in the social world in which I looked for meaningful interactions between climbers and staff members. I also conducted two interviews with a staff member and a highly regarded rock climbing instructor here at Winthrop. The results of my study indicate gender differences among climbers, a unique way of viewing injuries and assumption of risk, the social aspect of climbing, and challenges of having the identity of a staff member. My study can further sociological research on the world of rock climbing and change the negative perception of the sport.

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

(CAS - Biology)

(BIOL526 - Victoria Frost)

# Decoding the Genome: Taking a Functional Genomics Approach to Investigating Winthrop's Phage Yorick

Janaija A. Beckham, Israel A. Bellinger, Chastity H. Chisolm, Fisher A. Cobb, Lily F. Doyle, Hannah E. Duncan, Papa Gyandeh, Madelynn P. Harding, Joshua T. Harkins, Erin A. Hooper, Amari R. Johnson, Rachel A. Leek, Seth M. Merritt, Ciaran L. Murphy, Gwendolyn R. Tomlin, Jessica E. Morgan

Bacteriophages, often called phages, are viruses that exclusively infect bacteria. They are the most abundant biological entities on Earth, playing crucial roles in regulating bacterial populations across various ecosystems, including the human body. Phages are gaining attention as a potential alternative to antibiotics in the fight against drug-resistant bacteria. Yorick, a Cluster F1 temperate phage, was discovered in 2021 by SEA-PHAGES students at Winthrop University. The Yorick genome contains 99 genes, 57 of which have no predicted function. Winthrop SEA-GENES students are utilizing molecular cloning and phenotypic assays to study the function of each phage gene individually. In the initial phase of this project, Yorick genes are amplified via PCR, and amplicons are size-verified and purified. Subsequently, the amplified genes are inserted into the pExTra cloning vector using isothermal assembly, followed by transformation into competent Escherichia coli cells. Transformants are screened via colony PCR and agarose gel electrophoresis. Verified plasmids are purified and transformed into the Yorick bacterial host, Mycobacterium smegmatis, for phenotypic analysis, such as cytotoxicity. In the cytotoxicity assay, each phage protein is overexpressed individually to observe the effects of interactions between the phage protein and the *M. smegmatis* proteome. The ongoing investigation of Yorick may provide valuable insights into phage biology and its potential applications. Understanding Yorick's properties could lead to innovative strategies for combating bacterial infections and contribute to developing new antibacterial therapies.

Mentor: Michael Lipscomb, Ph.D.

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

(PLSC490 - Michael Lipscomb)

# "We, The Lobbyist..."

#### Xavier M. Johnson

Patronage and lobbying have always been a fundamental part of American politics, influencing how the government functions and how interactions occur between elected officials and private citizens. This research examines how patronage, lobbying and money have led to an unequal distribution of power between these groups. This research hypothesizes that the influx of money and patronage into politics undermines the democracy of America. An extensive literature review reveals the particular ways which these power dynamics are contrary to the ethos of U.S. democracy. In short, the realities of money in American politics mean that wealthy elites and special interest groups have actively sought to influence the political agenda, which undermines the promise of an American government represented by "We the People."

Menton: William Schulte. Ph.D.

(CAS - Mass

(MCOM441 - William

# **Textile Overconsumption and Climate Change**

Rylee Meagan Reynolds

Climate change, driven largely by human activities, has led to significant alterations in the Earth's climate systems, including rising temperatures, altered precipitation and weather patterns. While naturally occurring climate change is standard, humaninduced factors, such as fossil fuel consumption, deforestation, and overconsumption, have accelerated these changes, with carbon dioxide levels currently higher than in the past 800,000 years. The textile industry is a particularly substantial contributor to climate change, accounting for approximately 1.2 million tons of all global carbon emissions per year. Overconsumption, fast fashion models, and inadequate recycling processes exacerbate environmental harm, as synthetic fibers and non-durable clothing items contribute to growing textile waste. The United Nations Environment Programme and the U.S. Government Accountability Office highlight the environmental and ethical implications of fast fashion, including poor working conditions and the release of harmful microplastics. Recent legislative efforts, such as California Senate Bill 707, aim to address these challenges by mandating producer responsibility for textile waste management, promoting recycling, and reducing landfill contributions. This paper examines the textile industry's significant role in accelerating climate change through overproduction and inadequate waste management while highlighting the environmental and ethical consequences of the industry's practices, including poor working conditions and microplastic pollution. The paper argues that a combination of individual behavioral change, corporate responsibility, and robust policy frameworks is essential to addressing the industry's negative impact. Without coordinated efforts, including legislative reform and greater consumer awareness, the acceleration of climate change driven by textile overproduction will continue to worsen.

Mentor: Veronica Ahadzie Ph D

Criminology, & Anthropology)

(SOCL516 - Veronica Ahadzie)

# Stress Management Programs and Workplace Relations Victoria Tyson

Stress management in the workplace aids employee productivity. By using the General Society Survey data, this study looks at how the incorporation of stress management and reduction programs in the workplace impact the relationships formed between employees and management. Using logistic regression analysis, the results show that stress management and reduction programs that are incorporated in organizations improve the relationships between employees and their management. It also further implies that these programs improve employee health, job satisfaction, and the workplace environment as the relationships within the workplace are healthier and more positive. Policy wise, this study suggests that incorporating stress management programs overall improve employee and management relations.

Mentor: William Schulte. Ph.D.

(CAS - Mass C ommunication)

(MCOM441 - William

# It's 10 p.m., Do You know Where Your Children Are Online?: Child Online Safety and the Government

Zoe K. Jenkins

Child online safety is a significant concern for both parents and the government. As the Internet continues to evolve, so do the risks and materials that children are exposed to. This story delves into these risks, such as cyberbullying, inappropriate content, and child sexual abuse material (CSAM). The research aims to identify what, where, and how children are exposed to such material. By recognizing the risks for youth online, parents gain insight on how to educate themselves and their children on what to do if they come across such content. To enhance the research of this topic, I have explored open records and public documents, submitted Freedom of Information Act (FOIA) requests to various agencies involved, and interviewed experts regarding the topic of child online safety. Through close examination of these resources, the government has implemented various strategies to protect children online, such as creating the Internet Crimes Against Children Task Force (ICAC), laws that block and report child pornography, and educational initiatives. However, these findings emphasize that these resources are either outdated or lack the resources to keep up with the advancements of technologies. The future of child internet safety depends on how agencies and individuals of today work together to educate themselves on the risks, the practices of exploiters, what is being done to protect children online, and what can be done next.

Mentor: Amy Clausen, Ph.D.

(CESHS - Counseling, Leadership and Educational Studies)

(EDUC495 - Amy Clausen)

# Theatre for All Remmy Remia

A goal for this organization is to introduce Winthrop LIFE students to theatre and help them grow their knowledge of theatre. Whether their interest is in the performing or technical side of theatre. I want anyone interested to participate. This means that there will be LIFE students participating on stage as well as helping with things such as costumes, props, sets, etc. My secondary goal for this organization is to increase inclusivity on campus. Many students outside the College of Education, Sport, & Human Sciences are unaware of the Winthrop LIFE program. This organization can increase the visibility of the Winthrop LIFE program on campus. My third goal for this organization is to increase awareness of how to interact and work with people who are different from you. Regardless of one's end career goal, one will most likely be working with various people of varying abilities and, therefore, should start learning now. This is especially true for any THED majors, as students receiving special education services are often mainstreamed into elective classes such as theatre. We are a group dedicated to creating inclusive performance opportunities for all Winthrop students.

(CESHS - Physical Education, Sport & Human Performance)

(PESH381 - Janet Wojcik)

# Injury Risks and Prevention Strategies for Professional **Performing Artists**

Meghan Strand

Professional performing artists, including ballet dancers and musical theater performers, endure immense physical strain due to the rigorous demands of their craft and career. Whether performing on New York City's Broadway or London' West End productions, these artists must present physically intense and repetitive movements multiple times per week. In most cases, performers take to the stage eight or more times weekly, leaving very little time for recovery. The intense nature of their work places them at a high risk for overuse injuries, which can develop gradually, or even become career-threatening if left unaddressed. Some of the most common injuries include stress fractures, tendinitis, hip labral tears, and chronic joint pain, all of which hinder the goal of obtaining a long and fulfilling performing arts career. Despite these risks, many performers continue pushing through pain, often ignoring minor injuries until they develop into more serious conditions creating long term damage. The competitive environment of the industry, along with financial and contract pressures, makes it difficult for performers to take the necessary breaks they need for proper healing. However, injury prevention strategies such as strength training, cross-training, proper warm-ups and cool-downs, and regular physical therapy sessions are all necessary for maintaining performance quality and career longevity. This presentation aims to examine the most prevalent injuries among professional dancers and theater performers, along with some evidence-based strategies for prevention and rehabilitation to promote long-term health and career sustainability.

Menton: Janet Woicik. Ph D

(CESHS - Physical Education, Sport & Human Performance)

(PESH381 - Janet Wojcik)

# Virtual Workouts vs. In-Person Workouts: A Comparative **Analysis**

Lakyn Stevenson

As an alternative to in-person instruction, the growth of fitness on digital platforms has revolutionized how people exercise. In-person classes offer clear benefits, including social connection and real-time instructor support, while virtual exercises provide accessibility and flexibility. This study examines how motivation, adherence, and goal achievement differ between online and in-person workout sessions. Specifically, it examines whether adherence and motivation levels differ between these modalities, whether in-person participants experience greater accountability and community support, and how perceived effort influences the effectiveness of each approach. By identifying the strengths and limitations of each approach, this research aims to provide valuable insights for individuals seeking a fitness or rehab regimen that aligns with their goals and daily routines.

Mentor: Nicholas Grossoehme, Ph.D.

Supported by INBRE

(CAS - Chemistry. Physics, Geology & the

# RitR is a Redox-Sensitive Iron Sensor in *Streptococcus* pneumoniae

Nicholas Fatigante

Streptococcus pneumoniae is a gram-positive bacterium that contributes to diseases like meningitis and pneumonia and contributes to over 1 million deaths each year. S. pneumoniae contains a novel iron uptake regulation system with no known intracellular iron detection mechanisms. RitR (Repressor of Iron Transport) is a protein known to repress expression of iron uptake machinery. This research seeks to investigate the relationship between oxidation and DNA-binding potential of the regulatory protein, RitR. Further, this project explores the potential of RitR to serve as an intracellular iron detector within S. pneumonaie's iron uptake regulation system. RitR was grown in Escherichia coli and purified through cation exchange chromatography. RitR dimer formed via hydrogen peroxide driven oxidation in a buffer containing 100 mM malate. The DNA-binding properties of RitR diner was tested using fluorescence anisotropy with fluorescein labeled *piu* DNA. Surprisingly, our results establish that 100 mM malate is able to stabilize iron (III) at concentrations of at least 10 mM. This malate-stabilized iron (III) was added to a solution containing the labelled DNA and analyzed with fluorescence anisotropy in multiple experiments that varied concentrations of Dimer-DNA complex or iron (III). Our results indicate that the RitR-dimer forms a tight complex with the piu DNA above a threshold concentration of 1 mM iron (III) stabilized in 100 mM malate. Using the known equilibrium constant for iron (III) binding to malate, we can approximate that RitR-DNA complex formation is driven by sub-picomolar concentrations of free iron (III). Further, these results suggest that RitR is highly tuned to repressing iron uptake under oxidative conditions (both dimerization and iron (III) formation are favored under such conditions), and that iron (III) directly contributes to binding of RitR dimer to the piu operon, suppressing its expression and potentially acting as an iron detection mechanism in S. pneumoniae.

Mentor: Merry Sleigh, Ph.D.

(CAS - Psychology)

(PSYC472 - Merry Sleigh-Ritzer, PSYC471A - Merry Sleigh-Ritzer)

# Negative Outcomes Related to Childhood Adversity and Possible **Intervention Strategies**

Summerlyn R. Mixson

The purpose of this research project was to examine the factors most closely associated with the development or perpetuation of chronic illness and poor health in children and adults following adverse childhood experiences (ACEs). Data was collected through an extensive review of relevant research-based literature. The evidence revealed that ACEs predict increased risk for internal (e.g., heart disease) and external diseases (e.g., psoriasis). Both familial and environmental factors contribute to the existence and outcomes of ACEs within developed and developing countries. My investigation uncovered a number of solutions that, if implemented in public health services, would be a step towards reducing the prevalence of chronic illness and poor health in adolescents and adults within the US and other nations.

Mentor: Kavin Ming, Ed.D.

(CESHS - Curriculum and Pedagogy)

(READ346 - Kavin Ming)

## **Inclusion of All Students in Content Area Teaching**

#### Katelyn L. Selkinghaus

More and more, students with disabilities are being included in the general education classroom. General Education teachers must ensure that all students, including those with disabilities, have access to high-quality content-area instruction. Through the use of high-leverage practices, teachers can ensure that students with a wide range of abilities and support needs can participate in the learning experience. In this presentation, the presenter highlights the call for, and notes the benefits of inclusive practices, defines high-leverage practices, and provides an example of a specific high-leverage practice that can benefit all students in the inclusive classroom.

Mentors: Bradley Young, Ph.D.; Ashley Belote; Dustin Hoffman, Ph.D.: Miranda Sigmon, Ph.D.

(CVPA – Design)

(VCOM487 - Bradley Young, VCOM486 - Bradley Young)

#### What Makes a Hero

#### Makenna Pamic

Heroes build the backbone of popular culture. From Spider-Man to Luke Skywalker to Hercules, these figures all have one thing in common: superhuman abilities. They are revered for this, and many look up to and yearn to have powers of their own. There's often a feeling of disconnect that having magical powers is what makes one heroic. but really the true meaning behind the stories of many heroes is what they decide to do with these powers that makes them valiant. This idea often gets lost in theatrics and leaves the audience more in awe of the powers of heroes than the actions themselves. It begs the question of what makes someone a hero: their ability or their conduct? This thesis explores what this means for children through a picture book. They are the audience most prone to being awestruck of heroic abilities, but this can quickly lead to disappointment. Considering magical powers are not possible, it's often concluded that being a hero is not possible. However, this is not true. One doesn't need to be powerful or perform theatrical feats in order to be considered a savior. Sometimes, being kind and helping others is enough. This picture book will follow two friends who face this heroic dilemma, and how they overcome their self-doubt and blossom into heroes in their own right.

Mentor: Chris Johnson, M.Arch.

(CAS - Chemistry, Physics, Geology & the

(ENVS461 - Scott Werts)

# Transforming Food Waste: The Rocket Composter's Role in **Sustainable Waste Management**

#### McKeen Cattell

A major contributor to landfill waste and methane emissions is food waste. Methane is a strong greenhouse gas that speeds up climate change. Source reduction and food donation are prioritized waste management strategies, but these are not always an option. Composting provides a sustainable solution for unavoidable food waste. The Rocket composter is being used to process pre-consumer food waste at Winthrop University. The waste consists of uncooked vegetables, fruits, and bread from the Thomson Cafeteria. This innovative in-vessel system accelerates decomposition and produces nutrient rich compost in approximately two weeks. The compost is then used in the campus community garden which closes the loop between food waste and food production. This project serves as both an environmental initiative and an educational tool. It offers students and faculty hands-on learning opportunities about waste reduction and composting practices. By analyzing the composting process such as temperature regulation and moisture levels, we can assess The Rocket's efficiency and its role in mitigating food waste on campus. We can also look at its greenhouse gas impact. Future opportunities for expansion include incorporating additional food waste sources to maximize impact. This research shows the potential of technology-driven composting solutions in creating a more sustainable food system.

Menton: Janet Wojcik, Ph.D.

(CESHS - Physical Education, Sport & Human Performance)

(PESH381 - Janet Wojcik)

#### Lower Back Pain in Runners

#### Michaela Hayes

Low back pain (LBP) is rapidly becoming a more prevalent issue among runners of all ages, primarily long-distance recreational and competitive runners, LBP impacts runners' overall performance and long-term health. Runners are being diagnosed with conditions such as degenerative disc disease (DDD) and spondylolysis as a result of intense training. A few factors of LBP in runners are improper running techniques, lack of core strength, and intense overtraining. Runners with LBP can attend physical therapy, rest, practice strengthening the core, and practice proper running techniques to manage the pain in the lower back. Runners, as well as athletes who primarily run in sports such as soccer, should be made aware of the risk of LBP if they are not properly educated on injury prevention strategies and proper running techniques. This presentation will discuss the impact of LBP on runners and injury prevention strategies for runners struggling with LBP.

Mentor: Leonard Lewis. Ph.D.

(CVPA - Music)

#### In This Life

#### Save Mavernik

The collaboration between different disciplines has always been a large part of creative culture, tracing back to Ancient Greece when the arts first became prevalent. The term "interdisciplinary art" means a combination of arts incorporating two or more disciplines. Disciplines in arts can include visual, performing, musical, digital, theatrical, and more; though disciplines can expand far beyond, using maths or sciences to create a completely unique style of art. I am choosing to take this opportunity to showcase one of the most common, and one of my favorite, forms of interdisciplinary art: musical theater. For my senior capstone project, I have begun development on a piece of musical theater myself. The musical focuses on themes of identity, as well as highlighting critical thinking with the exposition of a brain teaser. In the opening song, titled "In This Life" featuring lead voice and piano, you hear the introduction to said theme, and can see and hear how theater and music interact with each other in the actor/singer.

Mentors: Bradley Young, Ph.D.; Chris Doehling, M.F.A.: Samantha Kasubaski Rosado (Central Piedmont Community College)

(CVPA - Design)

(VCOM487 - Bradley Young)

# **Those Without Wings**

## River Rumsey

The books and media we consume in our formative years can heavily impact the way we see the world and react to difficult situations. Those Without Wings is a 40 page graphic novel for middle grade and above that focuses on forgiveness, bravery, and community, which will be told through a fantasy lens. The story follows two fisherpeople, Frankie and Hari, who, while out at sea, are thrown into a world of dragons and dog-like creatures. While Frankie works effortlessly to try and return home. Hari sees this as an opportunity to escape the conflict that awaits them at home. Through the friendships made with the creatures of the world and Frankie and Haris bonding. Hari will gather the bravery needed to return home. This story will be done digitally and in dip pen. The varying mediums will be used to emphasize the fantastical feeling of the world. Alongside these lessons, I wanted to create a story that features characters that are often overlooked. Graphic novels are predominantly centered around white and non-LGBT+ characters, leading to many people feeling unseen and overlooked. This story does not focus on the identities of the characters, but it is meant to represent and normalize gender nonconformity, queer relationships, and openly transgender characters. I want to create a story that I feel would have helped me feel seen as a child, and emphasizes the importance of caring for each other.

Mentor: Joanna Norman. Ph.D.

(CBT - Management & Marketing)

(MGMT365 - Joanna Norman)

# **Navigating Ethical Concerns in Digital Communication Tools**

#### Ne'Vaeh B. Walker

As digital communication tools become increasingly integral to modern workplaces, businesses must address growing ethical concerns about data security, privacy, and professional integrity. This paper examines three widely adopted platforms: Zoom, Microsoft Teams, and Al-powered chat programs. This paper aims to analyze their significance in enhancing workplace efficiency while highlighting the ethical challenges they present. Issues such as privacy risks, data security breaches, and digital footprints are explored in depth. To mitigate these risks, businesses can implement solutions such as Multi-Factor Authentication (MFA), comprehensive employee training programs, and transparent corporate policies. Zoom and Microsoft Teams were chosen due to their widespread use in remote and hybrid work environments, where concerns about data security, employee monitoring, and information confidentiality are particularly relevant. Additionally, Al-driven communication tools introduce challenges related to data privacy, bias, and responsible usage. Addressing these challenges requires businesses to adopt strong security measures, enforce clear guidelines, and promote employee ethical awareness. By prioritizing ethical standards and implementing solutions such as MFA, transparent business policies, and structured training programs, organizations can create a secure and responsible digital workplace while maintaining professional efficiency. By prioritizing ethical standards and implementing strategic solutions, organizations can foster a secure digital workplace while maintaining ethics. This research provides a framework for businesses to navigate ethical challenges and maximize the benefits of digital communication tools.

Menton: Michael Lipscomb, Ph.D.

(CAS - Political Science. Philosophy, Religion &

(PLSC490 - Michael

# Political Psychology: An Advanced Approach to Political Consulting to Effectively Approach Securing Opposing Party Voter **Blocks**

## Stormy G. Brown

The political climate constantly evolves, and political party leaders encounter obstacles when securing votes from opposing party members. While there are numerous reasons why political officials cannot obtain voter support on legislation, one problem is the challenge of effectively communicating their policy objectives to potential supporters, particularly those of other parties. Political consultants are employed to assist in strategically approaching voting blocks and establishing a plan to communicate effectively. Political consultants can profit from approaching a solution through the discipline of political psychology. This research addresses the psychology of different generations of conservatives and their political behaviors and determines what factors have fueled their political actions. By approaching different generations (Gen Z, Gen X, Millennials, Baby Boomers) through the discipline of political psychology, political consultants can effectively influence their political actions and behaviors.

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

(CVPA – Design)

(VCOM487 - Bradley Young)

# Sans Souci: Revitalizing a Neighborhood Through Research and **Branding**

Prema Van Deren

Heavily inspired by my love for branding, history, and my hometown, I developed a deeply personal branding project that reimagines what neighborhood branding can look and feel like. I plan to conduct thorough research on the Sans Souci neighborhood in Greenville, SC and launch a conceptual rebrand of its existing visual identity. My project will include front-end website design, a complete brand guide, merchandise design, and a written paper that compiles my research and design process. My goals for this project include fostering a sense of pride among my neighbors, designing and producing deliverables for a branding project, and showcasing my design, illustration, and conceptual thinking skills. One of my guiding principles for my research and design process is a personal feel and a community-centered focus, pulling from both my own experience in the area and the individual experiences of my neighbors. I will use stories, photos, architecture, and historical research to highlight the people and notable places of Sans Souci and to supplement the brand. I hope to tell a story about Sans Souci's history and growth through my branding and designs that reflects the unique culture of the rapidly flourishing neighborhood.

Mentors: Kyahdric Moses, B.F.A; Bradley Young, Ph.D.: Heather Listhartke.

(CVPA - Design)

(VCOM487 - Bradley Young)

#### Feels 101

#### Amber Green

My thesis project is a lively magazine informing people about five emotions college students go through. The emotions that will be covered are depression, anxiety, desire, boredom, and pride and were chosen based on some personal experiences and feelings that I've felt over these past four years. The tone and design execution will be rooted in the aesthetic of 1990s to mid-2000's teen magazines. My inspiration for this project primarily came from my love for print design and the movie Inside Out 2, which I saw in theaters over the summer. The discussions I had following the movie made me interested in how a variety of emotions can have different effects on the same scenario. That being said, the main "context" of this magazine will be a college student reflecting on all the emotions they've experienced in pursuit of their degree. It will serve as an informational guide on how to navigate all the emotional challenges that come with being in a new environment trying to achieve your goals. The magazine will be filled with definitions, descriptions, explanations, data, real-life examples/ stories, and activities for the readers. My target audience primarily consists of current and potential college students, approximately ages 16-28. It can double as a "textbook" to learn from, but also as a journal with prompts to help readers with self-reflection.

Mentor: Chris Johnson, M.Arch.

(UC - Chemistry, Physics, Geology & the

# Implementation of Placemaking Through Winthrop Green Spaces

# Wally Rine

Placemaking describes cultivating the experience people have as they spend their time in public places. Campus Green, and surrounding green spaces such as Winthrop's Community Garden, the Diversity and Inclusion Garden, or our Certified Wildlife Garden, are key areas to implement this idea. This project has identified ways to update these gardens as well as generating ideas to better utilize our green spaces to connect students, faculty, and staff with themselves and others, as well as nature. Unique activities and resources found at these sites will create personal connections for Winthrop's community. The works of art, literature, research, crafts, etc. created and submitted at these sites will be collected and assembled into an anthology to be shared and displayed. Through this work, everyone at Winthrop will be able to make our green areas their own as they cultivate a better understanding of themselves, others, and nature. The campus as a collective will benefit from its unique blend of personalities and voices as well as a deeper appreciation of nature as a whole.

Menton: Jason Chung, Ph.D.

SAFOPP Conference -2nd Place in Business category

(CESHS - Physical Education, Sport & Human Performance)

# The Case for Rookies: WNBA Rookie Roster Cuts

#### Alexandra Cameron

Following the 2023 WNBA Draft, former LSU Women's Basketball Player, Alexis Morris, was cut from the Connecticut Suns. Morris expressed her grievances publicly following the final decision of her dismissal. She took to X (formerly known as Twitter) writing her frustration in a series of posts. Morris's claim was that the veteran players in the WNBA have taken valuable roster sports for young and fresh talent. To test Morris's assertion, this study will investigate the WNBA roster cuts from 2020 to 2023. Each roster will be analyzed for "Drafted Rookies" (in their respective draft year), rookie retention, and overall usage.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# The Intentional Separation of the Black Family: The Historical Impact of Federal/State Control of the Black American Family Structure

### Maddesyn Graham

Many believe that a major problem facing the modern Black American community is a too wide-spread failure to maintain stable nuclear families. Many conservative commentators, but also some liberals, have argued that this instability reflects how welfare provides incentives for Black Women to apply for government assistance, and those arguments were an effective rhetorical strategy in the successful battle for federal welfare reform legislation in the 1990s. This research hypothesizes that welfare programs have not been and are not now the cause of Black American struggles to maintain a stable nuclear family, but rather that the instability is an effect of how they have been policed as part of programs to exploit their labor. That hypothesis is supported by an historical analysis of how Black Americans have been policed, beginning with slavery, moving through Jim Crow, to the current era which finds Black males disproportionately imprisoned within the prison industrial complex.

Mentor: Silvia Wozniak. Ph.D.

(CAS - Biology)

(BIOL461 - Silvia Wozniak)

# Internship Experience in a Diagnostic Testing Laboratory: Insights into Drug and Alcohol Screening Processes

Kyla M. Cockfield

Internships provide invaluable hands-on experience, bridging the gap between academic learning and real-world applications. This poster presents the experiences of an intern at a diagnostic testing laboratory specializing in drug, alcohol, and paternity testing. The intern was exposed to various testing methodologies, including breath alcohol analysis, DNA paternity testing, and multiple drug screening techniques such as urine, saliva, fingernail, and hair follicle testing. Key responsibilities included observing sample collection protocols, understanding regulatory compliance for DOT and non-DOT testing, and gaining insight into result interpretation and reporting. Through this experience, the intern developed a deeper understanding of laboratory operations, workplace safety, and the critical role of accurate and timely testing in legal and employment settings. This presentation highlights the intern's learning outcomes, challenges faced, and the broader implications of diagnostic testing in public safety and forensic investigations.

Mentor: Bradley Young, Ph.D.

(CVPA – Design)

(VCOM487 - Bradley Young, VCOM486 - Bradley Young)

# **Reviving Carolina Rebellion**

#### Aimee Tice

The Carolinas have lacked a major rock festival since the discontinuation of Carolina Rebellion in 2019. For my thesis I wanted to reimagine and revamp the festival's branding through a fresh visual identity, including a redesigned poster, venue map, and souvenir ticket. By modernizing the festival's aesthetic while honoring its legacy, my work explores how graphic design can contribute to event branding, fan engagement, and the cultural revival of rock music in the Carolinas. Through extensive research on past festival marketing, audience expectations, and design trends, the redesign aims to capture the energy and spirit of Carolina Rebellion while presenting a compelling case for the return of a large-scale rock festival in the Carolinas.

Mentor: Jason Chung, Ph.D.

SAFOPP Conference -2nd Place in Business category

(CESHS - Physical Education, Sport & Human Performance)

# Internship Experience at CSL Plasma: Understanding the Plasma **Donation Process and Its Impact**

# Bryson E. Vaughan

Internships provide students with the opportunity to gain hands-on experience and insight into industries that make a meaningful impact on people's lives. This poster presents the experiences of an intern at CSL Plasma, a leader in plasma collection dedicated to donor well-being and life-saving therapies. During the internship, the intern gained firsthand knowledge of the plasma donation process, from donor recruitment and eligibility screening to plasma collection and compensation procedures. Additionally, the intern observed the strict safety and regulatory measures that ensure donor health and the quality of collected plasma. Beyond operational aspects, the internship highlighted the significance of plasma-based therapies for individuals with rare and chronic conditions, reinforcing the essential role of donors in sustaining life-saving treatments. This experience fostered a deeper appreciation for the biomedical industry and public health initiatives, offering valuable professional and ethical insights. The presentation will cover key learning outcomes, challenges encountered, and the broader impact of plasma donation on healthcare and global patient communities.

Mentors: John Hairston Jr., M.F.A.; James Connell, M.F.A.; Bradley Young, Ph.D.

(CVPA – Design)

(VCOM486 - Bradley Young, VCOM487 - Bradley Young)

#### Alien Ware: A Short Film

## Luxey A. Peyton

My senior thesis is committed to creating a 2D animated short. The short will center around an alien girl named Phoebe who is so fascinated with Earth, specifically its dirt, that she disguises herself as a human to take a university ceramics class. In class, she comes across a boy named Kepler who is obsessed with the paranormal and correctly guesses that Phoebe is an alien. The short follows the alien on her artistic journey, her impossible pieces, and Kepler's cartoonish attempts to expose her alien identity to the school. Two misfits with a mission to make cool stuff! This short is heavily inspired by my experience as a ceramics student and fan of cartoons. Being in love with animation means that I'm also fascinated by how things move. One of my favorite things to watch is people throwing on a ceramic wheel, and I would love to animate this. Studio Ghibli films have really inspired me in this endeavor, because they use the art of animation to often showcase other forms of art like painting or print making. The goal is to showcase ceramics so that when an audience sees my film, it would draw them into making pottery. This is because ceramics is cited in the UK Heritage Crafts list as a Critically Endangered Art. If this film proves successful, it is my hope that I may further the study of various endangered crafts and showcase more lost arts through animation, to a future of new creatives.

Mentor: Michael Lipscomb, Ph.D.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# Generational Shifts in Advocacy: Comparing the Dedication to Social Justice Between the Civil Rights Movement and **Contemporary Black Empowerment Movements**

#### Kennedi A. Bates

While Black Americans continue to face a multitude of injustices, there is an overlooked shift in the way our generation approaches advocacy compared to previous ones. There is a growing sense of complacency in Black Americans' fight for change, and the intensity of our commitment has weakened in some aspects. This research examines the evolution of advocacy within social justice movements, comparing the unwavering dedication of activists during the Civil Rights Movement to the approaches of contemporary Black empowerment movements. The study investigates how privilege, comfort, and exhaustion have affected the current generation of Black Americans. Through historical analysis and case study comparisons, this research seeks to explore whether the relative ease and accessibility of modern activism dilute the level of commitment to social justice causes. Ultimately, this study describes the generational shifts in advocacy and proposes ways for contemporary Black empowerment movements to reclaim the depth and dedication of past efforts in the ongoing fight for social justice and equality.

Mentors: Katharine Hubbard, Ph.D.; Adolphus Belk. Ph.D.

(CAS - Mass

(MCOM301 - Katharine Hubbard)

# How Social Media Affects an Athlete's Mental Health

#### Marcus Gonzalez

This paper explores the impact of social media on the mindset of athletes, focusing on both the positive and negative influences. In a digital age where online presence is vital, athletes face unique pressures that can affect their mental well-being and performance. This study aims to provide insights into how social media shapes athletes' self-perception, motivation, and mental health, benefiting society by raising awareness of the psychological implications for athletes. The findings suggest that while social media can serve as a tool for motivation and community building, it can also lead to anxiety and performance pressure.

Mentor: Janet Wojcik, Ph.D.

(CESHS - Physical Education, Sport & Human Performance)

# The Optimal Ultra-Endurance Fueling Strategy: Fats vs. Carbohydrates

#### Grant M. Zalud

Ultra-endurance (ultramarathon, Ironman triathlon, endurance cycling, etc.) performance is largely dependent on effective fueling strategies – wherein fats and carbohydrates are the primary energy sources. This study is a review of existing literature to compare the effectiveness of carbohydrate (CHO) and lipid-based fueling protocols for ultra-endurance athletes. Current studies suggest CHO fueling strategies are superior for shorter duration efforts (less than marathon distance: 26.2 mi/42.2 km/shorter than three hours), while fat adaptation appears to promote glycogen sparing during ultra-endurance efforts (events lasting more than three hours/extending beyond marathon distance). This review aims to provide a critical evaluation of the most current research in order to better understand the energy needs of ultra-endurance athletes.

Mentor: Aaron Hartel, Ph.D.

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

# Acid-catalyzed Rearrangements of Terpenes: Formation of Carvacrol from Carvone and Rearrangement of Limonene

#### Leonor Carsdoso Pinto Paisana

Terpenes and terpenoids are important classes of naturally occurring organic compounds consisting of repeating "isoprene" units. We have developed two experiments for an organic chemistry lab course in which familiar-scented terpenes/terpenoids undergo acid-catalyzed rearrangement. In the first experiment, carvone (found in spearmint oil) is rearranged to form the terpenoid carvacrol (found in oregano). Product yields and purity were excellent, and the product structure was confirmed using <sup>1</sup>H-NMR spectroscopy. In the second experiment, limonene (found in lemon oil) is rearranged into several isomeric hydrocarbons. Reaction time and temperature were varied to determine how each parameter affected the product ratio and consumption of limonene. The relative amounts of each species in the reaction were determined using GS-MS analysis. Molecular modeling experiments were then performed to determine the total energy of the reactant and the three observed products. The data were used to predict the ratio of the two major products at equilibrium. The ratios of product isomers from the reactions were found to closely match those predicted by molecular modeling.

Mentor: William Schulte, Ph.D.

(CAS – Mass Communication)

(MCOM441 - William Schulte, MCOM441 -William Schulte)

# Placing a Focus on City Walkability

#### Jenna Johnson

The importance of city walkability reaches across various aspects of life and remains an ongoing issue as the reliance on vehicles for transportation grows. This research dives into the benefits that come with creating cities that provide autonomy for inhabitants. Additionally, this research stresses the importance of pedestrian safety and includes data from within the state of South Carolina, as well as the United States as a whole, to further an understanding of how cities must not only provide access to sidewalks and trails, but also protect the people who use them. Whether walking is used as a means of transportation or recreational activity, it's necessary for citizens to see this as a viable option for them to reach nearby businesses. This research includes information from public documents presented by agencies such as the Department of Transportation and the Federal Highway Administration, and uses approaches including employing Freedom of Information Act (FOIA) requests and database journalism. Within my study, I look at accessibility barriers within active transportation, and how in creating a walkable city, the aspect of inclusive infrastructure must be taken into consideration. This research links low-income areas of cities with sidewalk and trail access, exemplifying how those without access to vehicles are highly impacted by a lack of active transportation options. This work also delves into the relationship between having an increased access to easy physical activity and an improved state of mental and emotional wellbeing.

Mentor: Amy Clausen, Ph.D.

(CESHS — Counseling, Leadership and Educational Studies)

(EDUC495 - Amy Clausen)

# Reading Development, Assessment, and Instruction for Multilingual and English Learners: Strategies Informed by the Science of Reading

#### Kendra Hollington

This research synthesis examines multiple studies on reading development, assessment, and instruction for multilingual learners (MLs) and English learners (ELs) grades K–12. The studies explored how MLs perform in English reading comprehension, word reading, and vocabulary across an academic year, the impact of early interventions based on the Simple View of Reading (SVR), and the role of linguistic comprehension and vocabulary in reading comprehension difficulties. This provides strategies based on the science of reading and cultural appropriation to make learning immersive.

Mentors: Bradley Young, Ph.D.; John Hairston Jr., M.F.A.; Dustin Hoffman, Ph.D.; Ashley Belote; Elizabeth Dulemba (Hollins University)

(CVPA – Design)

(VCOM487 - Bradley Young)

# The Turtle Who Hurdled

### Zoe R. Long

Children's books play a crucial role in children's learning and development. The media that children consume is often their first introduction to many ideas and comes at an impressionable time in their life, making these books very influential on the people that they become. There is a societal trend towards monetizing hobbies and putting pressure on children to perform and be "productive" instead of just having fun. This thesis project, The Turtle Who Hurdled, is a 32 page children's picture book that tells the story of a turtle who dreams of racing but isn't very fast. This story explores the ideas of competitiveness, failure, and joy, and pushing back against parents who see their child's hobbies as future lines on a resume. Readers will follow Clover the turtle as she wins and loses races. This book teaches young readers that the value of doing something is the enjoyment of the activity itself, not the usefulness, impressiveness, or achievement of a prize.

Mentors: Quintel Gwinn. M.A.; Bradley Young, Ph.D.; Kathryn Lawrie; Kathy Phillips

(CVPA – Design)

(VCOM487 - Bradley Young)

#### Godna

#### LaVeta Evans

This thesis presents an original collection of fabric designs inspired by the rich artistic traditions of ancient Africa and India, specifically focusing on the geometric patterns of African art and the flowing, character-driven motifs of Indian mehndi. The collection will include hero fabrics, supporting fabrics, and blending fabrics, with each design carefully curated to maintain a balance between the historical significance and contemporary usability. The target audience includes home sewers, guilters, and the commercial textile market, all of whom seek to infuse modern updates into traditional guilt patterns and fabric designs. The design process involves initial hand-drawn sketches of motifs that draw upon the cultural essence of African and Indian art. Through collaboration with my advisors, the designs undergo a series of eliminations and refinements to ensure clarity, harmony, and visual appeal. The designs are then digitally refined using Procreate, incorporating color, contrast, and tessellation techniques to create patterns suitable for mass production. The finalized fabric designs will be prepared for digital printing through Springs Creative and will be highlighted at Source. Following the exhibition, fabric samples will be sent to fabric houses with the goal of licensing the designs for commercial production.

Mentor: Paul Wiegand, Ph.D.

Supported by EPSCoR, National Science Foundation EPSCoR Program

(CBT - Computing and Information Sciences)

# Assessing the Effects of Image Quality on Classification Models

## Ansley Barron, Phoenix Miller

The University of Central Florida's digital history group aims to enable contextspecific searches through over a hundred years worth of scanned newspaper images from The Sanford Herald. Manually identifying which of these pages are scannable is time-consuming, calling for an automated solution that can classify good or bad scans in a more efficient manner. In order to address this, we developed a machine learning model that could classify the scans as readable or unreadable. Initially, we used Tesseract, an OCR program, to count words and compare them against the Linux word library. After taking the ratio of the two, we used the results to curate a dataset for a Convolutional Neural Network (CNN). However, our findings indicated that word counts alone were unreliable due to dataset variations, OCR limitations, and sensitivity of word lists. The CNN achieved only 60-70% accuracy, suggesting potential issues with sample bias or insufficient training data. This further underscores the importance of a high-quality, diverse dataset for effective classification. Future work on the project should focus on expanding and refining the data to improve accuracy and reliability. Additionally, exploring semi-supervised learning or alternative classification methods may yield better results.

Mentor: Veronica Ahadzie, Ph.D.

Criminology, & Anthropology)

# The Emotional Toll of Not Being Able to Afford Children: A Study on Financial Strain and Depression

#### Sadaria Kirven

The loss of income can harm mental health. Using General Society Survey data, this study examines the relationship between income and not being able to afford children impacting someone's mental health. Additionally, the study will examine how not being able to afford children is related to increased feelings of unhappiness and depression. Results from descriptive statistics and correlation analysis indicate one's income and not being able to afford children is likely to impact their mental health. My findings emphasize the need for economic policies and programs that help with mental health, supporting families facing low income. Highlighting the link between low income and low mental health could influence social policies, raise mental health awareness, and provide financial assistance programs to those that fit these criteria.

Mentors: Bradley Young, Ph.D.; Daniel Gordon, B.A.; Tamara LaValla, B.F.A.: Robert Wildman, M.F.A.

(CVPA – Design)

(VCOM487 - Bradley Young)

# **Theatre Graphics**

#### Annabelle V. Garcia

For this project, I am combining my two passions: theatre and graphic design. Ever since I was little, musicals have been my comfort genre. Whenever I needed a pick-me-up, I would turn on one of my favorite movies and the world would just melt away. I started going to live shows when I was a teenager, and if there is one thing I have learned over the years it's that the merchandise department could use some help. Broadway is incredibly inaccessible, merchandise is not heavily advertised. and on top of all that it's usually overpriced. The theatre community has done an incredible job bringing joy to my life over the years, and I thinks it's about time that I returned the favor. That is why I am creating my own line of Graphic tees dedicated to the world of theatre. Apparel for the actors, fans, and backstage crew alike.

Menton: William Schulte. Ph.D.

(CAS - Mass

(MCOM441 - William

# Beyond the Binary: Nonbinary Recognition in Law and Policy **Across Administrations**

Geo Fields

The legal recognition of nonbinary individuals remains an issue in U.S. policy, with protections and restrictions shifting depending on the administration in power. While some policies have expanded legal recognition in the past, others have caused setbacks, restricting nonbinary individuals' rights in areas such as gender markers on legal documentation, distinctions between gender identity and sex, and access to gender-affirming care. This research explores how executive orders and federal policies have directly impacted nonbinary recognition, comparing key changes across administrations to highlight patterns of inclusion and exclusion. One example of this is how government agencies archive or alter public documents in response to introduced executive orders, affecting direct access to public information. This paper utilizes the Freedom of Information Act (FOIA) and government agencies' public documentation to compare policies before and after executive orders, illustrating how legal recognition of gender identity shifts with administration changes and the following consequences for nonbinary identities.

Mentor: Cliff Calloway. Ph.D.

(CAS - Chemistry, Physics, Geology & the

(CHEM551 - James Hanna, CHEM552 - James Hanna)

# Validation of Standard Dilution Analysis Method Using Determination of Ethanol in Commercial Whiskey with 60 MHz **Benchtop NMR**

#### Makenzie R. Donovan

This study aims to apply the standard dilution analysis (SDA) method, a new calibration method combining aspects of standard addition and internal standard to create an efficient method that can provide results unaffected by sample matrix effects or sample/instrument variations. To do this quantitative 60 MHz benchtop 1H NMR was used to determine the ethanol concentration in an 80 proof commercial whiskey sample. Benchtop NMR has potential as a lower cost alternative to high-field traditional NMR. Samples were analyzed with SDA using both acetonitrile and acetic acid as two alternative internal standards. Calibration curves for the acetonitrile run had a calculated coefficient of determination (R2) value of 0.896 and the calculated percent alcohol by volume (%ABV) was found to be 51.060%, with a relative percent error of 27.650%. For the acetic acid run, the R2 value of the calibration curve was 0.954, the calculated %ABV was 51.05% and the relative percent error was 27.634%. In comparison, a standard addition trial for the same whiskey made a calibration curve with an R2 value of 0.878 and gave a calculated %ABV of 16.746, with a relative percent error of 58.133%. From these findings, it can be concluded that the SDA method has potential as an alternative method to standard addition through its increased accuracy and precision.

Mentor: Michael Lipscomb, Ph.D.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# Racial Inequities in Black Women Healthcare

#### Jaden Gamble

In healthcare, African-Americans often receive less intensive care and their existing health symptoms are disregarded when needed most. A vital factor of any change in healthcare is a sociocultural change among America's social institutions. For centuries, Black women have been subjected to unequal treatment in healthcare. This begs the question: In what ways have racial and gender disparities in Black women's health outcomes been fostered by structural barriers in healthcare institutions? Through an extensive literature review, this research explains those structural barriers that prevent Black women from receiving adequate health care. Many of America's problems with healthcare in the quality of treatment of Black women could be changed with a more inclusive and culturally-relative installation of education within healthcare facilities. This education in schools, colleges, the workplace, and through the media can create better medical conditions for Black women.

Mentor: Amy Clausen, Ph.D.

(CESHS - Counseling, Leadership and Educational Studies)

(EDUC495 - Amy Clausen)

## AAC-Based Mands for Children with Autism

#### Ella Everett

In this poster session, I will discuss research on different types of AAC-based mand methods for children with Autism such as sign and picture-cards. I will also discuss the importance of using AAC to expand students' verbal repertoire.

(CAS - Political Science, Philosophy, Religion &

(PLSC490 - Michael

# The Extent in Which Russian Ukrainian National Identity Contributed to the 2022 Russian Invasion of Ukraine Carsen A. Gamerl

Since the Russian Federation's heightened interest in Ukraine in 2014, Vladimir Putin has developed an obsession over the territorial control of Ukraine and has consistently argued that the desire for Russian control over Ukrainian territory is justified by a desire to reunite Russians and Ukrainians as "one people," a claim that Putin defends in his article "On the Historical Unity of Russians and Ukrainians." Against this backdrop, two questions emerge: 1) Is Putin's claim that the Russian and Ukrainian people are one historically true? and perhaps more importantly, 2) How do current political actors, such as ethnic Russians in Ukraine, perceive the relationship between the Russian and Ukrainian people? An assessment of these questions puts us into a better position to investigate Putin's true intentions behind his interest in controlling Ukraine.

Mentors: Kyahdric Moses, B.F.A; Bradley Young, Ph.D.; Jason Tselentis, M.F.A.; David Schary

(CVPA – Design)

(VCOM487 - Bradley Young)

## More Than a Sport

#### Karli J. Shepherd

My senior thesis is dedicated to athletes struggling with mental health. For far too long, athletes have struggled in silence since there is a stigma around seeking help for depression and anxiety. For this project I hope to create more conversations among athletes so they know they are not alone and can seek help without feeling weak. In this process, I intend for these conversations to be started from merchandise and story reposts on social media. Although athletes would typically feel more comfortable sporting a mental health brand that is discrete, I believe it is important to no longer consider mental health something you should keep discrete or hidden. With that being said, I want to have a logo that makes athletes ask questions and start conversations, rather than walking by and staying silent. Although the main logo is simple, the typeface and art on the back of the merchandise will draw people's attention. This project covers a variety of design elements, including a brand logo, brand identity, social media page, website, merchandise, and instagram live events. For these designs, I used Adobe Illustrator, Photoshop, Procreate, and more. It is time to start a conversation that could save a life.

Mentor: Veronica Ahadzie, Ph.D.

Criminology, & Anthropology)

(SOCL516 - Veronica Ahadzie)

## **How Trust Affects Fear of Crime**

#### Daniela Sanchez Diaz

This study looks at the relationship between trust in others and fear of crime. Research has shown that victimization is positively associated with fear of crime and this fear influences trust in criminal justice institutions. However, fewer studies have been conducted to analyze the relationship between trust in others and fear of crime. Fear of crime can impact daily life, influencing where people go, how they act and how they interact with others. A lack of trust in others might make people feel more vulnerable and more likely to expect crime, even if the actual risk is low. Using General Society Survey (GSS) data analyzed in STATA, this study finds a significant weak positive correlation between trust and fear of crime, suggesting that individuals that trust others more report lower fear. These findings add on to the discussion on crime perception and social cohesion.

Menton: Veronica Ahadzie, Ph.D.

Criminology, & Anthropology)

(SOCL516 - Veronica Ahadzie)

# How Job Satisfaction and Financial Stability Affects the Likelihood of Suicidal Ideations

# Nicholas K. Guinvard

Suicide remains a global public health concern, with many different psychological, social, and economic factors playing a significant role in an individual's decision to end their life. This study examines the impact of job satisfaction and financial satisfaction on the likelihood of individuals having suicidal ideations. The objective of this study is to determine whether dissatisfaction in these areas increases suicidal tendencies or ideations all together. This study relied on a more quantitative approach by using survey data from questioned employed individuals across various sectors. Data from the General Society Survey was used for this study and was analyzed to assess and determine the relationship between workplace dissatisfaction, financial strain, and suicidal ideation of an individual. Findings indicate that there is a very weak negative relationship between financial satisfaction and suicidal ideation and is not significant. This implies that financial satisfaction has little to no impact on suicidal ideation. There is also a very weak negative relationship between job satisfaction and suicidal ideation, and it is not significant as well. This implies that job satisfaction does not meaningfully impact suicidal ideation.

(CESHS - Physical Education, Sport & Human Performance)

(PESH381 - Janet Wojcik)

# Comparison of Foam Rolling vs Stretching on Muscle Recovery

#### Jacob D. Myers

Muscle recovery is a vital part of athletic performance and injury prevention. especially for those that compete in sports. With an abundant number of recovery techniques, it can be challenging to determine one that is "best" for recovery. Two of the most popular and accessible are foam rolling and stretching. This literature review investigates the effectiveness of both methods in promoting muscle recovery. reducing delayed onset muscle soreness (DOMS), enhancing range of motion (ROM), as well as their impacts on athletic performance. Studies suggest that foam rolling reduces DOMS and increases ROM without negatively impacting muscle strength. Studies show that stretching has been found to mainly increase ROM and reduce muscle stiffness, but its effects on recovery and athletic performance are still disputed. Though foam rolling is favoured because of its benefits in recovery, stretching still serves as a common and accessible option. There are discrepancies in methodologies, populations, and protocols in studies pertaining to these topics, which pause any definitive conclusions. This review serves to analyse the two methods in lieu of these discrepancies, and highlight the strengths and weaknesses of both foam rolling and stretching.

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

(CVPA - Design)

(VCOM486 - Bradley Young, VCOM487 - Bradley Young)

# The Nine Ways Enneagram Teaching

#### Vicke K. Mattraw

For my senior thesis I decided to develop and create a brand for an Enneagram teaching platform. The Enneagram, a psychological framework consisting of nine personality types, provides insights into individual behaviors, motivations, and emotional patterns. This project focuses on translating the Enneagram's complexities into an accessible, interactive digital platform that enhances learning and encourages deeper understanding of its principles and practical applications. My thesis explores the role of the Enneagram in the real world and how it impacts real life interactions in relationships. By creating personalized content for each Enneagram Type, the platform empowers users to explore and discover all the nuances of their Enneagram type, fostering greater emotional intelligence and personal development. My thesis demonstrates how good design can make a complex system, such as the Enneagram, easier to learn and understand.

Mentor: Merry Sleigh, Ph.D.

(CAS – Psychology)

(PSYC302 - Merry Sleigh-Ritzer)

# Exercise and the Effects of Working Out on Mental Health

Nicholas Sharp, Darrah Nickens, Chase Loss, Merry Ritzer

Research focused on exercise and mental health has revealed conflicting outcomes. Some researchers have demonstrated positive effects, such as increased mood and self-confidence. However, other researchers have indicated that exercise is a risk factor associated with the development of muscle dysmorphia, perfectionism, and steroid use. With this contradictory data in mind, we examined potential positive and negative effects of exercise on mental health. Young adult participants responded to online scales to assess their exercise motivations, self-esteem, mental well-being, and body image. We hypothesized that the underlying motivation for exercise would be more influential than exercise patterns in predicting esteem, mental health, and body image. Data analysis is underway.

Menton: Alexander Tsiukes, Ph.D.

(CBT – Accounting, Finance, & Economics)

# The Economic Costs of Mental Disorders

# **Payton Frappier**

Mental health disorders have a significant impact on economic functions of a country, through not only lost productivity but also in healthcare costs. This paper aims to quantify the connection between these costs by using R to analyze large scale survey data. Research highlights the rising financial strain globally, emphasizing productivity loss and increased healthcare costs. In this study, we hypothesize that individuals with mental health disorders experience significantly lower earnings and employment rates than those without, with high variations across demographic factors. This study employs Ordinary Least Squared (OLS) regression to estimate the economic impact using the Behavioral Risk Factor Surveillance System (BRFSS) and the American Community Survey (ACS). We expect to find that there is a negative correlation between mental health disorders and economic outcomes.

# **Eagle STEM Scholars Program**

Winthrop University's Eagle STEM Scholars Program merges the campus's commitment to undergraduate research and promoting students' success in the sciences. Biology, Chemistry, Computer Science, Cyber Security, Data Science, Environmental Science, and Mathematics majors receive the academic support, professional development support, and research training needed to pursue graduate studies, professional programs, and STEM careers. Student support services are modeled after the nationally acclaimed Meverhoff Scholars Program at the University of Maryland, Baltimore County, and employ the nation's best practices in STEM training and student retention. Students attend an intensive six-week 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 226 Winthrop University students. Eagle STEM Scholars have successfully competed for top positions in summer research programs, graduate and medical programs, at universities such as Alabama, Auburn, Clemson, Duke, Emory, Florida, Georgetown, Georgia, Harvard, 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, professional programs, and STEM careers. Each year, the Eagle STEM Advisory Board selects approximately 20 highly competitive scholars to be a part of the incoming freshman cohort. These incoming freshmen take full advantage of the program and later distinguish themselves as winners of national awards. To apply and learn more about the program, please visit http://www.winthrop.edu/eaglestem.

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.

# 2024-2025 Eagle STEM Advisory Board:

#### Dr. Anita McCulloch

Director, Eagle STEM Scholars Program: Adjunct Faculty, Biology

#### Dr. Jason Hurlbert

Assistant Director Eagle STEM Scholars Program; Professor, Chemistry

#### Dr. Robin Lammi

Chair, Department of Chemistry, Physics, Geology, and the Environment; Professor, Chemistry

#### **Taegan Smith**

Program Assistant, Eagle STEM Scholars Program

#### Dr. Victoria Frost

Associate Professor, Biology

#### Dr. Jennifer Schafer

Associate Professor, Biology

#### Dr. Dominique Itanze

Assistant Professor, Chemistry

#### Dr. Kathie Snyder

Assistant Professor, Chemistry

#### Dr. Marguerite Doman

Associate Professor, Computer Science

#### Dr. Scott Werts

Dalton Endowed Chair, Environmental Sciences and Studies; Professor, Geology

#### Dr. Thomas Polaski

Professor, Mathematics

#### Dr. Takita Sumter

Dean, College of Arts & Sciences: Professor, Chemistry

# Eagle Scholars that submitted abstracts on their work for inclusion in this compilation:

2024 Cohort Atkinson, Alexis Bowers, Abby Chisolm, Chastity De Castro, Juan Duncan, Hannah Fogle, Jada Green, Kalli Johnson, Amari Kuehn, Be Little, Kaylyn Lyons, Sydney	<b>2023 Cohort</b> Chisolm, Chastity Duncan, Hannah Green, Kalli Johnson, Amari Tomlin, Gwendolyn	2022 Cohort Atkinson, Alexis Bowers, Abby De Castro, Juan Ellis, Kamari Kuehn, Be Little, Kaylyn Peralta, Lidia Phu, Julianne Ryerson, Elizabeth Scott, Maya	<b>2021 Cohort</b> Fogle, Jada Lyons, Sydney Umemoto, Emi White, Jamia	2020 Cohort Helms, Sydney Miller, Courtney	<b>2019 Cohort</b> Gebbia, Alexandra	
Peralta, Lidia Phu, Julianne Ryerson, Elizabeth Scott, Maya Tomlin, Gwendolyn White, Jamia						

# **McNair Scholars**

Winthrop University's Ronald E. McNair Postbaccalaureate Achievement Program is funded by its fourth multi-year, renewable TRiO grant from the U.S. Department of Education. We prepare eligible undergraduates to be successful in research doctorate programs by providing high quality research experiences including a paid summer research internship, graduate admissions support, graduate funding assistance, travel to present research and explore graduate programs, and more. At least two-thirds of every cohort of 30 outstanding participants are low-income. first generation college students. Rising juniors and seniors from Winthrop and 22 other S.C. colleges are encouraged to apply before November 1. All majors are welcome!

Being a McNair Scholar is a nationally recognized honor. Scholars are actively recruited by graduate schools across the country because of their intensive research experiences and preparation for doctoral study. Our program boasts 38 alumni with doctorates so far. Alumni are currently completing PhDs at universities around the county including Case Western, Colorado State, Duke, Illinois, Memphis, Michigan, Nebraska Medical School, NYU, UGA, UNCG, and U Mass Amherst, Each year, the twelve-member Winthrop McNair Advisory Board selects new participants through a highly competitive application and interview process. Please visit http://www.winthrop.edu/mcnair to learn more.

In addition to the faculty mentors and director, the following McNair staff support the Scholars' research and graduate admissions efforts before, during, and after the summer research experience:

**Marian Moorer.** Program Assistant

**Stephanie Bartlett.** Writing Coach

**Dr. Matt Haves,** Statistics and Methods Coach

**Elizabeth Talbert,** Spring 2025 Graduate Associate

Additionally, these students provided support program implementation:

Morgan Dukes and Alexandra Cameron, McNair Ambassadors

Lily Hayes and Mya Ponder, Office Assistants

# 2024-25 Advisory Board

#### Dr. Victoria Frost

Associate Professor, Biology

#### Rose Gray - Director

TRiO Achievers Program

#### Dr. Jason Hurlbert

Professor, Chemistry, Physics, & Geology, & the Environment

#### Dr. Joanna Jackson

Associate Professor, Management & Marketing

#### Dr. Willis Lewis

Professor, Economics

#### Dr. Heather Listhartke

Assistant Professor & Coordinator of Internships, English (Univ. of Tennessee Knoxville McNair Alumna)

#### 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

#### Carrie Vaughn

McNair Senior, Political Science Major

#### 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)

Assistant Ptoyost for Student Success

# The following students completed the 2024 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 national McNair/SSS Research Conference hosted by the Southeastern Association of Equal Educational Opportunity Program Personnel in Atlanta. Six of these 12 Winthrop McNair Scholars were awarded 1st. 2nd, or 3rd place in their presentation category.

**Alexandra Cameron,** Mentor: Dr. Jason Chung Are The WNBA Roster Cuts A Detriment To The WNBA? (*2nd Place in Business*)

**Ansley Coleman**, Mentor: Dr. Bradley Tripp

What Are the Preventative Efforts Made by Juvenile Justice Practitioners To Keep Juveniles From Incarceration?

Grace Drolet. Mentor: Dr. Julie Orme

Relationships Between Mental Health Literacy and Help-Seeking Behavior Among Parent of Children Ages 5-12 (2nd Place in Social Sciences)

**Morgan Dukes,** Mentor: Dr. Nicholas Grossoehme

Exploring the Impact of Cd2+ on the Interaction Between Troponin-C and the Troponin-I Switch Peptide (3rd place in Life Sciences)

**Emory-Alexis Lewis**. Mentor: Dr. Sara English

Consumer Knowledge of Overconsumption in the Clothing Industry and its Effects on Buying Behavior (1st Place in Humanities)

**Porsha Nesbitt**, Mentor: Dr. Donna Nelson

Priming Strengths Enhances College Students' Coping Efficacy and Emotion Regulation

Lidia Peralta. Mentor: Dr. Victoria Frost Phenotypic Analysis of Phage-Host Interactions

Cierra Ari Randolph, Mentor: Dr. Nicholas Grossoehme

Exploring The Metal Dependence Between Troponin-C and the N-terminal Domain of Troponin-I

Ty'teona Shannon, Mentor: Dr. Jeffrey Sinn Deference to Prestige and Climate Change Policy

**Timothy Speaks**, Mentor: Dr. Joanna Jackson & Prof. Larry Stevens

The Perceived Barriers to Pursuing a Career in Medicine Among Black Male Physicians in the Southeast United States (1st Place in Business)

Melissa Trejo, Mentor: Dr. Merry Sleigh

Hispanic/Latino/e Adults' Generational Transmission, Acculturation and Attitudes Toward Mental Health Resources (1st Place in Posters)

Jazlyn Wilson, Mentor: Dr. Merry Sleigh

Post-Traumatic Growth Following Childhood Challenges in Black and White Women

Last summer, McNair Scholars Brooke Jewell, Be Kuehn, Abby Mervine, and Julianne Phu conducted research at Alabama, St. Jude, Harvard, and UNCC, respectively. Several Scholars and alumni have published their work with their Mentors over the past year including Abby Mervine whose work with Dr. Zach Abernathy was published in the 2024 volume of *The McNair National Research Journal* (https://maop14.wildapricot.org/National-McNair-Journal).

# Southeastern Psychological **Association Conference Awards**

These are the awards that psychology students won at the Southeastern Psychological Association Conference. Out of 28 presented projects, 14 of them won awards.

There were 12-16 Psi Chi Regional Research Awards given out, and Winthrop students won 10 of them!! There were about 8-10 CEPO awards given out, and Winthrop students won 4 of them! Winthrop had the most student submissions at the conference, and won the highest number of awards.

Effect of Valence Priming on Cognitive Appraisals of Traumatic Events.

Isabel Sherrill, Kathryn Efird, Macey Delaney, Madalin Beam, & Merry Sleigh (Faculty Sponsor)

Psi Chi Regional Research Award & selected for presentation in Showcase Session

Relations Among Social Media Intensity, Empathy, Loneliness, FOMO and Social Judgment. Summerlyn Mixson, Mars Murray, Alexis Nesbitt, & Merry Sleigh (Faculty Sponsor)

Psi Chi Regional Research Award & selected for presentation in Showcase Session

Social Media Consumption Predicts Increased Materialism and Fear of Missing Out.

Destiny West, Brooke Price, Helen Murray, & Merry Sleigh (Faculty Sponsor)

Psi Chi Regional Research Award

Hispanic and Latino/e Adults' Generational Transmission, Acculturation and Attitudes Toward Mental Health Priming Strengths Enhances College Students' Coping Efficacy and Emotion Regulation.

Porsha Nesbitt & Donna Nelson (Faculty Sponsor)

Psi Chi Regional Research Award

College Students' Perceptions of Athlete and Non-Athlete Romantic Relationships.

Riley Schroeder, Amy Glowatch, & Merry Sleigh (Faculty Sponsor)

Psi Chi Regional Research Award

Afterlife Beliefs and Belief Confidence Predict Well-Being and Death Anxiety.

Kasey Long, Brenna Yeary, J'Nya Whaley, Kayli Fogle, Claire McLewee, Yasin Yildiz, & Merry Sleigh (Faculty Sponsor)

Psi Chi Regional Research Award

Self-Efficacy and Distress in Students with Low vs. High PTSD Scores.

Parker Short, Riley Schroeder, & Sarah Reiland (Faculty Sponsor)

Psi Chi Regional Research Award

Relationships Among Self-Esteem, Actual Support, and Perceived Social Support.

Georgia Gosselin, Parker Short, Riley Schroeder, Cathérine Windham, & Sarah Reiland (Faculty Sponsor)

Psi Chi Regional Research Award

Beliefs About Cheating Predicted by Social Media Addiction and Observer Personality.

Brailyn Radcliffe & Merry Sleigh (Faculty Sponsor)

Psi Chi Regional Research Award

Mothers' Parenting Style, More than Fathers', Influences Adult Relationships.

Neveah Sutton, Maya Scott, Emma Calhoun, & Merry Sleigh (Faculty Sponsor)

Committee for Equality of Professional Opportunity (CEPO) Outstanding Research Award

Love Addiction Predicts Social Comparison and Poor Self-Esteem in Young Adults.

Malana Washington, Adriann Robertson, & Merry Sleigh (Faculty Sponsor)

Committee for Equality of Professional Opportunity (CEPO) Outstanding **Research Award** 

# **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 2024-25 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 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, recommended 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, 2024-2025**

**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 Nominee: Jaime Barrera (award pending)

Winthrop University Winner: Kaela Branham Winthrop University Nominee: Ja'Ali Golden Winthrop University Nominee: Karis Hall Winthrop University Nominee: Gabe Halka

Winthrop University Nominee: Olivia Harden (award pending)

Winthrop University Nominee: Camari Hutchinson Winthrop University Nominee: Valerie Kempton Winthrop University Nominee: Connor Rothberg

Winthrop University Nominee: Sofia Singh

Winthrop University Nominee: Jomar Sanchez (award pending) Winthrop University Nominee: Aubrey Walden (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: Jaime Barrera (award pending) Winthrop University Nominee: Olivia Harden (award pending)

Charles B. Rangel International Affairs Program: The Rangel Program awards fellowships of up to \$42,000 annually for a two-year period for tuition, room, board, books and mandatory fees for completion of two-year master's degrees in international affairs or another area of relevance to the work of the Foreign Service at a graduate school approved by the Rangel Program.

Winthrop University Nominee: Abi Perito

Critical Language Scholarship (CLS) SPARK Program: CLS Spark is an all expenses paid virtual initiative for selected U.S. undergraduate students to learn languages through online classes and activities facilitated by native speakers at a host institution abroad. The Spark program offers first year fluency to propel participants forward as strong candidates for the CLS immersive summer language study that allows travel to a country fully funded.

Winthrop University Winner: Levi Becht

**Douglas-O'Connell Global:** The Douglass-O'Connell Global Internship (with some applicants offered an undergrad scholarship) allows twelve student leaders to participate in a four-week summer program comparing social justice leadership in America, South Africa, and Ireland.

> Winthrop University Nominee: Jordan Lewis (receiving a \$1500 CIEE scholarship to study abroad)

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: Olivia Harden (award pending) Winthrop University Nominee: Jomar Sanchez (award pending)

Fund Education Abroad Scholarship: (FEA) serves as an independent study-abroad scholarship provider that works to expand access to study abroad by granting scholarships of up to \$10,000.

> Winthrop University Nominee: Cynthia Linares-Deras Winthrop University Nominee: Cierra Randolph Winthrop University Nominee: Chandler Rogers

**GEM Fellowship:** GEM offers graduate students outstanding opportunities and access to dozens of the top Engineering and Science firms and universities in the nation. The GEM Fellowship was designed to focus on promoting opportunities for individuals to enter industry at the graduate level in areas such as research and development, product development, and other high-level technical careers. GEM also offers exposure to a number of academic opportunities.

Winthrop University Nominee: Alli Brophy

**Graduate Fellowship for STEM Diversity (GFSD):** Those selected for this graduate fellowship in the physical sciences and related engineering fields receive funding for the first two or three years of graduate school, depending on the employer who sponsors the fellowship, with the possibility of continuation for several more years providing all the conditions of the fellowship continue to be met, for a possibility for up to six years, in which case the overall value (stipend, tuition, fees, summer salary for two summers) of a GFSD fellowship typically exceeds \$200,000.

Winthrop University Nominee: Alli Brophy

Hertz Foundation Fellowships: The Fannie and John Hertz Foundation provides PhD fellowships to exceptionally talented individuals studying in the applied physical and biological sciences, mathematics, and engineering, at over 40 of the nation's finest participating universities. The Hertz Graduate Fellowship Award is based on merit (not need) and consists of a cost-of-education allowance and a personal-support stipend that satisfies all fees and tuition at the participating schools.

Winthrop University Nominee: Alli Brophy

National Science Foundation Graduate Research Fellowship: This program's purpose is to ensure the quality, vitality, and strength of the scientific and engineering workforce of the United States from the full spectrum of talent that the US has to offer. The five-year Fellowship provides three years of financial support, including an annual stipend of \$37,000. The program recognizes and supports outstanding graduate students in the relevant science, technology, engineering, and mathematics disciplines who are pursuing research-based master's and doctoral degrees, including engineering and computer and information science. NSF Fellows are expected to become knowledge experts who can contribute significantly to research, teaching, and innovations in science and engineering.

Winthrop University Nominee: Emi Umemoto

**Thomas R. Pickering Foreign Affairs Graduate Fellowship:** Outstanding students who enroll in two-year master's degree programs in public policy, international affairs, public administration, or academic fields such as business, economics, political science, sociology, or foreign languages, and who have an interest in pursuing a Foreign Service career in the U.S. Department of State are selected based on both merit and financial need to receive funding for their graduate school expenses. Selected fellows are supported through two years of graduate study, internships, mentoring and professional development activities. Upon completing the Foreign Service entry requirements, they receive an appointment as a Foreign Service Officer. Winthrop University Nominee: Abi Perito

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