

The background features a honeycomb pattern of hexagons in shades of yellow and orange. Three stylized bees are scattered across the scene: one in the top right, one in the bottom left, and one in the bottom right. Each bee has a brown body with yellow stripes and white wings.

Winthrop University | 2023

**Undergraduate Scholarship
& Creative Activity**

University College and Winthrop University proudly present Undergraduate Scholarship and Creative Activity 2022. This eleventh annual University-wide compilation of undergraduate work chronicles the efforts and accomplishments of students and faculty mentors campus wide. The remarkable work summarized in these pages represents nearly every academic department and spans all five colleges of the university: College of Arts and Sciences (CAS), College of Business Administration (CBA), College of Education (COE), College of Visual and Performing Arts (CVPA), and University College (UC).

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

Despite substantial barriers, pandemic fatigue, and complicated travel restrictions experienced this year due to the ongoing COVID-19 pandemic, Winthrop students shared their projects in an impressive array of venues by publishing papers in refereed journals, virtually presenting and performing scholarship at regional and national conferences, and showing work in juried exhibitions.

We offer our deep congratulations to all our student scholars on their creation of new knowledge and new forms of creative expression, as well as their development of professional skills and attributes that have prepared them to pursue nationally competitive awards, graduate and professional degrees, and employment in their chosen fields. Of note, we acknowledge the contributions of undergraduate Hitomi Kobayashi, a visual communication design major who created the artwork and design for this book.

We also recognize the faculty members who served as mentors, coordinators, thesis readers, and reference writers, whose commitment and dedication enabled students' accomplishments. We thank them for helping to sustain a vibrant learning environment at Winthrop and for contributing to the development of the next generation of curious, engaged professionals. Lastly, we thank Yvonne Engblom, Coordinator for Student Success and High Impact Practices for her irreplaceable contributions.

Nicholoas Grossoehme, Ph.D.
Director of Undergraduate Research

Leigh Poole, Ph.D.
Dean of University College

When it came to finding a design to suit all majors, I considered the diversity in each individual's research, and found that we as a whole share a large commonality with bees. Bees are known to be hard-working creatures, and in creating their hive they develop hexagonal structures to support the fruits of their labor. This analogy symbolizes how each individual in each major has worked to create their own narrative which when combined forms a strong, and resilient community.

- Hitomi Kobayashi

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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.

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World Languages and Culture

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Associate Dean

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Mass Communication

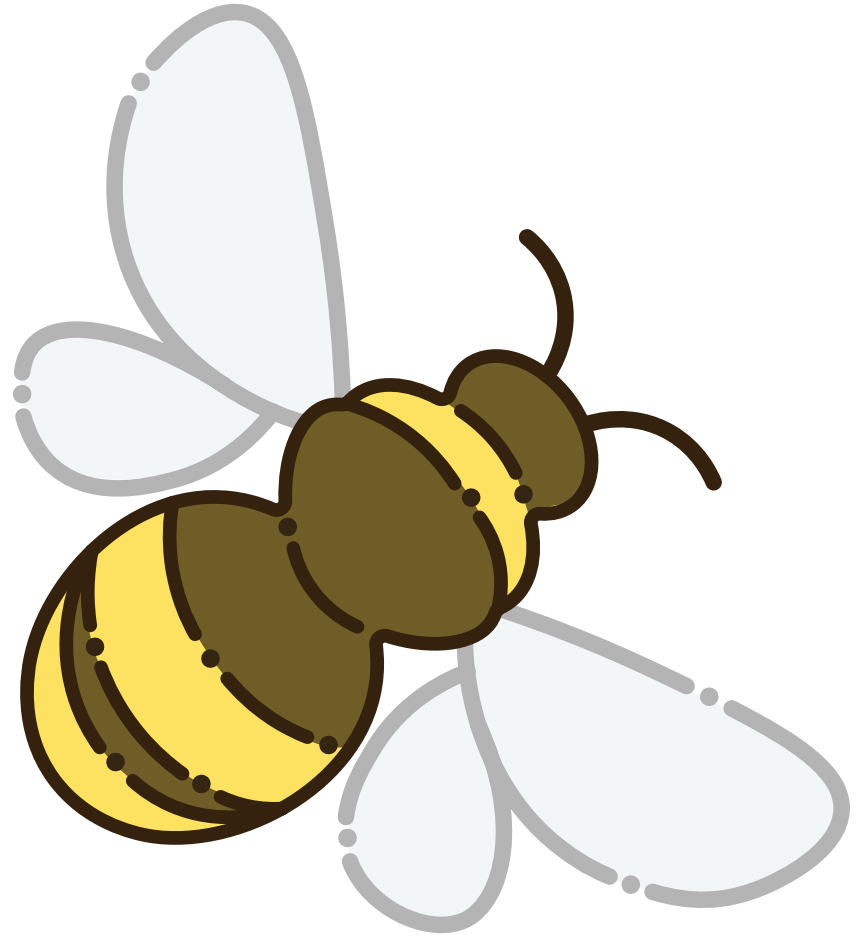
Kiyoshi Sasaki, Ph.D.

Biology

Merry Sleigh, Ph.D.

Psychology

**6
Honors
Theses**



Honors Program

2022 - 2023 Honors Advisory Committee

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College of Arts and Sciences

LeeAnn Pounds

Director of the Office of Nationally
Competitive Awards, ex officio

Leigh Poole, Ph.D.

Dean of University College, ex officio

Takita Sumter, Ph.D.

Dean of the College of Arts and Sciences,
ex officio

Winthrop University's Honors Program is designed to enrich the college experience for highly talented and motivated students. The program provides qualified students the opportunity, through interactions with a vibrant scholarly community of talented faculty and peers, to build specific skills and knowledge that will allow them to succeed in graduate school, professional school, and post-educational employment. More particularly, the program offers students opportunities to engage in directed scholarly research and creative endeavors directly related to their fields of study and their post-Winthrop plans. 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 of our Honors Program. Eells joined the Inter-University Committee on the Superior Student (ICSS), which received funding from the Carnegie Foundation, the National Science Foundation, and the U.S. Office of Education to help establish honors programs at colleges and universities across the U.S.

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

Today, the Honors Program at Winthrop University enrolls approximately 340 students from each of the degree-granting colleges of the university. To graduate with an Honors Program degree, a student must complete 24 hours of honors courses, which includes completing an Honors Culminating Experience Project while maintaining at least a 3.30 grade point average. The Honors culminating experience for Honors Program students, in which they work collaboratively with a faculty director and two additional committee members, requires Honors students to produce a project that evaluates knowledge, concepts, and methodology; examines major issues; integrates complex information; and develops and appropriately defends an argument, and/or appropriately curates an artistic project or an original performance. The project may consist of an original research project; creative work or a performance accompanied by supporting written and visual documentation; a project with practical or commercial application accompanied by supporting written and visual documentation; or a critical literature review.

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

Michael Lipscomb, Ph.D.

Honors Program Director

The Effect of RYBP Expression on the Invasion and Migration of Glioblastoma Cells

Lauren Patterson

Glioblastoma multiforme (GBM) is the most aggressive and invasive form of cancer in the central nervous system. It arises from astrocytes, a type of star-shaped glial cell that support the nerve impulse-conducting neurons of the nervous system. GBM tumors are diffuse, with tendrill-like processes that extend from the tumor into surrounding healthy tissue. This, along with limited efficacy of available treatment modalities, contributes to the abysmal survival rates among GBM patients. Previous research has determined that RING1- and YY1-binding protein (RYBP), a chromatin-modifying Polycomb protein, is downregulated in nearly 50% of GBM patient tumors compared to adjacent normal brain tissue. Therefore, RYBP may act as a tumor suppressor gene in GBM. Indeed, RYBP's tumor suppressive effects have been reported in various solid tumors. To investigate the tumor suppressive role of RYBP in GBM cells, we transiently induced RYBP expression in two glioma cell lines, U-87 and U-118, using a plasmid encoding RYBP or an empty control vector. Twenty-four hours after transfection, wound healing assays were performed to measure differences in cell migration, and Boyden chamber assays were performed to measure differences in cell invasion. RYBP expression in transfected cells was also confirmed by Western blot. RYBP expression significantly reduced GBM migration and invasion in U-118 cells, and non-significantly decreased these phenotypes in U-87 cells. Because the rapid invasion of GBM tumors into healthy brain tissue is a major contributor to patient mortality, revealing genes that contribute to GBM cell invasion may contribute to development of new targeted, more effective therapies.

Honors Thesis
Committee: Daniel Stovall, Ph.D., Laura Glasscock, Ph.D., & Kathryn Kohl, Ph.D.

Winthrop University
Showcase of Winthrop University
Undergraduate
Research and Creative Endeavors, Rock Hill, SC, April 2022 & 2023

Supported by
SC-INBRE DRP
5P20GM103499-21

CAS – Biology

Understanding the Impact of Cultural Competency and Diversity Within Healthcare

Jordan Nicholas Rucker

Within the medical field, two of the overarching principles that are crucial for provider-provider and patient-provider interaction are cultural competency education and highly diverse staff. This research asked, what effects does the presence of diversity in medical personnel and the education of cultural competency have on the function of the medical environment and care provision? The hypothesis of this research is that with an increase in diversity levels in staff, and with proper training in cultural competency, there will be positive effects on the work environment and patient-provider/provier-provider interactions. Enacting those principles decreases communication barriers, increases holistic medical care, and encourages workplace synergy among providers. To gather data to answer this question, a 10-question survey was distributed to individuals that currently or previously worked in healthcare. Additionally, this survey was augmented by a literature review of how health disparities and underrepresentation in medicine affect the provision of care. Results from the responses to the survey revealed that 7 out of 10 participants worked in healthcare offices that enforced similar processes to ensure diversity and inclusion, but there were some discrepancies. Half of the respondents stated that most staff were predominantly one race. Additionally, not much education on cultural competency was offered outside of basic training. These findings are congruent with information gathered from the literature, and this lack in representation and understanding can lead to communication barriers between patients and providers and a lack of care provision from a holistic standpoint.

Honors Thesis
Committee: Kathryn Kohl, Ph.D., Michael Lipscomb, Ph.D., Daniel Stovall, Ph.D., Matthew Stern, Ph.D.

Winthrop University
Showcase of Undergraduate
Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Biology

Adverse Childhood Experiences, Post-Traumatic Growth, & Social Support Predict Hypersexuality in College Students

Nastajia Hamilton

This research examined whether suffering from sexual or domestic violence and/or other emotional and physical trauma during childhood (known as Adverse Childhood Experiences, or ACEs) leads to unhealthy or destructive sexual behavior in adulthood. The goal was to replicate findings showing that ACEs increase risky sexual behavior and to extend this work to examine whether ACEs place a person at greater risk of hypersexuality. The extent to which having strong social support and experiencing post-traumatic growth mitigate the negative effects of ACEs was also examined. Results indicated that experiencing ACEs predicted more hypersexuality and risky sexual behavior, while post-traumatic growth predicted less hypersexuality. Social support did not predict hypersexuality or risky sexual behavior, although it was associated with greater post-traumatic growth. Results also revealed that those identifying as somewhat poor tended to report the highest number of ACEs, while those identifying as upper middle class reported the lowest number. In addition, those with low socioeconomic status (SES) reported more risky sexual behavior and hypersexuality. Furthermore, those whose parents both graduated from college reported the fewest number of ACEs. Age, gender, race, sexual orientation, and political alignment had no significant correlations with ACEs, hypersexuality, or risky sexual behavior. This suggests that economic and educational disadvantage rather than social identity creates risk of suffering from ACEs and their negative outcomes. These findings increase our understanding of the impact of ACEs and highlight risk factors, suggesting potential avenues for mitigating some of the devastating effects of adverse childhood experiences.

Honors Thesis
Committee: Donna Nelson, Ph.D., Michael Lipscomb, Ph.D., Darren Ritzer, Ph.D., Merry Sleigh, Ph.D.

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

1st place in Social
Sciences for oral
presentation at the
27th Annual SAEOPP
McNair/SSS Scholars
Research Confer-
ence, Atlanta, GA,
June 2022 & Psi Chi
Regional Research
Award + CEPO Show-
case Poster Session at
SEPA Annual Meeting

CAS – Psychology

(MCNR 300 – Fortner)

Cross-Cultural Use of Art Therapy and Implications for Expansion in the United States

Allayna Weber

Art therapy is an expressive form of hands-on therapy used to treat individuals with mental disorders, help raise self-esteem, and increase emotional wellbeing. In the United States, art therapy is used, but not as frequently as typical talk therapy. This study analyzes art therapy in seventeen different countries in order to determine how the use of art therapy across cultures differs from current practices in the United States. With this information, techniques which may benefit the process of expansion in the U.S. can be better understood. Findings show that there are significant differences in art therapy practice across the globe, ranging from available training and education to state support and funding. Moreover, findings suggest that art therapy typically succeeds when culture is taken into account and applied to the creation process, when accessibility to art therapy is high, and when the given society recognizes the importance of the practice.

Honors Thesis
Committee: Darren Ritzer, Ph.D., Sarah Reiland, Ph.D., Mike Sickels, Ph.D., Michael Lipscomb, Ph.D.

Winthrop University
Showcase of Undergraduate
Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Psychology

(PSYC 302 – Ritzer)

Reasons Why Students Violate Academic Integrity Rules in a University Setting

Kylie Zangla

A person's lack of clarity as to what constitutes "cheating" can lead to both the occurrence and the severity of academic dishonesty behaviors. It was hypothesized that participants would be more successful at identifying academic integrity violations involving another person than violations done alone. Further, it was predicted that a participant's school size would determine the success of identifying academic integrity violations. Participants from a small school (Winthrop University; n=73), a large school (the University of North Carolina at Charlotte; n=125), and other schools (n=26) in the Southeast United States were asked to indicate whether they thought a particular scenario or statement was a violation of academic integrity. Next, participants indicated whether various statements (adapted from a nearby university's honor code) were violations. Finally, participants rated ethical behaviors and rated the severity of statements related to academic integrity using a previously validated scale. Results found differences in students' ability to identify types of academic integrity violations with academic violations done alone (ex. self-plagiarism) being correctly identified less often. Additionally, students from a smaller school had a slightly lower rate of correctly identifying academic integrity violations. symptoms.

Honors Thesis Committee: Kat West, Ph.D., Sarah Reiland, Ph.D., Duha Hamed, Ph.D., Michael Lipscomb, Ph.D., Lori Van Wallendael, Ph.D. (University of North Carolina at Charlotte)

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Psychology

Critical Thinking Instruction for the Desegregated Classroom

Maria L. Manley

Despite the progress initiated by the Civil Rights movement of the 1960s and subsequent desegregation of schools over the following two decades, trends in the US have reversed course and recent data indicates that school systems are moving towards resegregation. In this essay, I propose a pedagogical approach, implementable at the classroom level, to symbiotically promote and maintain desegregation. This approach is a combination of the recently popularized Culturally-Responsive Education (a pedagogy that sees students' at-home cultures as an avenue, instead of a barrier, to their learning) and the long tradition of Critical Thinking in Education (a pedagogy that emphasizes reason, metacognition, and intellectual humility). The purpose is providing an argument for and guide to "Critical Thinking Instruction for the Desegregated Classroom". This approach also avoids some of the strident political controversy that inhibits students from fully experiencing the value of the desegregated classroom by offering an objective and self-aware framework for students to interact with the diverse perspectives around them. In addition, Critical Thinking Instruction promotes the maintenance of desegregation at the district level by developing future parents, school board members, and community leaders who will one day value the benefits of a desegregated classroom for their own children. In summary, by focusing on implementable classroom practices that explicitly instruct students how to think and not what to think, educators can reinforce traits of intellectual humility and metacognition, ultimately providing students the tools to break cycles of inequity and demographic isolation in our communities.

Honors Thesis Committee: Amanda Hiner, Ph.D., Michael Lipscomb, Ph.D., Abigail Armstrong, Ph.D., Stephen Smith, Ph.D.

CAS – English

Adults' Perceptions of and Engagement in Cyberstalking

Tanna Morrison

We examined adults' cyberstalking behaviors and added to the existing literature by also assessing their reactions to being cyberstalked. We hypothesized that adults who had previously been cyberstalked would be more concerned about being cyberstalked and more aware of their privacy settings. We also hypothesized that adults who engaged in cyberstalking would be more concerned about being cyberstalked by others and more aware of their privacy settings. Adults (n = 102) responded to an online survey to assess their social media use, social media privacy concerns, cyberstalking behaviors, and concerns about cyberstalking. We also assessed self-esteem, fear of negative evaluation, and impulsivity. Our hypotheses were not supported. Instead, adults seemed to view cyberstalking as an uncommon and positive thing, even while simultaneously expressing concerns about social media privacy. Perhaps adults assume that because they are putting a positive image of themselves on social media, cyberstalking is not problematic. In fact, social media posters may want to be admired by others. As evidence for this assumption, adults particularly liked the idea of romantic partners and friends stalking them, while people who generally feared negative evaluation did not enjoy stalking at all. There may also be a desensitization to being stalked, as increased experience with cyberstalking led to lower privacy worries. These findings provide an interesting perspective on cyberstalking. Historically, cyberstalking has been perceived as negative for the target, but our data suggest this may be an inaccurate assumption for adults engaged in today's highly interconnected and easily accessed online world.

Honors Thesis Committee: Merry Sleight, Ph.D., Darren Ritzer, Ph.D., Donna Nelson, Ph.D.

Psi Chi Regional Research Award

CAS – Psychology (PSYC 472H – Sleight)

Generation Z: Job Expectations and Employer Brand

Alexander Turner

Generation Z is soon to take over the job market and is expected to constitute 36% or more of the workforce. With the recent effects of the pandemic lingering over the workplace, many employers are frantically trying to learn more about attracting and retaining talent in the new job market and enhancing their employer brand. This thesis reviews the existing research on Generation Z in comparison to generations past to effectively analyze Generation Z's workplace attraction and retention. Generation Z expects greater Corporate Social Responsibility (CSR), early promotion opportunities, and flexible or inclusive work culture from their jobs. All of these aspects distinguish Generation Z from its predecessors in expectations for attraction and recruitment, but they are also essential to retaining Generation Z when considering the current job market and the cohort's behavior.

Honors Thesis Committee: Tracy Griggs, Ph.D., Nathan Miller, Ph.D., Darren Ritzer, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Psychology

The Effectiveness of a Nutrition Education Program in an Afterschool Setting for Elementary School-Aged Children

Kennedy Bajek & Mary Pickler

Pediatric obesity is a troubling problem related to low fruit, fiber, and vegetable intake, and high intake of fat, sodium, and calories. A child's home environment, including not eating family meals, and low levels of physical activity also contribute to pediatric obesity. Schools could be an ideal place to provide nutrition education to children. Unfortunately, there is not always time to add nutrition education to in-school curriculums to combat these factors. Therefore, afterschool programs may be a good option for providing nutrition education. Recent research shows that nutrition education with a hands-on component, such as gardening education, can improve children's diets and healthy eating behaviors. Studies found that after participating in afterschool nutrition education programs, children were more likely to try new foods, increase their vegetable, fiber, and whole grain intake, experience a decrease in Body Mass Index and Waist Circumference, and spend more time doing physical activity. This research aims to expand on the current research to determine the impact of a nutrition education program, taught in an after school setting, on children's nutrition knowledge and fruit and vegetable intake. This study was an eight week educational intervention that combined hands-on nutrition programming, physical activity, and healthy snacks. As a result of the intervention, participant's nutrition knowledge and fruit and vegetable intake increased. Participants also gave the intervention a high satisfaction score, indicating that other children may enjoy this type of programming.

Honors Thesis Committee: Ashley Licata, Ph.D., RD, LD, CSSD & Jessie Hoffman Ph.D., RD

Movement (s) in a Dynamic World: Interdisciplinary Perspectives, Rock Hill SC, February 2023 | SCAND 2023 Annual Meeting, Columbia SC, March 2023 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – Human Nutrition

A Study of the COVID-19 Pandemic and Long-Lasting Symptoms in Thyroid and Diabetes Patients

Logan Tubbs

COVID-19 has affected the whole world over the past few years. However, the prevalence of COVID-19 is much more common in those with autoimmune diseases, such as Diabetes Mellitus. This study examines the prevalence of COVID-19 in endocrinology patients, which were categorized as having a diabetic-related disorder, thyroid disorder, or another disorder. This study also examines if there is a connection between those with endocrine disorders, mainly Diabetes Mellitus, and thyroid-related disorders (such as hypothyroidism, Grave's Disease, etc.) and if COVID-19 leads to specific after-effects. The hypothesis was that the prevalence of COVID-19, and the after-effects of having the disease, will be higher in populations with Diabetes type 1 and 2 than it would be in those with thyroid-related conditions. Surveys were collected at Lancaster Endocrinology, a Rock Hill doctor's office that specializes in endocrine disorders. Surveys were given to patients in the office before they were seen by the doctor and were completely anonymous and voluntary. Then, data was compiled into graphs and charts. Based on the research data that was collected in the study at Lancaster Endocrinology, the numbers were almost even. However, those with long-term symptoms who were diabetic came in at 42.6%, slightly above the thyroid disorders at 40.7%. For future research, a wider population could be studied to see whether or not the same results were achieved.

Honors Thesis Committee: Jennifer Bossi, Ph.D., Janet Wojcik, Ph.D., Dan Drane, Ph.D.

COE – Physical Education, Sport & Human Performance

The Effect of Interregional Inequalities on Orchestras

David Urich

How do interregional inequalities affect the landscape for orchestral revenue? Having adopted a reliance on contributions from the private sector, American orchestras function as cultural ambassadors and obtain funding from their communities. The literature confirms that the United States displays heterogeneity and inequality between these communities that affect the financial and practical performance of different orchestras. This thesis builds on the analysis of demographic and macroeconomic factors identified by economists, sociologists, and arts administrators. Using multiple regression analysis and panel data, this thesis attempts to model the relationship between socioeconomic variables and orchestral revenue. A comparative case study methodology then determines what orchestras that outperformed the regression did to escape the limitations of their market area. This thesis finds that some demographic and macroeconomic variables suggested by the literature possess weak relationships while some unexpected variables strongly affect orchestral revenue.

Honors Thesis Committee: Ginger Williams, Ph.D., Michael Lipscomb, Ph.D., Nicholas Moellman, Ph.D., Robert Wildman, M.F.A.

Movement(s) in a Dynamic World: Interdisciplinary Perspectives Conference, Winthrop University, Rock Hill, SC, February, 2023 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – History

(IDVS490H - Williams & HONR451H - Lipscomb)

The Creation of “Not Your Mother’s Motherhood”

Cameron Vipperman

In the play that I have written for my final project, *Not Your Mother's Motherhood*, the protagonist, Abby determines from a young age that she never wants to be pregnant. Her mother insists that she will grow out of her aversion to pregnancy and childbirth, but Abby insists that she will not. The play subsequently observes three different outcomes, or “timelines,” that could occur in Abby's life, each of which show her grappling with her personal feelings, her partner Adam's sometimes immature or misogynistic feelings, and her mother's reactions to her ultimate decision. The play is accompanied by reflections on the writing and revision process of a new work; the casting, rehearsal, and performance process; internal dialogue regarding the somewhat sensitive topics presented in the play, including motherhood, generational trauma, and freedom of choice; and assertions about the genre, style, and place of this play in the world of theatre. These reflections explore how the play displays elements of realism and expressionism and how it fits into the genre of Tragicomedy, and, more specifically, the subgenres of Confessional Drama and Sentimental Drama. Conceived as a play, *Not Your Mother's Motherhood* is best seen performed, rather than read.

Honors Thesis Committee: Daniel Gordon, M.F.A., Rachel Dawson, M.F.A., Stephen Gundersheim, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Theatre & Dance

The Investigation of Protein C Receptor Expression in Prostate Cancer Tumor Progression

Sydney Hunter

Prostate cancer (CaP) is one of the most common cancers among men in the world. The lack of symptoms and specific diagnostic markers for CaP creates difficulty in diagnosis. For example, prostate specific antigen (PSA) is a protein expressed in normal epithelial cells within the prostate and is increased in the serum of men with CaP. However, PSA is also elevated in men with other prostate disorders. Thus, PSA is not an absolute marker CaP. The use of a more specific tissue/serum marker of CaP is necessary to increase diagnostic efficiency and CaP survival. Previous research in the lab has revealed a relationship between the expression of proteins in the anticoagulant protein C system and CaP. Specifically, CaP tissue samples have elevated levels of endothelial protein C receptor (EPCR) in comparison to men without CaP. The current study evaluated serum EPCR concentrations in men with CaP and the expression of EPCR in a CaP cell line. Using ELISAs, we determined that men with CaP have elevated concentrations of serum EPCR compared to healthy controls. We also determined by Western blotting that EPCR is expressed in vitro by a CaP cell line. We conclude that EPCR is expressed by CaP cells and that patients with CaP have elevated concentrations of serum EPCR. These data indicate that EPCR could be used as a serum marker for CaP. Establishing that EPCR is expressed in vitro by a CaP cell line lays the groundwork for future studies into the role of EPCR in CaP.

Honors Thesis Committee: Laura Glasscock, Ph.D., Daniel Stovall, Ph.D., Salvatore Blair, Ph.D.

Association of Southeastern Biologists Annual Meeting, Winston Salem, NC, March 2023 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – Biology

Examining the Effect of Power Systems on Black Women's Journey to Political Power in the US

Morgan Shadd

The role that intersectionality has played in the lives and political careers of black women is significant. Black female politicians take on different identities which shape the way they are viewed, treated and how they view themselves. In this piece, it will be argued that in the pursuit of political power in America, Black women face greater hurdles than their non-fem and or non-Black counterparts face. In the face of power structures that place certain aspects of their identities in inferior positions, Black women are tasked with overcoming many symptomatic ideals, attitudes, and structures that are foreign to politicians with different identities. Power structures such as the patriarchy, misogyny, racism and heteronormativity intersectionality oppress Black women. Discussion of the ways that these power structures affect these politicians through the timeline of the power acquisitions will be used to validate this argument. Beginning from when a Black woman first gets the idea to run for office through her time in office, the intersectionality of her identity and the power structures that work against her reveal how power plays a significant role in her journey.

Honors Thesis Committee: Brandon Ranallo-Benavidez, Ph.D., O. Jennifer Dixon-McKnight, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Political Science

Constructing Modernity: How Industrialization Redefines Physical Culture in Urban Spaces

Evan King

Efforts to modernize towns and cities often result in the partial erasure of their own historicity. As industrialization's transformative power becomes more ingrained in the growth processes of urban areas around the world, preservation strategies for culturally significant spaces become increasingly important to historical conservationists. Remodeling the physical environment of historic cities through urban planning presents challenges for cultural landmark preservation. Four major components of physical urban space are emblematic of cultural and historical identity: buildings, street design, open spaces, and monuments. With these aspects of city planning at the forefront of discussion, this thesis begins with historical background, considering the urban renovation of Paris between 1853-1870 and its influence as a template of modernization outside of France. The outflux of industrial technologies from Western Europe between the late 19th and early 20th centuries influenced an evolution of urban space in the Ottoman Empire's capital of Istanbul. As a historical study of urban morphology, this research illuminates what environmental symptoms of industrialization complicate matters of historical authenticity and cultural security within cities caught up in a trend toward technological modernization. Studying cities that were initially ill-equipped to grapple with negative social, economic, and environmental consequences of unprecedented growth and spatial redevelopment serves as a jumping-off point for crafting solutions to contemporary crises of cultural degradation. Moreover, the internationally pervasive influence of a Western model for industrial society is such that these lessons may find applicability in the developing world.

Honors Thesis Committee: Kyle Sweeney, Ph.D., Alice Burmeister, Ph.D., Karen Stock, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Fine Arts

(HONR451 – Lipscomb)

Early Childhood edTPA Culminating Project

Lily Fremed

As part of the Early Childhood Education internship and edTPA performance based assessment, I designed lesson plans to support my internship students' strengths and needs, engaged these students in ambitious learning, analyzed whether the students are truly learning, and adjusted my instruction to become a more effective educator. In addition to written preparation and responses, I also filmed myself teaching three lesson plans that I created. These videos have allowed me to reflect on my strengths and areas for growth in teaching, as well as see what the students understood or did not understand. I began the preparation for this project in November 2022, and completed it March 2023. My Internship II is in a first grade classroom at a Fort Mill School District campus. I have been with the class since August 2022, so I have been learning from my Mentor Teacher and our students for the entire school year.

Honors Thesis Committee: Michael Lipscomb, Ph.D., Crystal Glover, Ph.D., Sarah Lanford, M.A. (Sugar Creek Elementary School, lanfords@fortmillschools.org)

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

COE – Education Core

(EDCI 450 – Glover)

Reaction of Hydrazones with Potassium Organotrifluoroborates Through Photoredox Catalysis

Molly Quetel

Small molecules such as α -aryl amines and hydrazines, are important pharmaceutical building blocks. The synthesis of these types of molecules requires the formation of carbon-nitrogen bonds, significant because of their abundance in natural products, medicines, and biologically active molecules. Many approaches toward synthesizing these types of molecules have employed transition metals to catalyze the essential C-N bond formations. Previous studies in our group have focused on visible light photoredox mediated alkylation of imines with potassium organotrifluoroborates (R-BF₃K), using both transition-metal complexes and organic dyes. Using similar principles, this research is focused on the alkylation of hydrazones using R-BF₃K. The reaction of benzaldehyde benzoylhydrazone and cyclohexyl-BF₃K will be used to test various reaction conditions, such as photocatalyst, Lewis acid, and solvent. Using this model reaction, organic catalysts, such as **Mes-Acr-Me**, and transition-metal photocatalysts, such as **Ir(dFCF₃)dtb**, were screened, and it was demonstrated that Ir-based complexes were highly effective (~98% conversion, determined by NMR). As compared to Ir-based complexes, Ru-based (~0% conversion) and organic (~70% conversion) photocatalysts were not as effective. The next steps will be to explore the scope and limitations and perform some mechanistic studies. The scope and limitations phase will use differently substituted hydrazones and organotrifluoroborates to explore various steric and electronic effects on the reaction. Stern-Volmer quenching studies will be used to verify the first step in the proposed mechanism, while light-dark experiments will help distinguish between a closed-cycle mechanism and a radical chain mechanism by analyzing product formation during periods of illumination.

Honors Thesis
Committee: James Hanna, Ph.D., Robin Lammi, Ph.D., Aaron Hartel, Ph.D.

NC Photochem, Columbia, SC, October 2022 | SAEOPP McNair/SSS Scholars Research Conference, June, 2022 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

Support was provided by the Donors of the American Chemical Society Petroleum Research Fund (# 58270-UR1), the Winthrop University McNair Scholars Program, and SC-INBRE from the National Institute for General Medical Sciences (P20GM103499).

Received 1st place in Physical Sciences for oral presentation, 2022 SAEOPP McNair/SSS Scholars Research Conference, June, 2022.

Recipient of Excellence in Undergraduate Research Award from the Carolina-Piedmont Section of the American Chemical Society.

CAS – Chemistry, Physics, Geology, and the Environment

(CHEM 551/552H – Hurlbert)

Effects of species identity and time-since-fire on the presence of cyanobacteria on leaf surfaces of shrubs in longleaf pine sandhills

Dallas K. Nivens

Leaf surfaces are often colonized by nonpathogenic microorganisms, which may have beneficial immune and metabolic relationships with plants. We investigated factors that influence the presence of cyanobacteria on leaf surfaces of shrub species in longleaf pine sandhills in South Carolina. To assess effects of species identity and time-since-fire, we measured stem and leaf characteristics of eight shrub species in burned sites (4 to 6 months post-fire) and of *Gaylussacia dumosa* and *Sassafras albidum* in unburned sites (2 years post-fire). We isolated bacteria from leaf surfaces and used 16S rRNA primers in polymerase chain reactions (PCR) to screen for the presence of cyanobacteria. In burned sites, stem height, number of stems, leaf area, and specific leaf area (SLA) varied among species; *Oxydendrum* had the tallest and greatest number of stems, and *Oxydendrum* and *Sassafras* had the largest leaves. Cyanobacteria were present on *Sassafras* and *Oxydendrum* leaves in burned sites, which suggests that the presence of cyanobacteria may correlate with larger leaf surfaces and taller stems. With more area for colonization and increased access to light, *Oxydendrum* and *Sassafras* leaves may provide a suitable microhabitat for cyanobacteria. While *Gaylussacia* stem characteristics did not differ with time-since-fire, leaves were larger in unburned sites. *Sassafras* had more and taller stems and a lower SLA in unburned sites. *Sassafras* leaf surfaces in unburned sites also contained cyanobacteria, which indicates that changes in environmental factors over time after fire did not influence the presence of cyanobacteria on leaf surfaces.

Honors Thesis
Committee: Jennifer L. Schafer, Ph.D., Victoria J. Frost, Ph.D., Kunsiri Grubbs, Ph.D.

Association of Southeastern Biologists Annual Meeting, Winston Salem, NC, March 2023 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

Supported by the Winthrop University Research Council.

CAS – Biology

Leadership Styles and Communication and Their Effects on Workplace Culture

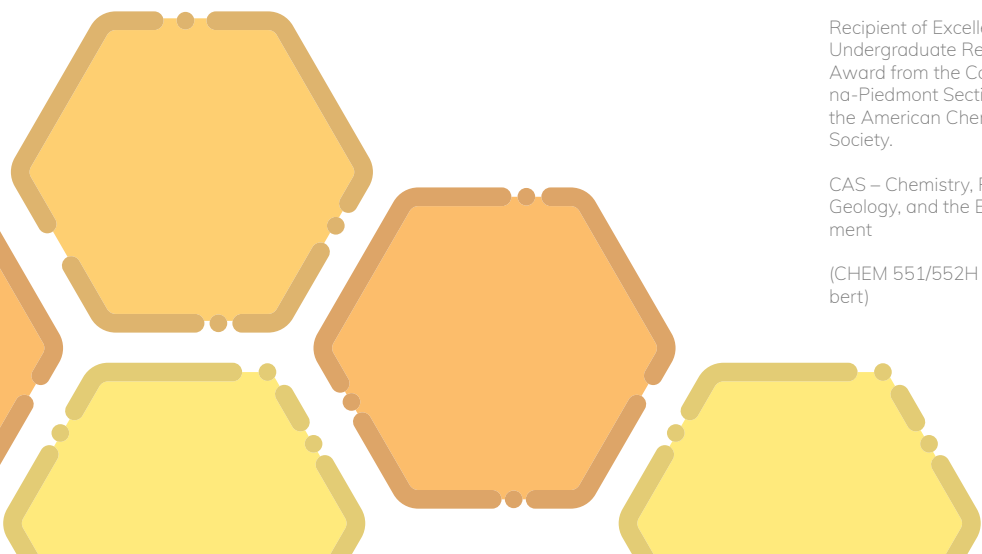
Amanda Breakfield

Having a positive workplace culture is an important aspect for all organizations. Since COVID-19, many organizations are trying to refresh and revamp their companies' workplace culture to integrate pre-COVID-19 norms of the in-person workplace. In order to assess how this revamping and integration might best proceed, this research examines a mid-sized, privately held firm in the southeast USA. This company is seeking to improve the workplace culture through their management's leadership practices. Surveys were completed by 459 employees and 96 supervisors with questions about communication, leadership practices, and overall workplace culture. Results show that participative leadership was not related to workplace culture, however, leadership style was strongly related to communication and trust in employees. The results point to incongruence between perceptions of managers and perceptions of employees when considering participative leadership styles. The implications of this research can aid businesses in their efforts to realign culture with leadership after the pandemic.

Honors Thesis
Committee: Melissa Carsten, Ph.D., Tracy Griggs, Ph.D., Darren Ritzer, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CBA – Management & Marketing



Investigating Addiction and Stigma among Undergraduate Students

Carlee Norwood

This research project aims to better understand the current stigma surrounding addiction and substance-use disorders among college students. This project will allow researchers to understand undergraduate college students' actual knowledge about addiction, their beliefs about it, and the stigma surrounding it at Winthrop University. Understanding these factors can better inform educational efforts about substance use disorders and healthcare and dispel myths and doubts about the reality of addiction. Students were sampled from Winthrop University. Data was collected via a multi-part survey with questions modified from various prior sources that were specifically combined for this project. Participants were asked to self-rate their perceived bias towards addiction and substance use disorders. Then participants were asked to state if they believed statements about addiction were true or false. Common misconceptions about addiction were assessed by asking participants to evaluate whether or not they would trust, be interested in, or work with someone with a substance use disorder. Preliminary results found that students from Winthrop University had misconceptions about addiction and substance-use disorders, such as Future research will continue to investigate ways to reduce the stigma surrounding substance-use disorders.

Honors Thesis
Committee: Kathleen West, Ph.D., Mike Sickels, Ph.D., Giancarlo Anselmo, Ph.D.

Winthrop University
Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Psychology

Homo Neanderthalensis Introgression into Modern Humans and Its Implications

Dalton Shivers

The image of the famous hominin species *Homo neanderthalensis* has undergone many changes in the last century, particularly in the past 15 years. Once thought to be a primitive relative of *Homo sapiens*, the *H. neanderthalensis* species are now seen as complex individuals who had the capacity to rival *H. sapiens* in culture and intelligence. As new waves of technology become available, the way at which we interpret ancient hominid fossils remains ever changing. The genetic makeup of recent *H. neanderthalensis* specimens provide strong evidence to suggest that gene flow has happened from *H. neanderthalensis* to modern humans. Where and when this gene flow occurred is widely discussed among scientists today. Many believe the main gene introgression event to have taken place outside of Africa during the *H. sapiens* migration towards Eurasia, but new evidence arises each year in favor of a much more complex relationship of interbreeding between multiple hominid species spanning different continents and timelines. The data and arguments about the gene introgression and location are discussed here as well as the cultural significance of the question itself.

Honors Thesis
Committee: Dwight Dimaculangan, Ph.D., Loran Brasington, Ph.D., Janice Chism, Ph.D.

Winthrop University
Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Biology

Evolution of Ethics in Psychological Research

Cheyenne Sola

Ethics in research are constantly evolving to conform to ever changing societal norms. Many psychological advances can be traced to experiments that crossed ethical guidelines, including psychological and physical harm to subjects, deceiving participants, and denying them the right to withdraw from the study. However, researchers have replicated the results of these infamous experiments in various ways while still following ethical laws and guidelines, thus raising the question of why these guidelines were crossed in the first place. The purpose of this study is to review different research experiments that are deemed unethical and determine whether or not crossing these boundaries were warranted for the advancement of science by looking at experimental replications and their findings. While many argue some of these experiments were crucial in the development of psychology as a discipline, this case study determines that crossing these ethical boundaries was unjustified.

Honors Thesis
Committee: Darren Ritzer, Ph.D., Merry Sleigh, Ph.D., Matthew Hayes, Ph.D.

Winthrop University
Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Psychology

(HONR451 – Lipscomb)

Financial and Strategic Analysis of the Winthrop University Athletic Department

Ben Goodman

This thesis statement provides a financial and strategic analysis of the Winthrop University athletic department. For many colleges and universities across the United States, athletics play a critical role in shaping the overall success of the institution. Athletic teams are able to generate revenue for and attract students to the institution. In addition, successful athletic teams boost school spirit and expand university outreach. Therefore, it is essential for Winthrop University and its athletic department administration to work in tandem to create short and long-term strategies and initiatives that will ultimately support a sustainable athletic program committed to growing the institution as a whole. This thesis highlights the interdependence of the athletic department's financial health and processes for designing and implementing athletic department strategies. Athletic department revenues and expenses were analyzed through a breakdown of the data contained in the Equity in Athletics Disclosure Act 2022 (EADA). This data was compared to that of other institutions of similar enrollment and athletic conferences, as well as to Winthrop University EADA reports from previous years. In addition, the process for determining the overall athletic department budget and its subsequent allocation across athletic expenses was analyzed. Interpreting the data and processes have contributed to identifying trends or deficiencies and predicting the future trajectory of the athletic department. Furthermore, the growth opportunities and strategic goals for the athletic department were assessed. Growth opportunities include athletic department initiatives to foster enrollment growth and expand university outreach.

Honors Thesis
Committee: Bradley Kopp, Michael Lipscomb, Ph.D., Trent Kull, Ph.D.

Winthrop University
Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CBA – Accounting, Finance & Economics

The Effects of RYBP on Apoptosis in Glioblastoma Cells

Brayden Fults & Will Bucher

Glioblastoma is a deadly, fast growing, and aggressive type of brain cancer that has poor prognosis and limited treatment options. We investigated the phenotypic effects of the tumor suppressor gene RING1- and YY1-binding protein (RYBP) on apoptosis, a form of programmed cell death, in glioblastoma cell lines. We hypothesized that forced RYBP expression would activate caspases, leading to increased apoptosis. Using a GFP-expressing plasmid, we optimized transient transfection conditions in U118 glioblastoma cells to determine ideal transfection conditions needed to express RYBP. We found that 1 μg of plasmid DNA and 7.5 μL of Lipofectamine 3000 led to the highest transfection rate. However, when we transfected U118 cells with either a vector control or RYBP-expressing plasmid, RYBP expression could not be detected, suggesting the transfection did not work. Therefore, we altered our approach and used U118 and T98 glioblastoma cell lines already stably transduced with control or RYBP-expressing lentivirus. A Western Blot verified ectopic RYBP expression in both the U118 and T98 infected cell lines compared to cells transduced with a control lentivirus. Moreover, forced RYBP expression in T98 cells reduced full-length caspase-3 and increased cleaved caspase-3 levels, suggesting that RYBP activates apoptotic responses in T98 cells. Further research will examine whether RYBP may sensitize glioblastoma cells to apoptosis that is induced by DNA damaging agents, such as the chemotherapy Temozolomide. Further, the mechanism by which RYBP facilitates apoptosis in glioblastoma is also worth further study.

Honors Thesis
Committee: Laura
Glasscock, Ph.D.,
Matthew Stern, Ph.D.,
Daniel Stovall, Ph.D.

Winthrop University
Showcase of
Undergraduate
Research and
Creative Endeavors,
Rock Hill, SC, April
2023.

Supported by
SC-INBRE DRP
5P20GM103499-21

CAS – Biology



The background features a pattern of hexagons in various shades of yellow and orange, arranged in a honeycomb-like structure. The hexagons are semi-transparent and have a slight drop shadow, giving them a 3D appearance. They are scattered across the page, with some overlapping the text.

15 Public Presentations and Performances

Power and Money

Nathaniel Willey

The institution of money both empowers and oppresses the individual. I argue this through (1) a psychological approach, (2) a philosophical approach, and (3) an ideological approach. I turn to the work of the sociologist Georg Simmel for a psychological and philosophical understanding of the effects of money on the individual, particularly through his analysis of how value is derived from the subject-object relationship and how the calculus of sacrifice and gain is a function of the distance between the subject and the object of desire. I frame my argument with a discussion of how power operates within different ideological traditions. More specifically, I look at how money is described as empowering the individual within the ideological tradition of classical liberalism. I contrast that discussion of empowerment by looking at Marx's concern about how money constrains or diminishes the individual, particularly in terms of his alienation thesis. This paper does not discount this story of alienation, but it asserts that Marx's call for the abolition of private property would do more to oppress the individual rather than empower them. In conclusion, this paper contends that the empowering effects of money outweighs its *constraining effects*.

Mentor: Michael Lipscomb, Ph.D.

Winthrop University
Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Political Science

(PLSC 490 – Lipscomb)

It's social media, stupid! A study of the narrative and discursive elements of Argentinian libertarians on Twitter

Bautista Vivanco

While Argentinian politics have earned a reputation for being unpredictable, convoluted, and chaotic, few case studies can exemplify better the ever-changing nature of this political system than the rise to prominence of the libertarian movement. Libertarians went from being virtually non-existent as a political movement in 2019 to holding 5 congressional seats in 2021 and having a very solid chance of winning the presidential upcoming presidential election. This staggering growth is unrivaled in Argentine political history, which makes it a great opportunity to study the rhetoric and narrative elements that have drawn support to the libertarians. For this reason, I performed a qualitative analysis of the 500 most retweeted tweets of Javier Milei (the face of the Libertarian movement in Argentina) during the 6 months preceding the legislative election in November of 2021 so as to understand what elements of his rhetoric are the ones that have resonated the most with the Argentinian population. I chose the period leading to the 2021 election because it was a turning point for libertarians as it granted them congressional representation, which solidified them as a serious political force. Furthermore, my hypothesis is that the rhetoric used by Milei in his tweets includes a strong emphasis on economics, the widespread use of rude and pejorative language to address his detractors, the promotion of a clear dichotomy between him and what he calls the "political cast," and sharing and promoting topics that are controversial in nature in order to obtain more media attention and relevance.

Mentors: Michael Lipscomb, Ph.D. & Jennifer Leigh Disney, Ph.D.

Winthrop University
Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Political Science

(PLSC 490 – Lipscomb)

Child and Adult Trauma's Influence on Imposter Syndrome and Just World Belief

Sierra Burns

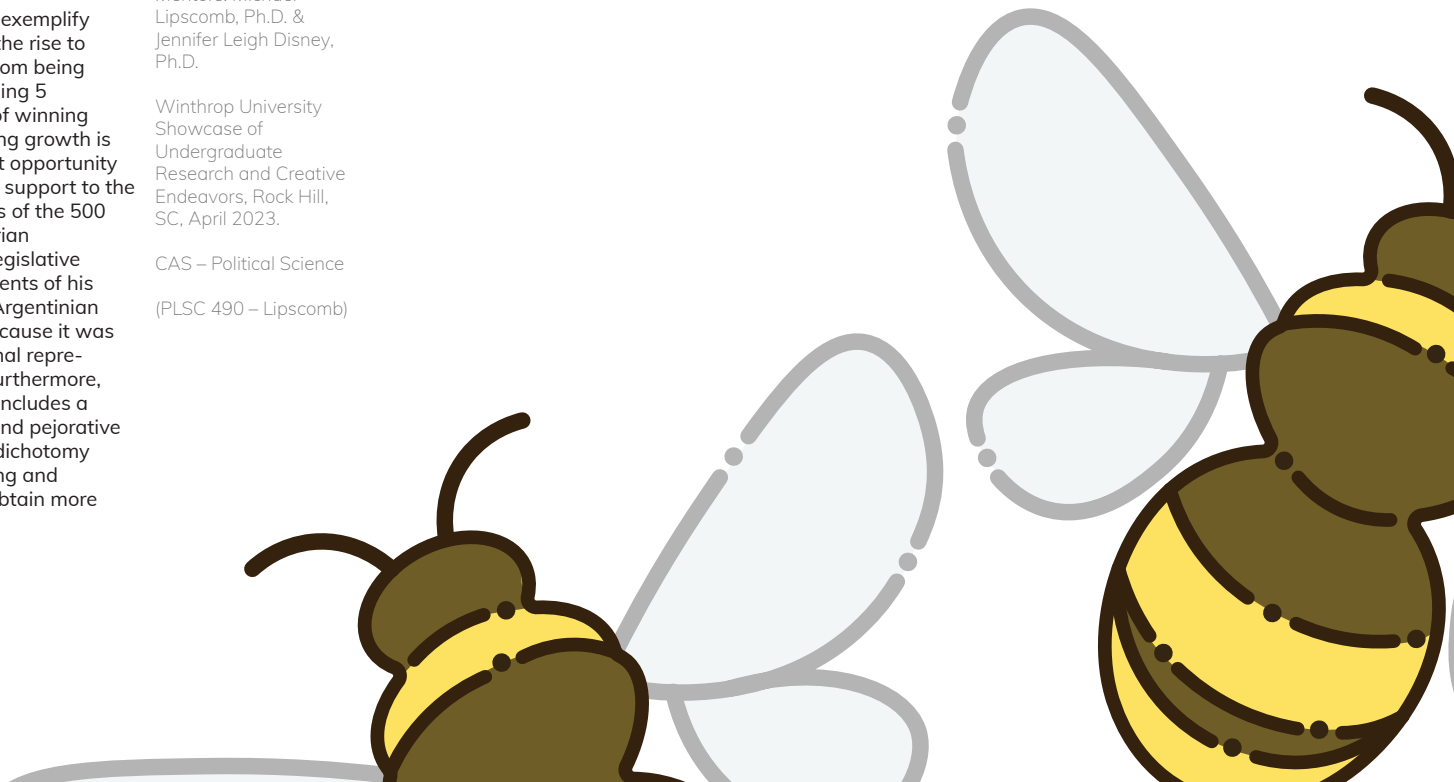
Previous research has not directly linked trauma with imposter syndrome and belief in a just world. However, a disruptive home life, which can increase the likelihood of trauma, predicts imposter syndrome, while an experience of victimization predicts lower belief in a just world. Our goal was to examine whether trauma specifically, experienced as either a child or adult, predicted these adult perceptions. We hypothesized that increased trauma would relate to increased imposter syndrome, decreased belief in a just world, and decreased trust in authority. Participants were young adults with a mean age of 24.98 ($SD = 9.90$). They were primarily White (64%), cisgender women (63%), and heterosexual (66%). Participants responded to scales that assessed: belief in a just world, imposter syndrome, trust in authority, traumatic life events, and adverse childhood events. Results revealed that women, non-heterosexuals, and African-American adults experienced more adverse childhood events than their comparison groups. Women and non-heterosexuals reported more adult trauma as well. Trauma did not predict trust in authority figures. In contrast, across gender categories: higher levels of child or adult trauma predicted lower levels of belief in a just world for themselves. In men but not women: more child and adult trauma predicted higher levels of imposter syndrome and higher adult trauma predicted less belief in a just world for others. These findings suggest that the gender of the victim and the timing of the trauma influence the presence of imposter syndrome and belief in a just world.

Mentor: Merry Sleight, Ph.D.

McNair SAEOPP Conference, Atlanta, GA, June 2022; 2023 Southeastern Psychological Association Conference, New Orleans, LA & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

CAS – Psychology



Perceptions of the Current Nursing Shortage and Strategies to Increase Staff Retention

Trey Wineglass

Determining contributing factors to high turnover rates will allow nursing leaders to implement strategies that improve retention rates and patient health outcomes. This study examined: 1) What factors influence nurses to leave and stay at their job? 2) Does burnout play a role in why nurses leave their job? A mixed-method concurrent triangulation design was used, including a synchronous but separate collection of qualitative and quantitative data. This study included cross-sectional primary data collection through an online survey to examine the working environment, future employment intentions, factors that influence employment intentions, and burnout among nurses. The qualitative component included key semi-structured key-informant interviews. Our sample included 427 survey participants from across the US and five nursing leader interview participants. Work Environment, Salary, Staffing and Leadership have the greatest influence on nurse turnover. Competitive Wages & Benefits and a Healthy Work/Life Balance have the greatest influence on nurses wanting to stay at their job. Interview participants also agreed that these factors influence nurses in wanting to leave and stay at their job. More nurses who have a high degree of emotional exhaustion and depersonalization have considered leaving their employer in the past year, while more nurses who have a high degree of personal accomplishment have not considered leaving their employer in the past year. The nursing shortage has affected nurses' ability to provide complete quality care to patients and led to burnout. Nursing leaders must create a healthy work environment, advocate for improved staffing ratios, higher wages, and improve leadership skills.

Mentor: Joanna Jackson, Ph.D., MSN, RN

Winthrop University McNair Scholars Program Summer Research Symposium, Rock Hill, SC, June 2022; 27th Annual SAEOPP McNair/SSS Scholars Research Conference, Atlanta, GA, June 2022; Winthrop University Healthcare Management Internship Presentation Symposium, Rock Hill, SC, August 2022; Creating Healthy Work Environments Conference - Sigma Theta Tau International Honor Society of Nursing, Austin, TX, February 2023 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

Supported by U.S. Department of Education McNair Grant P217A180094 and Winthrop College of Business Administration

Received 1st place in Business for oral presentation at the 27th Annual SAEOPP McNair/SSS Scholars Research Conference, Atlanta, GA, June 2022

CBA – Management & Marketing

The Unveiling of Isabel Archer's True Character through Art

Courtney Hatcher

Henry James's 1881 novel *The Portrait of a Lady* follows Isabel Archer, a young, curious woman who moves to Europe in hopes of forging her own life. Here, Isabel meets many people who own art collections and discovers the importance of art, believing that it aligns with her ideas. But what Isabel fails to recognize and accept is how she is reflected in art, as well as how both the people around her and James perceive her as a portrait. In this essay, I argue that art shapes Isabel Archer's character because it reveals who she is supposed to be: a woman bound to society. Through the use of paintings, architecture, and cities, it becomes evident that the features of these art forms reveal Isabel's intended identity. This is furthered through characters such as Madame Merle and Gilbert Osmond using art as a way to push her to become a woman of the Old World because they want to maintain their traditional standards, neither realizing nor caring that Isabel's happiness must pay the price for this. Isabel, however, is given multiple opportunities to break away from her intended identity by the reappearance of Caspar Goodwood and her New World traits because she is so much more than what art reveals her to be and is an independent and compassionate woman. But in the end, Isabel willingly chooses her intended identity because, as James's establishes in the novel's title, all she could ever be is a portrait of a lady.

Mentor: Josephine Koster, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – English

(ENGL 494 – Koster)

Making Effective Welfare Policy: A Comparison Between States

R. Wesley Thomas II

I conducted a study called "The Status of Welfare and the Reduction of Poverty Across the United States", which was presented at SOURCE 2022. The goal of this study was to isolate welfare, and especially Temporary Aid for Needy Families (TANF), from all other potentially interfering variables in order to measure its effectiveness in reducing real poverty. The results were clear: South Carolina and Texas, who were marked as having the least spending and most restrictions, were the most able to combat poverty. Wisconsin and California, who were marked as having high spending and few restrictions, were the least able. Rhode Island was also marked as having high spending and few restrictions, but was still the most able to combat poverty over the other states that were studied, being the only state with a correlation less than -1. While there are few reasons to doubt the general truth of this data, recognizing the restraints put upon the collection process, there are few gains to knowing "what" without also knowing "why". The goal of this current study is to determine whether Rhode Island is an outlier due to certain specifics and extremes, or because it was able to implement similar policies as Texas and South Carolina with greater efficacy. In simpler terms, we have analyzed these systems on a deeper, detailed level in order to discover why these systems are more or less effective compared to one another.

Mentor: Michael Lipscomb, Ph.D.

Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2022 & 2023

CAS – Political Science

(PLSC 490 – Lipscomb)



Maladaptive Daydreaming, Video Game Playing and Fear of Missing Out

Jacqueline Rose Seidl, Victoria Ward, Ashna Divekar & Kyle Maione

While mind wandering and certain levels of daydreaming are normal, maladaptive daydreaming is characterized by its interference with daily activities and the potential for high levels of distress. We investigated experiences that co-occur with this relatively new concept in the research literature. We hypothesized that higher levels of maladaptive daydreaming would predict higher levels of video game playing, a greater fear of missing out, poorer social relationships, and lower self-esteem. Participants were young adults with a mean age of 20.15 (SD = 2.93). They were primarily White (63%), cisgender women (73%), and heterosexual (53%). Participants responded to scales to measure relationship quality with a romantic partner, best friend, parent figure, and fictional/parasocial character. Participants also responded to scales to measure their time spent playing video games, fear of missing out (FOMO), level of maladaptive daydreaming, and self-esteem. Supporting our hypotheses, we found that maladaptive daydreaming co-occurred with video game playing, another escapism strategy. Maladaptive daydreaming also predicted higher levels of FOMO, perhaps suggesting dreamers' awareness of the unhealthy nature of their daydreaming activities. Contradicting our hypothesis, maladaptive daydreaming did not predict social relationship quality. Heavy daydreamers may be unaware of their relationship quality or, alternatively, may experience a range of relationship quality depending on how others engage with and respond to their escapism behaviors. Maladaptive daydreaming was seen across demographic categories, but was highest in non-heterosexual adults and those diagnosed with mental health issues. These findings reveal how pervasive maladaptive daydreaming is among young adults and identify unhealthy associations.

Mentor: Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

Psi Chi Regional Research Award

CAS – Psychology

(PSYC 302 – Sleigh)

The Innocence of Amma Crellin that Transformed the Mystery Genre

Courtney Hatcher

Sharp Objects, based on the New York Times best-selling novel by Gillian Flynn, is an HBO television miniseries that follows a reserved and heavy-drinking journalist named Camilla Parker returning home to Wind Gap, Missouri, to investigate the second disappearance of a young girl. The series premiered in 2018 and consists of eight episodes that explores themes such as abuse and mother-daughter relationships. But what makes *Sharp Objects* so different and compelling from other mysteries is their use of innocence. Amma Crellin, Camilla's younger half-sister, is a pristine, perfect daughter, but this is just a disguise to cover up her obsessive desire for control and love. In this essay, I argue that Amma's character transformed the mystery genre because she doesn't allow herself to fall into the set characteristics that being innocent usually has and instead uses it as a tool to get what she wants. Through characterization, it becomes evident that Amma is not who she says she is, especially towards her mother, and is putting up a front so she can get one step closer to what she wants. But what both Amma's mother and half-sister fail to see is that, through the perfection and obsession, Amma is simply just a girl who wants to be seen.

Mentor: Casey Cothran, Ph.D.

Movement(s) in a Dynamic World: Interdisciplinary Perspectives Conference, Winthrop University, Rock Hill, SC, February, 2023 & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – English

(ENGL 311 – Cothran)

Adults' Empathy and Experiences with and Perceptions of Imposter Syndrome

Ebonie White

We sought to better understand adults' perceptions of highly educated women, varying in race, who were either overtly or indirectly described as experiencing imposter syndrome. We hypothesized that adults would perceive Black women as experiencing imposter syndrome but would report less empathy, matching adults' implicitly biased expectations shown in previous research. Participants (n = 100) had a mean age of 23.88 (SD = 9.22) and were primarily cisgender women (82%), and heterosexual (67%). Fifty-one percent were White and 38% were Black. Participants responded to scales to assess imposter syndrome and cognitive and affective empathy. Next, participants were randomly assigned to one of four conditions where they read about a highly educated woman working in a male-dominated context. The woman was described as either Black or White, and she was described as either experiencing imposter syndrome or not. After a manipulation check, we asked participants their perceptions of the woman. Adults acknowledged that the Imposter condition women were experiencing imposter syndrome and felt especially sorry for the Black Imposter woman. Adults with high imposter syndrome themselves (who were more likely to be White) felt the most empathetic towards, understanding of, and sorry for the Black Imposter woman. Although adults were impressed by all four women, they were least impressed with the White Imposter woman. In contrast, empathetic adults connected with White women, especially the White Imposter woman. These findings highlight the fact that perceptions of imposter syndrome can be modified by the target's race and the viewer's personal experiences.

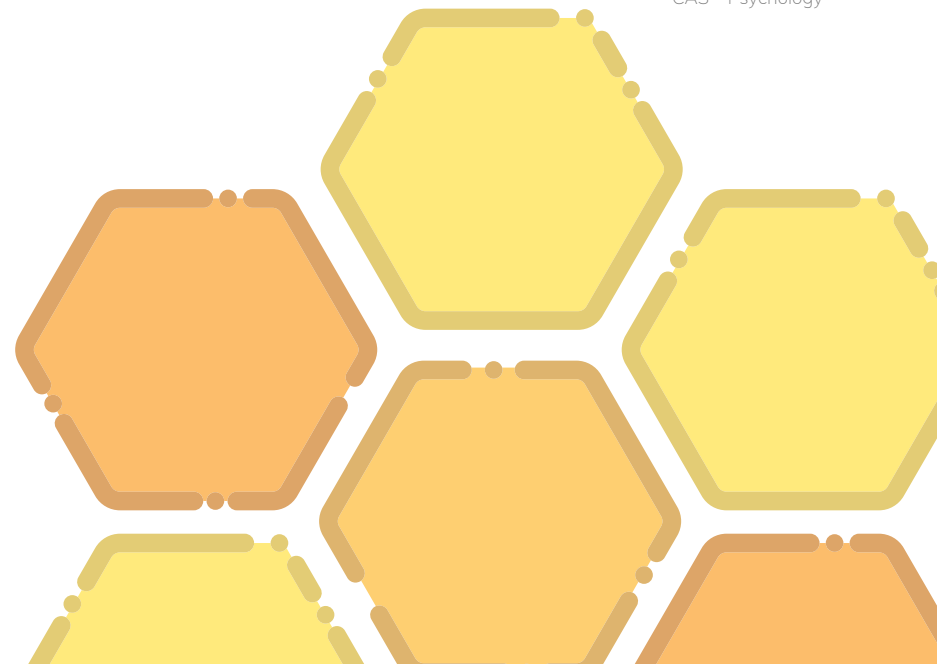
Mentor: Merry Sleigh, Ph.D.

SAEOPP McNair/SSS Scholars Research Conference, Atlanta, GA, June 2022; 2023 Southeastern Psychological Association Conference, New Orleans, LA & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

Psi Chi Regional Research Award

CAS – Psychology



Effect of Presenter Credentials on Believability of Tik Tok Mental Health Information

Ebonie White, Kylie Zangla, Emily McCutcheon, & Diamond McKelvey

We examined participants' reactions to an online health care professional and an online social media personality sharing information about autism on TikTok. We hypothesized that young adults would perceive personalized information (social media personality) as more believable and entertaining than more formalized information (health care professional). Participants were 123 adults with a mean age of 23.91 ($SD = 7.82$). The majority were cisgender women (79%), Caucasian (60%) and heterosexual (68%). We assessed participants' TikTok engagement and then randomly assigned them to one of two conditions. Half of the participants were shown a formal, informative TikTok video about autism. The speaker was a clinical psychologist who described the diagnostic criteria. The other half watched a more entertaining TikTok video of a social influencer, diagnosed with autism, who described her personal experiences. The videos were identical in length and speaker gender. Then, participants gave their opinions about the video they watched and about autism. We found many similarities in young adults' engagement with TikTok. The more often adults used TikTok, the more they trusted it, including for mental health help. After viewing the TikTok videos, adults found the clinical psychologist provided more factual and educational information about autism than the young woman who shared her personal story about the disorder. However, the two speakers were perceived as equally entertaining and trustworthy, and influenced viewers' perceptions of autism similarly. These findings suggest that viewers may be receptive to online mental health information, without careful discernment of the quality of the information.

Mentor: Merry Sleight, Ph.D.

2023 Southeastern Psychological Association Conference, New Orleans, LA, April 2023 & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – Psychology

(PSYC 302 – Sleight)

Effect of Training Material Tone on Hypothetical Employees' Perceptions

Leya D. Greene & Jordan M. Foster

We combined research from the academic and business worlds to examine how a warm or neutral tone of employee training materials would impact hypothetical employees' perceptions of their manager and the job. We hypothesized that employees who received neutral, versus warm, toned training material would have a better perception of their manager because we believed that professionalism would be valued over warmth. Participants were 56 adults with a mean age of 20.07 ($SD = 1.51$). The majority were women (77%), and participants were almost evenly divided between Caucasians and African Americans. Participants were randomly assigned to one of two conditions. Half encountered training materials that had a neutral tone, and the other half encountered warm-toned training materials. Participants then responded to scales to assess their perceptions of and willingness to communicate with the hypothetical manager, as well as scales to assess their anticipated job self-efficacy, entitlement, and need to belong. Results revealed that adults preferred the warm training materials, with warm materials leading to better perceptions of the hypothetical manager and the company. Training materials did not impact participants' perceptions of their own levels of communication with the manager or job self-efficacy. We found a pattern where White adults, and those high in need to belong and self-efficacy, perceived the hypothetical manager most positively. In contrast, gender and sense of entitlement did not predict perceptions of the manager or workplace. These findings aid our understanding of young adults' transition from college to the workplace

Mentor: Merry Sleight, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Psychology

(PSYC 302 – Sleight)

Negative Religious Experiences, Placement of Blame, and Depression

Catherine Windham, Sarah Cranford & Sierra Burns

Religious involvement has been linked to higher well-being, greater life purpose and satisfaction, and improved coping in adverse situations. However, other researchers have documented negative outcomes associated with religious participation. For example, more religious people may be more prone to anxiety and guilt. People who report having suffered abuse from people affiliated with their religion experience higher levels of anxiety, depression, and rejection of religion than the general public. We focused specifically on how negative religious experiences impact blame, shame, guilt, and depression. We hypothesized that higher levels of religious trauma would predict less religious engagement. We also hypothesized that individuals who reported religious trauma would blame religious people more than they blamed God. Participants were 120 adults with a mean age of 22.85 ($SD = 8.01$). The majority were cisgender women (74%), Caucasian (60%), and heterosexual (66%). Participants responded to scales to assess the importance of religion in their lives, depression, and their personal negative experiences with religion, including blame attributions. We found that people who have negative religious experiences have high levels of blame, specifically directed toward religious authority figures. They were less likely to blame themselves and God. These individuals also are more detached from religious involvement and are more prone to depression. Guilt and shame were not related to level of religious trauma. Similarly, gender was not an influential variable. Instead, White and non-heterosexual adults reported more negative religious experiences and placement of blame than their demographic counterparts.

Mentor: Merry Sleight, Ph.D.

Southeastern Psychological Association Conference & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

Psi Chi Regional Research Award & 3rd Place CEPO Oral Presentation at SEPA Annual Meeting

CAS – Psychology

(PSYC 302 – Sleight)

How Have Adverse Childhood Experiences Affected Our Sociability During the Covid-19 Era

Spencer Best, Ellie Dutton, Luna Rash & Caitlyn Yeomans

One area that has yet to be studied in the literature is how the vulnerable population of those with adverse childhood experiences (ACEs) have been affected by Covid-19 isolation. We hypothesized that those with more ACEs would have had a significant decline in sociability. We had 67 participants of different backgrounds whose ages ranged from 18 to 52, with a mean of 21. All participants were recruited through social media and psychology courses; some were given extra credit to participate. We assessed ACEs through the Adverse Life Experiences Scale. We assessed sociability with the EAS Temperament Survey for Adults which was completed twice, once asking participants to think of themselves before isolation and another for now. We conducted several multiple regression analyses to predict emotionality, fear, anger, activity, and sociability changes, utilizing ACE scores as the predictor. These analyses revealed no statistically significant results within the subscales. However, these data did reveal significant changes between post- and pre-covid levels of emotionality where participants reported an increase. As well, participants were found to have increased levels of activity after isolation. Lastly, participants had increased levels of anger after isolation. From our results, we can conclude that although those with higher ACE scores have an above-normal risk for changes in sociability, they were not affected any differently by the prolonged isolation. However, the pandemic has been shown to have impacted the sociability of the population through being more emotional, active, and angrier.

Mentor: Tara Collins, Ph.D.

2023 Southeastern Psychological Association Conference, New Orleans, LA, April 2023 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – Psychology

(PSYC 302 – Collins)

Effect of Presentation Style and Viewer Characteristics on Trust in False Media Information

Cheyenne Sola & Michelle Carter

We created a false mental health disorder, fear of future anxiety (FOFA) and presented the information in different online formats. Participants were young adults with a mean age of 22.72 ($SD = 7.94$). They were primarily White (59.4%), and women (73.1%). Participants were randomly assigned to one of three conditions that exposed them to the same made-up mental illness created by the researchers (FOFA or Fear of Future Anxiety). Participants took a fake diagnostic test, were assigned to read a short story about someone diagnosed with FOFA, or read information that mimicked a diagnostic manual. After a manipulation check, participants shared their perception of FOFA and responded to scales to assess intuition, social media engagement, skepticism, social media trust, and self-esteem. We found that adults who engaged more with social media were also more accepting of the fake disorder. People higher in self-esteem and skepticism were somewhat protected from making this mistake. Young adults overall accepted FOFA, even feeling sympathy for those who had it. The format of presentation had little impact. The personal story interested participants in the disorder the most, while the self-diagnostic test encouraged continuation in the study and recognition of the diagnosis in others. Perceptions of FOFA were consistent across race and skepticism levels. Women were more accepting of FOFA than men, likely reflecting gender differences in perceptions of mental health in general. These findings add to the increasing understanding of and concern for the power of social media in the domain of mental-health education.

Mentor: Merry Sleigh,
Ph.D.

Winthrop University
Showcase of
Undergraduate
Research and Cre-
ative Endeavors, Rock
Hill, SC,
April 2023.

CAS – Psychology

(PSYC 302 – Sleigh)

Adults' Experiences with Growth and Meaning Following Intense Suffering

Jared Z. Nodine

Suffering is traditionally construed as destructive to meaning in life; however, Viktor Frankl suggested that suffering and meaning have a more complicated relationship, with an individual's attitude toward suffering determining the outcome. Providing some support for this theory, women's attitudes following trauma result in higher levels of post-traumatic growth than the growth levels experienced by men. We examined Frankl's theory using quantitative and qualitative data. We hypothesized that adults who reported more intensity during a past trauma/suffering would also have higher levels of meaning, and women would report higher levels of growth than men. Adult participants ($n = 115$), with a mean age of 41.15 ($SD = 10.89$) described a time of intense suffering. They then responded to scales to assess their purpose in life, meaning in life, seeking of noetic goals, and post-traumatic growth inventory. Last, we asked participants to write a narrative about their life outcomes after the suffering. Results did not support our hypothesis. The intensity of suffering did not predict growth patterns, and people severely impacted by their trauma reduced their search for life's meaning, exhibiting instead psychological inertia. Some participants reported post-traumatic growth, and believed that outcome to be worth the suffering. Being a woman or more highly educated were associated with increased post-suffering growth, suggesting that response to trauma is multi-faceted and may indeed, as Frankl suggested, be impacted by cognitive appraisal of the situation.

Mentor: Merry Sleigh,
Ph.D.

2023 Southeastern
Psychological
Association
Conference, New
Orleans, LA, April
2023 & Winthrop
University Showcase
of Winthrop
University
Undergraduate
Research and Cre-
ative Endeavors, Rock
Hill, SC, April 2023

SEPA Showcase
Poster Session

CAS – Psychology

The Spirit Moves

Jaiden Mosley

As an artist, I am interested in allowing my work to explore “stories of the people”. This work was inspired by a research paper written in my Dance History 2 course, “From Street Corners to the American Main Stage: The Erasure of Black Bodies and their Contributions in Western Dance”, and is an attempt to bridge the gap between academic and creative research. For years, we have viewed academic and creative research as two distinctly separate categories, never finding a balance between the concrete information and movement of the past with the movement of the present. The movement used throughout the piece was generated from both personal experiences and outside research. The first half of the piece pulls heavily from my upbringing and experience in the “Black Church”, in addition to works such as Alvin Ailey's Revelations. The second half of the piece pulls inspiration from the artistic environment surrounding the Harlem Renaissance including literature from writers such as Langston Hughes and Zora Neale Hurston, music from Duke Ellington and Ella Fitzgerald, and dancers such as the Nicholas Brothers. This piece is important because making work about historical events provides an entrance point into the movement for audiences across multiple disciplines and perspectives. This work aims to foster a sense of pride and responsibility by exploring a culture and history that is uniquely both Black and American; it is a tribute to the unspoken people whose shoulders we are standing upon—who are constantly showing us the way.

Mentor: Kelly Ozust,
MFA

Winthrop University
Showcase of
Undergraduate
Research and
Creative
Endeavors, Rock Hill,
SC, April 2023.

CVPA – Theatre &
Dance

(DANT 301 – Ozust)

Heavenly Day

Caroline Bergvist

A film dance is a unique cinematic and choreographic experience that combines the visual language of both film and dance. This collaborative approach allows both filmmakers and choreographers to challenge and experiment with movement in a visceral and conceptual way. Combining my major in Dance and minor capstone in Film Production, I have decided to create a film dance that explores the idea of how grief can alter your reality or your perception of what is real. Everybody has experienced some sort of grief and loss and I wanted to focus my research on mental health and the effects that grief can have on a person. This work is a love story, but with a tragic ending. My research method is taking experiences from myself, my family, my friends, and my cast that have all dealt with grief and transform those stories into movement. In addition, I was heavily inspired by couples dancing at weddings and how intimate and personal their connections appeared to me. In my research I have learned that often where there is love, there is also a possibility of loss. My cast and I have discussed that our purpose in this work is to express these emotions of losing a loved one and communicate them through the artform of dance. This will allow those feelings to move through their bodies, and onto the screen. My ultimate goal is to take the audience back to a time when they lost someone they loved.

Mentor: Kelly Ozust,
MFA

Winthrop University
Showcase of
Undergraduate
Research and
Creative Endeavors,
Rock Hill, SC,
April 2023.

CVPA – Theatre
& Dance

(DANT 301 – Ozust)

From Street Corners to the American Main Stage; The Erasure of Black Bodies and their Contributions in Western Dance

Jaiden Mosley

Oftentimes within the Black community it is common to hear the sentiment that “we drive culture.” An analysis of the history of American dance and its various aesthetic and cultural evolutions reveals a recurring theme of the co-opting of African American movement vocabulary and traditions into mainstream American/Western dance. This research paper poses the question: how the historic gentrification of African American (social and vernacular) dance by (White) American culture has contributed to the overlooking of aesthetic and cultural contributions by African Americans in Western dance. When conducting research, there was a focus on identifying what could be acknowledged as “starter” dance forms, dance forms that form a more concrete evolutionary throughline to the various popular American dance forms and fads that have come and gone with the times. African American “starter” dance forms were the focus of this research to primarily combat bias when conducting research; the criteria for these dance forms were that they had to be African American dance forms/fads that were cultural and socially significant for the time and that they were done months to years prior of the “modified”/“refined” American versions. Throughout this paper, the dominant narrative of American/Western dance being evolved predominately through the efforts of White pioneers will be challenged and explored with research centering on the less notable contributions of African American dancers and community in the specific dance forms of tap dancing and “the lindy hop”, and the dance fad “the renegade”.

Mentor: Margaret Schriffen, MFA

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Theatre & Dance

(DANT 386 – Schriffen)

The Relationship Between College Students’ Parental Ideological Beliefs

Skylar Frye, Jaliyah Foulks, Onaza Latif & Angel White

How parents raise their children may have impact how they think or behave later as adults. The possible factors affecting adult children’s beliefs are caregiver parenting styles, child-caregiver relationships, as well as caregiver political and/or religious beliefs. We wanted to examine the factors related to changes in college students’ political and religious beliefs from childhood to adulthood. We hypothesized that stronger caregiver beliefs would predict more change in children’s beliefs, away from their caregiver’s beliefs, in adulthood. Participants were a convenience sample of 156 college student participants from a small South Carolina liberal arts University (29 men, 106 women, and 17 other) recruited through email, professors, and social media to complete an online survey about parenting style, religious, and political views of parents and themselves. From our results we can conclude that parents reported higher on the liberal-conservative scale influenced students feeling more loved and cared for but impacted negatively with authoritarian parenting styles. We can conclude that political affiliation has no effect on the parent-child relationship, but strong caregiver religious beliefs does have an effect on the child to change beliefs. Our research adds an amount of new information to existing research for new college students and parents of those students to prioritize their relationship as parent and child over ideological beliefs.

Mentor: Tara Collins, Ph.D.

2023 Southeastern Psychological Association Conference, New Orleans, LA, April 2023 & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – Psychology

(PSYC 302 – Collins)

Concussion Prevalence: Reducing the numbers

Leana Nashay Ethel Lemon

Yearly in the United States, 1.7 to 3 million sports-related concussions occur. Viewed in our society as just a mild traumatic brain injury, concussions cause bigger issues that go unnoticed. Concussions occur from a blow to the head resulting in the brain moving rapidly back and forth. Symptoms generally appear right after the blow which includes headaches, confusion, and nausea. Concussions seem temporary when looking at what occurs to the body, but taking an in depth look at the effects, it includes conditions such as post-concussion, second impact syndrome, and chronic traumatic encephalopathy (CTE). I will be taking a more in-depth look at what preventive methods individuals in the sports world could do to reduce concussion prevalence? Within my research I discuss the issues of concussions as it affects multiple sports and many age groups with youths who are still in developing stages of their life being impacted the most.

Mentor: Ginger Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

“It’s Just a Cycle We Have to Break”: Emerging Adults’ Perceptions of the Influences of Parenting Styles on Emotion Socialization

A’Niyah Choice

This study explores college students’ perceptions of parenting styles and how they impact emotion socialization. Previous quantitative research has studied the effects of parenting styles on emerging adults’ socio-emotional development, but few studies have assessed their personal experiences and examined the similarities among them. A qualitative examination was used by conducting one-on-one semi-structured interviews. My study intends to answer two research questions which are: what are college students’ perceptions of how parenting styles affect emotional development, and what do college students think parents should do to support healthy emotional development? The results suggest a major theme of navigating parental impacts on emotion socialization, and two subthemes: suppressing negative emotions and modeling appropriate ways to express emotions. College students believe that because of their parent’s parenting style, they suppress negative emotions to avoid negativity, dismiss emotions, and because they feel responsible for their parent’s emotions. The second subtheme: modeling appropriate ways to express emotions, suggests that parents should practice what they preach, and break the cycle to support healthy emotional development. My findings contribute to the field of developmental psychology by highlighting how parenting styles continue to influence emotional development into emerging adulthood.

Mentor: Adrienne Edwards, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

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

CAS – Psychology

Correlation Between Queer Mental Health and Acceptance vs. Lack of Acceptance

Aniyah Williams, Andie Crim, Ollie Waters & Lynn Winfree

Heterosexual individuals have far more research for their well-being than LGBTQ+ individuals, even though research supports that their mental health is worse. In this current study, our focus is how self-acceptance and discrimination predict the LGBTQ+ community's mental well-being compared to their heterosexual counterparts, who do not face discrimination for their identity. Based on previous research, we predicted that the increased sexuality discrimination experienced by queer people causes a decline in their mental well-being. We conducted a correlational study using a questionnaire. Participants were found through convenience sampling to test our measures: well-being, discrimination, and self-acceptance. We analyzed our data with multiple regression analysis for our measures, predicting well-being from discrimination and self-acceptance. Participants were queer and straight individuals, 69 LGBTQ+, 15 non-LGBTQ+ (2 unsure), ranging from ages 18 to 69, 19 and 20 being the most common ages. Overall, discrimination in the form of harassment and rejection was a significant predictor of worse mental well-being for managing everyday affairs (i.e., environmental mastery). Self-acceptance was a significant predictor of better mental well-being for personal growth and environmental mastery, with remaining relationships for well-being ending up not substantial. The study lacked a large enough sample size for heterosexual participants to compare queer and heterosexual participants. Data shows that our study did have a significant relationship to support that LGBTQ+ individuals have a decreased well-being in correlation to discrimination in forms of harassment and increased well-being in correlation to self-acceptance with personal growth and environmental mastery.

Mentor: Tara Collins, Ph.D.

2023 Southeastern Psychological Association Conference, New Orleans, LA, April 2023 & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – Psychology

(PSYC 302 – Collins)

The Effects of Morbid, Graphic, and Violent Media on Mental Health

D'Avion Deas, Calvin Johnson, Tori Hall & Madison McCaffrey

The more media advances, the more our mental health is affected by what we see and hear. There is limited research on the effects of morbid, graphic, and violent media (MGV) media on mental health. Previous research has found effects regarding video game play and violent movie scenes, but it did not explore various forms of media such as podcasts or books. The study had multiple hypotheses in which the researchers predicted that depression, anxiety, and aggression would significantly be affected by the frequent consumption and the content level of MGV media. In order to conduct research, we created a survey in which we used a convenience sample of 85 participants to collect information. The survey was shared via a link across all forms of electronic media. The variables that were measured within the study were depression, anxiety, stress, aggression, frequency of consuming MGV media and the content level of MGV media. We used a series of regression analyses to examine our hypothesis related to the study. The results indicated that the frequent consumption of MGV media was a significant positive predictor of depression, physical aggression, verbal aggression, and hostility. Some of our hypotheses were supported within the study. The results of our study suggest that the type of media that we consume could possibly have an impact on people's mental health.

Mentor: Tara Collins, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Psychology

(PSYC 302 – Collins)

Academic Stress and Peer Pressure as a Gateway to Undergraduate Substance Use

Tara Jones, Aryan Ort, John Fussell & Rebecca Walton

The use of alcohol consumption can be associated with stressors inside and outside of school. The main goal of this study was to examine how peer pressure and academic stress may increase the likelihood of substance use. We hypothesized that peer-pressure has an effect on drug and alcohol use among college undergraduate students. Our second hypothesis was that academic stress among collegiate members had an effect on drug and alcohol use. Students from our university were given an online survey to complete with the help of an online survey generator, Qualtrics, and professors. Participants were 74 college students with 36 of the participants being between the ages of 18 and 20, 30 of the participants were between the ages of 21 and 23, and 8 of the participants were 24 or older. The survey consisted of 84 questions on academic stress, peer pressure, alcohol use, and drug use. The types of scales used in our research were Likert-type responses on a 5-point scale. Open-ended questions were also used. Participants were also asked three additional demographic questions. We found that peer pressure is a leading predictor of alcohol and drug use in college students. Our results indicate drug use has a relationship to peer-pressure among collegiate members. The study conducted is important because many college students result in using substances as a way to cope with academic stress. On the other hand, many college students also use substances to feel like they belong within their friend group.

Mentor: Tara Collins, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Psychology

(PSYC 302 – Collins)

The Effect of Childhood Trauma on Temporal Memory in Adulthood

Alexus Dovell, Alyssa Wert, Emily Sanchez & Holden Rogers

Childhood trauma has been shown to have a significant impact on cognitive ability and memory in adults. Our initial research question was concerned with identifying the future implications of childhood trauma on memory during adulthood. Before we began collecting data, we hypothesized that enduring more significant trauma as a child would have a negative impact on temporal memory, compared to those who did not experience any traumatic events during childhood. In order to collect data in an effective manner, we used an online survey to sample students from the undergraduate program of a university in addition to using social media to collect participants. In total, we had 61 participants that completed the survey online within the one-week period. After that we interpreted our results and we found that there was a significant negative correlation between childhood trauma and temporal memory, specifically a link between emotional abuse and memory. This implies that participants who experienced emotional abuse during their childhood are more prone to forgetfulness in their adult life. We experienced some limitations during this study that include: the lack of time given to conduct the experiment, leading to a small sample size and the bias of our sample is not ideal. In the future we hope to have a larger, more diverse sample size and a longer duration to take the survey. We believe this information would contribute greatly to identifying possible therapy options to specifically help victims of abuse.

Mentor: Tara Collins, Ph.D.

2023 Southeastern Psychological Association Conference, New Orleans, LA, April 2023 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – Psychology

(PSYC 302 – Collins)

The Racial Undertones of U.S. Immigration Policy: How Race and Nativism Played a Role in the Formation of Discriminatory Immigration Policies During 1882-1924 and 2001-2022

Madison Bray

Over the course of American history, there have been waves of mass immigration that have created a binary of immigrants either they were “desirable,” or they were “undesirable.” This binary has caused many issues to arise, from the passage of the Chinese Exclusion Act to the more modern banning of immigrants from Muslim-majority nations. Many people assume that immigration restriction is a new phenomenon, but this is a misconception. Immigration restriction started in 1882 and has continued to impact many different groups of immigrants to this day. My research question is within the two major periods of immigration to the US, 1882-1924, and 2001-2022, how has nativism impacted US immigration policies, who was in favor of anti-immigration policies, which groups have suffered the most from these policies, and how might the US move toward nondiscriminatory policies? The disciplines I gathered insights from are sociology, political science, and history. From American anti-immigrant attitudes to the historical moments in American immigration policy, these disciplines help to understand the entire scope of the issue of immigration discrimination. In order to create a more just and equitable immigration system, lawmakers must confront nativism and the racial discrimination that has plagued the American immigration system since its creation. Nativism and racial biases must be examined in K-12 social studies education to stop further generations from having anti-immigrant attitudes and more diversity, equity, and inclusion training must be implemented for all members of the legislature to stop biases from influencing immigration policies. These steps are the starting point to ending discriminatory immigration policies.

Mentor: Ginger Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – History

(IDVS 490 – Williams)

The Synthesis of Diarylpyridines as Inhibitors of Amyloid Beta Aggregation for Alzheimer’s Disease

Casey Kopyc & Mary Stegall-Smith

Amyloid-beta (A-beta) is a peptide which aggregates with other A-beta chains in the brain to form plaques which are correlated to the progression of Alzheimer’s Disease (AD). The amino acid phenylalanine plays a key role in aggregation through π -stacking interactions. Previous research in our group has shown that hydrogen bond donors on a biphenyl or terphenyl system can effectively inhibit aggregation, as well as those with a central phenyl linker region. To test how differences in the π -stacking ability in an inhibitor affect aggregation, molecules with a central pyridine linker region, diphenylpyridinetetrol (DPPT) derivatives, were synthesized through Suzuki-Miyaura coupling followed by demethylation with hydrobromic acid (48% aq). Once the small molecules were synthesized, a Congo Red (CR) assay was performed on A-beta(40) to obtain data regarding the efficacy of inhibition. Products were synthesized in a wide range of yields, and preliminary CR assays showed possible inhibitory effects of some derivatives.

Mentors: Robin K. Lammi, Ph.D. & James M. Hanna Jr., Ph.D.

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

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

CAS – Chemistry, Physics, Geology, and the Environment

Actionable Solutions for Public Education in South Carolina

Phillip N. Byars

This paper seeks to examine and provide actionable solutions towards rectifying deficiencies found within the SC public education system. The state of public education within South Carolina is dire in nearly all measurable aspects, putting at risk the education of generations to come. An uneducated population is one who works poorly, thinks rashly, votes irresponsibly, and is a burden towards society as a whole. Most egregiously, it is a grave disservice to be denied a proper education in our modernizing world, to be dealt a hand of deftness to no fault but where you were born. To address this issue, the research question is proposed, ‘What needs to change in the South Carolina Legislature and financially in order to meet a minimally adequate education in public education?’ This question will be approached from an interdisciplinary perspective, utilizing the works of political scientists, education scholars, and historians to support the claim that in order to meet a minimally adequate education, South Carolina needs to reevaluate its taxation base for school funding and allocation, ease restrictions on teacher and district freedom within the classroom, recognize historical inadequacies and discrimination in attempts at reform both past and present, and ultimately recognize the 2014 decision of Abbeville v. State. Political scientists chosen due to their insight into the legal deficiencies of the system, education scholars, as the voices of teachers are essential in discussion pertaining to education, and historians to provide historical insight into past attempts at reform and how they affect the present.

Mentor: Ginger Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

Experience of ACEs & Social Support among SGM College Students

Jackie M. Carson

Understanding the lived experience, the reasons community members remain isolated in their sexual and gender minority (SGM) identities, and where the community finds safe space and support is vital to building resilience for the next generation of emerging adults. This qualitative study looks at the concept of Adverse Childhood Experiences (ACEs) to understand how these may be impacted by the presence or absence of social support. The study was conducted during the Fall 2022 semester and includes a sample of six university students. Data was gathered during semi-structured, one-on-one interviews. Themes found in the research include experiences of anti-SGM rhetoric, limited opportunities for discussion, parental loss and separation, mental illness in the family, lack of understanding of SGMs overall, abuse in the home, and lack of exposure to organizational support. The research implications are that further study is needed around organizational support, broader ACEs screening, and increased socioemotional learning for educators and organizations. Service implications include routine ACEs screening in healthcare and education settings, as well as the creation of networks and partnerships with organizations and community resources to provide support to SGM youth.

Mentor: Monique Constance-Huggins, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Social Work

(SCWK 473 – Constance-Huggins)

Beneath Her Strength: A Choreographic Analysis of Today's Black Woman

Kayla Alexander

The general topic of my research is the emotional complexities of the Black woman, and how American society mishandles them. The central problem that my research addresses is that today in American society, the Black woman and mother is under appreciated and overworked. She is expected to be emotionless, as any display of her emotions is often misconstrued, and used against her to illegitimate her strength and accomplishments. It is important to address this topic so that viewers can understand how they contribute to the mistreatment of Black women. It is my belief that almost everyone, the Black woman included, contributes to this mistreatment, in ways more than one. It is not until one understands how they contribute to an issue that they can be open to contributing to the resolution of an issue. Primary experiences are a driving factor into the creation of my movement. As a Black woman choreographing a work with a cast of only Black women, an organic discussion space is naturally created. Through discussion and improvisation, I am able to incorporate material that speaks to their own experiences as well as my own. In addition, I am creating and exploring movement through listening to material and stimulus about my topic. Through reading poems, listening to spoken words, podcasts, and reading articles, I have been able to educate myself on multiple perspectives within my chosen topic, and explore just how many different ways my topic can manifest itself in the Black woman's daily life.

Mentor: Kelly Ozust, MFA

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Theatre & Dance

(DANT 301 – Ozust)

Visible Light Promoted Alkylation of Imines using a Photocatalyst

Marcus Schlueter & Ryan Wernsman

Use of light as an energy source for the synthesis of organic compounds has been occurring for millions of years in the form of photosynthesis. However, within the last decade visible-light photoredox catalysis has been developed into a practical and efficient method to synthesize a large variety of organic molecules. Many of these reactions employ a transition metal complex photocatalyst based on ruthenium or iridium. This transition metal complex can absorb visible light to promote the generation of radicals through a series of single-electron-transfers with organic substrates, allowing organic synthesis to occur. However, transition metal photocatalysts tend to be expensive, prompting our group to investigate the use of less expensive, commercially available organic photocatalysts in our studies of the visible light promoted alkylation of imines with potassium organotrifluoroborates. In this presentation, the synthesis of amines using radicals generated from the organic photocatalyst, 9-mesityl-10-methylacridinium tetrafluoroborate (Mes-Acr-Me) and potassium organotrifluoroborates, along with their subsequent addition to imines, will be explored.

Mentor: James Hanna, Ph.D.

NC Photochem, Columbia, SC, October 2022 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

Supported by the American Chemical Society Petroleum Research Fund (58270-UR1) and an SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499).

CAS – Chemistry, Physics, Geology, and the Environment

Poverty and Higher Education

Jaquan Doby

Poverty is a problem that has found its way into every area of the globe. Many different aspects of life are affected by poverty. From health and homelessness to mortality rates, poverty cuts deep into society but most importantly, poverty affects education. For my research, my focus is to examine the effect of poverty on students obtaining higher education. Throughout the nation and the world over, poverty has found itself rooted within society and many aspects of everyday life. Poverty fosters unique problems for students that teachers are not able to solve through instruction within the classroom setting. There is this idea of a meritocracy where your merit and achievements will catapult you into a better socioeconomic status and situation, but this is not the case for all students and their families. Moreover, students who are the next generation of the world are affected by poverty in so many different ways and this will only continue if change does not happen soon. Poverty is a unique obstacle that hinders students from learning efficiently in elementary, middle, and high school, making it difficult for students to apply for and attend college. The proposed research question for this research paper is how does poverty affect students in higher education? To further examine this topic, an interdisciplinary approach is necessary to tackle this question. The reason for this is that this problem is too big to be approached by just one single discipline. Throughout this research paper, the disciplines used include the fields of education, higher education, and sociology. The thesis for this paper is poverty negatively affects pre- and post-secondary education for students and often hinders them from obtaining a college degree.

Mentor: Ginger Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

The impact of the medical-dental divide on vulnerable populations

Jeylenn Lopez

Since the beginning of U.S healthcare infrastructure, oral health has been excluded from receiving the same priority as general health programs and initiatives. This separation impacts vulnerable populations who rely on government funded health programs and initiatives. The aim of this topic is to systematically analyze dentistry using an interdisciplinary approach that considers the historical oral-general health care separation, its impacts on oral health access for low-socioeconomic communities, and the potential for oral health education to aid in increased access. A sociological perspective is used to offer insight into the interwoven relationships of what shapes a community and aids in the understanding of how a community's oral health can be improved. Healthcare policy is a major influence in determining who receives oral health service and to what extent. Analysis of current policies helps us understand the gaps between general health and oral health coverage for services. The discipline of education is used to explore its impact on low-socioeconomic communities where oral health education is minimal or not present and shaped by sociological and political factors. The systematic divide between oral health and general health care services significantly reduces the oral health quality of low-socioeconomic communities results in high rates of periodontal disease, high rates of caries in children, and inadequate health practices.

Mentor: Ginger Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

The Affect of Health Care Interest Groups on Federal Health Care Reform: From the 1980s to the Affordable Care Act

Jacob Frye

Healthcare in the United States is a massive industry that thoroughly affects all Americans from all walks of life, though for 44% of working age adults struggle to afford it. 9.2% of working adults have no insurance at all and are not eligible for government sponsored health insurance. Since the 1980s there has been little federal healthcare reform as health care and health insurance costs continue to rise. Healthcare interest groups such as physician groups, hospital owners, health insurance companies, pharmaceutical companies, etc. have thoroughly influenced and lobbied the U.S federal government to block any change in the healthcare industry. If any bills or reform is enacted, it has been thoroughly weakened by politicians aligned with interest groups. What is the effect of healthcare interest groups on federal healthcare reform in the United States from the 1980s to the Affordable Care Act? Political Science helps answer the question by looking at the political process of healthcare reform as well as how healthcare interest groups lobby the federal government. Sociology helps answer the question by examining how healthcare reform or lack thereof has affected the U.S population and the healthcare industry. Sociology and political science both analyze the relationship between U.S politicians and healthcare interest groups. Federal healthcare reform from the 1980s to the Affordable Care Act has been thoroughly affected by healthcare interest groups that influence the U.S government by lobbying and coercion.

Mentor: Ginger Williams, Ph.D.

Winthrop University
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SC, April 2023.

CAS – Interdisciplinary
Studies

(IDVS 490 – Williams)

Partisanship in Contemporary America: Insights from Jacksonian Era Politic in the Modern Day

Zachary William-Linehan Conklin

The topic of this paper is partisanship in contemporary America and how similar it is to the Jacksonian Era politics of the nation's past. Primarily this paper takes a non-partisan stance on analyzing objective effects and how partisanship reproduces itself within the boundaries of societal institutions. Therefore, it is natural that the disciplines selected to reflect this are sociology, political science, and history. Sociology is a necessity to include whenever there is an analysis done of institutions within a society and their effects on said society. Political science is a necessity due to the nature of partisanship being primarily based on political polarities, especially in the United States. Finally, history is included as an addition due to the lessons from political history in the United States still being relevant especially after the 2016 presidential election. Although these disciplines are distinctly separate, I have discovered that many of the issues that these disciplines directly deal with tend to cross disciplinary lines. Partisanship and its effects pull in so many disciplinary contexts that having three disciplines just to talk about it is required to get the full context, rather than recommended. Thus, my analysis starts with the question of: when compared to the modern political climate, how does the Jacksonian Era offer insights as to how we are so divisive in contemporary America? In my research, I have discovered that rather than there being any singular, observable reason we are so divisive, we have instead seen a return to the Jacksonian Era distrust and rivalry between political parties that have contributed to a rise to figures like Donald Trump whom rely on demagoguery over rational policies.

Mentor: Ginger Williams, Ph.D.

Winthrop University
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SC, April 2023.

CAS – Interdisciplinary
Studies

(IDVS 490 – Williams)

Navigating Representation through Stationary Shops

Senteria Lyghts

For decades there has been a lack of effort to purchase from authentic black-owned businesses due to cost, bias, and discrimination, resulting in the absence of black entrepreneurship within the community. Over recent years, there has been a boom in the sticker and stationery industry due to COVID-19. However, most of the owners of these shops are predominantly white, with a more significant social media presence. As a result, most of these creators were able to use extra expenses to obtain the hobby, which has led to a full-time business. Unfortunately, this over-inflated market has left out most people of color to have open spaces to create shops that they feel are important. Specifically, black creatives are not as thriving or well known in this market, which lacks the significance of black artists in these spaces. Through extensive research into marketing and entrepreneurship, I will be able to navigate the steps for black artists to open their businesses and what obstacles exist when pursuing this type of business. Therefore, I will advocate for purchasing from black-owned companies and show that people of color can also be marketable. In addition, I want representation to be more prominent within the design world to create a space where all artists are appreciated and respected.

Mentors: Jason Tselentis, M.F.A. & Elizabeth Dulemba, Ph.D.

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Undergraduate
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Creative Endeavors,
Rock Hill, SC, April
2023.

CVPA – Design

(VCOM 486 & VCOM
487 – Tselentis)

Combating the Mental Health Crisis in Native American Communities

Abigail Russo

Over the course of this semester, I plan to research and eventually put together evidence relevant to solving the mental health crisis plaguing indigenous communities in America. A conversation regarding this topic is long overdue as many people do not understand the full impact colonizers or manifest destiny had and still has on native people and their cultures. The history is blood soaked and directly created the present conditions that Native Americans live in. Pervasive disproportion leaks into every aspect of the Native experience in terms of poverty, sexual and domestic violence, and, as readers will come to see from the work I have compiled, mental health issues. In order to come to terms with and address these issues properly, I asked myself, how can the Native American mental health epidemic be combated most thoroughly? Every source utilized in my proposal comes from Psychological, Historical, or Sociological perspective and serves the purpose of answering this question and thereby supporting my thesis. These areas of study offer a sensitive and personal approach to a topic that is overlooked and a population that is underserved. Each is vital as they both give context to the issue at hand and provide achievable and vital solutions. I believe that the Mental Health Crisis in Indigenous American communities can be combated by utilizing culture-based treatment and investing in continued research and legislation that empowers Native individuals. In this way, we will begin to see new and improving trends in the data collected on the well-being of the indigenous community in America.

Mentor: Ginger Williams, Ph.D.

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Rock Hill, SC, April
2023.

CAS – History

(IDVS 490 – Williams)

Youth Homelessness in Public Education

Mary Ashlyn Churray

Youth homelessness is more common than one might think. As of the 2016-2017 school year, 1.3 million students were homeless in the United States. The majority of those students attend public schools, yet most do not receive aid from their schools or communities. Multiple studies share the same findings: ". . .students who experience. . .homelessness show more problems than non-homeless peers on assessments of academic achievement, school attendance, attainment, and behavioral and emotional functioning". Unfortunately, this topic does not have the attention it should for such a significant issue. Addressing youth homelessness is crucial to preventing generational cycles of homelessness from continuing. How can school districts and educational staff provide for the unique needs of homeless students within public schools? Utilizing an interdisciplinary lens clarifies the complexity of youth homelessness. For this paper, education, psychology, and social work are used to address the topic. The discipline of education considers the educators' perspectives on the issue of youth homelessness and explains the effects of homelessness on academic outcomes. The psychology discipline helps to understand the unique psychology of homeless youth. The final discipline, social work, fuses the ideas of education and psychology to state why youth homelessness matters and offers a plan of action to support homeless youth within the community. Aid to homeless youths can be provided through changes to implementing the McKinney-Vento Homeless Assistance Act, increasing teacher preparation, and establishing community outreach programs within public schools.

I am NOT a Home Girl

Maggie Rumsey

For children, picture books are the introduction to the outside world, so creating stories that highlight empathy and imagination is important to a child, whose world is constantly expanding. As a teacher and an aunt, I have seen the good in what heartfelt books can do for children. During my last couple of years at Winthrop University, I have done lots of research on children's books. I fell in love with them and their unique way of storytelling. I have created an original illustrated children's book based on my family, particularly my niece, with a focus on parental love, self-discovery, and finding your home. The story follows an ambitious young girl who wants to explore the world, along with her mother who fully supports her at every step. My book is meant to connect children with their parents, and encourage kids to wonder about the world around them. With this book, I hope to make those who read it feel close to those they love and reflect on their own journey of self-discovery.

Mentor: Ginger Williams, Ph.D.

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SC, April 2023.

CAS – Interdisciplinary
Studies

(IDVS 490 – Williams)

Mentors: Jason Tselentis, M.F.A., Elizabeth Dulemba, Ph.D., Bettie Parsons Barger Ph.D., & Ashley Belote M.A. (University of Kentucky)

Winthrop University
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Rock Hill, SC, April
2023.

CVPA – Design

(VCOM 486 & VCOM
487 – Tselentis)

Concussion Prevalence: Reducing the numbers

Leana Nashay Ethel Lemon

Yearly in the United States, 1.7 to 3 million sports-related concussions occur. Viewed in our society as just a mild traumatic brain injury, concussions cause bigger issues that go unnoticed. Concussions occur from a blow to the head resulting in the brain moving rapidly back and forth. Symptoms generally appear right after the blow which includes headaches, confusion, and nausea. Concussions seem temporary when looking at what occurs to the body, but taking an in depth look at the effects, it includes conditions such as post-concussion, second impact syndrome, and chronic traumatic encephalopathy (CTE). I will be taking a more in-depth look at what preventive methods individuals in the sports world could do to reduce concussion prevalence? Within my research I discuss the issues of concussions as it affects multiple sports and many age groups with youths who are still in developing stages of their life being impacted the most.

Mentor: Ginger Williams, Ph.D.

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Undergraduate
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Endeavors, Rock Hill,
SC, April 2023.

CAS – Interdisciplinary
Studies

(IDVS 490 – Williams)

The Representation of Women in Science-Fiction and Fantasy Media

Gray Kay

My topic revolves around the representation of women in science-fiction and fantasy media and the issues that emerge as a result of poor representation in these genres. This topic is important because as the science-fiction and fantasy genres grow and gain popularity, it becomes crucial to look into the issues that hinder women from being well-represented. Representation is important because it allows marginalized groups a platform to feel seen and heard. In my research, I ask the question: what are some of the issues women face when being represented in the fantasy and science fiction media and how do they reflect on society's attitude toward women? How can creators represent women in sci-fi and fantasy media in an effective manner? I look at two disciplines: the gender studies discipline and the media studies discipline. These disciplines allow me to study trends within media and also look at the impact film, TV, literature, and video games have on the general public. The media has a tight hold on public opinion and influences the way people think and behave, so combining research from these disciplines is the most effective path when examining how society is influenced by what they see, read, and hear and also looking at how women are impacted. It is evident that as a result of the poor representation found in science-fiction and fantasy media, and the many issues found within the genres, women may feel the effects of prejudice, sexism, and fetishization in their day-to-day lives.

Mentor: Ginger Williams, Ph.D.

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CAS – Interdisciplinary
Studies

(IDVS 490 – Williams)

Access to Higher Education for People with Intellectual Disabilities

Alana Walker

The topic for my research paper is access to higher education for people with intellectual disabilities. Education for people with disabilities has not always been seen as a right. Even when people with disabilities are able to attend college, they are not always given the resources they need to succeed. I want to explore the resources and support that students with intellectual disabilities need in order to succeed. My research question is: how do students with intellectual disabilities fare in the world of higher education and what resources do they need to succeed? My thesis is: students with intellectual disabilities succeed in post-secondary programs through the support of technology, specialized programming, job training, peers, and professors. I have used the disciplines of higher education and disability studies to explore this research question. The two disciplines I will be using to discuss my topic are the disciplines of higher education and disability studies. Disability studies and higher education both believe that higher education is the key to success for students with intellectual disabilities. Through my research, I hope to clearly present the benefits of higher education for students with intellectual disabilities and the resources they need to be able to succeed in the higher education environment. I also hope to portray the reasoning behind specialized programming for students with intellectual disabilities in higher education and why this programming is so important.

Mentor: Ginger Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

Resistance Training in Older Adults

Christopher Becker

As the aging population increases, maintaining physical function and independence is crucial. Resistance training has become a preferred exercise modality for individuals of all ages due to its versatility and associated benefits. Sarcopenia is a progressive condition characterized by the loss of muscle mass and strength, which is a major public health concern among older adults. This condition can lead to functional limitations, an increased risk of falls and fractures, and a decline in physical health and overall quality of life. Resistance training has emerged as a promising intervention for mitigating the effects of sarcopenia and maintaining physical function and independence in older adults. Moreover, it has been found that resistance training can improve muscle endurance, increase exercise self-efficacy, planning, and autonomous motivation. Resistance training has also led to muscle strength and lean body mass adaptations in older adults. By improving muscle endurance and strength, as well as exercise-related motivational characteristics, older adults can experience significant improvements in their physical health and quality of life. This research will show that resistance training should be considered as an essential component of any exercise program aimed at improving physical function and maintaining independence in older adults.

Mentor: Janet Wojcik, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

COE – Physical Education, Sport & Human Performance

(PESH 381 – Wojcik)

F-WORM Graph Colorings: Forbidding Trees, Paths, and Stars

Elizabeth Tyler, Lexi Crofts, Ryan Lumbert & Suzanna Thompson

Given graphs G and F , define an F -WORM coloring of G to be an assignment of colors to the vertices of G so that there is no “rainbow” (meaning all vertices are different colors) or “monochromatic” (meaning all vertices are the same color) copy of F . For this type of problem, G is usually chosen so that it contains many copies of F and in this context we regard G as the “host” graph and F as the “target” graph. This type of graph coloring problem was introduced in 2015 by Goddard, Wash, and Xu as something of a blend of Ramsey Theory and Anti-Ramsey Theory which seek to avoid monochromatic and rainbow structures, respectively. Since the introduction of WORM coloring, there have been only been a few publications on this topic. In an effort to expand the body of work in this research area, we examined several WORM coloring problems with various host graph/target graph pairs. In particular, we obtained results for F -WORM coloring when F is a tree, a path, and a star within complete bipartite graphs, cycles, and hypercubes, respectively.

Mentors: Arran Hamm, Ph. D. & Jessie Hamm, Ph. D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

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

CAS – Mathematics

Adaptations to Sun & Shade in *Helianthus schweinitzii*

Zachary Taylor & Jessica Taylor

Helianthus schweinitzii commonly known as Schweinitz’s Sunflower is a federally endangered species of the Asteraceae. The Schweinitz’s Sunflower is native to the North and South Carolina Piedmont regions and is regularly seen in disturbed areas, prairies, and under power lines where there is nutrient-poor clay soil. A 10 x 10m prairie plot with approximately 2000 plants was surveyed and split into two sides based on plants exposure to the sun and to the shade. Data collected from the plot indicated a few to no differences in soil pH, temperature, or moisture between the two locations. Morphological differences noted from plants in the sun and in the shade indicate optimal growing conditions based on observed differences in leaf length and width, color, and number of inflorescences and seeds. Determining better growing conditions of Schweinitz’s Sunflower is vital to improving rehabilitation efforts in the Piedmont region.

Mentor: Kunsiri Grubbs, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

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

CAS – Biology



Genomic Annotation of Bacteriophages Ashballer and Bombitas

Kaylyn Little , Abby Bowers, Alexis R. Atkinson, Amaya Brown, Amaya Payton, Bryson E. Vaughan, Chase A. Keisler, James C. Ferebee IV, Julianne V. Phu & Karissa M. Wilczak

In the bioinformatics semester of SEA-PHAGES, our goal was to annotate the genomes of bacteriophages Ashballer (52,231 bp) and Bombitas (110,129 bp), members of subcluster A1 and cluster J, respectively. DNA Master, used for initial manual annotation of Ashballer, provided putative start site locations of open reading frames as well as statistics associated with the ribosomal binding assessment for these starts. Evaluating whether the open reading frames have biological functions was based on homology comparisons at the protein level with HHPred, NCBI's BLASTp, and Phamerator. Bombitas was annotated using PECAAN, a software program which auto-implements all of the above described evidence. Both phages showed synteny (shared genes in similar locations and relative position on their genomes) with other phages in their clusters. Mosaicism, due to recombination events, sequence loss and gain, was also evident. 61% of Ashballer's rightward-transcribed genes have predicted functions, while only 17% of the leftwards-transcribed genes do. Annotation of Bombitas displayed a similar trend. It is noticeable that a higher percentage of rightward-transcribed genes often code for structural proteins in phage genomes. Determining the putative function of each phage gene can provide further insight into possible interactions with host bacteria. The third component of the SEA-program is SEA-GENES. This next step will help characterize those genes with putative functions as well as those where homology comparisons provided no evidence of function.

Mentors: Kristi M. Westover, Ph.D. & Victoria J. Frost Ph.D.

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SC, April 2023.

Supported by HHMI
SEA-PHAGES
Discovery, Howard
Hughes Medical Insti-
tute, 2016

CAS – Biology

(BIOL 271 – Westover)

Pop Approved: A Pop Culture Subscription Box

Haley Martin-Sadler

For my Senior thesis, I am exploring the idea of planning and designing a subscription box brand based on pop culture. Pop culture is a set of practices, beliefs, and objects that are dominant or prevalent in a society at a given time. These things can include popular tv shows, movies, music, etc. Subscription boxes are a great way to start collections or even gift to someone else. It's a box filled with excitement, making everyday things such as clothing, accessories, etc. more exciting. The Pop Approved box is targeted toward the older spectrum of Gen-Z. This audience would want something like this because as we age and grow each day, we sometimes are forced to lose a bit of ourselves to adulthood. Pop Approved will bring a feeling of nostalgia, remembering where one came from and all the things one liked. Growing up should not have to mean giving up on or forgetting certain aspects of one's youth. Through the Pop Approved brand, I will introduce the pop art style to this generation freshly and excitingly with subscription boxes based on anime, TV, and movies. My goal for this project is to gain experience in merchandise and understand how design, marketing, branding, and digital commerce correlate as a unit. This project will also help me with aspects of sustainability and clothing upcycling, which I desire to explore after graduation.

Mentors: Jason Tselentis, M.F.A., Tamara LaValla, B.F.A. & Jane B. Thomas, Ph.D.

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Rock Hill, SC, April
2023.

CVPA – Design

(VCOM 486 & VCOM
487 – Tselentis)

Discovery and Characterization of Novel Bacteriophages with Host Bacteria *Mycobacterium smegmatis*

James C. Ferebee IV, Alexis R. Atkinson, Abby Bowers, Amaya Brown, Chase Keisler, Kaylyn Little, Amaya Payton, Lidia Peralta, Julianne V. Phu, Maya G. Scott, Bryson E. Vaughan, Khamryn Pollock & Karissa M. Wilczak

The Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science program (SEA-PHAGES) is an undergraduate program designed to conduct research on bacteriophages for the purpose of increasing overall bacteriophage knowledge. Antibiotic resistance is a rapidly developing issue due to misuse of antibiotics worldwide. Bacteriophages may provide an alternative treatment solution, given they are highly host-specific. Discovering and characterizing new phages will provide a broader database of candidates for phage therapy. During the fall semester, each student isolated and characterized a soil-found bacteriophage using host bacteria *Mycobacterium smegmatis* mc²155. Bacteriophages were purified and amplified to provide high titer lysates, or higher phage particle amounts. Genomic DNA from each phage was extracted for restriction enzyme digests followed by gel electrophoresis and possible sequencing. Bacteriophage morphology was determined using transmission electron microscopy (TEM). Of the 13 phages viewed, 12 were of the *Siphoviridae* morphology (Ashballer, Benson, Blessing, Bombitas, Franica, Gabby, Glaceon, Kallen, Nepr, Pirpich, Scrappy, Thug), and one had a *Myoviridae* morphology (Jinnie). Unique restriction fragment banding patterns were used to determine which phage DNA samples were sent to Pittsburgh Bacteriophage Institute for sequencing. This sequencing allows the undergraduate students to obtain genomic DNA data for further analysis downstream. Bacteriophages Ashballer (52,231 bp) and Bombitas (110,129 bp) were sequenced and determined to be in sub-clusters A1 and cluster J, respectively. Future work on annotating these genomes, determining location and function of putative genes, is the work of the second component of the SEA program: Bioinformatics.

Mentors: Victoria J. Frost, Ph.D. & Kristi M. Westover Ph.D.

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Rock Hill, SC, April
2023.

Supported by HHMI
SEA-PHAGES
Discovery, Howard
Hughes Medical
Institute, 2016

CAS – Biology

(BIOL 270 – Frost &
Westover)

The Long-Term Effect of Religious Concordance on Mental Health

Isaac Abraham-Staton & Emily Spangler

This study examines the relationship between past parent-child religious concordance and current mental health in young adults. Stress, anxiety, and depression are the three mental health variables that are used in this study to determine if past parent-child religious concordance has a long-term effect on mental health in young adults. We found that past parent-child religious concordance does not have a long-term effect on stress, anxiety, or depression in young adults. This finding suggests that the mental health of children that experience lower levels of parent-child religious concordance will not be negatively impacted into young adulthood. We also found that personal religious change does have an effect on stress and anxiety. These findings suggest that young adults become more anxious and more stressed as they start to change their beliefs and feelings over time. While parent-child religious concordance does not have a long-term effect on the mental health of the child, children that experience larger changes in their own religiosity experience higher levels of stress and anxiety.

Mentor: Matthew Hayes, Ph. D.

Winthrop University
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Rock Hill, SC, April
2023.

CAS – Psychology

(PSYC 302 - Hayes)

Rorshach City

Sarah Greene

Set in an industrial, 1920s-inspired underground city, Rorschach City is a roleplaying game where you play as a young working class man attempting to save your estranged brother from being wrongly convicted of murder. As an illustrator and a writer, I have always been fascinated with exploring different types of visual storytelling. But out of all of the different methods that I have studied, video games have some of the most interesting writing potential. This is because as a player, you can live inside the head of a character and make decisions for them. Apart from prose, there are no other writing mediums that achieve this same level of character interiority. In *Rorschach City*, you will get to know your character's psychology through the decisions that you make. You will also interact with a variety of characters in order to try to find him, but who you befriend and who you spite will affect how you progress in the story. Inspired by shared historical and modern cultural anxieties, *Rorschach City* is a game about searching for purpose and forging connections during times that feel bleak.

Mentors: Jason Tselentis, M.F.A., Elizabeth Dulemba, Ph.D. & Dustin M. Hoffman, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Investigations of Nucleotide Modifications in Winthrop's Bacteriophage Collection

Gabrielle Walker

Bacteriophages (phages) are viruses that replicate in bacteria and have co-existed with their host in a complicated, evolutionary arms race for approximately three billion years. Both continuously evolve attack and defense mechanisms to ensure their own survival. Bacteria employ an array of defense mechanisms, including a Restriction-Modification System that utilizes restriction endonucleases (REs) to destroy infecting phage genomes. Phages can utilize methylation, or more commonly, noncanonical nucleobase substitutions. These substitutions are incorporated into phage genomes during replication, and "camouflage" their RE sites. The objective of this study was to reveal possible phage DNA modifications by comparing patterns of endonuclease cleavage of Winthrop's collection of phage genomes, to virtual profiles of predicted endonuclease activity. Our protocols utilized methylation-insensitive enzymes, to reveal possible RE site protection in the phage genomes. Simultaneously, an in-silico tool, available at New England Biolabs (NEB), was used to generate virtual digestion patterns using the same suite of enzymes. Our results highlighted that several of our phages' DNA was blocked from digestion, especially those grouped in the EA cluster. These EA phages show resistance to similar REs, suggesting that phages within the same cluster may display similar nucleobase substitutions. Further investigations are underway to identify modification similarities between phages within related or unrelated clusters. Biochemical analysis to reveal the presence and molecular structure of noncanonical nucleobase substitutions is a future goal of these investigations. Detailed knowledge of phage protective mechanisms is important, since it may contribute a competitive advantage to the phage when used in a therapeutic setting.

Mentor: Victoria Frost, Ph.D.

McNair SAEOPP Conference, Atlanta, GA, June 2022 | SC INBRE Conference, Columbia, SC, February 2023 | Association of Southeastern Biologists Annual Meeting, Winston Salem, NC, March 2023 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

CAS – Biology

Gizmo's Adventures

Kaelen Bauer

This story takes place in the world of Rosie Lynd, a fourth grade creative genius who has an aptitude for invention and just can't seem to stay out of trouble. However, this tale does not follow her, but instead follows the everyday happenings of her pet frog, Gizmo (also a creative genius of course... Adding flies to any recipe makes it better, right?). Follow him as he hops his way through the day, because you never know what he might get into next. What does it take to be a well-known character that everybody loves? A plush, a keychain, a book in every household? This is a project that explores these questions through development of character design, and story, as well as a focus on the desirability of certain materials for production as opposed to others. The finished product will consist of a short story, physical book, with accompanying button set, sticker pack, and acrylic keychain. My intention is to create a cohesive series of items that possess the propensity to become well-known and loved across a variety of platforms.

Mentors: Jason Tselentis, M.F.A. & Elizabeth Dulemba, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Investigation and Characterization of Mycobacteriophage ExplosioNervosa

Kaylee Mills, Ryan N. Harris, Brooke Jewell, Alex B. Lee, Kierra R. McCall, Jaquelle' A. Memminger, Jessica E. Morgan, Valentine Savioz, Taegan A. Smith & Emi Umemoto

Bacteriophages are viruses that replicate using a bacterial host, which has resulted in a dynamic co-evolutionary relationship. To further our understanding of this relationship, SEA-GENES students have been investigating the mycobacteriophage *ExplosioNervosa*. This phage was found and isolated on Winthrop University's campus in 2017. *ExplosioNervosa* is a cluster A9 bacteriophage with a *Siphoviridae* morphology and has 96 predicted genes. Of these genes, only 36 are predicted to have a known function. Since the majority of *ExplosioNervosa*'s genes have no known function, it is important to further identify the characteristics of each gene. Throughout the semester, students were individually assigned a set of genes to isolate and further characterize. Using molecular cloning techniques, students isolated and amplified each of *ExplosioNervosa*'s genes. Utilizing PCR, each gene was exponentially amplified. Gel electrophoresis was used to verify that the correct amplicon lengths were generated. The gene amplicons were then isothermally assembled into pExTra plasmids. Once assembled with the gene insert, pExTra plasmids were transformed into *Escherichia coli* to replicate and generate plasmid DNA. The plasmid DNA was then verified for the presence of each cloned gene. The next step involves transforming the pExTra plasmids + gene insert into bacterial host *Mycobacterium smegmatis* using electroporation. Cytotoxicity assays can then be performed to determine what effect gene expression has on the growth of its host, *M. smegmatis*. This phenotypic assay allows for phage-host interactions to be observed and is an initial step to further characterize gene function.

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

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

Supported by an SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499) and the Howard Hughes Medical Institute for the SEA-GENES Program

CAS – Biology

(BIOL 526 – Kohl, Frost)

Adapting Novels to Promote Access to the Inclusive Classroom

Tara O'Donnell & Ivy Moss

As special education teacher candidates, we believe it is integral for our students to have access to the general education environment. It is important that they are accepted by their classmates and that necessary adaptations are provided in a way that is not ostracizing. Beyond the classroom, engaging with books is important for participating in popular culture. For example, many people reminisce about reading *The Great Gatsby*, *Jane Eyre*, *To Kill a Mockingbird*, 1984, and more in high school, whether it was a book that changed your life, or a book that you can commiserate over. Students with disabilities often don't have access to these texts due to issues related to complexity, cost, and content-specific vocabulary. Providing students with books that address the same stories, and that look the same as the books their peers are reading, is critical for their social inclusion. Adapted novels are a way for students to access stories through modifications such as simplified text and visual supports. In this project, we aim to provide these adapted novels to schools in our area, in collaboration with our partners at Project IMPACT at UNC Charlotte.

Mentor: Amy Clausen, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

COE – Counseling, Leadership and Educational Studies

The Female Tempress: Discussing Sexist Female Representation in Zamyatin's *We* & Orwell's *1984*

Amber Nelson

In this project I aim to analyze the sexist depictions of women in both Zamyatin's *We* and Orwell's *1984* and how it pushes a dangerous sexist ideal. I aim to compare and contrast the similarities of both novels; Zamyatin's novel heavily influenced Orwell's and their main similarities are found in the novel's depiction of women. Classic dystopian literature written by white male authors typically depicted harmful misogynistic representations that lack purpose besides being a plot device. The importance of applying a feminist lens to these novels is because of the way that dystopian novels are interpreted. Dystopian novels are meant to comment and highlight issues in our society and to hopefully facilitate change. Orwell and Zamyatin's works are known for being commentary on Communism, but other interpretations are largely ignored. Ignoring the damaging effects of the misogyny deeply ingrained in the plot structure of these novels leads to a blind spot in social commentary. I argue that analyzing the dangerous nature of these sexist portrayals of women can be useful in pointing out commonplace sexism in our current world. I will bring in research on the female temptress archetype that is found throughout dystopian and utopian literature, along with feminist commentary on dystopian novels. I will also bring in critical research on both *We* and *1984*, comparing and contrasting both novels to shed light on their similarities and Zamyatin's influence over Orwell's creation.

Mentor: Jo Koster, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – English

(ENGL 494 – Koster)

Uncovering Genocide and the Psychological Impacts of the Holocaust and Rwandan Genocide

Hannah Rutland

The Holocaust and the Rwandan Genocide were both mass genocide attempts at different times in the world with different consequences and therefore different outcomes. Each had their own impactful experiences on those that were able to survive these horrendous experiences and each of these mass genocides left different scars on those involved. I believe that it is important to uncover the reasoning of genocides as well as the psychological effects of major events, like the Holocaust or Rwandan genocide, because it can work to help us possibly prevent future genocides and help those of us who did not experience these traumatic events understand an idea of what the survivors went through. Although, we will never truly understand what it is like to go through these events without having experienced them ourselves, looking at the effects that these events caused will allow us to learn about the trauma of given and even hopefully work to prevent such things from happening in the future. My research question is what causes genocides and what are the lasting psychological effects on the Holocaust and Rwandan genocide on survivors. The thesis of this paper being there are various motives for genocide and some of the lasting psychological impacts on genocide survivors are depression, survivors' guilt, anxiety, and issues stemming from sexual abuse and food deprivation. I feel like the cause of genocides as well as the psychological effects of the Holocaust and Rwandan genocide on survivors can be best examined with an interdisciplinary approach because this topic is too complex to just look at from one discipline. For this paper I would just like to focus on using two disciplines and I believe that the two disciplines that could help me the most in my uncovering the causes of genocides and the psychological effects on survivors would be History and Psychology. I believe that these two disciplines will help me for this paper because there is so much historical and psychological knowledge to be gained and used in this research. I think by looking at the individual effects on the survivors we can better understand what happened to them as a whole by having multiple insights and stories from various people.

Mentor: Ginger Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

Joyful Table

Emma Thompson

Through this project I hope to utilize my skills I have learned to share the recipes that my family has shared around the table. My research focuses on the personal goals, activities, and hobbies surrounding my mother. Searching through observations and visual examples I hope to create a cookbook that reflects the respectable southern woman that my mother is. My thesis is a collection of work that showcases my ability to design and layout information in a purposeful manner. I hope to share the relationship with my mother and my family that has been shared over the years around the dinner table.

Mentor: Jason Tselentis, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

An investigation of the factors that may have an influence on student academic performance

Victoria Johnson, Amya Watson, Kyreese Goodman, Austin Swisher & Mike Swick

The purpose of this study is to understand the post-secondary student population and the correlation between different student activities and GPA. As more students are required to work and engage in extracurricular activities, questions remain about how these activities affect performance in school. Previous research provides mixed findings on the activities that affect GPA. For example, research shows that longer commute times could make students feel overwhelmed, driving them to take more online classes, however, we still do not adequately understand this because studies show both positive and negative results. Thus, using a quantitative survey methodology sampling college students in the Southeastern U.S., we tested hypotheses regarding on/off campus life, extracurricular activities, mental health, employment status, and the relationship between working students and their supervisors. Data will be analyzed using descriptive statistics, correlation, and regression analysis. Although data collection is ongoing, the results of this study have the potential to inform business practices around the policies and practices that organizations use while managing college student employees. Our results can also help college students understand the factors that facilitate or hinder college student performance. In sum, our study may help promote better performance in school and could potentially promote a more positive work environment.

Mentor: Melissa Carsten, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CBA – Management & Marketing

(BADM 391 – Carsten)

How Working From Home Effects Productivity

Anna Grace Entekin, Mario Delgado, Trai'Quan Mobley & Daniel Reyes

The COVID-19 pandemic shut down the world in the year 2020. Due to this, many businesses had to shift into remote working environments. Before the pandemic, it was uncommon to have remote positions; therefore, when the shutdown happened, it caused many people to be forced into remote working environments that they were unfamiliar with. While reviewing secondary literature, we found that many studies showed adverse effects on productivity during the beginning of the pandemic and seemed to be biased. This study aims to understand how productivity is affected by working in a remote environment since gaining popularity after the pandemic. Using a quantitative survey methodology sampling people who worked remotely during and after the pandemic, we examine the correlation between productivity and employee work environments based on factors such as job satisfaction, home workspace, and how much time people spend on leisure activities. We expect the amount of productivity to be related to how long someone works and quality of work environment. We also hope to find relationships between work flexibility and productivity, including how much productivity increases or decreases. Data will be analyzed using descriptive statistics, correlation, and regression analysis. Although data collection is still underway, this study's results can inform business practices worldwide and allow us to understand the factors that affect productivity in a remote environment today. Using the data, we can advise businesses on the best way to lead their remote workers to the most efficiency at home.

Mentor: Melissa Carsten, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CBA – Management & Marketing

(BADM 391 – Carsten)

Effect of time-since-fire on saw palmetto (*Serenoa repens*) leaf characteristics and potential for photodegradation

Chiara Meredith

Photodegradation can increase plant litter decomposition, and fire may affect photodegradation by altering vegetation structure, which can increase exposure of litter to solar radiation. We investigated variation in saw palmetto (*Serenoa repens*) leaf characteristics and the potential for fire to affect photodegradation of saw palmetto litter in Florida scrub ecosystems. Saw palmettos have fan-shaped leaves that spread outwards without falling to the ground immediately after dying. We measured and counted leaves of six saw palmetto individuals in scrubby flatwoods sites 6 years and 28 years post-fire. We collected sections of four leaves (new live leaf, old live leaf, dead leaf above ground, dead leaf on the ground) of each individual to measure specific leaf area and carbon and nitrogen concentrations. Vegetation around saw palmettos was taller in sites 28 years post-fire, suggesting there was less solar radiation reaching dead saw palmetto leaves and lower potential for photodegradation in longer unburned sites. Dead leaf maximum crown length was lower in sites 6 years post-fire, suggesting that self-shading of dead leaves is higher in recently burned sites. The interaction between leaf type and time-since-fire did not have a significant effect on specific leaf area. We will test the prediction that there is a greater decline in nutrient concentrations with leaf age in more recently burned than in longer unburned sites due to higher photodegradation. Knowledge about the potential role of fire in mediating the impact of photodegradation on plant litter decomposition could improve understanding of carbon and nitrogen cycling in fire-prone ecosystems.

Mentor: Jennifer Schafer, Ph.D.

Association of Southeastern Biologists Annual Meeting, Winston-Salem, NC, March 2023 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

CAS – Biology

Productivity in a Remote Environment

Vada Coleman, Joshua Sloan, Dontrel Simms, Yesmine Alston & Richard Long

The purpose of this study is to understand working from home and its effect on productivity. This is important so businesses can learn how to properly manage remote working conditions in order to understand whether current work practices or policies reduce motivation and productivity. Additionally, they can learn what to focus on improving or including in their organizational practices to improve employee performance at home. Employee satisfaction is greatly affected when work environments change, especially when one shifts from an office to remote work. Thus, using a quantitative survey methodology sampling working adults, we tested hypotheses in regards to work environment, work life balance, psychological factors, and their effect on motivation. Data will be analyzed using descriptive statistics, correlation, and regression analysis. Although data collection is ongoing, the study's results can possibly inform businesses on their practices involving remote work and provide a better understanding on how it affects motivation and productivity. This will allow them to better meet their employee's needs, increasing satisfaction of employees working from home. As the world of remote work continues to grow, so must the knowledge and understanding of an organization regarding these practices

Mentor: Melissa Carsten, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CBA – Management & Marketing

(BADM 391 – Carsten)

Stabilizing G4 Structures Increases RYBP Transcription in Cancerous Glial Cells

Ally Gebbia & Farah Tabassum

Glioblastoma multiforme (GBM) is a malignant brain cancer of glial cells in the central nervous system, and it has a median survival of less than 15 months. When compared to healthy glial cells, GBM tumors significantly downregulate RING1 and YY1 binding protein (RYBP). However, the mechanism of RYBP transcriptional silencing in GBM remains unknown. G-quadruplexes (G4s) are guanine-rich sequences that fold in DNA and RNA to create stable secondary structures. When present in gene promoters, G4s can behave as switches that modulate transcription. Therefore, to determine whether G4s contribute to RYBP silencing, we analyzed the RYBP promoter sequence and found two putative G4-forming sequences. We treated U-87, U-118, and T98-G cell lines with the G4-stabilizing ligands PHENDC3 and TMPyP4, or vehicle controls (DMSO and sterile water, respectively). After 48 hours, total RNA was isolated, quantified, and used in reverse-transcription qPCR to detect differences in RYBP mRNA levels. In all cell lines, samples that were treated with a G4 stabilizing drug were found to express significantly higher levels of RYBP compared to control cells. Our results demonstrate that stabilizing G4 structures increase RYBP transcription, suggesting a regulatory pathway that is readily targetable and worthy of future investigation as a therapeutic application for GBM.

Mentor: Daniel Stovall, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

SC INBRE DRP (5P20GM103499-21)

CAS – Biology

The Unfamiliar Vol. 1

Guye M. Guinyard Jr.

Life after college and traversing the world of adulthood is a big transition that all young college students must navigate after graduation. There are many benefits to obtaining a degree, but opportunities to use it and pursue the career of your choice are largely up to you and your ability to market your potential. I aim to question what it takes to be the best in your field or at the very least successful and content with the life that you forage for yourself. This intersection of defining who you are as a person and figuring out what success means to you is where the identity of my story lies. I will be creating a graphic novel, *The Unfamiliar Volume 1*, which consists of 32 hand drawn and self written pages. *The Unfamiliar* is a supernatural drama centering around the life of Keanu Peterson, a 24 year old post-grad who is pessimistic about his future and is struggling to find himself. In his journey, he falls into an incredibly low point trying to answer these questions and turns to the supernatural world of ghosts, spirits and demons to make his dreams finally come true. His morality is challenged as he deals with the fall out of his actions. My intention with this project is to establish my own voice as an author and illustrator though highlighting some of the concerns people in my field might experience in an entertaining and dynamic way.

Mentor: Jason Tselentis, M.F.A. & Elizabeth Dulemba, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

United States License Plate Designs

Sammi Malaga

How might I redesign a standard license plate for fifteen states? I am designing a new standard license plate for fifteen of the US states that better represents the history, culture, and qualities of each one. I chose which fifteen states to design for based on a random selection. My primary reasoning for making this is for the people of every state to feel proud of their state's license plate and to enjoy having it displayed on their vehicles. My secondary reasoning is to create aesthetically pleasing license plates because people want something nice to look at. The audience of these license plates will be the people of each respective state as they are the ones that would have them on their vehicles and see them on the road in their day-to-day lives. The governments of each state will also be part of the audience because they are the ones who could change the current plates. Additionally, people would learn about other states through the license plates. I am completing this project by researching the history, landmarks, and attractions as well as their current license plates, state branding, and license plate design guidelines for each of the states that I have chosen. Throughout this process, I am learning more about each state and what makes them unique. I am also understanding what goes into ultimately designing for the government by following their rules and guidelines.

Mentors: Jason Tselentis, M.F.A. & Stephanie Sutton, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

The Effects of a Healthy Lifestyle on Work Productivity

Daniel R. Osorio Chaves, Noah Hydrick, Ryan J. McFadden & Weronika Ruchala

The purpose of this study is to identify the relationship between a healthy balanced lifestyle and work productivity. With rising incidents of obesity in the U.S., and workers struggling to balance work and family commitments, it is possible that employees may experience better work outcomes if they engage in healthy lifestyle practices. Yet, previous research studying exercise, sleep habits, and nutrition has produced mixed results regarding their effects on work productivity. Thus, our study uses a quantitative survey methodology sampling working adults in the Southeastern United States, we tested hypotheses on the effects of workers' sleep, habitual eating habits, and workout routine on work productivity. Data will be analyzed using descriptive statistics, correlation, and regression analysis. Although data collection is still underway, the results of this study have the potential to inform business policy on employee health, and the extent to which organizations support and endorse living a healthy lifestyle. Our results can also help workers understand how to engage in healthy behaviors that may enhance their productivity at work.

Mentor: Melissa Carsten, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CBA – Management & Marketing

(BADM 391 – Carsten)

Rainbow Connection

Shunteal Frazier

Rainbow Connection is a short demo of a visual novel/dating sim that revolves around the six main colors of the color spectrum, ROYGBV. In it, some subtle themes will be explored such as body dysmorphia, transsexuality, imposter syndrome, loss of motivation, and finding beauty in life. The tone of the game will be similar to that of existing games in the genre such as Mystic Messenger, The Arcana, or Dream Daddy – in the sense that there will be some heavy topics and will not always stay lighthearted, but will for the most part stay in the realm of PG-13. The goal with this visual novel is to produce more dating sims with a wider range of diversity and with a storyline and characters that make the player feel seen. Most of the dating aspects will be kept within a PG-13 rating as well, opting out of anything explicit beyond implications. For the completion of the project, there will be one good ending and one bad ending for each of the six main characters, one CG (computer graphic) for each ending, as well as sounds, voice acting, music, and interactive gameplay.

Mentors: Jason Tselentis, MFA. & Elizabeth Dulemba Ph.D

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

BackYard Fest: Highlighting Sub-Cultural Music and Art of the Carolinas

James Poston

Subcultures are a driving force of innovation and change throughout the arts. Whether it was rebellious post-impressionist or radical punks, communities pushing against the grain continuously create fantastic, meaningful art. For the past few decades, counter culture has been associated with a handful of specific hubs that drive this change: New York, California, Seattle, among others. Scenes from these locations have routinely shaped the cultural landscape. However, these locations do not hold all the power. Scenes are built and maintained on a local level. Fantastic art and music comes from strong local scenes that push their artists upwards. This sort of interaction between community and art is not limited to the aforementioned cultural hubs. It happens in our very own backyard. Our region is filled with wonderful, cutting edge artists and people who support them. It is important to fully recognize all these talented creators and give them a place to show off their art for the community to see. The primary purpose of this project is to design a system and event that helps to showcase and promote local artists on their rise to national acclaim.

Mentor: Jason Tselentis, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Start Small: Developing A Healthy Sketching Habit

Will Elliott

When people are beginning to pursue art, it is often difficult for them to get into the routine of sketching consistently. There are many products on the market from sketchbooks to drawing pads and even just plain old notebook paper. However, most of these products are not comprehensive. They are bulky or cumbersome and attempt to target too wide of a range of mediums. Most contain tools alone and neglect the actual sketchbook aspect of sketching. Sketching is the main way people practice and develop their drawing skills and as such is very important to becoming a better artist. The “Creative Compact”, and subsequent supporting items, have been created to enhance the individual's sketching and facilitate the creation of a healthy sketching habit.

Mentor: Jason Tselentis, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Withered Fate: Bones for the Oracle

Etienna Wheeler

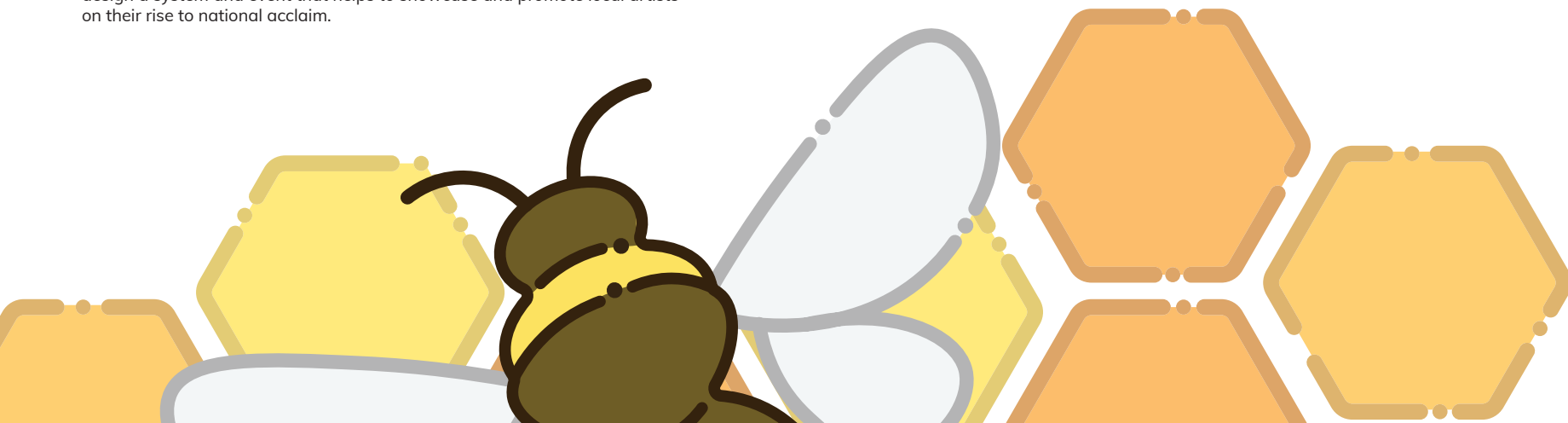
As someone who enjoys tabletop roleplaying games, I often find that they are designed to be played by multiple people rather than by a single individual. Zines are printed self-published mini magazines that can be about any subject and tabletop roleplaying games are games that are usually played at a table and a game master creates a story where the players pretend to be a character while using dice to determine certain outcomes. My project, Withered Fate: Bones for the Oracle, is a tabletop roleplaying zine game designed to be played solo. It is about the players fate being withered and having to gather the bones of those who suffered a withered fate before and have an oracle restore their fate before their own demise. There will be three versions of the game, each with a different theme. Each theme will allow players to experience different creatures and settings.

Mentors: Jason Tselentis, M.F.A., Chad Dresbach, M.F.A. & Thomas Garner, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)



Concept Art Book

Amanda Beard

Throughout this project, I hope to create a concept art book for a world that I am building. I hope to include character sheets and turnarounds as well as world-building and weapon concepts for each character. This is based upon a world that I have had some idea of since I was in Middle School, and am finally working on it to improve both my character design and world-building skills. I hope, that in the end, this project will become a great piece for my portfolio.

Mentor: Jason Tselentis, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Impact of Devonian Mass Extinction on Reefs: Similar Morphology on a Smaller Scale?

Terrence Carbon

The Devonian mass extinction consists of multiple extinction events that amount to one of the biggest turnover events in Earth's history. Much of present-day land was submerged during this period, and shallow reefs were widespread throughout the world's oceans. Stromatoporoids, from the phylum Porifera, are layered organisms that compose the majority of reefs throughout the Paleozoic and went extinct at the end of the Devonian. After the Devonian mass extinction, some other reef builders remained but they were not as abundant and likely did not contribute to large-scale buildups. In the Guilmette Formation of the western United States, exposed in Utah and Nevada, a type of digitate stromatoporoid *Amphipora* is commonly found. After the extinction, a similar digitate reef-dwelling organism *Syringopora* has been reported from the Mississippian age Joana Formation. *Syringopora*, a tabulate coral, is of a different phylum *Amphipora*, but is morphologically similar. This research uses samples from the Great Basin to test the hypothesis that organisms like *Syringopora* fill in the niche left open by the extinction of *Amphipora*.

Mentor: Diana Boyer, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

WU Travel Grant

CAS – Chemistry, Physics, Geology, and the Environment

Effects of TiO₂ Nanoparticles on Fish Upper Thermotolerance

Leliana Bohanan

Titanium dioxide (TiO₂) nanoparticles can be found in a wide variety of products such as sunscreen, soap, and even foods such as M&Ms. Due to their widespread use, these nanoparticles often find their way to aquatic environments making them a potential threat to aquatic organisms, which has stimulated a surge in research efforts toward understanding the environmental implications of nanotechnology. Our initial objective was to see if TiO₂ inhibited fish's ability to cope with increasing aquatic temperatures as this could present a dual threat when considering the effects of climate change on water temperature. To perform the experiment, we subjected four groups of fish separated into control, saline-injected, polyacrylic acid capsule injected, and TiO₂ injected treatments to a critical thermal maximum (CTMAX) test and sampled them after loss of equilibrium (LOE). The LOE temperatures for each fish were recorded and an ANOVA test comparing each treatment group to the control group revealed that the TiO₂-injected fish demonstrated a significantly reduced thermal maximum compared to control fish. We now seek to find through what mechanisms TiO₂ harms fish, and towards that end, we conducted histological analysis of two gill samples from each fish which revealed significantly higher interlamellar cell mass (ILCM) lengths than normal for all treatments, though there was no difference between treatments. We now plan to conduct molecular analysis of the heart, gills, spleen, kidney, and muscle samples to identify if gene expression was altered, and if so, then which genes are affected.

Mentor: Salvatore Blair, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

Supported by an SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499) and the Winthrop University Research Council.

CAS – Biology

Elemental Compositions of Suspected Salt Sources in Select Mayan Archaeological Settings

Abigail Rowell

Salt played an important role in this ancient Mayan civilization. It was used for medicinal uses and cooking but would also form the salt into "salt cakes." In addition, "...here is archaeological evidence of salt production on a scale to suggest that salt was a major export at each of these sources, it is difficult to reconstruct the movement of salt before the Spanish conquest." (Freiwald et al. 2019). A common salt cake from this region compacted salt and corn masa which also alters the taste of the salt. For this research, we are looking for potential salt sources and if there are any heavy elements in the brine. Two out of the six samples came from thermal springs while the other four came from cool springs. These areas are located more in the highlands of the region with igneous rocks deeper in the ground, overlaid with sedimentary rocks. In these select areas, we have mostly limestone. The Chiapas are one of the mountain ranges a few of our sample sites are located alongside of. For example, Ixtapa is in the lower part of the highlands in this area, so this area is "unconformably overlain by conglomerate, sand- stone and siltstones of the late Miocene Ixtapa Formation," which the composition indicates an increase in detrital sediments, like reworked local Cretaceous limestone (Vergara et al. 2020).

Mentors: Scott Werts, Ph.D. & Brent Woodfill, Ph.D.

American Geophysical Union Conference, Chicago, SC, December 2022 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

Irene Boland Geology Endowment, Winthrop University, May 2022

CAS – Chemistry, Physics, Geology, and the Environment

Beary Bunz's Brand Style Guide & Packaging

Hitomi Kobayashi

I wanted to rebuild that memory, that nostalgia I had and make it a brand. I created a style guide to represent all the design and marketing elements of a Japanese bakery, beary bunz. I wanted my research and design to constitute the bakery treats and design that will make you feel joy and happiness. I wanted to present my culture of savory sweets they made in Japan with a brand that's connected to an Asian aesthetic.

Mentors: Jason Tselentis, M.F.A., Tamara LaValla, B.F.A., Jane Thomas, Ph.D & Elizabeth Dulemba, Ph.D

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

The Elder Assistance Initiative

James Mack

The Elder Assistance Initiative was created to bring more understanding around medicaid and what it offers. Although medicaid is helpful, this government assistance program could affect your day to day life. The purpose of the Elder Assistance Initiative is to introduce information that is helpful in the decision making process. The idea of this campaign started with the insight that 24 hour in-home care is not covered by medicaid. Considering that this may affect low income individuals who are eligible for medicaid, they may be required to pay out of pocket for the care that they need. People state that if an individual requires that level of care then they should move into a nursing home. While this may be the easy solution for some, research states that many elders above the age of 50 prefer to stay within the comfortability of their home while receiving care.

Mentors: Jason Tselentis, M.F.A. & Tamara Lavalla, B.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Destigmatizing Mental Health in the Black Community

Olivia Bowman

For my thesis, I would like to bring more awareness and make an item that can help destigmatize mental health support in BIPOC (Black, Indigenous, People of Color) communities, but more specifically African-American communities. My thesis will be a typeface designed to reflect the feel in which mental health should be talked about and how it should be supported within the community. This typeface will then be executed with a handmade planner designed for those specifically with depression or anxiety, to try to help them feel more motivated to start their day or to feel more organized so they can complete their daily tasks. In most African-American communities, there is a stigma against getting help for mental health problems and even acknowledging mental health in the first place. It can be seen as something to be looked down upon which can then lead to people disregarding getting the proper help that they need which can cause more severe problems. This stigma against acknowledging mental health and getting proper help is something that has been hurting the Black community for way too long and causing them within it to suffer unnecessarily from things such as depression, anxiety, schizophrenia and racial trauma. With my thesis I want to help encourage the black community to get the help that they need when it comes to mental health and supporting those within their communities to do the same.

Mentors: Jason Tselentis, M.F.A. & Brad Tripp, Ph.D

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Send Noods - An Allergy Inclusive Food Truck

Scout Lee

Food brings people together in any setting. We bond over it and create some of the best memories when food is involved. However it can be difficult when people have food allergies or sensitivities, and this is more prevalent today than ever before. These people should not be deprived of enjoying food with close friends and loved ones just because there are no food options for them. What if there was a food truck that offered delicious food that is inclusive of the different types of allergies, while also providing a grab and go option for working people. Food trucks are on the rise and are spreading across the U.S., offering a low overhead cost for owners and the ability to reach more by bringing the food to them. Everyone should have the ability to enjoy good food that they feel safe eating. The focus can then shift on who you are eating with and spending time with the people closest to you.

Mentors: Jason Tselentis, M.F.A. & Tamara LaValla B.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Botanical Accents

Israel Wright

I am doing a project that connects botanicals with home accents. I believe our world has many beautiful elements in it and I would like to highlight those elements with my own botanical home accents line. With my thesis I will create and replicate those details in nature and give the eye time to rest and look at the amazing botanicals in our world. I will be creating home accents that can be a part of one's home and hopefully give them that same joy and ease that I get when I am looking at flowers. My project includes illustrating a series of botanical works to be printed and produced on different home accent items such as wall art, pillows, tea towels, mugs, and other products.

Mentors: Jason Tselentis, M.F.A. & Elizabeth Dulemba, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

“Blacked Out” - Tattoo Artist Promotional Branding

Makinna Campbell

Art is respected by most individuals in society but when someone thinks of art they usually think of paintings, drawings, or sculptures. Depending on the individual tattoos are often not initially thought of as pieces of art. This brand will promote tattoo artists and their work through the selling of their products. The products that will be sold are beer cans and wine bottles that will aim to reach out to a 21+ audience. The brand is designed to be appealing to the alternative community and other subcultures. The packaging will have QR codes that will be linked to a website where certain tattoo artists will have their work displayed. Also, some of the packaging will have a paper printout of similar content. This brand aims to shine a light on talented tattoo artists around the world.

Mentors: Jason Tselentis, M.F.A. & Tamara LaValla B.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

“Silly Guy” and the Neurodivergent True Self

William Rivera

Being one's true self, one without the need to mask or perform as someone else, is a belief I hold strongly. While “being yourself” is one of the most fundamental life lessons someone can learn, sometimes being yourself as someone with autism is something that society never wants from you. Strong fixations, stimming, and oversharing can make neurotypical people uncomfortable, and might make them take action to “cure” people whose brains just work differently. The way our modern world was organized, there is no place for neurodivergent people to truly and authentically be themselves in a professional environment. “Silly Guy” is a piece to push against the fold about presenting something very “unprofessional” professionally, and about how I express my neurodivergence, by “re-introducing” people to my sense of humor and creative style without feeling ashamed to do so, all while encouraging others in a similar book to do the same.

Mentors: Jason Tselentis, M.F.A. & Elizabeth Dulemba, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Code Red

Rachael Dauksch

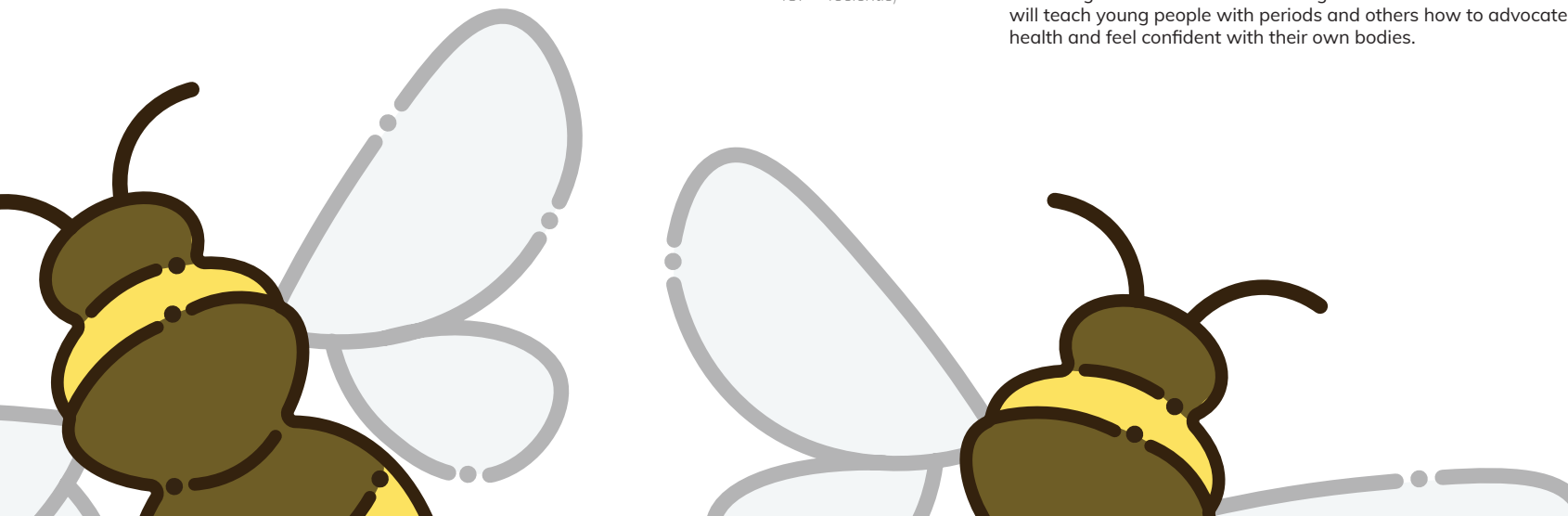
The average woman spends an approximate total of ten years of her life on her period. However, so many people, especially young people with periods feel shame and embarrassment about this normal bodily function. This shame leads to secrecy and puts up an emotional divide between those with periods and those without periods. Code Red is an organization that works to reduce period shame, provide educational resources, supply period products to those in need, and create a community that encourages empathy, independence, and confidence when it comes to personal health. Utilizing a truck, Code Red could reach out to communities in need and could participate in events throughout the greater Charlotte area. Additionally, Code Red produces care packages that provide period products to fit multiple different lifestyles such as on-the-go, heavy flow/heavy pain, sustainable, and beginner. These resources are immeasurably valuable to teach younger generations that will inform and educate generations to come. Through the educational materials and events, I will teach young people with periods and others how to advocate for their own health and feel confident with their own bodies.

Mentor: Jason Tselentis, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)



Darkness University Trailer & Bonus Features

Mikaell Sanchez

I want to write, direct, and film a short horror film that would involve actors, special effects, sound, and a creative storyline. The short film will present itself as a raw footage type where the characters are recording the film. This project would involve a lot of creative video editing, special effects makeup, creative writing, typography, and graphic design. My target audience is people who enjoy or are interested in horror and want to get either frightened or have a great time watching this film. The film is for everyone to watch but is recommended for 13 and up due to the frightening images, disturbing gore, and language. The inspiration comes from many great film directors like Wes Craven, John Carpenter, and Steven Spielberg.

Mentors: Jason Tselentis, M.F.A., Tamara LaValla, B.F.A., Claudia O'Steen, M.F.A. & Brittany Branham, B.A)

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Crescent Dunes + More: An Exploration of the Human Experience through Comics

Erin Springs-McCottry

I am working on a project called Crescent Dunes. Crescent Dunes is a middle-grade, semi-autobiographical comic series about a high school kid named Alvin Drake who gets accepted into a prestigious boarding school and must keep up with his rambunctious roommate Scooter. While away from his parents, Alvin must learn what it means to have a family. Through this comic series and other short-form works, I am working through my own emotions about things such as: grief and loss of a loved one; the grief of childhood; found family and its role in development; friendships and how they change over time; and more. Through the medium of comics, I can explore more abstract concepts through visuals and can make them more concrete and understandable.

Mentor: Jason Tselentis, M.F.A., Elizabeth Dulemba, Ph.D., David Walker (dfwalker68@gmail.com) & Brian Michael Bendis (brian1138@aol.com)

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Art, Design, and Poetry for Willingness

Hannah Spivey

Through this project, I will write, design and produce a poetry book in an effort to use the creative process to find growth and healing. This book will center around the concept of willingness, which means choosing to allow yourself to engage and experience the emotions you are feeling. This book will be my journey in understanding my feelings and experiences, making an effort towards healing, and finding my own definition of happiness. Through this, I can guide readers to connect to their feelings and find a greater appreciation for themselves and the world around them. In this personal exploration of practicing vulnerability and willingness, my goals are to connect to others, encourage growth from mistakes and mental illness, and find love and compassion for yourself. In exposing my trials and struggles, I will shape myself, and creative forms such as fine art, design, and writing will be my tool.

Mentors: Jason Tselentis, M.F.A., Tamara LaValla, B.F.A., Ephraim Sommers, Ph.D. & Derek Napper, B.F.A. (Woolard Technology Centre derek.napper@kcsd.schools.net)

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Fighting Game Concepts & Designs

Clay Wukovits

Although many unique 2D fighting video games have been released in the modern competitive gaming industry, the 2D fighting game culture spans decades from the beginning of esports itself. In this thesis, I use the gaming traditions of modern 2D fighting games to explore a genre of game design largely inspired by early Street Fighter titles. Participating in this genre, my game will need to inspire its audience. Any video game should always be fun, and provide lots of entertainment and humor. However, the traditional 2D fighting game genre is meant to create an environment much more serious and competitive. Ultimately, the design of the game in all aspects will determine how well it operates in the gaming industry. My challenge will be to design a video game that will be successful in presenting itself as a functional unique title of its genre, while delivering on the essentials of what makes video games worth playing. Teamfighters Fusion (Working Title) will present itself as a six character roster respectfully designed around individual playstyles and archetypes played in a traditional 2D fighting game. The limited yet dynamic 2v2 roster will provide diverse gameplay through each of the characters' designs. Core gameplay is driven by a unique ability to merge your two characters temporarily in order to outplay your opponent.

Mentor: Jason Tselentis, M.F.A. & Elizabeth Dulemba, M.F.A

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Winthrop Football: Creating a Collegiate Team for the University and Community

David Pearson

As an undergraduate senior in the College of Visual and Performing Arts at Winthrop University, my creative project and senior thesis is focused on designing and creating a collegiate football team for the university and the surrounding community. My goal is to provide an opportunity for population growth within the university and to offer high school students in the surrounding areas the chance to play at the collegiate level. This project will provide the university with a team they can support, including faculty, students, alumni, and the general public. I believe that creating a collegiate football team at Winthrop University will have a positive impact on the school and the city of Rock Hill. With new expansions and buildings being lifted in the city, this project will support the growth and expansion of the area. As football is a popular sport among high schools in York County, having a collegiate team to support will foster a sense of community and school spirit. This project will create an environment for Winthrop students that supports the sport of football and will bring people together from all backgrounds and identities to share in the joy of this sport. Through this project, I hope to create a lasting legacy at Winthrop University and in the city of Rock Hill, leaving a positive impact on the community for years to come.

Mentor: Jason Tselentis, M.F.A

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Fine Arts

(VCOM 486 & VCOM 487 – Tselentis)

42-42-564

Steffan Mayrides-Jolon

Death is an inevitable circumstance in everyone's life. It comes earlier than some people expect, or later in life than some could want. No one knows where we truly go when we pass away. Some examples of the afterlife could be heaven, hell, purgatory, reincarnation, or a black nothingness. To some people, this creates a major anxiety that stems from an uncertainty of where humans end up in the afterlife. Using the medium of dance, my choreographic research is inspired by my Introduction to World Religions class and my personal fear of death. This piece is meant to showcase the spectrum between heaven and hell, as I find it unsettling to not know what awaits me when my time comes. The dancers are to be in a form of purgatory, a no man's land between heaven and hell. They travel across the spectrum to the "fiery depths" of hell and to the "pearly gates" of heaven to see where they end up. I explore dance elements of heaviness and staccato movement to communicate the idea of hell. To address the other side of the spectrum, I explore brisk and lighter movements to communicate the feeling of heaven. This work centers around creating an unsettling environment with separate individuals unaware of their situation.

Mentor: Kelly Ozust, M.F.A

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Theatre & Dance

The Asian American and Pacific Islander Experience of COVID-19

Shivani Dahya, Samson Demissie & Ashna Divekar

This oral history project examines the voices and experiences of Asian American and Pacific Islanders (AAPI) in the greater Charlotte area during the COVID-19 pandemic. Asian Americans are one of the fastest growing groups in the United States, particularly in the greater Charlotte area with a 70% increase in Mecklenburg County alone between 2010 and 2020. COVID-19 brought a wave of anti-Asian hate, discrimination, and violence towards many Asian American citizens. Asian Americans have faced levels of violence and discrimination throughout United States history; however, their experiences are rarely accounted for or acknowledged. This Oral History project includes interviews with 13 AAPI people in the greater Charlotte area. Speaking with participants of different ages, immigrant backgrounds, ethnic/national groups, and levels of social awareness, we gained insight into how Asian Americans experienced the COVID-19 pandemic. We examine themes related to identity, community, pandemic affects, anti-Asian hate and racism, media representations, and hopes for the future.

Mentor: Michael Sickels, Ph.D. & Catherine Chang, Ph.D

Movement(s) in a Dynamic World: Interdisciplinary Perspectives Conference, Winthrop University, Rock Hill, SC, February, 2023 & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS Interdisciplinary Humanities & Social Sciences Grant

CAS – Sociology, Criminology, & Anthropology

Youth Participation in Developmental Organizations Inspire Increased Participation As Civically Engaged Citizens In Adulthood

Jordan Snipes

Youth are the face and embodiment of an impactful now that helps secure a better future for tomorrow. This happens when youth are engaged at an early age, learning to become civically responsible in making change when the power of their voice is used. As these youth age up, there is a strong assumption that they will continue to proceed in pursuing the mission of Leadership and Civic Engagement. Through this research we will identify the participation of youth involved in developmental organizations and review the trajectory they follow in transitioning out of those particular environments. Across the nation there are many organizations that emphasize the relevance of becoming a well-informed and actively engaged citizen. Our analysis of the statistical data will enable us to tell what impact that youth programs have on adult participation in these areas across a diverse set of demographic categories, including age, gender, and race.

Mentor: Michael Lipscomb, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Political Science

(PLSC 490 – Lipscomb)

Ecological Turnover of Marine Ecosystems as a Result of The Late Devonian Mass Extinction: Communities Shifting Through Time

Edward Carter

The end-Devonian was a time of major diversity loss due to 3 major pulses of extinction, which has cemented it as one of the “big 5” mass extinctions. Marine communities were greatly affected during this time, especially shallow marine organisms. These bionomic changes led to one of the most dramatic ecological shifts in marine communities witnessed throughout geological history. To better understand these shifts through time, samples were collected from both before and after the extinction. Each sample was associated with a specific time interval and location, including the Guilmette Formation (Late Devonian) and the Joana Formation (Early Mississippian). Taxonomic composition of communities before and after the extinction event are identified through thin sections. The grain solid method was used to test for shifts in marine assemblages by identifying skeletal fragments based on mineral composition and texture. Preliminary data indicates that these marine communities underwent an ecological restructuring from brachiopod dominated to echinoderm dominated communities, from the Late Devonian to Early Mississippian. Applying this information to communities in the present day will provide a better understanding of how communities shift in dominance over time, and will also contribute to a larger conversation about what may cause shifts in community structure as a result of mass extinctions.

Mentor: Diana Boyer, Ph.D

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

WU Undergraduate Research Travel Grant

CAS – Biology

Breakthrough

Lexus Lyles

As a social work major, I have found a passion in foster care and how individuals are treated in the system. Often, siblings are separated and are to never see each other again until they age out. My choreographic research shows what would happen if siblings were ripped apart and can't do anything about the separation, which can grab attention and give a visual on fear of separation. This piece shows two loving sisters that comes together in the beginning to share a memory. As the piece goes on, the two sisters get pulled their separate ways, which leads to an argument. Dynamics of the movement start small and work their way up to heavier movement to communicate aggression and tension. These dynamics show how their bond is drastically changing. In the end, they find that an imaginary barrier separates them, and they must find a way to forgive one another to break the barrier and come back together. Throughout the process of this piece, my dancers have read several foster care excerpts and came up with a phrase based on what they read, which helped with the connection of the sibling connection and separation.

Mentor: Kelly Ozust, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Theatre & Dance

(DANT 301 – Ozust)

A Reexamination of International Relations

Stephen Magda

Tumult has taken hold of international relations of late. While many of the issues that dominate current events and news cycles in the present day may seem fleeting or sudden, further investigation reveals that many of those instances in which conflict exists represent points along a trend indicating that globalism may not have the ability to continue existing in its current form. This topic has great importance because international relations have far-reaching impacts on the daily lives of individuals around the world. The people within those nations therefore have an interest in how they interact with the rest of the world. Bearing this in mind, this paper seeks to answer the following question: what does the future of globalism look like, given historical context and the state of political affairs, and how can economics play a role in that? Information from history gives context and outlines why the issues that question; political science, history, and economics. Information from political science highlights the issues that plague contemporary international relations, such as conflict, differing interests, and wars that threaten global consonance. Information from history gives context and outlines why the issues that contemporary political scientists assert do not exist in a mere fleeting state. Lastly, information from economics examines problems in international relations on a global scale through a fiscal perspective, as well as policy prescriptions to treat many of the preventable economic ailments in the globalist system. All of this together leads to the thesis that historical evidence and modern-day international relations suggest that globalism cannot last in its present state, but reevaluating how countries conduct their economic policies, at home and abroad, can revitalize the globalist system.

Mentor: Ginger Williams, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

The Limb

Ethan Hunt

Horror has adapted and pervaded the arts and entertainment for as long as storytelling was humanly possible. It has an infinite amount of genres and sub-genres to satisfy every niche fear both tangible and ephemeral. Between the lengths and depravities of human nature and the expanse of the unknown, the foreign, the weird, there lies the sense of discomfort - discomfort being the vehicle with which this genre is perpetuated. It is with this vehicle of discomfort that I intend to explore creating my own visual art in the horror genre through a comic book in which the character experiences a physical, spiritual or otherwise intangible discomfort that has both real and metaphorical representations. This comic book, comprising approximately 25 pages in story content, a front cover, a back cover and one variant cover will endeavor to visually engage in combining my love and adoration for the horror genre as well as the experiences obtained and techniques learned during my time with Winthrop University's Department of Design.

Mentor: Jason Tselentis, M.F.A. & Elizabeth Dulemba, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Introduction of the Bacterial-2-Hybrid Assay into the SEA-GENES workflow.

Jessica E. Morgan, Dallas K. Nivens, Laela Walker & Gabrielle Walker

Increasing our understanding of bacteriophage-host interactions is crucial, especially as advances in the use of phages therapeutically looks likely. As a part of the SEA (Science Education Alliance) GENES (Gene-function Exploration by Network of Emerging Scientists) program, we have identified 18 genes in *Mycobacterium* phage Cain that cause the inhibition of growth of its bacterial host; *Mycobacterium smegmatis*. In order to explore this interactive effect further, a Bacterial-2-Hybrid (B2H) assay has been implemented to help characterize protein-protein interaction (PPIs) between the phage and host's expressed genes. Each of the previously cloned phage genes were transferred into a vector; p2H \square . The p2H \square + gene was then transformed into a specially engineered strain of *Escherichia coli*; B2H SELECT. This cell line contains a library of random fragments of the *M. smegmatis* genome, housed in another plasmid; pCI. Following induction, both our phage gene of interest and the *M. smegmatis* gene fragments, are expressed as independent fusion proteins. Phenotypic indicators monitor pairwise interactions between the proteins using an engineered test promoter, reporters and genetic selectors. In this way we can assess PPIs between an individual phage gene product and up to a million different host cell protein fragments. pCI plasmids are sequenced to reveal the host's gene product(s) that is associating with our phage gene product. Consequently, the interactive partnerships between a bacterial host and its viral parasite reveals clues to phage gene function, and may lead to a number of beneficial applications in science.

Mentor: Victoria Frost, Ph.D.

Association of Southeastern Biologists Annual Meeting, Winston-Salem, NC, March 2023 & Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

CAS – Biology

How Can the Built Environment Bring Healing and Restoration to Individuals in Various Circumstances?

Abigail Garrison

The interior environment has long had an impact on the thriving of civilizations. For centuries, we as human beings have been positively and negatively influenced by the colors, shapes, textures, and amount of light along with many other factors that define the environments we live, work, and play in every single day. Designers have the responsibility and ability to bring healing and restoration to people in various circumstances through the art of creating positive environments. For better or worse, our surroundings speak to our dignity and worth as people. Designers have the ethical and moral responsibility to speak that dignity and worth into every single design we do for every client. We live in a dark and troubled world full of individuals living through things that we cannot begin to imagine. Design can bring some light and life back to these individuals by using color, texture, light, and sound to create, soothing, bright, loving environments that are worthy of the light and life inherent in every person.

Mentor: Sangwon Sohn, M.S.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design (INDS 487 – Sohn)

Investigating Protein-Protein Interactions between Bacteriophage Cain and its Host *Mycobacterium smegmatis*

Dallas K. Nivens

In the face of the antibiotic resistance crisis, bacteriophages have proven to be useful tools for overcoming bacterial defenses in medicine. However, 65% of phage genes have no predicted function, which limits the ability to utilize phages to their maximum potential. In order to effectively manipulate and apply phages therapeutically, we must close this gap in functional knowledge. After using a phenotypic assay to screen mycobacteriophage Cain gene products for interaction with the host cell, *Mycobacterium smegmatis*, a bacterial 2-hybrid (B2H) assay was used to identify which host proteins were being targeted by phage gene products. To achieve this, a complex array of specifically designed expression vectors, test promoters and cell lines, were used to report potential pairwise interactions between phage gene products and the host's proteome. With no predicted function, and significant homology with well-studied phages in the same K cluster, Cain gp55 was investigated first. Results revealed interactions with host proteins NusA and GntR which are both transcriptional regulators thought to play various roles including transcript elongation/termination (NusA), cell motility, metabolism, and even virulence (GntR). Another phage gene of no predicted function, Cain gp2, also interacted with several host cell transcriptional regulators, including TetR, AraC, and LysR, thought to be involved in the regulation of metabolic genes. Identifying these interactions can give us hints about a phage gene's role in manipulating its host. While the B2H assay gives us a starting point, more specific experimentation is needed to identify potentially new and useful functions of undescribed genes.

Mentor: Victoria J. Frost, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

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

CAS – Biology

The Light at the End of the Tunnel

Alyssa Boyd

As a student choreographer, dancer, and performer, I use movement to tell a story through cinematic ideas, almost as if you are watching a movie. I want to use my piece titled, *The Light at the End of the Tunnel*, to explore the want and need for hope. The central questions of this story in particular are: "When you've survived the struggle, what's next?" and "Is life more than just survival?". I wanted to explore these questions by setting the piece in an impossible situation; the end of the world. I want to communicate the different ideas of survival but specifically the two polar opposites. One side is content with just living, and the other side believes that there's more to life than that. The one idea they have in common is hope. The verb hope is described by definition as "expecting with confidence" and "cherishing a desire with anticipation". I wanted to explore these ideas by using cinema as inspiration. For my research I watched and analyzed multiple films such as *Station 11*, *A Quiet Place*, *Walking Dead* and *Mazrunner*. I was able to create movement by transforming emotions and actual dialogue from the films into choreography. I did this by filming myself doing improvisation based on the cinematic research that I gathered. It is important to address this topic because hope is a healer. It is an universal idea that everyone can relate to. We all face difficult times and rely on hope to see us through.

Mentor: Kelly Ozust, M.F.A.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Theatre & Dance

(DANT 301 – Ozust)

Characterization and Analysis of Mycobacteriophage Cain's Genes

Laela Walker, Jessica Morgan, Dallas K. Nivens & Gabrielle Walker

The majority of bacteriophage genes have no predicted function, which provides a wealth of opportunity for investigation, characterization and potential downstream applications. The work described here includes, and extends, the research initiated by Winthrop University students as part of the SEA (Science Education Alliance) GENES (Gene-function Exploration by a Network of Emerging Scientists) program, sponsored by the Howard Hughes Medical Institute (HHMI). Our phage of interest is a K6 sub-cluster mycobacteriophage; Cain, which has a genome consisting of 100 diverse genes. To gain clues to their functions, the workflow began by cloning each of Cain's genes individually using a shuttle vector (pExTra), and amplifying in *Escherichia coli*. Each pExTra + gene was then transformed into its bacterial host *Mycobacterium smegmatis*. A phenotypic assay then enabled the observation of host growth inhibition after inducing the expression of each phage gene individually. As a result of our work, 18 of Cain's genes have demonstrated this cytotoxic trait which infers some sort of interaction with the host's proteome. All cloned genes were concurrently sequence verified by comparing against the published Cain genome using in silico NCBI sequence alignment tools and SnapGene Viewer software. Our group is also performing Bacterial-2-Hybrid (B2H) assays to investigate the interactions occurring between a phage gene product and its host's proteome, in more detail. Elucidating specific interactions at the phage-host interface may provide opportunities to exploit previously unknown proteins or manipulate the outcome of the microbial co-existence.

Mentor: Victoria J. Frost, Ph.D. & Kathryn P. Kohl, Ph.D.

SC INBRE Conference, Columbia, SC, February 2023, Association of Southeastern Biologists Annual Meeting, Winston-Salem, NC, March 2023 & Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

CAS – Biology

Effect of Increased Salinity Concentrations on Gill Morphology and Gene Expression in Redear Sunfish (*Lepomis microlophus*)

Joel Haley

Changes in gill morphology have been observed in certain species of freshwater fish in response to increases in salinity. The purpose of this study was to observe the salinity tolerance and the osmoregulatory responses through gene expression and changes in gill morphology of a local freshwater fish (Redear sunfish, *Lepomis microlophus*). Four treatment groups with six fish each were designed to test both short term (24 hr) and long term (96 hr) exposure to hypersaline water (17 ppt). Fish exposed to 17 ppt salt water had significantly increased plasma osmolality and interlamellar cell mass to gill length ratios compared to control groups. Early testing indicates the expression of genes associated with stress and osmoregulation as well. In total, Redear sunfish exposed to increased salinity seem to display some level of osmoregulatory behavior as demonstrated by gill tissue changes and expression of relevant genes, however, fish were unable to correct the osmotic change by 96 hours sustaining dangerously high plasma osmolality.

Mentor: Salvatore Blair, Ph.D.

Association of Southeastern Biologists Annual Meeting, Winston Salem, NC, March 2023 | Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

Supported by the Winthrop University Research Council

CAS – Biology

The Role of DNA Methylation in RYBP Silencing in Glioblastoma Cells

Michelle Aguilar-Gaspar

Glioblastoma multiforme (GBM) is a malignant type of central nervous system tumor that is highly invasive, which makes surgical resection difficult and contributes to disease recurrence. Because GBM is the most lethal and common tumor of the brain and spinal cord, it has a median survival of less than 15 months. This median survival highlights the need for more effective and targeted therapeutic options. GBM tumors frequently downregulate RYBP expression, compared to healthy brain tissue. In many types of solid tumors, RYBP functions as a tumor suppressor gene and restricts cancer growth. With this in mind, it is possible that the reactivation of RYBP in GBM may exert similar growth-inhibiting effects; however, the mechanism by which RYBP is silenced remains unclear. The aim of this study was to investigate whether DNA methylation in the RYBP promoter contributed to the downregulation of RYBP in GBM cells. We inhibited DNA methylation by treating U118 and T98 GBM cell lines with 5-aza-2'-deoxycytidine (5-aza) or DMSO (vehicle control). Seventy-two hours after drug administration, total RNA was isolated, quantified, and used for reverse-transcription-qPCR to verify RYBP expression. Our findings show RYBP levels increased in a dose-dependent manner following 5-aza treatment. However, these experiments need to be repeated to determine statistical significance. At present, it is unclear whether the reactivation of RYBP by 5-aza is due to direct or indirect effects. Therefore, a future goal of this project is to isolate genomic DNA and examine the methylation status of the RYBP gene promoter.

Mentor: Daniel Stovall, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

Supported by SC-INBRE DRP 5P20GM103499-21 and the Winthrop University Research Council

CAS – Biology

A Wizard's Misfire: Musical Storytelling and Fun

Alexa Schroder

I created this composition for Theory IV to demonstrate my mastery of scales commonly used in 20th century music. It is inspired by the jovial sounds of a Renaissance Faire. Five players traverse the journey of this piece: flute, clarinet, marimba, piano, and tambourine, a quintet representing a jolly band of bards. The three sections of this piece can be expressed as ABA'. The A section is a lively medieval jive in $\frac{3}{4}$ and C Dorian. The Dorian mode possesses a distinctly folk-like feel, exemplified in the timeless melodies of "Scarborough Fair," "Greensleeves," and "Drunken Sailor." I emphasized Dorian's characteristic scale step #6 (pitch A) in the melody of the A and A' sections, accompanied by the corresponding IV chord. Unfortunately, a wayward sleep spell from a wizarding duel hits the band, beginning the B section with a ritardando and thinning texture. Score directions tell the tambourine player to tragically drop the tambourine and start snoring. To symbolize the magical spell fully taking effect, the pianist plays an ascending C° chord (matching the tonal center of C in section A). The B section is slow, with sparse instrumentation, soft articulation, and different musical motifs that use a different scale: the Augmented (0,1) scale - establishing an otherworldly and dreamlike feel. As the spell wears off, the music accelerates and the tambourine player "awakens," re-adding texture into the piece. The celebratory A' section is a louder and more ornamented return to the original tempo, symbolizing a rejuvenation of the band.

Mentor: Tomoko Deguchi, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Music

(MUST 212 – Deguchi)

Characterization of the Interplay between Phosphorylation and Dimerization of RitR

Courtney Miller

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

Mentor: Nicholas Grosseohme, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

Supported by an SC-INBRE grant from the National Institute for General Medical Sciences (P20GM103499) and the U.S. Department of Education McNair Grant P217A180094.

CAS – Chemistry, Physics, Geology, and the Environment

Determinants of an Effective Digital Campaign: A Study of Conversion Rates Using Facebook Data

Justin Kobylus, Josh Harper, Charlie Williams & Shamyjha Price

For businesses running digital ads, achieving a strong conversion rate is one of the main goals in each marketing campaign. Conversion rate is a key performance metric for all Facebook ad campaigns, especially when a business aims to optimize for specific actions such as sales, subscriptions, or downloads. Regression modelling can help us better understand the underlying factors of a successful digital campaign that affect conversion rates and quantify the effects of those factors. This study uses a dataset from Kaggle that describes three different Facebook ad campaigns. It provides information about the targeted audience in terms of their interests and demographic characteristics, as well as the cost and ad performance metrics for each of the campaigns. We use individual customer characteristics, impressions, clicks and the cost metric to build a regression model for the total and approved conversion rates. We evaluate the model performance on the hold-out sample and calculate the R-squared hold-out value to ensure that our model can generalize well on unseen data.

Mentor: Anna Romanova, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CBA – Computer Science & Quantitative Methods

(BADM 571 – Romanova)

Protein Interactions within the Troponin Complex in Response to Cd²⁺ Binding

Jamia White

The process of muscle contraction regulation is related and dependent on the Ca²⁺ binding to the protein structure troponin. This is a protein complex composed of three proteins: troponin C (TnC), troponin I (TnI), and troponin T (TnT). TnC is the binding site for Ca²⁺, TnI inhibits the function of muscle contraction and TnT works directly in relation to tropomyosin. The binding of Ca²⁺ to TnC triggers a conformational change that initiates muscle contraction. The long-term goal for this project is to investigate the binding events of a toxic metal, Cadmium and reveal the effects it has on the function of the troponin complex. To achieve this, a short-term goal, which consisted of purifying large amounts of the proteins, TnI was designed. Previous attempts using a common solubility tag known as a maltose binding protein (MBP) allowed the protein to remain soluble; however, when the MBP tag was cleaved off, the isolated TnI protein was insoluble and rapidly precipitated. Our approach consisted of expressing MBP tagged proteins TnT and TnI into Rosetta-2 cells and then purifying the proteins without the treatment of the TEV protease. The cells were lysed, harvested, and centrifuged to isolate our proteins. Affinity chromatography was then used to purify the proteins by introducing a sodium chloride and tris buffer. The identity of the proteins along with some other remnants was confirmed using gel electrophoresis.

Mentor: Nicholas Grosseohme, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

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

CAS – Chemistry, Physics, Geology, and the Environment

In My Room

Trinity Symone Robinson

As an evolving choreographer and artist, I wanted to explore the topic of control. I prompted the dancers to think about having their “room,” whether this was physical, mental, or emotional allowing them to be present and experience themselves in raw form. Life is unpredictable and far from linear, which makes these “rooms” safe to explore. The dancers feel safe because they have control there. My piece answers the question: what does it mean to exist in your room in the midst of the present and what exists outside of you? As humans, we tend to notice growth once we are dealing with unfamiliarity. This unfamiliarity can be a feeling, place, headspace, or person; however, we fail to acknowledge ourselves in all spaces. I address this topic because everyone deserves to experience having control that can coexist with relinquishing control. It is important to make space for yourself to feel anyway, to move forward in spite of. I constructed a workshop centered around my dancers answering questions about their “rooms.” This workshop challenged them to unpack topics such as what their room looks like, who they allow in it, what risk means, and what they fear. I took that information and created movements mimicking their thoughts and lived emotions. By starting this conversation with my dancers, I gained a deeper understanding of them. I was able and honored to draw inspiration to craft how I wanted the dancers to experience their rooms on stage through my choreography.

Mentor: Kelly Ozust, MFA

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Theatre & Dance

(DANT 301- Ozust)

Predicting the U.S. Housing Prices Using Time Series Forecasting Techniques

Mandy Breakfield, Kobe Banks, Cameron Ivery, Jacob Neely, Brianna Means & Preston Fisher

Real estate and the housing market play an integral role in the U.S. economy. Home ownership is the main source of wealth and savings for many Americans, and residential construction provides widespread employment for a significant number of economic agents in the country. As evidenced by the 2008 crisis, housing prices can impact residential investment and, as a result, affect the overall economic growth. This study is an attempt to better understand the driving forces behind the changes in the housing market and to envision what the future of the U.S. housing market could look like. We use monthly time series data from Kaggle that describe several economic indicators between 1987 and 2021 including the housing price index, stock price index, unemployment rate, mortgage rate, real disposable income, and GDP. We employ various data visualization tools and time series regression modeling techniques to examine the factors that affect the housing market in the U.S. Using a set of model selection criteria, we identify the best time series regression model and use it to create short-term forecasts for the housing price index. We also contrast our times series regression results with exponential smoothing techniques and identify the overall best model for forecasting future values of the housing price index.

Mentor: Anna Romanova, Ph.D.

Winthrop University
Showcase of
Undergraduate Research
and Creative Endeavors,
Rock Hill, SC, April 2023.

CBA – Computer Science
& Quantitative Methods

(BADM 571 – Romanova)

Estimating the Effects of Music on Mental Health

Katelyn Hughes, Savvy Butler, Owen Turner, Payton McNabb & Cassie Long

Research shows that music can help lower the levels of depression and anxiety in individuals combating mental health issues, and music therapy is now recognized as an evidence-based practice for improving an individual's overall mental health. In this study we attempt to further investigate the effects of music on mental health by analyzing the results from a survey of 737 respondents that describes their music listening habits and their scores across several mental health conditions. The survey was created and administered in 2022 by Catherine Rasgaitis, a Computer Science major from the University of Washington, and the survey results are available through Kaggle. We used regression modeling to estimate the effects of music on respondents' mental health scores while controlling for potential confounders such as their age, gender, and musical background. We identified the most popular musical genres in terms of the reported listening time and the total number of listeners and evaluated their effects on the listeners' mental health using the exploratory data analysis. We reported the most impactful musical genres for improving the overall mental health and specific mental health conditions including depression, anxiety, and OCD. The majority of musical genres showed a positive impact on the listeners' mental health, with rock, pop, and metal having a stronger effect. Beats per minute (BPM) variable had a lot of missing values and was excluded from the regression analysis even though the exploratory data analysis suggested that it could be an important factor in reducing anxiety.

Mentor: Anna Romanova, Ph.D.

Winthrop University
Showcase of
Undergraduate Research
and Creative Endeavors,
Rock Hill, SC, April 2023.

CBA – Computer Science
& Quantitative Methods

(BADM 571 – Romanova)

Building a Time Series Regression Model to Predict the Cost of a 30-second Super Bowl Commercial

Willis Rogers, Bailey Fudala, Will Martin, Mattie O'Cain & Mary Heath

The Super Bowl is broadcast in over 180 countries and is one of the most-watched television events in the United States. Its popularity has only grown since the first Super Bowl in 1967, and over the years it has become much more than just a game of American football. It is an important cultural event that attracts millions of viewers and provides one of the most powerful platforms to reach audiences and capture their attention. From a business standpoint, it is an opportunity to promote products and services through commercials, create a lasting impression on consumers, and build product recognition and consumer appeal. This research project aims to explore the ratings and viewership trends of Super Bowl games from 1967 to 2020 and to understand the factors that affect the cost of a 30-second Super Bowl commercial. How does the popularity of the teams affect viewership? Does the success of a franchise affect the popularity of the game? Do the household ratings and share exhibit a stronger correlation with the popularity of the halftime show or with the teams playing in the game? Does the location of the game affect the total viewership around the country? These are some examples of the questions we address in our study using the exploratory data analysis. In the modeling portion of the study we build a times series regression model and employ other forecasting techniques to predict the cost of a Super Bowl commercial for the next several years.

Mentor: Anna Romanova, Ph.D.

Winthrop University
Showcase of
Undergraduate
Research and Creative
Endeavors, Rock Hill, SC,
April 2023.

CBA – Computer Science
& Quantitative Methods

(BADM 571 – Roma-

Customer Segmentation Using Exploratory Data Analysis and Clustering Methods: A Grocery Store Case Study

Dykia Holland, Woodson Burden, Jenna Diebert, Sierra Hunter & Annaka Schumars

Customer segmentation is the process of uncovering behavioral patterns and characteristics that various customer groups may share. This process makes it easier to create marketing, service and sales efforts tailored to the needs of a specific group and enables marketers to better understand their audience, increase revenue, and earn greater market share. The goal of this study is to identify customer segments for a retail grocery store. We use the data set from Kaggle that contains information about customers' purchasing behavior and monetary value, shopping modality, recency, as well as their campaign response patterns. We use exploratory data analysis and a modified version of the RMF segmentation technique to identify customer tiers within each shopping modality and use customer demographic characteristics to create customer profiles for each tier. In the next step we employ K-means clustering to create customer segments based on customer monetary value and recency. We then evaluate the responsiveness of each cluster to marketing campaigns and discounts.

Mentor: Anna Romanova, Ph.D.

Winthrop University
Showcase of
Undergraduate Research
and Creative Endeavors,
Rock Hill, SC, April 2023.

CBA – Computer Science
& Quantitative Methods

(BADM 571 – Romanova)

Comparative Analysis of U.S Higher Education Institutions' Financial Initiatives for U.S. Historically Underserved Students in Study Abroad

Logan Tayler Pender

During academic year 2019-2020, the Institute of International Education's Open Doors Report showed the U.S. had less than 1% of total enrolled undergraduate students participating in study abroad. Disparities in study abroad undergraduate participation show that the majority of participants are Caucasian females. The focus of this study is to compare initiatives that offer relevant financial opportunities to increase the number of historically underserved students participating in study abroad. Working together, the U.S. government, education abroad organizations and Higher Education Institutions (HEIs) have identified underrepresented student groups and created initiatives to diversify study abroad. According to the Forum on Education Abroad, underrepresented student groups often include race/ethnic groups, first-generation college students, high financial-need students, LGBTQIA+ students, gender orientation groups, and students with disabilities. While the study will mention these student groups and the barriers they face, the focus of this study is to build a critical foundation to explore financial initiatives within the following; 1) HEIs that are within the study's southeastern U.S. geographical parameters, and 2) U.S. federal government agencies such as the United States Department of State's Bureau of Educational and Cultural Affairs. By building this foundation, this study creates an understanding of how historically underserved students' participation in U.S. study abroad is being addressed through various financial opportunities, which brings awareness to the "Too Expensive" stigma that a majority of U.S. historically underserved students associate with financing study abroad.

Mentor: Leigh Poole, Ph.D

Winthrop University McNair Summer Research Symposium, Rock Hill, SC, June 2022, Southeastern Association of Educational Opportunity Program Personnel (SAEOPP) McNair/SSS National Research Conference, Atlanta, GA, June 2022, Winthrop University Movement(s) in a Dynamic World: Interdisciplinary Perspectives, Rock Hill, SC, February 2023 & Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

CAS – Interdisciplinary Studies

Exploring an Asian origami inspired cafe brand identity

Brian Vongsouthi

I intend to design a cafe and bakery for the city of Rock Hill that is inspired by Asian bakeries while using visual elements from origami and paper cutouts. As for the audience, it will be intended for office workers, students, and anyone who enjoys cafes. This would be a new upcoming cafe center around the North and South Carolinas based in Rock Hill. Rock Hill is growing at a rapid pace so it may lead to more of a population growth in which this cafe can transpire in this thriving boom of a city. I plan for the cafe to encourage people to go out and gather at this premium peaceful cafe to enjoy all the asian delicacies with their friends, or for students and workers who want to grind in a cool and chilled environment. The cafe is about connecting different Asian cultures and exposing newcomers to new foods while enjoying a diverse blend of different delicacies from Eastern and Southeastern Asia. I believe the saying "less is more" is an important concept towards my thesis because in origami everything looks so simplified, yet it takes a very intricate process to get there. The project itself contains all the beloved things I love about graphic design, from web page design, food photography, and branding. I just have a huge appreciation for the bakers and the cafes themselves to inspire me to create my very own. This thesis embodies what I would like to go into for the industry.

Mentor: Jason Tselentis, M.F.A. & Griffin Glaze, B.F.A. (WU alum)

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Defending Agricultural Resources during times of Conflict in the Late Intermediate Period Central Andes (1000-1450 CE)

Aniela Church

During the Late Intermediate Period (1000 - 1450 CE), the Central Andes was characterized by high levels of warfare and paleoclimate data that indicates severe and persistent drought. In contrast to other periods, the Late Intermediate Period communities increasingly settled in hillforts, known locally as pukaras, which are defensive hilltop fortifications. Scholars have offered several explanations for warfare, including social collapse, political unrest, and environmental stress. At the same time, scholars have suggested that Late Intermediate Period drought increased agricultural risk which either increased competition over productive agricultural land or led farmers to focus on high-elevation camelid pastoralism. This study examines the relationship between agriculture and hilltop fortifications in the Lake Titicaca Basin of Peru where archaeological research has identified numerous hillforts. Geographic Information Systems (GIS) was used to model agricultural suitability based on environmental characteristics which include elevation, slope, slope direction, and terrain. The results of the suitability analysis show that pukaras tend to be located in areas that are most well suited for agriculture, suggesting that hillfort communities sought to optimize access to cultivable land. The correspondence between pukaras suitable agricultural land suggests possible connections between warfare and the distribution of agricultural resources.

Mentor: Lauren Kohut, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Chemistry, Physics, Geology, and the Environment

How the Clinton ConNEXTion Action Plan intends to improve the Quality of Life of Southside Rock Hill Residents

Samson Demissie

The Southside Rock Hill community has faced continuous neglect, as other parts have not; the community stretches from as far from the areas of Crawford Road, Saluda Street, and Albright Road of South Rock Hill. Historically, developments in Southside have been plagued by a lack of funding and commitment from leadership. In July 2021, the Clinton ConNEXTion Action Plan was presented to the community of Southside. It is a community-oriented economic development plan that involves various community members. A mixed methods approach is best suited to gather statistics to understand the basis of Southside quality of life; alongside investigating the depths to how quality of life affects residents. The aspects of quality of life that are included in this investigation are income, wealth, employment, mental health, physical health, food security, physiological security, leisure time, mobility, social belonging, and overall satisfaction. The findings and investigation from this project should influence the future of development, applied sociology and anthropology, and praxis; in development, initiatives must remain sensitive to the effects on communities. If economic development is done, the community that is affected should always be considered, informed, and communicated with; to ensure that their needs are being met from their perspective.

Mentor: Brent Woodfill, Ph.D.

27th Annual Southeastern Association of Educational Opportunity Program Personnel; Atlanta, Georgia, June 2022. Winthrop University McNair Research Symposium, Rock Hill, South Carolina, June 2022 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

CAS – Sociology, Criminology, & Anthropology

(ANTH 340C – Woodfill)

Living with Thyroid Abnormalities

Jason Makowski

Understanding thyroid dysfunction can help those with it better understand how to improve life with thyroid disease. There are a few diseases that affect the thyroid, which seem to play a pivotal part in not only the endocrine system, but overall health. It plays a part in thermoregulation, mood, and most importantly, the metabolic system. Graves Disease, better known as hyperthyroidism, is an overactive thyroid which can speed up metabolism causing adverse side effects such as rapid weight loss, inability to gain weight, mood disruption and even poor sleep cycles. Hashimoto's Disease, which is sometimes referred to as hypothyroidism, is quite the opposite of hyperthyroidism where the thyroid is underactive. This can also disrupt sleep by making those afflicted by it sleepy during the day and keeping them awake at night, to neurological responses that alter mood, and slowing metabolism to what feels like a halt. This causes buildup of adipose tissue and makes it difficult to lose weight, which in turn can lead to other chronic diseases. Genetics, airborne and water contaminants, and even food can play a part in these diseases. Everything about thyroid dysfunction is not fully understood yet, but there is emerging research and recent breakthroughs. Targeted exercise can improve thyroid conditions. From tailored exercise programs, to targeting heart rate percentages, exercise physiologists can work to counteract thyroid dysfunction.

Mentor: Janet Wojcik, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

COE – Physical Education, Sport & Human Performance

(PESH 381 – Wojcik)

Melancholia in Hamlet

Paige Abercrombie

Sigmund Freud's 1917 essay "Mourning and Melancholia" distinguishes the latter condition as a form of pathological mourning characterized by extreme self-reproach. Melancholia occurs as a result of identification with an abandoned object, leading to the regression of libidinal energy into the ego. William Shakespeare's Prince Hamlet exhibits qualities consistent with this type of melancholia. Several Freudian critics have previously examined the development of melancholic symptoms in Hamlet, and have explored possible causes for his condition. According to Ernest Jones in Hamlet and Oedipus, such causes center around Hamlet's repressed Oedipal desires. Neil Friedman and Richard M. Jones suggest that personal setbacks also shape Hamlet's mental state in "On the Mutuality of the Oedipus Complex Notes on the Hamlet Case." For example, Claudius thwarts Hamlet from acquiring the throne while also incestuously marrying Gertrude, but Hamlet rejects Claudius as his father-in-law. Julia Reinhard Lupton and Kenneth Reinhard's After Oedipus: Shakespeare in Psychoanalysis applies Freud's essay to Hamlet's character and observes the projection of his damaged ego onto the world around him. Building on these writers' ideas and incorporating examples of Hamlet's self-loathing, this essay argues that mourning the loss of both his father and his stable family unit results in Hamlet's descent into melancholia.

Mentor: Matthew Fike, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – English

(ENGL 305 – Fike)

Aptitude Versus Allure: An Investigation on How Appearance Might Have Impacted the Careers of Women in the Music Industry From 1930-1960

Mackenzie Mckey

Throughout history, women have often had their voices and ideas silenced, stolen, or ignored. Although a women's intellect was frequently discounted, there was always one thing that could never be disregarded: her physical appearance. In every profession, women have been compared to one another. This is especially true for the music industry. Those who aligned with the physical "status quo" were often embraced and celebrated as trailblazers and an inspiration to all female artists, while their more unconventional or "unattractive" peers had their contributions all but erased from the music history timeline. This author will compare the careers and appearance of four female artists that were active from the 1930s-1950s, Mary Lou Williams vs. Billie Holiday and Sister Rosetta Tharpe vs. Wanda Jackson, and how this may have advanced or recessed the artists' careers regardless of the contributions that each made and their impact on popular music. Evidence will be presented by examining popular social trends of the times in which these artists were at the height of their careers, the overall response and reaction they received from the public, each artist's contribution to popular music, and the awards and accolades they acquired.

Mentor: Tracy Patterson, Ph. D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Music

(MUST 308 – Patterson)

Packback Interaction in an Introduction to Psychology Course

Kylie Zangla & Rebecca Walton

Seemingly as a result of the COVID-19 Pandemic, the overall grades of students taking an introduction to psychology course rapidly declined. As an attempt to maintain interaction levels amongst students and help with course grades, various academic interventions were used. One particularly impactful tool was Packback: a discussion-based, AI-driven, writing and communication tool (www.packback.co). This study examined the impact of frequent peer interaction via Packback on enhanced student performance (final course average). We examined and compared the overall grades of students enrolled in Introduction to Psychology for five consecutive semesters-Fall of 2019 through Fall of 2021. This allowed us to examine the impact of Packback on overall student performance. During semesters when Packback was used, students were required to complete a set number of responses and questions each week of a semester. Overall, there was a positive correlation between average Packback participation and overall course grade ($p < 0.05$). Although harder to quantify, the semester evaluations also suggest that the continuous Packback participation requirement allowed for students to stay connected with fellow classmates.

Mentor: Kat West, Ph.D.

National Institute of the Teaching of Psychology Conference, St. Pete Beach, FL, January 2023 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

Honorable Mention, January 6, 2023, The National Institute on the Teaching of Psychology

CAS – Psychology

Skin

Alena Brown

What is lust? My choreographic research is based on exploring how lust is used to show passion and desire for wanting something. This work uses sensual aesthetics to represent a mirage, hallucination, and fantasy. This represents an optical illusion within the mind of others. The audience will feel the heat and desire of watching someone or something that does not exist leaving them thinking that they are delusional. With lust portraying a mirage, "Skin" could be mistaken as a dance about attracting someone for the wrong reasons. "Skin" at its core is about feeling confident in your own skin and showcasing that you are obsessed with yourself. Another topic presented is discovering how movement and musical changes can alter the mood and theme of anything you are watching. The dynamic changes in "Skin" will display how putting similar movements together can introduce a new meaning. The movement was created in collaboration with my dancers. I encouraged them to show me what obsession meant to them and different ways to move when presented with the word "obsession."

Mentor: Kelly Ozust,
MFA

Winthrop University
Showcase of
Undergraduate
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Creative Endeavors,
Rock Hill, SC, April
2023.

CVPA – Theatre &
Dance

(DANT 301 – Ozust)

Data Dashboard for Educational Assistance

Asha Johnson & Brandon Bradley

The purpose of this data dashboard is to provide instructors with improved data analytics for pre/post test analysis of tests/quizzes that use multiple choice questions. The dashboard visualizes data through heatmaps, cluster maps, bar graphs, and some experimental visualizations. These provide instructors a view into how students are performing as means of assessing whether certain in-class interventions are improving student performance. One intervention we examine is the use of peer instruction, a mechanism in which students can help one another better understand the questions being asked. The dashboard has been developed through the use of Python and includes web-development libraries such as Dash, Flask, and Plotly. We will describe these methods, as well as the results of a focus group study of subject matter experts (educators) conducted in Fall 2022.

Mentor: Paul Wiegand,
Ph.D.

Winthrop University
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April 2023.

Supported by a grant
from the National
Science Foundation
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CBA – Computer Science
& Quantitative Methods

Expression and Purification of GeneM: A Novel Virulence Factor of Unknown Function from the Phytopathogen *Clavibacter michiganensis*

Eric Walters

GeneM is a novel virulence factor of unknown structure and function produced by *Clavibacter michiganensis*, the etiological agent of many diseases in agricultural plants. Tomato and potato plants containing the gene have shown signs of symptomatic necrosis, yet plants containing mutants of the gene were shown to be asymptomatic. BLAST analysis of the amino acid sequence has identified homologous proteins belonging to the patatin superfamily, however, bioinformatic analysis of the amino acid sequence and homology modeling contradicts this identification. In this work, we describe our efforts to model the structure of GeneM and express it in recombinant *Escherichia coli* cultures. Of the three algorithms used to generate a homology model of GeneM, only one gave us a plausible structure. De novo modeling using trRosetta gave a model that is structurally similar to the homology model. Expression trials were performed using different strains of *E. coli* including BL21, NiCo, and Rosetta 2, and based upon the results, cultures of *E. coli* BL21 Rosetta 2 (DE3) had a band at the expected size on SDS-PAGE gels. 6L expression cultures were generated and a chromatographic method was developed, involving MCAC, gel-filtration, and cation exchange, to purify the protein for enzymological studies. Future work includes a phospholipase assay.

Mentor: Jason C. Hurlbert, Ph.D.

Winthrop University McNair Scholars
Program Summer Research
Symposium, Rock Hill, SC, June 2022;
27th Annual SAEOPP McNair/SSS
Scholars Research Conference, Atlanta,
GA, June 2022 | Winthrop
University Showcase of Winthrop
University Undergraduate Research and
Creative Endeavors, Rock Hill, SC, April
2022

Supported by U.S. Department of
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Received 3rd place in Life Sciences for
oral presentation, 2022 SAEOPP
McNair/SSS Scholars Research
Conference, June, 2022.

CAS – Chemistry, Physics, Geology, and
the Environment

Applying Art: Social Constructions of Self & Society

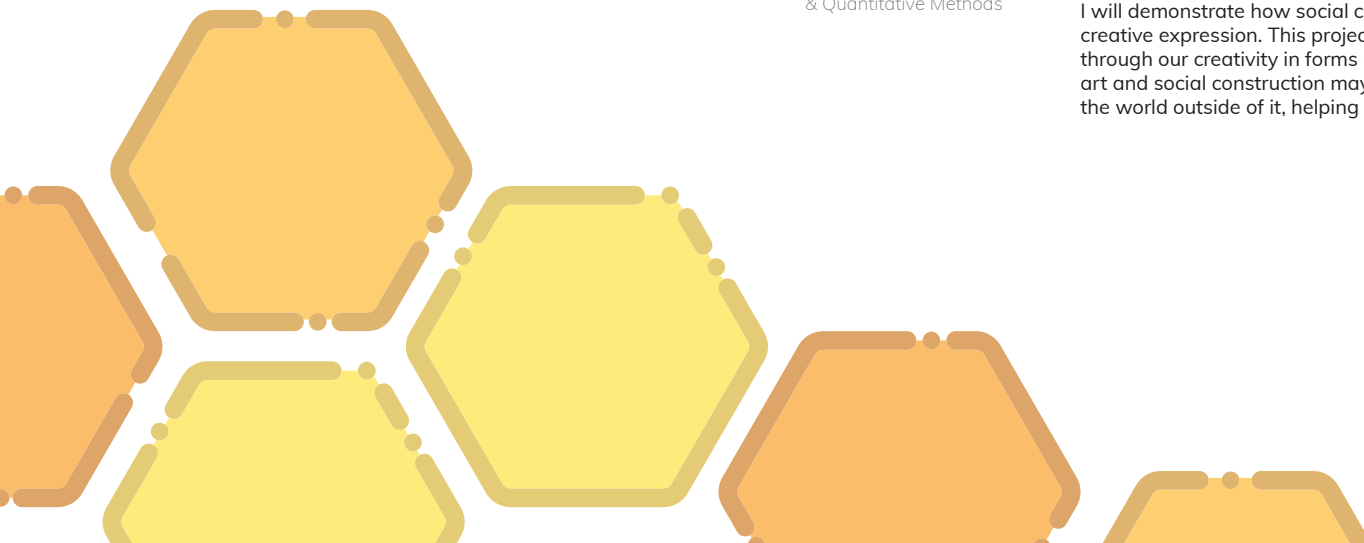
Samson Demissie

Our sense of self is heavily affected by the constructions of the world around us. This project will explore the different ways that systems of discrimination, constructions of identity, and battles between normativity and authenticity, craft continuously who we believe ourselves to be. By using my personal art, I will demonstrate how social construction is communicated even through our creative expression. This project aims to show how social construction appears through our creativity in forms of expression hereby in art. The intersection of art and social construction may help bridge the gap between academia and the world outside of it, helping us all learn from each other.

Mentor: Michael
Sickels, Ph.D.

Winthrop University
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Research and
Creative Endeavors,
Rock Hill, SC, April
2023.

CAS – Sociology,
Criminology, &
Anthropology



“The Creation of Identity-Based Student Organizations and Their Challenges”

Hayley Wilson, Ky Abdur-Rahim, Morgan Green & Asha Avery

This research explored the creation of identity-based and minority-led student organizations at Winthrop University and the challenges faced by young organizations. This study was carried out based on the role that these organizations play in the lives of students on campus. The methods taken were recruitment through email-based outreach to schedule one-on-one interviews with individuals who belonged to a minoritized group (African American) and/or identity-based (LGBTQ+ community). Twelve semi-structured 30-60 minute interviews were conducted on a selection of students from Winthrop University. The findings that emerged from these interviews were that minority-led student organizations faced more complications with recruiting and maintaining members, but there was a strong sense of community, identity, inclusivity, and other major connections.

Mentor: Michael Sickels Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Sociology, Criminology, & Anthropology

(SOCL 519 - Sickels)

Re-Tweeting the Right: A Comparison of the Role of Social Media in the Right-Wing Movements and Political Narratives in the Campaigns of Donald Trump and Javier Milei

Hannah Switzer & Bautista Vivanco

Over the past two decades, social media has become an important tool for organizing and promoting emerging social movements and political activism across the globe. Social Media platforms are credited with the wide-ranging success of many 21st century social movements, including the Arab Spring, Occupy Wall Street, the Tea Party, Me Too, the Men’s Rights Movement, and Black Lives Matter. In addition, scholars of social media and political activism focus on the capacity for social media to organize, consolidate, and promote the agenda of social movements across geographic space, facilitate communication and direct actions, garner public support and participation, and create collective identity. In recent years, social media has been particularly effective in its use in the political activism of social movements of the right. In response, major political candidates and their campaigns have begun using social media to generate interest and promote their ideology. In this research project, we conducted a comparative analysis of the top 500-retweeted tweets of two candidates during a six-month period leading up to their runs for public office: Donald J. Trump in the United States (May 8-November 8, 2016) and Javier Milei in Argentina (May 14-November 14, 2021). Our research uses an international comparative framework to examine the role of social media in generating political support during the campaigns of Trump and Milei, and shaping how these two candidates used Twitter to produce meaningful accounts of their right-wing movements, construct populist narratives, and shape the meaning-making practices of their followers.

Mentor: Jennifer Leigh Disney, Ph.D. | Mike Sickels, Ph.D.

Movement(s) in a Dynamic World: Interdisciplinary Perspectives Conference, Winthrop University, Rock Hill, SC, February, 2023 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

Supported by an Interdisciplinary Humanities and Social Sciences Grant from Winthrop University

CAS – Political Science

Assessment Practices in an Elementary School Setting: A Case Study

Jayla Council, Sheri Norris & Katelyn Selkinghaus

The purpose of this study was to investigate the ways in which classroom assessments are used by teachers in a local elementary school. The study used an exploratory case study methodology which involved interviews with teachers and collection of samples of assessments used by the teachers in the study.

Mentor: Julia McCallum, M.M.E.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

COE – Education Core

(EDCO 220H – McCallum)

New Changes, Old Traditions: A Qualitative Analysis of Greek Life Culture at a Small Liberal Arts State University

Indigo Smith, Lauren Norton, Kayla Steele & John Austin

The purpose of the current research is to examine Greek life culture in the context of a small state university in the South and how students associated with fraternities or sororities experience it. We explore how they ascribe meaning to their experiences and how the intersections of race, sexuality, and gender shape these experiences and interpretations. Additionally, this research examines how both marginalized and non-marginalized groups of students perceive, experience, and navigate the problematic reputations that are often associated with Greek letter societies. To achieve this, the researchers utilized extensive semi-structured interviews with 12 individuals associated with Greek letter organizations. The loosely-structured questions allowed interviewees to share their own narratives about their experiences in the Greek letter organizations they belong to and encouraged them to examine how their social identities shaped these experiences. Their race, gender, and sexual identities were intentionally varied to capture a broad diversity of perspectives. After transcription, these interviews were analyzed for common narrative themes, and comparisons were made between the identity-centered experiences of each individual. Findings discussed include how social identities are both validated and marginalized in different contexts, the importance of strong, familial-style bonds in the structure of these organizations, the espousal and enforcement of moral values by organizations and their members, and the mutually influential relationship between small campus culture and Greek life culture.

Mentor: Michael Sickels Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Sociology, Criminology, & Anthropology

(SOCL 519 - Sickels)

Myths, Misconceptions, and Metaphorical Mountains: What Factors Keep Students From Seeking Mental Health Care?

Josephine Chestnut & Spencer Bermudez

The primary purpose of the present research is to better understand what most affects a college student's decision to seek counseling, through direct factors such as cost and location, as well as indirect factors that may influence stigmas towards counseling, such as myths and misconceptions. We aim to understand these factors so we can inform the process of better education about mental healthcare, as well as dispelling myths and doubts about the mental healthcare process. Data was collected through the use of a survey divided into three sections, titled "Seeking Mental Health Care", "Mental Health Care Thoughts", and "Mental Health Care Factors". The section "Seeking Mental Health Care" discussed students' likelihood to seek counseling within various hypothetical situations, and the section "Mental Health Care Factors" discussed direct factors that would affect decisions to seek mental healthcare. "Statements included in the "Mental Health Care Thoughts" portion were primarily pulled from a document created by Southwest Minnesota State University discussing common misconceptions about counseling, with participants choosing whether or not they thought the statements were true or false. (Myths vs. Facts about Counseling, n.d.) This research is a modified continuation of a pilot study conducted by Dr. Kathleen West and Kevin Deeter of Winthrop University, and the survey used is a refined version of the same survey created for and utilized in the pilot.

Mentor: Kathleen West, Ph.D.

SAEOPP McNair/SSS Scholars Research Conference, Atlanta, GA, June 2022 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

CAS – Psychology

Interventions for "Best Practices" Teaching of an Introduction to Psychology Course

Rebecca Walton & Kylie Zangla

Since 2019, our lab has focused on "best practices" for supporting student learning in an introduction to psychology (PSYC 101) course. We discovered that, seemingly as a result of the COVID-19 pandemic, the average, overall grades of students in PSYC 101 rapidly declined. As a result, our lab began introducing various intervention strategies in hopes of raising overall scores by maximizing student support and learning. These interventions (such as the use of teaching assistants, AI-driven discussion technology, alternative "student-friendly" communication, and peer-designed study guides) were added gradually in order to confirm that they were working and/or which would be most effective. One of the more impactful interventions was a low-cost, instructor designed textbook courtesy of Sykepack.com. This textbook was interactive, fit exactly with the course materials, and included built-in study tools like flash cards. Overall, the interventions have combined to significantly improve students' overall grades ($p < 0.05$) as current average grades are close to pre-pandemic levels. Research is still ongoing to identify which strategies, if any, are unnecessary or unhelpful and which have been most effective and/or could benefit from minor improvements.

Mentor: Kat West, Ph.D. & Matthew Hayes, Ph.D.

National Institute for the Teaching of Psychology, St. Petes Beach, FL, January 2023 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

CAS – Psychology

Lewis Jordan's Contributions to America's Popular Music and Culture

Jordan Hamilton

The end of the swing era paved the way for genres like rock and roll and rhythm and blues. While musicians like Duke Ellington, Count Basie, Nat King Cole, Rosemary Clooney, and Elvis Presley are easily identifiable and known for their contributions to American popular music and culture, there are numerous artists that are left out of the spotlight. Singer, saxophonist, and bandleader, Lewis Jordan, was instrumental in connecting the swing era of the 1930s-1940s to rhythm and blues of the 1940s-1950s. In this presentation, Mr. Hamilton will discuss the contributions of Mr. Jordan, highlighting his unique use of instrumentation, style, improvisation, and singing. By exploring Lewis' borrowed elements of the jazz big band and pioneering innovations that helped develop rhythm and blues, Hamilton will show the importance of Jordan's contributions to music history. Hamilton, a saxophonist himself, will conclude the presentation by performing one of Jordan's saxophones solos.

Mentor: Tracy Patterson, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Music

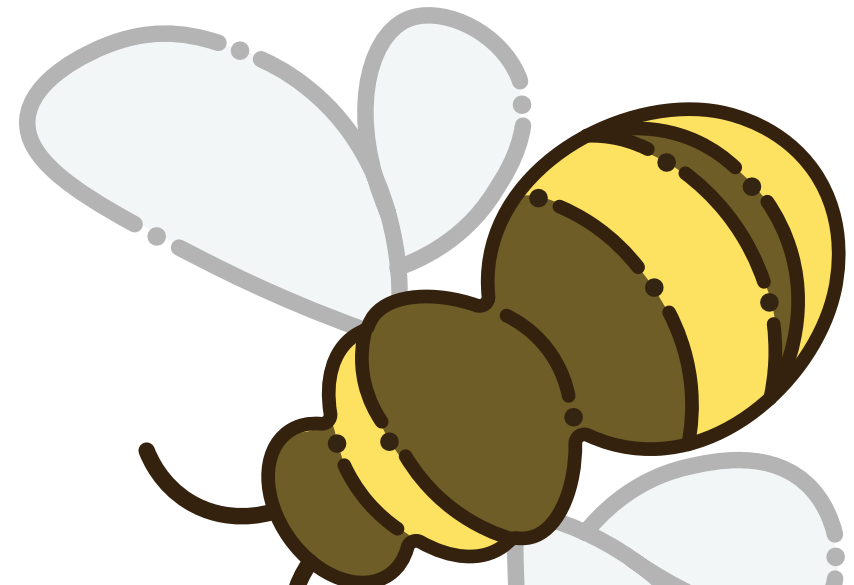
Tariffs: Protecting the economy or hindering growth? Bautista Vivanco

The role of tariffs, regulations and other protectionist policies is a prevalent and recurring topic in scholarly economic literature. However, the scope of most studies regarding the economic impact of trade and financial openness focuses mainly on data from the previous century, leading to the newest trends on this topic being relatively unexplored. In this research paper, I elaborate on how trade and capital openness correlate with annual real GDP per capita growth and gross inequality by performing an econometrical analysis on panel data from 180 countries between the years 2000 and 2021. Moreover, I also exemplify my findings through the elaboration of a time series analysis on Argentina as a case study.

Mentor: Danko Tarabar, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CBA – Accounting, Finance & Economics



Connecting Sister Rosetta Tharpe to Phoebe Bridgers: A Look at the Development of Female Singer/Guitarists From 1940-Today

Jacin Prevatte

Sister Rosetta Tharpe, a queer Black woman and “Queen of Rock and Roll,” was an innovator of gospel music and popularized the use of the electric guitar in the 1940s. Her impact on American popular music is evident when listening to artists such as Elvis Presley, Little Richard, and Chuck Berry. While her influence on the music of her famous male counterparts is undeniable and referenced in documentaries, textbooks, and films, the trail-blazing guidance she provided female vocalist/guitarists is rarely highlighted. In this presentation, Ms.Prevatte will create a musical family tree connecting Sister Rosetta Tharpe to modern-day singer/songwriter, Phoebe Bridgers, by linking multiple known female singer/guitarists including Dolly Parton and Tracy Chapman. Citing direct connections and musical examples, Prevatte will explore Tharpe’s musical lineage and conclude with a live performance of a piece from Bridger’s repertoire.

Mentor: Tracy Patterson, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CVPA – Music

(MUST 308 – Patterson)

Dynamics of EBV and the Potential for Vaccinations in the United States

Lucas Dupuy & Liv Cantrell

Epstein-Barr virus (EBV) is one of the most common human viruses, with roughly 90% of the population in the United States carrying the virus by adulthood. EBV is spread through bodily fluids and infections tend to be asymptomatic, however in some cases EBV can lead to infectious mononucleosis (IM) and some cancers such as Hodgkin’s lymphoma. Currently there is no approved vaccine, but clinical trials are in development. This study presents a mathematical model of EBV transmission, calibrated using data from the United States, to compare possible vaccine strategies with varying efficacies, duration, and age of vaccination.

Mentor: Kristen Abernathy, Ph.D.

SAEOPP McNair/SSS Scholars Research Conference, Buckhead, GA, June 2022 | Winthrop University Showcase of Winthrop University Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023

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

Received 1st place in Health for oral presentation, 2022 SAEOPP McNair/SSS Scholars Research Conference, June, 2022.

CAS – Mathematics

Drug Addiction in American Popular Music

Cameron Scott

Cameron Scott will demonstrate how American Popular Music was impacted by drug addiction. Famous popular music musicians such as Johnny Cash, Elvis Presley, Michael Jackson, Billie Holiday, and many others suffered through battles with drug addiction. In this presentation, Scott will provide information on how drug addiction affected popular music as a genre and the lives of popular music artists.

Mentor: Tracy Patterson, Ph.D.

Winthrop University Showcase of Undergraduate Research and Creative Endeavors, Rock Hill, SC, April 2023.

CAS – Music

Applying Modern Views to Ancient Myths

Drew Williams

The idea of male superiority has been around for centuries. Proof of this can be found in ancient mythologies from around the world. For my paper, I intend to look at how the ideals of patriarchy can be found in these myths from different cultures. I plan to focus on the mythology from ancient Greece, however I believe that it is important to understand that the idea of patriarchy is not solely from one culture, but instead is a system that spans cross-culturally. By diving into myths that perpetuate the ideals of male superiority, or at least myths that depict female inferiority. While gender does play a part, it is not the only factor in this hierarchy, sexuality and sex contribute to these issues. Whether they knew it or not, women of these ancient times were also oppressed in different ways depending on their intersectionality.

Mentor: Jennifer Disney, Ph.D

Winthrop’s Movement Conference, Rock Hill, SC, Feb. 2023

CAS – Psychology

(WMST 510 - Disney)

The Impact of Charter Schools on the Public Education System in the United States

Karmon Nippert

The topic of this paper is the effects of charter schools on public education. Public school in the United States is in decline. It is rarely equitable for all students, although that is one of the goals of public schools. All students should be able to receive a good education and be able to seek higher education if that is something they want to pursue. Some proponents of charter schools argue that charter schools improve student achievement and student outcomes. While there is some evidence to prove that, there is also evidence that proves there is little improvement. There have been mixed results depending on the location of the schools. As of 2019, there were 3.4 million students in the United States enrolled in public charter schools, accounting for approximately 7.5% of public school students. About 35% of charter school students are white, and they make up the largest demographic within charter schools. The research question is "How do charter schools affect the funding, resources, and diversity and inclusion of public education in America?" The two disciplines used to research this topic are education and sociology. Education scholars can offer insight into policies and provide firsthand accounts of the state of public education in the United States. Sociology can offer insights into how inequality and inequity in schools affect students as a group and how charter schools affect students, teachers, and students' families. Although there is some evidence that charter schools may improve student performance, they tend to have fewer resources for students with disabilities, lower levels of diversity and inclusion, and siphon funding away from traditional public schools.

Mentor: Ginger Williams, Ph.D.

Winthrop University
Showcase of
Undergraduate
Research and Creative
Endeavors, Rock Hill, SC,
April 2023.

CAS – Interdisciplinary
Studies

(IDVS 490 – Williams)

Cultural Influences on Gender Identity Development Among Mexican American Women in Multigenerational Households

Evelyn Barrales

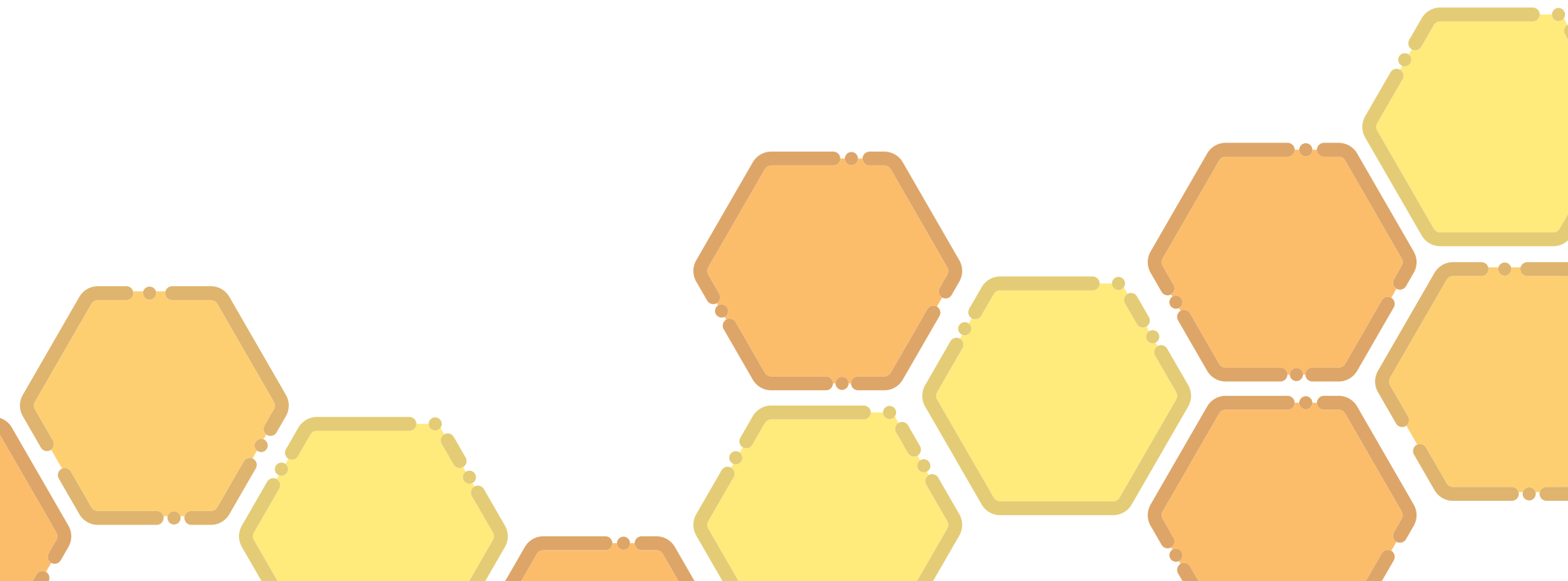
This study examined how culture and mothering intersect to influence constructions of gender among first-generation rural Mexican American mothers and their second-generation adult daughters living in the same household. We conducted dyadic interviews with five dyads of Mexican American mothers and daughters and audio recorded them in Spanish. Interview data were analyzed in three cycles of thematic analysis and through the use of an intracategorical, intersectional analysis. One major theme emerged from the data: investing in ourselves through motherwork. Results were interpreted and discussed through an intersectional, Chicana feminist lens.

Mentor: Adrienne L. Edwards, PhD, CFLE

National Council on
Family Relations,
Minneapolis, MN,
November 2022

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

COE – Counseling,
Leadership and
Educational Studies



Annual Undergraduate Juried Exhibition

Each spring, current Winthrop University students are eligible to submit their recent work to the Undergraduate Juried Exhibition. It is an opportunity to have their work chosen by a prominent regional juror to exhibit in a professional gallery setting. Open to students taking classes in the Department of Fine Arts and the Department of Design, this annual exhibition showcases Winthrop's brightest talent in areas such as painting, sculpture, jewelry/metals, printmaking, interior design, illustration, and photography. The following list is the selection of artwork in the 35th Annual Undergraduate Juried Exhibition made by juror Jonathan Prichard (class of 2003 and 2010), Exhibits Manager at the Cultural Heritage Museums of York County, SC.

Winthrop University Galleries

It is a great honor to have been asked to jury the Winthrop University Undergraduate Exhibition. I was an undergraduate student submitting work to this show 20 years ago. I cannot overstate the positive influence this school has had on my life. The masterful and generous teachers gave me the foundation I needed to find a career in the arts where I get paid to create things on a daily basis. The competitive and encouraging classmates helped me develop and sustain a personal artistic practice that centers me and gives my life meaning. The experiences and opportunities like the UJE showed me how important and rewarding it is to share one's work with others. This show felt like a culmination of a year's hard work, and I remember how affirming it was to be given an award after the countless hours in the studio working and reworking pieces. When thinking about how I might curate this show, I thought about what I valued most about my Winthrop experience. Ultimately, this school taught me to make MY work--not work that looked like my professors or that followed a prescribed formula, but it taught me how to think for myself, how to ask questions, and how to answer them on my own terms.

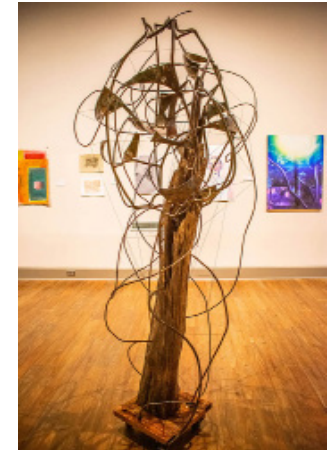
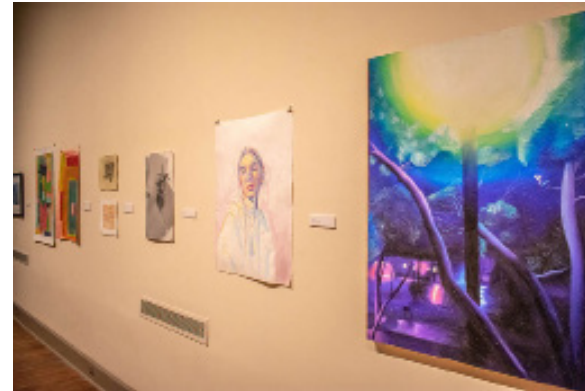
My vision for this exhibition was a room full of characters whose uniqueness cannot be ignored. Looking through the work I saw an anchoring sentiment turn to horror. I saw a pile of junk composed to classical perfection. I saw a powerful ritual honoring the transformation of one small thing and of all things. I saw the sad child inside us all. And I saw virtuosic technique evoking an envious, "Wow!" These artists have tapped into something personal and honest, and have utilized subject, material, process, and craft to communicate with the viewer. Unified by time and place, this showcase provides clear evidence of the breadth and depth of Winthrop University's Visual Arts Departments.

Jonathan Prichard,
2023 Juror

Artist	Title
Olivia Bowman	<i>The Creator</i>
Rachel Burkhart	<i>Midwifery</i>
Rachel Burkhart	<i>Writing</i>
Rachel Burkhart	<i>Termination</i>
Rachel Burkhart	<i>Divide</i>
Sierra Cauthen	<i>Untitled</i>
Sierra Cauthen	<i>Eternal Hope</i>
Sierra Cauthen	<i>Untitled Oil</i>
Sydney Gambrell	<i>This Door's Past</i>
Sydney Gambrell	<i>Pinkprint</i>
Sydney Gambrell	<i>Placing Shadows</i>
Sydney Gambrell	<i>Almost Exactly</i>
Mya Genegrasso	<i>It's All My Fault</i>
Callie Gravett	<i>Abstract Landscape</i>
Callie Gravett	<i>Untitled</i>
Callie Gravett	<i>Orange and Blue Waterglass</i>



Artist	Title
Callie Gravett	<i>Bathroom</i>
Ethan Hunt	<i>Acrylic Earrings</i>
Ethan Hunt	<i>Samurai Frog</i>
Ethan Hunt	<i>The Rat</i>
CJ Jeffcoat	<i>Sleep Softly My Dear</i>
CJ Jeffcoat	<i>Deity</i>
CJ Jeffcoat	<i>Raven Glass Lane</i>
Gray Kay	<i>Aluroria</i>
Cori Little	<i>Floral Pendant</i>
Cori Little	<i>Annular Brooch</i>
Donnita Moss	<i>Good Enough?</i>
Kaitlyn Munoz	<i>Night Painting #4</i>
Kelsey Nethken	<i>Snow</i>
Kelsey Nethken	<i>Swallow</i>
Vix Nicholas	<i>Neck Collar</i>
Vix Nicholas	<i>New Teeth</i>



Artist**Title**

Vix Nicholas

Annular Brooch

Samuel Pach

Rota

Samuel Pach

Suspension

Samuel Pach

Venus on Sheets

Luxey Peyton

The Drink

Addelle Pruitt

Self Protrait

Addelle Pruitt

Still Life

Addelle Pruitt

Ms.

Kenny Ray

Dead Fish

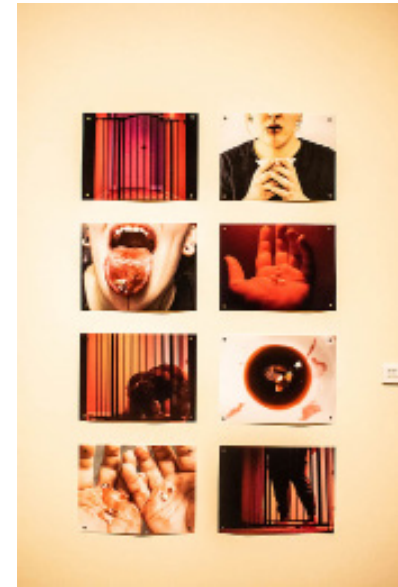
Kenny Ray

Untitled Pring

Kenny Ray

Archive #427

Kate Turner

Blue Morning

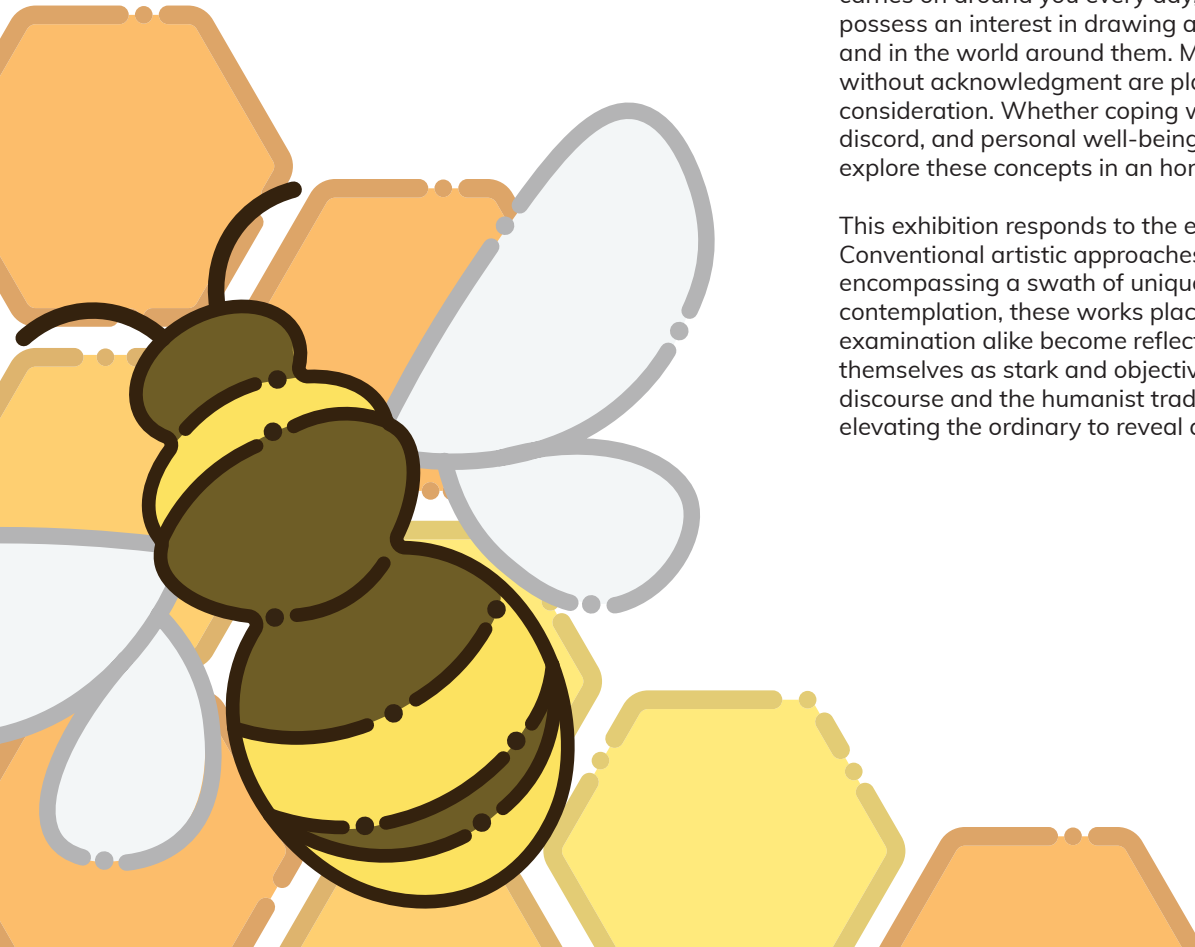
Department of Fine Arts B.F.A. Capstone Exhibition

In the Dictionary of Obscure Sorrows, John Koenig defines *Silience* as an “unnoticed excellence that carries on around you every day, unremarkably”. Artists featured in the 2023 BFA Senior Exhibition possess an interest in drawing attention to the unrecognized intricacies of life persisting within themselves and in the world around them. Memories, emotions, and subliminal associations that normally flow by without acknowledgment are placed at the foreground of the artwork, offering space for more thoughtful consideration. Whether coping with the onset of change or commenting on perceptions of beauty, social discord, and personal well-being, every inquiry comes from a place of genuine curiosity and a desire to explore these concepts in an honest light.

This exhibition responds to the ever-changing nature of the material world and personal growth. Conventional artistic approaches blend with non-traditional art objects in a multimedia presentation encompassing a swath of unique perspectives and experiences. Acting as vignettes of private contemplation, these works place the artist vulnerably before the viewer. Raw emotion and unbiased examination alike become reflected in the manipulation of materials; while some works present themselves as stark and objective, others appear layered by multiple meanings. Within this collective discourse and the humanist tradition of observation, these artists tap into the potential of the unseen, elevating the ordinary to reveal an unassuming distinction that lies just beneath the surface.

Evan King
Art History Major

Radio McAda
Art History Major

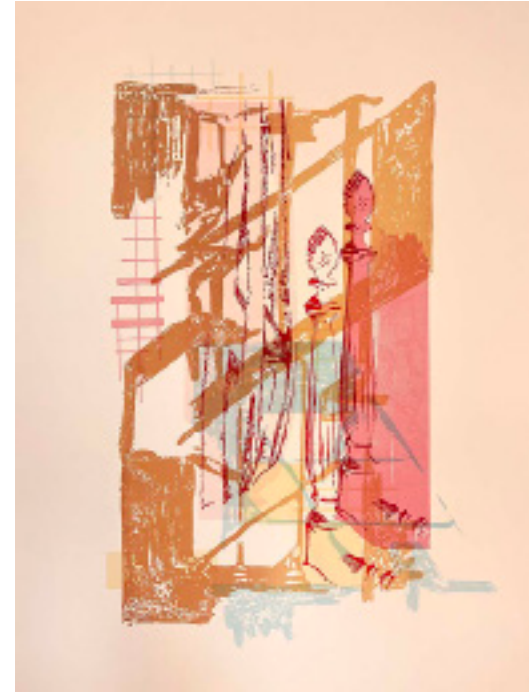




Caitlin Marsh, Wabi-Sabi

Mentor: Mark Hamilton, B.F.A. & Claudia O'Steen, M.F.A.

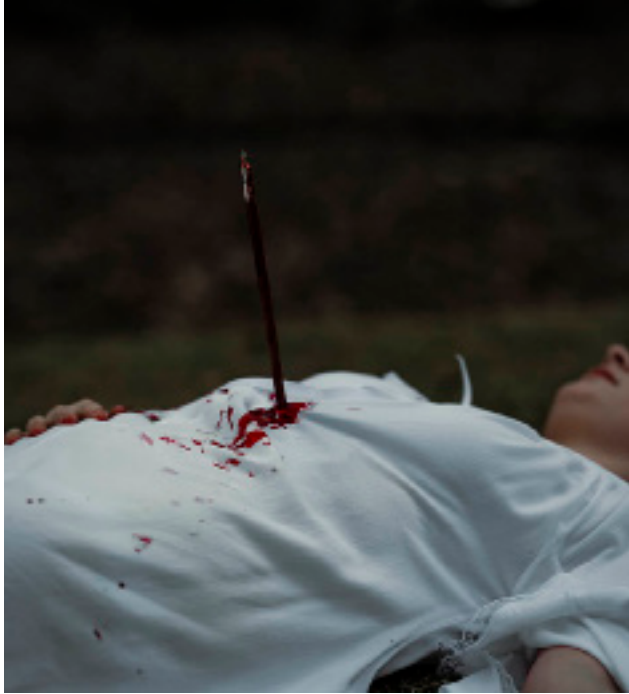
One thing that many people desire is a perfect world. In the advertising industry, everything is perfect. No hairs are out of place, no products are scratched, nothing is lifeless. Wabi-Sabi uses photography to present a perfection within imperfection. It challenges the idea of what is beautiful, desirable, and perfect. Not many people would find a dead flower in an advertisement, or if they did, there would be negative connotations tied to it. This photograph pushes the boundaries of what is considered worthy of our attention and worthy of our love. When the viewer first encounters the piece, they will see a large photograph of a dead flower divided into separate pieces that are displayed at different depths. Each piece works to guide the viewer's eye around the entire subject. The placement of the work in a corner, combined with the use of lighting and shadow, makes the piece feel more intimate, emphasizing the three-dimensionality of the work to the viewer. They may see their own reflection upon the acrylic finish of each individual piece. In certain spots, there may even be a slight glare of the light on the surface. This further enhances the idea of perfection in imperfection. The flower displayed in the photo is imperfect. It is dried out, droopy, and decayed. That imperfection is contrasted by the clean white background, the lighting placement, and the difference in rich colors. The photograph itself suggests a beauty and perfection that is not typically associated with a dead flower. The three-dimensional display represents an attention to detail and craftsmanship that one may not attribute to a dead flower, as a dead flower is usually seen as not worthy of this much attention or love. However, that attention and love is exactly what was given to the flower in the making of this piece, and also in the awareness and observation from the viewer.



Sydney Gambrell, Framing Memory

Mentor: Claudia O'Steen, M.F.A., Stacey Davidson, M.F.A., Myles Calvert, M.A. & Shaun Cassidy, M.F.A.

Framing Memory explores the home through painting, printmaking, and sculpture. It visually discusses my relationships with household objects and domestic space. While appreciating my childhood home, I developed physical and conceptual connections in the work by creating complex compositions on paper and wood. This exhibition displays these ideas both two and three-dimensionally. Painting and printing have allowed me to work realistically and abstractly to understand the connections I have with objects such as bedposts, doorknobs, and other household items. The viewer will recognize similarities between these works on paper and panel. *Placing Shadows*, a multi-layered screenprint, highlights my personal bed's wooden posts as well as my window's sheer curtains. For most, a bedpost is simply an aesthetic addition to a bedroom, but it is symbolic of years of childhood memory and nostalgia. Imagery such as the bedpost and curtains are found in my paintings as well, and these pieces were intuitively and simultaneously worked on. Sculpturally, these ideas take form through a variety of hand-built boxes. The box serves as an object that abstracts the interior and exterior spaces of the home. When viewing the work, there are multiple sizes of boxes representing different rooms and spaces that are important to my childhood memory. Each box can be appreciated independently while visually speaking to its neighboring box. The wood boxes have been painted and screen printed on with imagery seen in the two-dimensional work. *Framing Memory* encompasses the deeply personal relationships we have with our homes and the objects inside.



Cori Little, *Polly Von*

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

In my exhibition work, titled *Polly Von*, I explore the themes of tragedy, regret, and emotion through the use of digital photographs and audio. This series tells the story of a huntsman who devastatingly mistakes his true love for a swan and murders her in the forest. It recounts his emotional journey afterward and his feelings of loss and guilt that follow in the wake of his error. The series of eight prints follows the lyrics from Peter, Paul and Mary's "Polly Von" (1963). This heartbreaking melody is echoed within the highly emotive facial expressions and body language represented in the images. My editing process reflects the story-like quality of a cinematic atmosphere. Viewers have access to headphones that play the song as they view each scene, making that connection of words to pictures. In this series the narrative is completely linear and provides a storybook retelling of a tragic tale. I chose this song in particular because the lyrics have always given me a complete set of images in my head when I listen to them. I recreated those images exactly how I imagined them in order to show my viewers a sense of my mind's eye.



Fairis DeVore, *The Film Experiments*

Mentors: Mark Hamilton, B.F.A. & Claudia O'Steen, M.F.A.
(ARTS 473 - Hamilton)

The Film Experiments serves as a way for me to explore the ideas of beauty and experimentation. The work consists of eight images displayed within a giant mock film strip. Each image, originally taken on film, was altered in some way before being exposed. Most of them were altered in a way that one would assume would make the film unusable. The methods used for altering the film consist of physically destroying it through crumpling, folding, and scratching, and coating it with substances such as Lysol, Vaseline, and hand sanitizer. Other methods included placing tape directly on the film and placing a crumpled color gel in the bellows of the view camera. The process of destroying the film allowed me to be more excited to develop the photos and also serves as a representation of my hatred of the process of film photography. *The Film Experiments* piece contrasts this idea by representing the beauty and elegance I see in a film strip. The film the photos were taken on has been destroyed but the large film strip they are displayed on is fully intact and well taken care of. This film strip has been handled carefully and hung elegantly on a wall for all to see. Not only is there beauty within the piece as a whole but there is a rare beauty in the photos that could only be found by experimenting with, and "destroying" the film.



Isa, 777

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

777 is a sculptural installation that emulates the continuous and ever changing reflection of myself. 777 is the angel number representative of divine perfection and the regenerative process guided by supportive spirits. This work parallels a connection between body and mind. The physicality of creating sculpture reminds me of my autonomy and the release of emotion through the process of creation is consistent with the inner workings of thought. I specifically reflect upon personal growth and the revelation of shadows. These shadows represent the neglected aspects of myself and come forward as I spend more time considering the opposing sides of my own reformatory change. *No Place Like Home* focuses on the suffocating nature of concentrated negativity and how it alters personal perception. Distorted memories and the desire to change what is lost has contributed to a stagnant state. I grieve several parts of myself; past and present. My work evolves along with these experiences. Although there are many negative associations within my work, I also embrace positivity. My process requires the patience that I deserve and teaches me to be tolerant of the non-linear path I must follow. The desire to have the soul and body together as a whole entity has encouraged me to accept the loneliness that comes with healing. As I reclaim body, mind, and soul through creation I now understand the value of my voice.



Julia Langevin, You Cried Out But Nobody Came

Mentors: Claudia O'Steen, M.F.A. & Jim Connell, M.F.A.

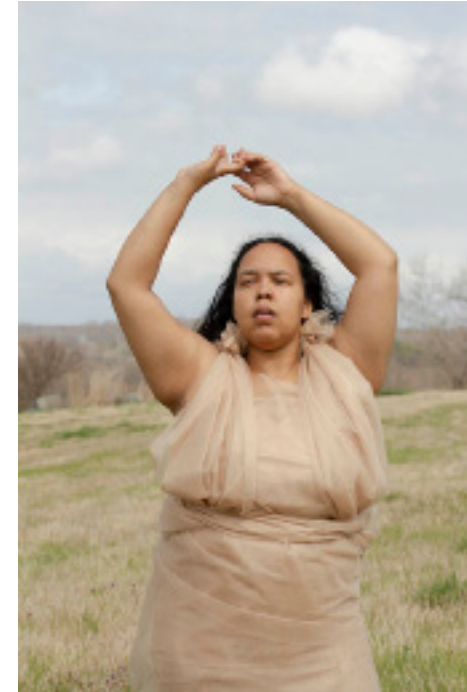
You Cried Out but Nobody Came is an installation combining several different materials such as ceramic clay, insulation foam, expanding foam, wall paint, and mirrors. I use these materials in unconventional ways to convey the feeling of loneliness to the viewer. I use insulation foam and expanding foam to create a waterfall/pond landscape. A hand-built ceramic wolf sits at the top of this landscape. The installation also includes an eight-piece dinner set made of porcelain. These pieces are displayed next to the wolf on a table. The table is set for one person while the rest of the dishes are on a shelf behind the table. This is intended to allow the viewer to visualize themselves sitting at the table embracing the feeling of being alone. I use mirrors in the landscape to help depict water without using actual water. I also use shattered mirrors to depict a waterfall that shines in the spring sunlight. The idea behind *You Cried Out but Nobody Came* is the loneliness many people feel as they move through life. We experience loneliness at different stages in our lives, and I reflect this in my work. When the viewers look at my work, they see a table and a wolf that is howling to a pack that isn't there. This allows the viewer to reflect on their own loneliness and that of others. Just as wolves are pack animals humans are too. We need to have social interaction and meaningful connections in life to be content.



Kate Turner, *luminary*

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

Luminary is an immersive installation centered around a collection of paintings, jewelry, and ceramics that embody divine intervention. In many ways gods become involved in human lives as they provide a sense of personal significance. This creates an exchange of reverence between those on earth and the sanctuary of the heavens. The term luminary describes a natural light-giving body but can also represent someone who inspires and influences others. The focus of the painted works is to illustrate protective spirits and those who accept their guidance. These paintings echo the celestial qualities of Chinese mythology, as well as its rich history from which these customs are derived. The mixed media depictions combined with curated objects create connections between the ethereal and the corporeal. The individual is encouraged to view these physical elements as the essence or embodiment of these beings. The objects are assigned sacred meaning through the touch of those who interact with them. This simple ritual reflects how the belief in the divine resides within the individual and is carried across time and cultural boundaries. *Luminary* creates a setting inspired by sacred spaces to facilitate conversations between past histories and current experience. These tangible works are inspired by traditional art making processes such as ceramics and metalsmithing that span across several dynasties. In this way the individual techniques speak to ancient ideas and foundations that supplement the work as a whole. The history of why and what humans create is directly inspired by belief systems and the intrinsic desire to understand the world around them. *Luminary* attempts to explore this duality to compose a unified body between heaven and earth.



Khadeejha Jones, *Connections*

Mentors: Claudia O'Steen, M.F.A., Shaun Cassidy, M.F.A. & Mark Hamilton, B.F.A.

Connections explores the relationship between humans and nature through digital photographs and sculpture. While observing nature, I started to notice similarities between people and the natural world. Nature is all around us and can easily be taken for granted, so I use my work to ask the viewer to consider their relationship to it. There is a sense of connection formed between people and nature. Nature has an element of calmness to it and this is the main emotion that I focus on with the photographs and sculptural work. There are six photographs of models in various styles of dress to represent this calmness. I pose the models in ways that mimic nature. The photographs are shot in locations where the grass is green, where the trees are bare alongside a river, and where the trees have leaves on them. Additionally, I use my editing process to amplify the soft feel within the photographs. Another component of my work is a sculpture installed in a small light controlled gallery space. This work consists of a large five sided box. The design on the exterior of the box consists of cutouts of leaves, branches, and silhouettes of the models in the photographs. There is a light in the interior of the box to cast shadows on the wall. Using a combination of sculpture, light, and photography, *Connections* asks the viewer to reflect on their relationship with nature.



Rachel Burkhart, *Dialogue*

Mentors: Claudia O'Steen, M.F.A. & Seth Rouser, M.F.A.

On June 24th 2022, the Supreme Court ruled to overturn Roe V Wade. The discourse over abortion has been heavily debated. This work does not hold preconceived notions or engage in biased conversation. My work acknowledges the persistent discourse on abortion and the many themes that are brought up in those conversations. *Dialogue* consists of five works being three intaglio prints, a sculpture installation, and a large-scale drawing. The dynamism of the mediums is a reflection of the same complexity as the topic. Each work represents a different discourse surrounding abortion. My intaglio print *Midwifery* depicts the medical practices/tools, *Writhing* depicts emotional and physiological perspectives, and *Termination* depicts decision-making. The Sculpture installation *Divided* reflects on the statistical analysis of the differentiating opinions on abortion in the US. The large scale ink drawing *Dialogue* is a representation of deeply listening and learning from each other and finding common ground.



Riley O'Rourke, *Hard Times Never Last*

Mentors: Claudia O'Steen, M.F.A & Seth Rouser, M.F.A

Hard Times Never Last is about my experience as a patient in psychiatric facilities as well as my time being handcuffed in transportation to the ward. The exhibit features paintings that are created with black ink, which is combined with journal pages from my days spent as a patient. I have spent approximately thirty days total in psychiatric facilities, and through this work I want to share my story and struggle with others to help erase the social stigma of seeking help as a mentally ill individual. I also call into question the effectiveness of mental health facilities. I was a thirteen year old boy when I was first handcuffed and transported, and I had a sobering realization; these handcuffs have been around criminals and the worst of society, and now they're around me. This body of work specifically addresses the issue of handcuffing psychiatric patients and how that damaged my self-esteem as a young man. By handcuffing patients on their way to a facility, there is an implication of unpredictability in psychiatric patients. It's important to understand that just because an individual is under mental distress does not mean their behavior is chaotic and unpredictable.



Sierra Cauthen, *Endless Blossoming*

Mentors: Claudia O'Steen, M.F.A., Stacey Davidson, M.F.A. & Myles Calvert, M.A.
(ARTS 542 – Davidson; ARTS 436 - Calvert)

The ideas I explore in *Endless Blossoming* are: transformation, happiness, sadness, and the ways in which they impact my life. The paintings are a series of three, oil on canvas, that display a sense of contemplation. They are about mental illness and seasonal depression. I show my own struggle through landscapes, because the weather has always affected my moods. Winter signifies disparity and spring/summer signifies contentment. My first painting in the series displays winter using variations of blue, black, and purple paint to convey the emotions through color. This creates a feeling of fear and uneasiness. The second painting is a self-portrait, that shows the feeling of being stuck between these two emotions one that I desire, and one I cannot escape from. As the cold weather ends, the warmth begins. The third painting displays a bright atmosphere. I use bright saturated colors to convey optimism, hope, and happiness. *Endless Blossoming* also includes various prints to explore the ideas of transformation. These prints are on paper made from woodblocks and copper plate etchings. I use repeated motifs which include a swallowtail butterfly, a Luna moth, and pothos vines. The swallowtail butterfly and Luna moth symbolize transformation, optimism, happiness, etc through their color and the process they go through within their life cycles. The pothos vine symbolizes longing and desire. I combine these elements to express the different stages of transformation I am going through, and as a way to create optimism and hope.



Sophie Metcalf, *Objects Unseen*

Mentor: Stacey Davidson, M.F.A.
(ARTS 498 – Stock)

Scraps is a collection of work based on real objects and scenes that are typically overlooked. The installation consists of a series of paintings and a tattoo flash rack. I use painting as a tool to shine a spotlight on everyday objects. The tattoo rack is placed in the center of the room as the focal point of the exhibit. In its natural setting in a tattoo shop, the flash rack would be overlooked. Rather than containing examples of tattoos, I use the rack to hold a series of paintings. This series is about taking something mundane and bringing focus to it, making it fun. I see art-making as visual storytelling. Whatever art is made is meant to be viewed. Viewers do not often focus their attention on something like a ring of keys or a spray bottle. I put the viewer in a position to see the world around them with a more observing eye. I outline many of my subjects to draw attention to specific objects and scenes. I put a lot of focus on the colors and brush strokes of my work so that it is visually appealing. I focus on lots of everyday scenes, and I always use a brighter color palette than is found in nature. In *scraps*, I invite the viewer to look in a way that they might not typically look. The installation creates a story between the viewer and myself.

Department of Theatre & Dance Festivals and Showcases

Senior Choreography Showcases, December 2022

Faculty Coordinator: Meg Schriffen

Y2K	Choreographed by Rachel Stevenson
Misery Song	Choreographed by Madison Syswerda
Pan(Insula)	Choreographed by Jaiden Mosley
Spotlight	Choreographed by Caroline Bergvist
Eden	Choreographed by Justin Angel Tillman

Senior Choreography Showcases, April 2023

Faculty Coordinator: Kelly Ozust

In My Room	Choreographed by Trinity Robinson
The Spirit Moves	Choreographed by Jaiden Mosley
Skin	Choreographed by Alena Brown
Breakthrough	Choreographed by Lexus Lyles
Heavenly Day	Choreographed by Caroline Bergvist
42-42-564	Choreographed by Steffan Mayrides-Jolon
Beneath Her Strength: A Choreographic Analysis of Today's Black Woman	Choreographed by Kayla Alexander
The Light at the End of the Tunnel	Choreographed by Alyssa Boyd

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Additional
Projects**



South Carolina: Representation of African Americans

La'Royalty Jones

The representation of African Americans in South Carolina politics has been a long-standing concern, dating back to the eighteenth century when South Carolina's first state constitution was ratified. Given that white people represent the largest racial population, African Americans have been said to be at a political disadvantage in South Carolina. This explanatory study examined the statistical and historical data for South Carolinian political representation as it pertains to political leadership roles. The research is divided into two sections. The first section determined that, in terms of numbers, African Americans have legislative representation that is proportional to their share of the state population. The second half of my research used a qualitative approach to further explain my findings. That qualitative analysis addresses the amount of power that African Americans have within the state and the factors that explain that power. I have found support for the hypothesis that African-Americans lack substantive legislative representation, which continues to create barriers for African Americans in their pursuit of their political agendas.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Lipscomb)

Gun Violence's Effects on Minorities in South Carolina

William Hudson

This essay examines gun violence as it affects racial and ethnic minorities in South Carolina. For too long, we have seen gun violence take the lives of innocent South Carolinians as the rise of violent crime across the nation has increased. We have seen how gun violence has had a disproportionate impact on racial and ethnic minorities and that neighborhoods that have historically been under-resourced and racially segregated are the ones who are most affected by gun violence. This paper argues that these circumstances are the result of a series of (1) weak gun laws; (2) unequal access to housing, educational, and employment opportunities; (3) and a long history of disinvestment in public infrastructure and services in communities of racial and ethnic minorities. Acknowledging this, it raises the question, what can be changed to reduce gun violence in America, particularly as it impacts racial and ethnic minorities? I am arguing that the creation of stronger gun laws, along with direct investments in the communities that are most affected by gun violence, will help reduce the number of gun violence cases in America. I research gun violence in South Carolina as a whole and compare it to gun violence in communities that lack basic resources. Knowing that gun violence will be more likely to occur in under-resourced communities, I assert that stronger gun laws, equal access to resources, and investments in poorer areas will help decrease gun violence in racial and ethnic minority communities and in South Carolina as a whole.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Lipscomb)

American Culture and the Loss of Autonomy

Alyssa Robinson

Why are we the types of people who reproduce an unjust, non-liberatory status quo? While material conditions become worse in the United States as people have less access to housing, healthcare, and food security, our government focuses on granting more money for the rich. Despite this, it appears that citizens are becoming more blind, forgiving, and even supportive of these conditions. Why do so many of us support government actions that work against our own self interests in support of the wealthy? Have the masses been stripped of independent thought? This paper seeks to answer these questions through Adorno and Horkheimer's concept of the culture industry, Foucault's and Bartky's notion of disciplinary power, Mark Fisher's "Capitalist Realism," and a critique of the United States' public education system. These sources help outline the direct and indirect ways that we are shaped to accept capitalist ideology in the United States. From this framework, it is hypothesized that the working class has developed a false consciousness through forms of culture produced by the entertainment industry, marketing and advertising, and the selective teachings of history in schools. These structures work together, at both conscious and subconscious levels, to constantly bombard us with messaging that prevents us from thinking autonomously.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Lipscomb)

The 'latinidad' complex: una lucha por la autoidentificación.

Susana Daniela Atuncar-Castillo

In American society, the complexity of race, ethnicity, and nationality are an important aspect of being able to self-identify in order to uncover one's position in society. A white man born and raised in America can navigate society based on the privileges of their whiteness. For many Latinos, the path is often more nuanced and contradictory. Due to a mix of races that fall under the ethnic umbrella of "Latino" or "Hispanic," many Latinos face dissonance in understanding their identities in America. Central and South American countries, for example, have a long history of colonial rule that instilled an aversion to people of color and promoted a norm of colorism. American politics and media play a role in shaping Latino identity through media representations and exclusionary politics. This preference for whiteness is not only ingrained in Latin American culture but also in America, where there is an incentive for non-white people to assimilate into cultural expectations and practices of whiteness, regardless of ethnicity and nationality. Using the works of Gloria Anzaldua, Jose Esteban Munoz, and G. Cristina Mora, I delve into the layered meaning behind being Latino by looking at the effects of colonialism, partisan politics, and media representations.

Mentor: Michael Lipscomb, Ph.D. & Brandon Ranallo-Benavidez, Ph.D.

CAS – Political Science

(PLSC 490 – Lipscomb)

Fibromyalgia and Exercise

Sydney Duda

Fibromyalgia Syndrome (FMS) is a disorder that is primarily known for causing musculoskeletal pain. FMS is believed to affect the way the brain processes signals and amplifies painful sensations. People with FMS should follow special considerations when it comes to exercise. The key study in the literature review looked at the effects of muscle strengthening versus aerobic exercise programs in FMS and how the programs impact symptoms. Thirty female subjects with FMS were randomly assigned to two groups, strength training and aerobic training. Both groups participated in an 8-week program that involved exercising 3 days per week. The strength training group did 4-5 exercises for both upper body and lower body. The aerobic program did 30 minutes of walking on treadmill at a speed that reached 60-70% of maximum heart rate. Aerobic training should be done 1-2 days and progress to 2-3 days of light to moderate exercise, which can be done through low impact exercises such as swimming and cycling. Aerobic training can be done in 10-minute bouts to get 60 minutes per day. Resistance training should be done 2-3 days a week with body weight and progress to resistance bands. Lastly, flexibility should be done about 3 days a week, to produce a good stretch. Exercise can be very effective in improving symptoms for fibromyalgia and improving overall quality of life. However, this study did not determine whether strength training or aerobic training had a greater impact on symptoms.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Gestational Diabetes and Exercise

Autumn Bryant

Gestational Diabetes Mellitus (GDM) is any degree of glucose intolerance that occurs during pregnancy. Skeletal muscles represent the main site of insulin resistance which tends to lead to exercise becoming the main prescription due to the overwhelming amount of evidence provided. Within this evidence very little is provided on resistance training. In this study as part of the literature review, resistance training was studied to see what effect it has on glycemic control in patients with GDM. A randomized control trial was conducted involving patients who were under prenatal follow up with an obstetric clinic. The patients were split into two groups, an exercise group, and a control group. Patients included in the study were those who ranged between 18-45, were sedentary, nonsmokers, gestational age ranging from 24 to 34 weeks, and no risk factors for preterm delivery. In terms of frequency, intensity, time and type (FITT) of exercise for someone with GDM, aerobic training should be completed for 3-7 days a week, for at least 150 minutes a week at a moderate intensity of 40-59% of VO₂ Reserve. Resistance training should be completed for 2-3 days a week, 8-10 exercises, 1-3 sets, for 10-15 repetitions, at 50-60% of 1-RM for moderate intensity. Flexibility training should be completed for 2-3 days a week, stretching to the point of discomfort, holding for 10-30 seconds, for 2-4 sets. The resistance exercise program can be considered an effective therapeutic alternative for patients with GDM due to improved glycemic control and reduced number of patients who require insulin.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Multiple Sclerosis and Exercise

Taniya Richardson

The central nervous system (CNS) lesions that characterize the chronic inflammatory disease known as multiple sclerosis (MS) can cause significant physical or cognitive impairments as well as neurological problems. The present data demonstrate that the origin of MS is multifaceted and includes genetic predisposition along with environmental factors such as exposure to infectious agents, vitamin deficiencies, and smoking, even though the origin and pathophysiology of MS remain unknown. These substances have the capacity to start a chain reaction in the immune system that results in the death of neurons, demyelination of the nerves, and neurological dysfunction. A review of literature found on exercise in the experimental autoimmune encephalomyelitis (EAE) animal model of multiple sclerosis before summarizing the findings about the impact of exercise on particular MS symptoms and functional limitations. The most recent recommendations for safe fitness programs for MS patients are covered. Regarding the impact of exercise on EAE, rats were forced to run for 1 day after the disease was induced. In comparison to the control (sedentary) rats, the exercised rats displayed a significant delay in disease onset and a reduction in disease severity. Aerobic exercise recommendations of 5 days a week at low to moderate intensity to improve cardio fitness. These sessions should be no more than 30 minutes. Resistance training was described as twice a week of low to moderate muscular strength training, from one set of 10 to 15 repetitions with light weight. Physical activity is encouraged for patients with MS, as it has been demonstrated to be safe, well tolerated, and beneficial as the condition progresses.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Ideology or Fallacy? The Reality of Conservative Economic Policy

Garrett Jackson

How does studying the evolving economic policy of political parties in the United States serve as an indicator of their overall ideological shifts? In answering that question, the purpose of this paper is to examine if and how the economic ideology of the Republican party has changed, specifically through the presidencies of Ronald Reagan, George H.W. Bush, George W. Bush, and Donald Trump. Conservatives have long championed decreased government spending, but, seemingly, that has not been reflected in their actions when in power. Especially in terms of economic assistance and stimulus, conservatives appeared to have forgotten their asserted preference for shrinking the deficit, thus playing a part in creating the skyrocketing national debt they promised to shrink. This paper provides a qualitative framework to investigate this puzzle by specifying the traditionally conservative economic theories of Thomas Sowell, Milton Friedman, and Friedrich Hayek. That framework focuses on limiting the deficit, increasing military spending, and advocating against stimulus spending and widespread social programs. Further, this paper describes the extent of government spending during each presidency by studying each president's military expenditures, deficit growth, social spending, and stimulus spending. In doing this, the paper attempts to discern whether there has been a genuine shift in Republican and conservative ideology or if deviations from traditional theory were contingent events. The paper hypothesizes that there have been identifiable instances of divergence through each presidency, signifying a continued departure from traditional conservative economic theory.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 353 – Lipscomb | PLSC 490 – Lipscomb)

Physical Activity After Amputation

Mayur Patel

The cause of amputation of a limb are numerous, and there are many different types of amputations as well. Due to the difficulties of daily life, many amputees find it difficult to maintain a healthy amount of physical activity. For the amputee population, special training consideration are needed when designing an exercise program. In a BKA (Below Knee Amputation) literature review, targeted muscle reinnervation on a bionic prosthetic was analyzed to understand and enhance the communication between the brain and the prosthetic. In the study, they found two key points to consider. First, the pressure given on the non-prosthetic limb was greater in multiple tasks. Second, when measuring the joint angles while lifting a small object comparing the bionic and non-bionic prosthetic, they found that the patients with simple prosthetic had lower knee and ankle flex. This means that they were "lifting with their back" that lead to long term back and hip pain. Aerobic exercise programs should include 2-3 days per week at moderate intensity for 40-60 minutes per day. Rest intervals should be added according to the client's pain tolerance since many amputees have pain at the distal end of the cut limb. Additionally, due to the lowered vasculature of the client due to the amputation process, cardiac clearance and considerations must be taken for this population. Resistance training is similar to the general population, at 2+ times per week at 60-70% of the individuals 1-repetition maximum at 8-12 reps. Cardiac and pain attentions must be considered when selecting exercises. Single joint exercises are recommended. Flexibility training will also align with the general population, at 2-3 or more days per week, each stretch held for around 10-30 seconds. Static and PNF stretching is preferred. Refrain from stretches that require balance. Amputees may have difficulty in motivation to do physical activity; therefore, being attentive to their preferences and concerns is an important factor to training this special population.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Adolescent Women with Eating Disorders and Exercise

Nicole Weiss

Eating disorders and disordered eating among adolescents are extremely common especially among young women. While there is plentiful research on eating disorders there is little research found on recovery and how physical activity can help in their rehabilitation. A literature review conducted resulted in finding a study that researched the effects of prenatal and postnatal exposure when mothers are found to have an eating disorder before bearing the child. Looking at the chemical imbalances they were able to determine that higher levels of corticotropin-releasing hormone affected hypothalamic pituitary axis activities from being performed. In another study it was reported that eating disorders can begin at any age with signs showing as early as 10 years. For exercise programs in persons with eating disorders there should be no more than 3 days a week at a low intensity on a Borg perceived exertion scale 9 or lower. Limit aerobic training and then minimal resistance training until the client has shown significant improvement. Thirty minutes a day maximum, and if using equipment the client should be at a comfortable walking pace. When the client is ready they start with wrist and ankle weights to help improve muscle strength. It is important to note every eating disorder case is different. The exercise program listed above may likely work better for a client that has anorexia and still does not have full muscle strength yet. A client that formerly had a binge eating disorder would be recommended something with slightly higher intensity.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Exercise Training for Anxiety and Depression

Lillie Smith

Anxiety and depression is caused by the depletion of the neurotransmitters serotonin, norepinephrine, and dopamine in the central nervous system. Exercise programming is needed in people who have anxiety or depression because it can help lessen some side effects that are caused by anxiety or depression. A review of literature found two interventions took place with 4 sessions of 1 hour per week that lasted for five weeks for a total of 20 hours of activity. There was one control group who did not participate in physical activity and participated in a social relaxation program. The subjects that were 18 years old or younger received multidisciplinary care and only participated in one intervention. Aerobic frequency, intensity, time and type (FITT) of aerobic exercise should include 4 to 5 days of moderate to vigorous level intensity that is 60-70% of max heart rate. The sessions should be at least 30 minutes per session and can be progressed to 60 minutes per day. Resistance FITT should include 2 to 3 nonconsecutive days per week of resistance training at a moderate level of intensity at an 60 to 80% 1-repetition maximum (RM) using weight machines and body weight. As strength increases there can be use of free weights. Flexibility FITT should include 4 to 5 days per week of stretching exercises and incorporate dynamic and static stretching. The results showed that the exercise therapy showed a reduction in anxiety for both groups. There was an increased reduction of depression levels observed through the exercise group. Exercise training can be recommended for persons with anxiety and depression.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Exercise Program Recommendations for Individuals With Type 1 Diabetes

Christian Joseph Peters

Type 1 diabetes is a disease characterized by the inability of the pancreas to produce insulin so the body cannot adequately absorb glucose. Insulin is injected into the body to compensate for this as treatment. Most literature shows that physical activity increases bone mineral density (BMD) in individuals with Type 1 diabetes. Also that regular physical activity (PA) helps control glucose and insulin levels in the blood. The main focus for a Type 1 diabetes exercise program should be aerobic activity since aerobic exercise is more associated with blood glucose and blood insulin control than other types of training. Common guidelines for weekly aerobic activity are typically as follows: 3-7 days per week and high frequency is better. The intensity should be moderate to vigorous for an RPE of 5-9 (on a scale of 1-10). At least 30 minutes a day is recommended (preferably 60, working up to around 300 minutes per week) although the total time can be accumulated throughout the day in small bouts. Recommended training modalities include continuous exercises that use large muscle groups like running, cycling, or swimming. In addition to aerobic training, other lifestyle recommendations should be made such as consistent timing and portioning of meals, keeping added sugars and saturated fats low, and getting at least 7-8 hours of uninterrupted sleep every night. These recommendations will also help balance the lack of insulin control in the body that accompanies Type 1 diabetes.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Hypertensive Trends & Exercise

Janai Ford

Hypertension is a condition at which systolic pressure is ≥ 130 mmHg and a diastolic pressure is ≥ 80 mmHg. Based on reviewed studies, there are approximately 42 million men and 28 million women with hypertension. A study done in Mexico standardized hypertensive mortality data to create rates per 100,000 population. They gathered these data from the national populations' projections on the national population councils' website. They also considered ages from 20 to 84 for calculation of mortality rates and for model generation they use 13 groups. To obtain changes in mortality over time, they gathered average annual percentage over the period of the study. The results showed that in Mexico from 1998 to 2018 there were 335,863 deaths due to hypertension. The annual deaths increased by 1.3% per year. Aerobic training should be done with a frequency of $\geq 5-7$ days per week at moderate intensity for ≥ 30 minutes using large muscle groups. Resistance training would include $\geq 2-3$ days per week, moderate intensity, 2-4 sets of 8-12 reps for ≥ 20 minutes. Type of resistance training can include free weights or functional body weight exercise. For flexibility it would be $\geq 2-3$ days per week, stretch to the point of tightness, ≤ 10 minutes per session, and with static or dynamic neuromuscular facilitation. It can be concluded that hypertension is increasing in young to older adults, but it has been shown that an exercise program can help control and manage blood pressure levels.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Exercise in Youth Athletes

Kyle Bardusch

Exercise in youth athletes is important to athletic development. Resistance, aerobic, and flexibility are all equally important. Around 42% of 6 to 11-year-olds are meeting guidelines of being physically active, 7.5% for 12 to 15-year-olds, and 5% for 16 to 19-year-olds. In youth athletes compared to adults, they tend to have a lower absolute oxygen uptake (VO₂) but a higher relative VO₂. Cross-sectional studies that focused on the effects of resistance training on youth athletes compared youth athletes with controls and children with adults. Longitudinal studies were also used by examining effects of resistance training in untrained children, youth athletes, and adolescents. Resistance training for youth athletes should be done at least 3 days per week. Each workout will be using bodyweight as resistance with 8-15 submaximal reps. If using free weights, 6-7 perceived exertion (RPE) on the 1-10 RPE scale is used. It should be part of at least 60 minutes of exercise. Some activities that may be included in resistance training are push-ups, curls, and resistance band exercises. Progression can be increasing resistance or weight each week to get stronger. Results from all these studies showed training induced changes in motor performance as well as enhanced neuromuscular control. Changes in muscle size, muscle fibers, and muscle composition were also found. Training in youth athletes also leads to an increase in bone mineral content. More research in this area is needed to understand true physiological stimulus-response relationships necessary for effective training programs in youth athletes.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Get With the Times: Custody, Visitation, and Gender Bias in the South Carolina Family Court, or, How Men's Custody and Visitation Roles are Changing: From Past to Future

Saleana Pence

There is no question that mothers obtain custody over their children more often than the fathers. In fact, the bias is all over the United States, but this research examines the state of South Carolina, where fathers obtain custody around 27.8% compared to mothers gaining custody 72.2% of the time. This paper investigates how and why a bias against fathers exists and how the history of that bias has changed over time. More particularly, this paper examines the cultural norms and institutionalized ideals that inform the sexism within the South Carolina Family Court System. Within this framework, I examine the history of sexism and consider what I believe the future will entail. The methodology of this study involves a qualitative case study from South Carolina of family law cases, policies, rules, regulations, and procedures that reveal a set of historical trends reflecting sexism against fathers and how those patterns of discrimination may be changing as we move into the future.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Lipscomb)

Asthma in Youths and High-Intensity Exercise

Kedron Reid Moser

Asthma is a chronic inflammatory disease, and it can cause wheezing, coughing, and chest tightness. Asthma is common in youths, and around 6 million children have it. It can be outgrown but up to 18 million adults do have asthma. A literature review included an article about the effect of high-intensity training (HIIT) and asthma on the VO₂ kinetics of adolescents had a study to see if the potent stimulus to the dynamic oxygen uptake response in adults from HIIT is the same in youths since HIIT has less demand on the respiratory system. The study used 69 adolescents and 35 participants, participated in a 30-min HIIT intervention 3 times a week for 6 months and 17 participants have asthma. Participants completed 3 heavy-intensity constant work rate tests and an incremental ramp treadmill protocol to test for volitional exhaustion. It helped determine the dynamic VO₂, heart rate, and deoxyhemoglobin response at baseline, mid intervention, post-intervention, and at a 3-month follow-up. There was no influence of asthma at baseline or in response to the intervention. Faster VO₂ time was constant for the intervention group that performed HIIT training. The aerobic program for adolescents with asthma would be a frequency of 3-5 days per week with an intensity beginning with moderate, and if it is well tolerated, then progress to 60%-80% of HRR. The time would increase to 30-40 minutes per day and the type would be walking, running, cycling, swimming, or pool exercises. The findings have helped with highlighting the potential utility of school based HIIT as a strategy to enhance the fitness and VO₂ kinetics of youth, regardless of the presence of asthma.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Time Spent on Social Media Affecting Body Anxiety and Body Image

Elizabeth Williams

Social media apps and websites are designed to provide the user a platform to not only express themselves, but also a way to communicate with others around the world. With this social interaction between posters and viewers comes the possibility of body anxiety and body image issues. Understanding the effect that social media use has on a young adult's body anxiety and image is important in discovering connections between media usage and various mental health issues that young adults face. A total of 76 young adults between the ages of 18 and 29 completed an online survey. This survey consisted of three sections that focused on physical appearance and anxiety, social media usage, and demographics. Results from this survey have shown that there is not a significant connection between time spent on social media and body image. However, there was a significant correlation between body anxiety and social media's effect on body image. There was also a significant difference between men and women with women having a higher rate in body anxiety and social media's effects on body image. Furthermore, a racial difference of African American and White women was found. White women were shown to have significantly more body anxiety and social media effecting body image. Whereas African American women had a significantly higher drive for thinness than White women. Additionally, White women showed to have a significantly higher body dissatisfaction than African American woman. Overall, results from this study have shown how social media can impact one's mental and physical health regarding their physical appearance.

Mentor: Matthew Hayes, Ph.D.

CAS – Psychology
(PSYC 302 - Hayes)

Somos Más: The Latino American Voting Effect

Alejandra Rojas

Latinos are the fastest-growing racial and ethnic group in the United States. This leads many political scientists to wonder what their impact is on elections. To address these questions, this paper aims to examine the different barriers that Latino Americans face when casting or trying to cast their vote. These barriers might include immigration status or local voting laws. Additionally, this paper asks how greater Latino voter participation would affect public policy, hypothesizing that more policies would be enacted that benefit Latino Americans. Through the comparison of different voting laws and other factors that might affect someone's eligibility to vote, and by theorizing what kind of policy changes would occur if more Latinos vote, this paper seeks to demonstrate the power of Latino Americans in the United States' electoral system.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science
(PLSC 490 – Lipscomb)

Does Socioeconomic Status Influence Recycling?

Vincent Wasner

This paper investigates the relationship between income and recycling behavior in the United States. Specifically, the paper aims to determine whether higher income individuals are more likely to recycle than lower income individuals. The study draws on previous literature on the sociological and economic factors that may influence recycling behavior, including convenience, education, and levels of environmental concern. The findings of this study will contribute to the existing literature on the relationship between income and recycling behavior and may have implications for policymakers seeking to increase recycling rates in the United States. By simplifying the research question to focus solely on recycling behavior, the paper aims to provide a more focused and actionable analysis of the topic. The paper's overall goal is to shed light on the important sociological and economic factors that contribute to recycling behavior and to provide insights into how policymakers and individuals can promote more sustainable practices in the United States.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science
(PLSC 490 – Lipscomb)

Protection LGBTQ+ Rights in the U.S.

Tyree Perdue

The government's role in LGBTQ+ politics is pivotal in protecting their human rights. This paper looks at existing data and policies from both the United States and from other countries that have LGBTQ+ policies. A look at how the U.S. and other countries have enacted LGBTQ+ policies allows us to analyze their effects on the LGBTQ+ community. In American politics, there are several challenges that the LGBTQ+ community faces. Focusing on both state and federal policies, this paper traces the development of these policies over time. In the years of 1940-1955 there was a national sexuality regime that sought to police the behavior of the LGBTQ+ community. More recently, members of the LGBTQ+ community have been working with their straight allies to help enact public policies that work on behalf of the LGBTQ+ community, ranging from workplace regulations to marriage equality. This paper points towards the work that still needs to be done regarding these policies.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science
(PLSC 490 – Lipscomb)



White Feminists' Role in Universalizing the Female Experience

Sabrina Angola

This paper questions the extent to which white feminists have used capitalism in order to further the feminist movement and how these methods may have overlooked women of color. Examples of the relationship between capitalism and the white feminist movement can be seen from the suffragette movement to modern BuzzFeed articles. Specifically, this paper will investigate mainstream feminism rather than scholarly feminist theory. Examples of this type of feminist advocacy include the popularization of the term “#girlboss” and the way that term was utilized by white feminists in a way that universalizes the experiences of all women. This paper explores the dangers of this generalization of women's experience as it does not recognize the deep structures, such as patriarchy and racism, that grant privilege to white women and obstacles for women of color. This paper utilizes qualitative methods such as testimonies from women of color and white feminists, bringing in personal testimonies from Sheryl Sandberg's “Lean In” and Koa Beck's “White Feminism.” The paper concludes that white feminists often universalize the female experience and exclude minority women.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science
(PLSC 490 – Lipscomb)

Testing the model of Nur function using non-standard amino acids

Veda Lightfoot

Nickel uptake regulator (Nur) regulates cellular concentrations of nickel in *S. coelicolor* and is the only Ni-sensing member of the Fur family of metalloregulators. Understanding Nur is paramount to understanding how the Fur family has evolved to serve diverse functions. Nur is a symmetric homodimer with each monomer containing two metal binding sites: one M-site and one Ni-site. Previous literature indicates the Ni-site as the regulatory site for Nur, however research in the Grosseohme lab has evidence that suggests the M-site as the regulatory site. The proposed regulatory model suggests when the M-site is devoid of metal, the linker between the dimerization domain and the DNA-binding domain is flexible, leaving Nur in an open conformation with low affinity for DNA. Conversely, when metal is bound to the M-site the flexible linker rigidifies, placing Nur in a closed conformation and increasing DNA affinity. This project proposes to use EPR and FRET as complimentary techniques to test the working model of regulation. This will be accomplished by attaching probes at specific sites in the protein structure. The magnetic interactions of the EPR probe will allow studies on movement of the flexible linker, while large conformation changes will be detectable by the relative distance between the FRET probes. To ensure that the probes are only attached where desired, *p*-azido-phenylalanine is incorporated into Nur at specific locations using the amber stop codon strategy. Click chemistry will be utilized to covalently attach alkyne-modified FRET or paramagnetic probes. Currently, modified Nur has been expressed and purification is underway.

Mentor: Nicholas Grosseohme, Ph.D.

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

CAS – Chemistry, Physics, Geology, and the Environment

Inequality and Discrimination Against Iranian Women

Charandeep Kaur

The discrimination and inequality women face in Iran have rapidly become an issue. As the 21st century gains more technological advances, spreading information about what goes on in Iran has become easier. This paper traces key events in the history of Iranian women's struggles for equal rights. Compared to earlier generations, Generation Z is a much bolder and more determined group of women who have helped push a much stronger women's rights movement. These women are putting pressure on the government in ways that may lead to compromise. The government claims that traditional policies help to keep order and women safe. This is far from the truth, however. Iranian women face sexual and physical abuse and even death when it comes to breaking the rules. This paper looks at how Mahsa Amini's death and the increased presence of informational technologies can help us better understand the unfolding women's movement in Iran.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science
(PLSC 490 – Lipscomb)

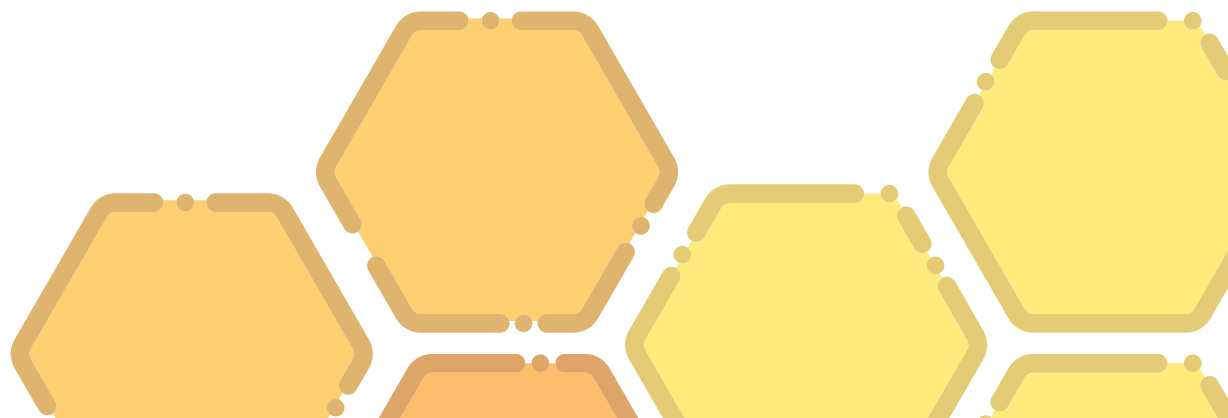
Immigration Politics and Policies

Fierra McKnight

Immigration laws in several nations have changed recently to make it more challenging for foreign nationals to immigrate. The installation of stronger border controls, visa restrictions, and entry eligibility standards are the main ways that immigration rules have become increasingly restrictive. As a result, prospective immigrants are being scrutinized more closely, visa applications are taking longer to process, and possibilities for talented professionals and students to get visas are becoming more restricted. Many nations have also implemented measures to limit the number of migrants and asylum seekers who can enter their border by implementing changes to programs for resettling refugees and the closing of refugee camps. In general, the trend toward tighter immigration laws has had important impacts on people looking to go abroad as well as on businesses and economies that depend on foreign labor. While there may be good reasons for some immigration limitations, this paper looks at how authorities should take into account how such restrictions may affect both individuals and society as a whole.

Mentor: Michael Lipscomb, Ph. D.

CAS – Political Science
(PLSC 490 – Lipscomb)



Papa Doc's Race War: The Rise of François Duvalier

Cody Cook

This essay explores the political rise of François "Papa Doc" Duvalier, a Haitian writer, physician, ethnologist, and president (1957-1971), and the ways in which he employed racial rhetoric to gain political prominence among Haiti's aspiring black majority. An in-depth analysis of Duvalier's writings and speeches during his time as a young *noiriste* thinker, the 1956-1957 campaign, and even his early presidency shows the leader's use of racial language as a potent form of political appeasement and overt aggression. Although several scholarly works reinforce this notion, conventional historiography assigns historical supremacy to violence via the Tonton Macoute as an explanation for Duvalier's political ascent and longevity. However, as this paper underscores, it is evident that Duvalier's calculated use of color-infused language influenced his path to the presidency and later the Haitian's dictator's ability to retain legitimacy over the years. To truly understand Duvalier, one must consider the multifaceted figure as an intellectual, black nationalist, countryside doctor, fervent campaigner, and even a superficial politician. While Duvalier ultimately turned to violence when faced with the cold realities of unceasing color tension and economic hardship - especially as a Third World country plagued by the legacy of colonialism - one should not understate Papa Doc's manipulation of Haiti's racial wounds to galvanize the historically oppressed black majority in his political favor.

Mentor: Gregory S. Crider, Ph.D.

CAS – History

(HIST 590 – Crider)

Women and the Cuban Revolution

Lucy Tollison

This study focuses on women during and soon after the triumph of the Cuban Revolution in 1959. This work focuses on the expectations and roles of women who participated in the rebellion and those that were placed on them after the Cuban Revolution as well as how these roles and expectations compared to those put forward by the Revolutionary leaders. Through a textual analysis of Fidel Castro's speeches and interviews with women involved in the Revolution, I argue that Cuban women were promised liberation through Marxist revolution and those promises often fell short. Cuban women who participated in the rebellion are ignored by history though they were vitally important to the success of the Revolution.

Mentor: Gregory S. Crider, Ph.D.

CAS – History

(HIST 590 – Crider)

Exercise for Individuals with Lower-Extremity Amputations: A Literature Review

Haley Prosser

Lower-extremity amputations may be needed due to vascular and circulatory diseases, trauma, treatment for tumors, and congenital deformities. A lower-extremity amputation makes it difficult for an individual to meet the required American College of Sports Medicine (ACSM) guidelines for physical activity, however, it is still essential for amputees to exercise. A study looking at gait before, during, and after a self-paced walk on the treadmill found sound side ankle biomechanics were reduced due to fatigue of the sound side plantar flexors and was compensated by a greater effort on the prosthetic side. The knee joint on the prosthetic side showed increased flexion to facilitate the rotation of the prosthetic shank. Research has found that after lower-limb amputees underwent a 12-week exercise intervention that included endurance, strength, flexibility, dynamic balance, and cardiovascular fitness resulted in fewer falls, and higher gait speed, force, and velocity. Amputees should strive to perform 30 minutes of cardiovascular training at least 3 times a week doing activities such as walking or running. They should exercise at 40-80% heart rate reserve (HRR) until they are able to build up to higher intensity. Amputees should resistance train two times per week at an perceived exertion of 11-16 on the Borg Scale. The exercises should include squats, sit-ups, step-ups, and calf raises. Building up strength and endurance in amputees to eventually meet the ACSM guidelines for exercise will help the amputees to build strength and coordination to help prevent falls and make the tasks of daily living easier.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

The Impact of Non-Native Plants on Urban Forest Plant Communities

Luke Reed & Jacob Hilgemann

Forests in urban areas are especially prone to invasion because of many human activities that modulate the introduction and spread of non-native species. These non-native plants may be detrimental to urban forest plant communities. However, few studies have assessed the effects of non-native plants on urban forests. Our goal for this study was to determine how non-native plant species impact plant communities. We established 733, 5-m radius plots throughout a 28.3 ha Winthrop Woods located in the city of Rock Hill, SC. In each plot, we identified and quantified the abundance of herbs, lianas, shrubs, and tree species. Non-native species were more abundant than native species in the understory, while non-native species were absent in the overstory. The overall abundance of native species decreased as the abundance of non-native species increased. Also, the abundance of native tree seedlings declined with the increasing abundance of non-native species. Although native trees dominate the current overstory, the reduction of native tree seedlings suggests a potential failure in the regeneration of native canopy trees.

Mentor: Kiyoshi Sasaki, Ph.D.

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

CAS – Biology

Progress Toward Understanding Cadmium Inhibition of Troponin Function

Cierra Ari Randolph, Morgan Dukes, Rachel McCollum, Victoria Williams & Jacob Rodriguez

Muscle contraction is a complicated mechanism that involves different protein complexes working synergistically to carry out and regulate the process. One such protein is the troponin complex, which serves as the link between brain signaling and muscle function. This protein is composed of three subunits: troponin-T, troponin-I, and troponin-C. Troponin-T anchors the rest of the complex to tropomyosin, a component of the muscle fiber. Troponin-I is responsible for inhibiting muscle contraction until a surge of calcium is recognized by troponin-C in response to a signal from the brain. Cadmium is a dangerous heavy metal that has carcinogenic properties and is known to impact cardiovascular function. Interestingly, cadmium can bind to troponin-C with equal or higher affinity than calcium. The aim of our research is to understand the impacts of cadmium on troponin function and its implications for muscle contraction. To date, we have encountered issues with troponin-I solubility, so we have adjusted our approach in that regard, working with smaller, more soluble regions of troponin-I that have strong interactions with troponin-C. Our current efforts are focused on cloning and purifying specific segments of troponin-I. We utilized PCR to modify and amplify the target region of the troponin-I gene. The KLD enzyme mix (NEB Biolabs) was used to phosphorylate and circularize the PCR product and degrade the residual template. We use the product from the KLD reactions to transform *E. coli* cells with our desired traits so we can begin testing the truncated troponin-I protein.

Mentor: Nicholas Grosseohme, Ph.D.

Funded by NSF Award 2203467

CAS – Chemistry, Physics, Geology, and the Environment

(CHEM 108H – Grosseohme)

How Do We Do All the Things?

Anna Caroline Alexander, Skyler Allen & Callie Gravett

This work represents a humorous, authentic, thrilling, and enthusiastic workshop presented by Winthrop University pre-service Artists/Teachers delivered at the South Carolina Art Education Association's annual conference and SOURCE. This presentation was introduced by the Winthrop University Art Education Program Direction. The presentation centered around the pre-service Artists/Teachers using the "10 Lessons that Education can Learn from the Arts" by Elliot Eisner as a conceptual framework to investigate how their roles as Artist/Researcher/Teacher can inform curriculum that supports Arts Integration through a Social Emotional learning approach. They have asked themselves, "How do we do all the things? How do we teach when there is so much that into WHAT and WHY? What elements of ourselves as artists, as researchers, and as teachers is going to inform our practice in a way that creates space for social emotional learning?"

Mentor: Michelle Aaron Livek Garner, Ph.D.

CVPA – Fine Arts

(ARTE 528 – Livek)

Physical Activity in Pregnancy with Gestational Diabetes Mellitus

Maryah Lance

Women who are pregnant with gestational diabetes mellitus (GDM) are at risk for complications for themselves and their unborn children. Glucose intolerance during pregnancy is considered GDM. Some of the complications are long-term type 2 diabetes, cardiovascular disease, preterm labor, induced labor, stillbirth, and an increased risk of a macrosomic baby over 9 lbs. A macrosomic baby has more body fat which can cause childhood obesity. Therefore, abnormally large babies usually correlate to mothers with GDM. Reducing body weight before, during, and after pregnancy while managing nutrition and physical activity are lifestyle changes necessary to decrease the chances of GDM. For example, the woman can do an aerobic exercise plan that looks like this: Frequency- 3-5 days per week; Intensity- 5-6 for moderate and 7-10 for vigorous (RPE scale of 0-10); Time- at least 30-60 mins; Type- walking, dancing, treadmill, cycling; Volume- 150 mins per week, 10,000 steps per day; Progression- 5-10% per week. Although this recommendation can help, nutrition should also be managed concurrently with exercise because physical activity is not effective when managed independently. If managing both nutrition and exercise is difficult, try goal setting following specific, measurable, attainable, realistic, and time-bound (SMART) goals like walking three days a week for 30 minutes a day for a month and increasing the time by 10 mins each month the goals are reached.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Diabetes in older adults

Christopher Becker

Diabetes is a chronic condition that affects millions of people worldwide. Older adults are particularly vulnerable to this disease, and can lead to significant functional limitations and reduced quality of life. This literature review aims to explore the ways in which older adults with diabetes can improve their functionality and quality of life through various interventions. The study will focus on a range of interventions, including physical exercise, dietary changes, and medication management. Examining the effects of these interventions on physical functioning, cognitive functioning, and quality of life in older adults with diabetes will be included. This review seeks to shed light on the best practices for helping older individuals with diabetes and pinpoint fresh ideas for enhancing their quality of life. Impact of exercise interventions on older adults with diabetes will evaluate physical exercise and individualized exercise prescriptions based on exercise testing. This review will identify the most effective exercise interventions for improving the physical and cognitive functioning, as well as quality of life in this population. The purpose of this research was to increase awareness and knowledge about the challenges faced by older individuals with diabetes, in order to promote a better understanding of effective treatments and interventions.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Personality Differences in Effectiveness of Emotion Regulation Following Autobiographical Recollections of Trauma

Olive Corby

Emotion regulation is a goal-directed process whereby people manage their emotions. This is essential for social competence and psychological well-being, particularly following adversity. Our study tested the relationship between personality traits and emotion regulation following recall of a traumatic memory. We focused on the emotion regulation strategy known as reappraisal, a process of reinterpreting distressing events to reduce their negative emotional effects. Supporting our hypotheses, after writing about trauma, the only participants able to leverage reappraisal effectively enough to lower negative affect were persons high (versus low) in conscientiousness, high (versus low) in openness and low (versus high) in neuroticism. This suggests that reappraisal is predicted by the tendency to exert effort (conscientiousness), is facilitated by an ability to see multiple perspectives (openness), and is enhanced by perceptions that emotions are controllable (low neuroticism). These findings have practical relevance, as there is evidence that a large percent of students enrolled in college report a history of past traumatic events. It is therefore important to identify effective strategies for coping with trauma. Our findings suggest that although reappraisal can be an effective approach for many individuals, it may be less advantageous for persons low in conscientiousness and openness and high in neuroticism. Future research should investigate the value of alternate emotion regulation approaches (e.g., acceptance or suppression) for persons with different personality profiles.

Mentor: Donna Nelson, Ph.D.

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

1st place poster category at the 27th Annual SAEOPP McNair/SSS Scholars Research Conference, Atlanta, GA, June 2022 & CEPO Showcase Poster Session at SEPA Annual Meeting

CAS – Psychology

Temperature Optimization, Expression, and Purification of CAIN55

Brooke Jewell

CAIN55 is a gene identified from a bacteriophage that has been shown to be cytotoxic to mycobacterial species. The mycobacteriophage Cain, which acquires a total of 102 genes, is a member of the *Siphoviridae* family. Homology modeling of the translated amino acid sequence suggests that CAIN55 may be a cellobiohydrolase. However, homology models showing CAIN55 to be a cellobiohydrolase have generally low confidence scores, leading us to believe that this result may be incorrect. Online programs such as RaptorX and Phyre2 were used to generate homology models for this project. CAIN55 has also been proven to bind to NusA, which is a transcription regulator. Uncovering the structure of CAIN55 may be able to tell us more about CAIN55's interaction with NusA, and thus, how CAIN55 helps regulate bacterial transcription. In this work, we have determined the optimum temperature for the expression of recombinant CAIN55 in *Escherichia coli* as well as attempted to purify the resulting recombinant protein from *E. coli* cultures using methods such as MCAC (Metal Chelate Affinity Chromatography). The purified protein will be used to determine the structure of CAIN55 by x-ray crystallography. Determining the structure of CAIN55 will be crucial for determining the function of the CAIN55.

Mentor: Jason C. Hurlbert, Ph.D.

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

CAS – Chemistry, Physics, Geology, and the Environment

Black Women in America

Chelsea Goggins

For my capstone project, I examine the hardships that Black women have faced due to their situation at the intersection of multiple oppressions, and how patriarchy and white supremacy have played a huge role into why they are one of the most oppressed groups in America. Throughout this research paper, I discuss why being a Black woman in American is viewed as one of the most oppressed identities. For this intersectional analysis, I consider the how the power markers of race, gender, and sex are often fundamental to how Black women experience the world. Drawing on the work of Sojourner Truth, the Combahee River Collective, Patricia Hill Collins, bell hooks, Kimberle Crenshaw, and Ange-Marie Hancock, I discuss the race and sex identities of Black women and how patriarchy and white supremacy have historically shaped Black women's self-understandings and how others view black women. In particular, this research examines how Black women embrace their culture with their hair and makeup, their occupational statuses, and how it is hard for all women, but especially Black women, to advance in their careers. This is an important topic for political science to explore because it is all about who holds the power to create this social issue among Black women and who has the power to effect change.

Mentor: Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Lipscomb)

Expression, Purification, and Crystallization of a Cryptochrome 2 Homolog from *Isodiametra pulchra*

Priya Patel

Cryptochrome 2 and Period 2 homologs were discovered in the transcription of *Isodiametra pulchra* by our collaborators Danny Stanton, and Dr. Julian Smith. That appearance could be the earliest evolutionary appearance of clock proteins. Cryptochrome (Cry) and period (Per) isoforms have been heavily researched to attain a better understanding of Cry and Per proteins interactions with each other and with other clock proteins to regulate gene expression of the clock protein. Cry2 and Per2 prevent CLOCK: BMAL1 from transcribing target genes during nighttime and show peaks during the early evening. Our goal is to determine the structure of the Cry2 homolog to determine the function. In a pET28 plasmid, we acquired expression using *Escherichia coli* codon optimized gene encoding *Isodiametra pulchra* Cry2. For purification, we ran metal chelating affinity chromatography, using the his-trap nickel column. We also performed a gel filtration to determine which fractions to concentrate, and with the concentrated protein we started to use the method hanging drop vapor diffusion to crystallize Cry2. For future work, we will continue to produce Cry2, express and purify the Per2 homologue, and perform crystallization trials on Cry2 and Per2 including the Cry2/Per2 complex.

Mentor: Jason C. Hurlbert, Ph.D.

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

CAS – Chemistry, Physics, Geology, and the Environment

Barriers to the Low-Income Population as they Seek Mental Health Resources: The perspectives of service providers

Spencer E. Bermudez

The low-income population is at a unique risk for poor mental health outcomes due to factors like upbringing and perceived status. Despite the increased risk, barriers persist that may impact their mental health seeking behavior. The perspective of service providers on these barriers is important but is largely unstudied. This current study aims to address this gap in knowledge through semi-structured interviews with service providers across York County, South Carolina. The emerging themes will shed light on the individual and structural barriers that exist and provide a basis for improving mental health services for those who are poor and vulnerable.

Mentor: Monique Constance-Huggins, Ph.D.

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

CAS – Psychology

Greek Life: The Business of Brotherhood and Sisterhood

Shivani Dahya

Greek life has been an integral part of college life for over a century. Greek life has curated a sense of community with its members through the form of brotherhood and sisterhood beyond just the four years of undergraduate education. Greek organizations are institutions that influence the way people live their lives and experience college. Historically, Greek life has been racially segregated and many of the values passed down from Greek organizations are seen today. The organizations rely on their history and the core roots that were established when they were founded. Through this mini-study, I was able to dig deeper into the tension and the attitudes from both sides, as well as the work they are doing now to bridge the gap and move forward together. Additionally, I also was able to get more insight into the elitism and nepotism of Greek life. I was able to dissect how those in Greek life are set up for success at higher rates than those who do not join. Greek life has always been fascinating to comprehend and through this mini-study, I was able to get an inside look into the exclusive world.

Mentor: Michael Sickels Ph.D.

CAS – Sociology, Criminology, & Anthropology

(SOCL 303 - Sickels)

Campus Energy Use In and Out of a pandemic: A case study of a Small Liberal Arts University

Jenna Glover

Higher education has been hit fairly hard during the recent Covid-19 pandemic. Students were not present in classrooms, dining halls, residence halls, computer labs, or on campus utilizing other resources requiring the use of power. In addition, at least for the first portion of the pandemic, most faculty and staff were also not present at work and were doing most of their jobs remotely. We conducted a case study at Winthrop University, a small, state liberal arts university in South Carolina, with regard to energy usage during the pandemic with conversions to carbon emissions to calculate the total carbon footprint of the university. We found that there was a positive correlation between the total number of people on campus and total amount of energy used. However, not all areas of campus showed this correlation such as in the dining, laboratory and athletic space. There has been an increase in energy usage since a return to campus, however, they have not risen to pre-pandemic level.

Mentor: Scott Werts, Ph.D. & Chris Johnson

CAS – Chemistry, Physics, Geology, and the Environment

Impact of Involuntary Retirement on the Mental Wellbeing of Female Athletes

Claire Davis

Participation in sports is often associated with many physical and psychological health benefits. However, it can also have negative consequences such as career-ending injuries which may have long-term effects on mental health. Research suggests that involuntary athletic retirement, due to injury, illness, or being cut from a sport can have detrimental effects on the mental health of athletes. Researchers have often overlooked the impact of retirement specifically in female athletes. Although females often report similar difficulties with retiring from sport as male athletes do, female athletes are often faced with underlying reasons for retirement. Some of these factors that female athletes may face include fewer opportunities for continued participation after college because of limited options to play professionally, the disproportionate amount of anterior cruciate ligament injuries in female athletes, as well as planned or unplanned pregnancies that force female athletes to retire. Athletes who are forced to retire from their sport may experience lifelong effect on their psychological well-being, including depression, anxiety, substance misuse, loss of identity, and disordered eating. It is important to take a closer look at how involuntary retirement affects female athletes specifically.

Mentor: Janet Wojcik, Ph.D. & Martha Dettl-Rivera, Ed.D.

COE – Physical Education, Sport & Human Performance

(PESH 381 – Wojcik)



Synthesis of 4,5-dihydro-1H-pyrazole derivatives as BRAF inhibitors

Hannah Bendure

BRAF is a human gene that encodes the BRAF protein which stimulates cell growth. BRAF mutations are found in several types of cancer, most notably in 50-70% of melanoma cell lines and tumors. 90% of activating BRAF mutations in cancer cells are a glutamic acid to valine substitution at position 600 (BRAFV600E), which is approximately 500 times more active than the wild-type protein. A study in 2006 revealed a 4,5-dihydropyrazole derivative as a potent inhibitor of KSN (kinesin spindle protein) to treat human cancers with good potency, pharmacokinetics, and water solubility. Another study in 2009 at the National Cancer Institute corroborated the anti-cancer activity of 4,5-dihydropyrazole derivatives with positive results on leukemia, melanoma, lung, colon, CNS, ovarian, renal, prostate and breast cancer cell lines. Nicotinic acid amide also acts as a chemo- and radio-sensitizing agent, and can be used with intravenous vitamin C therapy. Compound 27e* in the literature on which this research was based has a half inhibitory concentration of 0.20 μM and the concentration causing 50% of cell growth inhibition is 0.89 μM . These values are promising for cancer treatment, however only one constitutional isomer of anisaldehyde was used in the synthesis of the compound sent for analysis. The purpose of this research is to synthesize 4,5-dihydro-1H-pyrazole derivatives. This study focuses on comparing the effectiveness of para-anisaldehyde, meta-anisaldehyde, and ortho-anisaldehyde in synthesizing the derivatives. All three compounds both yielded the chalcone derivatives. Para-anisaldehyde and meta-anisaldehyde both yielded the 4,5-dihydropyrazole derivatives, however the ortho-anisaldehyde has yet to be optimized for purified results. Future goals include further synthesis and purification of the chalcone derivatives, further synthesis and purification of 4,5-dihydropyrazole derivatives, and completion of the reaction optimization to form the desired BRAF (V600E) inhibitors. The final compounds will be purified and submitted for bioassay testing.

Mentor: T. Christian Grattan, Ph.D.

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

CAS – Chemistry, Physics, Geology, and the Environment

The Impact of Early Pediatric Physical Therapy on Cerebral Palsy

Myah Smith

Cerebral palsy is the most common motor disabling disorder found in children. Cerebral palsy is a group of disorders on movement, posture, and muscle tones that are caused by an injury in the brain during development. Cerebral palsy vary in condition. The disorder makes it difficult for children to do everyday activities from walking to self-feeding. The collection of research and data collected discusses different types of pediatric physical therapy that young children participate in to make their daily activities easier and as normal as possible. Some studies have found that other types of physical therapy (functional physical therapy) help with being able to complete day-to-day activities and become more independent whereas others help only with body movement. This project is to investigate what types of pediatric physical therapy have a positive impact on children with cerebral palsy and how physical therapists can use these methods as an option to help these children live a more independent lifestyle.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(PESH 381 - Wojcik)

Inhibiting Acid Ceramidase with Phenolphthalein Compounds as a Potential Cancer Treatment

Sybil Smith

Cancer is a prevalent issue. The most common current treatments for cancer include radiation therapy and chemotherapy. However, recent developments in cancer treatment have included targeted therapy. Targeted therapy drugs are directed at molecules in cancer cells that promote proliferation. This approach to treating cancer is more specific to cancer cells, allowing healthy cells to be unharmed. The focus of our research was to create a targeted therapy drug to inhibit acid ceramidase, an enzyme that functions in the sphingomyelin pathway. The sphingomyelin pathway creates lipids for the plasma membrane of cells. Acid ceramidase converts ceramide into sphingosine, while later in the sphingomyelin pathway, sphingosine is converted into sphingosine-1-phosphate. A high concentration of ceramide in the plasma membrane promotes apoptosis, while a high concentration of sphingosine-1-phosphate promotes cell proliferation. Many cancer cells have increased proliferation due to an overactivity of acid ceramidase. This makes acid ceramidase a promising target for targeted therapy. The goal of our study was to synthesize an effective inhibitor of acid ceramidase. Last Summer, we designed eight derivatives of phenolphthalein, each with different groups attached to the ortho position on the phenols. During summer 2022, we attempted to synthesize four additional derivatives. We tested each derivative in silico, all of which had promising results. We were able to successfully synthesize the original eight derivatives by reacting 2 equivalents of phenol with phthalic anhydride using an acid catalyst in a microwave. Future works will attempt to purify the latest four compounds and evaluate the bioavailability of all compounds using tissue culture assay

Mentor: T. Christian Grattan, Ph.D.

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

CAS – Chemistry, Physics, Geology, and the Environment

“Travail No Time”: Divinity Conveying Morals in the Cycle Plays

Morgan Pettit

In this critical analysis, I examine the different roles that Jesus and God play in the *Corpus Christi* plays and how they convey the play's messages to indirectly push audiences into villainous roles. I wanted to look at this subject to understand how Divine characters are portrayed differently than every other character. I examine several articles from other medieval drama analysts and also look at audience engagement when watching the plays. I then examine *The York Play of the Crucifixion* for the portrayal of Jesus in that play and *The Chester Play of Noah* to look at how God's dialogue is written. I conclude that God is the powerful Judge, consistently shown showcasing Divine power and wrath. Jesus is portrayed as the mediator between God and sinners, advocating for their salvation and begging sinners to repent. I use Woolf's concept of the "Christ-knight" archetype to show how Jesus is portrayed as the penultimate example of holiness and goodness, saving sinners from the devil against whom they are so helpless. As shown in *The York Play of the Crucifixion* and examples from Crane's article on *The York Temptation Play*, the humor geared towards the audience gets them to sympathize with the villains. The Holy characters triumph in the end, leaving viewers feeling like they are villains if they do not repent and accept salvation. The playwrights imply that Jesus' sacrifice will be for nothing if sinners do not accept salvation, invalidating and mocking His exemplary deed.

Morgan Pettit

Mentor: Josephine Koster, Ph.D.

CAS – English

(ENGL 325 – Koster)

Exercise-Induced Asthma in Adolescents

Deliyah Tillman

Exercise-induced asthma (EIA) occurs when the airways constrict during physical activity. Physical activity can be referred to as any type of bodily movement that makes the muscles move and can help an individual burn calories. Majority of the time, EIA symptoms can be seen within the first five to ten minutes of performing any type of moderate to vigorous physical activity. Some of the symptoms that tend to show from EIA are severe fatigue, shortness of breath, and chest tightness. These symptoms can range from mild to severe and tend to show improvement after thirty minutes or more of resting. EIA is worse during certain environments such as cold/dry weather, recovering from a cold, being around certain chemicals, etc. Some of the procedures that a doctor will take to help diagnose EIA is asking about the individual's family history and performing a spirometry test. Long-term medication and short-term medications can be used to help with better control of this condition. Looking more in depth from an adolescent perspective, there are a few different activities that are appropriate to participate in when dealing with EIA. Golfing, gymnastics, and walking are a few that fall into this category to help keep EIA symptoms under control. As of right now, there is no cure for EIA but there are a few different avenues to consider that can help relieve symptoms. Warming up before exercises, medications, and allowing rest breaks are a few different ways to help with these symptoms.

Mentor: Janet Wojcik, Ph.D.

COE – Physical Education, Sport & Human Performance

(EXSC 511 – Wojcik)

Synthesis and Optimization of the Sphingosine Kinase Inhibitor with Improved Hydrophilicity

Emily Stewart

Cancer is a very prominent disease worldwide and has been studied time and time again. Recently, targeted therapy has shown positive results as it can selectively prevent cancer cell proliferation by promoting apoptotic activity of mutated cells. Metabolites of the sphingomyelin pathway are responsible for the pro-apoptotic and anti-apoptotic effects on cancer cells. Inhibition of sphingosine kinase leads to a build-up of sphingosine and ceramide, the pro-apoptotic metabolites, and decreases the intracellular concentration of sphingosine-1-phosphate (S1P), an anti-apoptotic metabolite known to cause cellular proliferation. A current inhibitor of sphingosine kinase, known as SKI-1, has been successful *in vitro* but lacks success *in vivo*. The objective of this project is to synthetically modify the structure of SKI-1 to make it more hydrophilic in order to increase its inhibition effects *in vivo*. Modifications of SKI-1 were done in a 3-step process. Five novel inhibitors were synthesized, purified and confirmed by ¹H NMR based on calculated log-P values, which describes the inhibitor's ability to be hydrophilic in an *in-vivo* environment. The log-P value for an orally bioavailable drug should ideally be less than 5, but the original SKI-1 has a value of 5.67. In the future, each modified inhibitor will be analyzed via mass spectrometry and carbon-13 NMR, then sent off for bioassay testing to compare modified structures to the parent molecule for *in vitro* and *in vivo* effectiveness as compared to *in silico* docking studies. From there, further modifications to each zone of the current inhibitor will be made and tested to find the combination of modified zones that produces the best results for bioavailability.

Mentor: T. Christian Grattan, Ph.D.

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

CAS – Chemistry, Physics, Geology, and the Environment

The Possibilities of Thread: Past and Present

Madalin Beam, Keyshaun Britt, Alena Brown, LeNyah Bryan, Shaniah Gibson, Hannah Hayman, Mackenzie Joy, Tymia Lamb, Kaitlin Metts & Jaiden Mosley

We interact with textiles in so many ways: a grandmother's carefully crafted quilt, the sweater knit by a close friend, a little girl's dress hand sewn from a beloved pattern. These cherished items are contrasted by the fast fashion we are accustomed to in our modern lives. This choreographic research explores the juxtaposition of old and new, cherished and convenience goods. The movement material was invented in collaboration with the students using improvisation, conversations about personal textiles, working with actual fabrics, and narrative story-telling.

Mentor: Kelly Ozust, MFA

CVPA – Theatre & Dance

Remember

Vix Nicholas

REMEMBER encompasses the realization of my own mortality and my personal struggle with the overarching notion of acceptance. While I find myself desperately wishing to believe in the afterlife, I default to the negative aspects of death and its finality. My work is an exploration of how to come to terms with the existential dread that plagues my mind. This work emulates the conflicting desires to be remembered and to remember. REMEMBER utilizes video and jewelry design to capture the unwanted knowledge of what it means to die, and the suffering that comes with living. While I have experienced a longing to relinquish control and let go of the life I have created, I also feel smothered by the fear of not knowing what comes next. Many recent circumstances in my personal life have emphasized this feeling of loss and have made me confront the realization that I may never see certain people again. I realize the absence of their small yet marvelous mannerisms as these memories will fade along with my own existence. As I try to overcome the thought that it all never really mattered, I use this work to dissect this desperate need to live forever.

Mentor: Claudia O'Steen, M.F.A. & Alfred Ward, FTC

CVPA – Fine Arts

Eagle Stem Scholars Program

Winthrop University's Eagle STEM Scholars Program merges the campus's commitment to undergraduate research and promoting the success of students from groups that have been historically underrepresented in the sciences. Biology, chemistry, computer science, cybersecurity, data science, environmental science, and math majors receive the academic support and research training needed to pursue graduate studies in either health professions or life sciences. Student support services are modeled after the nationally acclaimed Meyerhoff Scholars Program at the University of Maryland, Baltimore County, and employ the nation's best practices in STEM training and student retention (e.g., an intensive summer bridge experience, rigorous curricula in science and mathematics, academic monitoring, intramural and extramural research experiences, and career guidance). Since its inception, the program has served 206 Winthrop students. Eagle STEM Scholars have successfully competed for top positions in graduate and medical programs, with Eagle STEM alumni at universities such as Alabama, Auburn, Clemson, Duke, Emory, Florida, Georgetown, Georgia, Marshall, Maryland, Nebraska, North Carolina, Notre Dame, Pennsylvania, Pittsburgh, South Carolina, Temple, Virginia Commonwealth, Virginia Tech, UCLA, UCSF, and the Medical University of South Carolina.

Eagle STEM Scholars are recruited to Winthrop based on their outstanding academic performance and potential to pursue graduate degrees. Each year, the Eagle STEM Advisory Board selects the members of each cohort. These incoming freshmen take full advantage of the program and later distinguish themselves as winners of national awards.

We are grateful for the support of the Advisory Board, the research mentorship by Winthrop faculty, and the ongoing support of the broader Winthrop community for this excellent program.

2022 - 2023 Eagle STEM Advisory Board:

Amanda Cavin
Eagle STEM Director

Cliff Harris, Ph.D. (outgoing)
Jason Hurlbert, Ph.D. (incoming)
Eagle STEM Assistant Director

Victoria Frost, Ph.D.
Julian Smith, Ph.D.
Biology Department Representatives

Pat Owens, Ph.D.
Kathie Snyder, Ph.D.
Chemistry Department Representatives

Marguerite Doman, Ph.D.
Computer Science Department
Representative

Scott Wertz, Ph.D.
Dalton Endowed Chair of Environmental
Sciences and Studies

Tom Polaski, Ph.D.
Math Department Representative

Takita Sumter, Ph.D.
Dean, College of Arts & Sciences

The following Eagle STEM scholars submitted abstracts on their work for inclusion in this compilation:

2022 Cohort		2021 Cohort	2020 Cohort	2019 Cohort	
Lexi Atkinson	Lidia Peralta	Brooke Jewell	Brayden Fults	Lucas Dupuy	Jordan Rucker
Abby Bowers	Julianne Phu	Emi Umamoto	Taegan Smith	Alexandra Gebbia	Laela Walker
Kaylyn Little	Jacob Rodriguez	Jamia White	Gabrielle Walker	Lauren Patterson	Eric Walters
				Molly Quetel	

McNair Scholars

The Winthrop University McNair Scholars Program prepares outstanding first-generation college students from low-income families and undergraduates from underrepresented racial and ethnic backgrounds to be successful in Ph.D. programs. Services include research experience, workshops, graduate admissions test preparation, graduate school application support, interview guidance, travel to present research and explore graduate programs, and more. Winthrop's program is funded through 2023 by its third multi-year, renewable TRiO grant from the U.S. Department of Education. \$261,888 in federal funding is provided each year for programming, staff, and materials that will help 30 eligible students complete high-quality research and prepare for doctoral study. This represents 73% of program costs. Winthrop contributes the remaining 27% of the budget in cash and in-kind matches.

Being a McNair Scholar is a prestigious, nationally recognized honor. Scholars are actively recruited by graduate schools across the country because of their intensive research experiences and preparation for graduate study. Our program boasts 24 doctors so far. Alumni are currently completing PhDs at prestigious universities around the country including Alabama, California San Francisco, Chestnut Hill College, Florida, Notre Dame, University of the Carolinas, U of SC, and Vanderbilt. Each year, the twelve-member Winthrop McNair Advisory Board selects new Scholars through a highly competitive application and interview process. Please visit <http://www.winthrop.edu/mcnair> to learn more.

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

Barb Yeager - All-Around Administrative Guru

Stephanie Bartlett - Writing Coach

Matt Hayes, Ph.D. - Statistics and Methods Coach

Maya Felder - Graduate Associate

Amanda Cavin - Director, Eagle STEM Program; McNair Programming Coordinator (Winthrop McNair Alumna)

Destinee Waddy - Program Assistant

2022 - 2023 Eagle STEM Advisory Board:

Victoria Frost, Ph.D.

Assistant Professor, Biology

Rose Gray

Director - TRiO Achievers Program

Wenonah Haire, DMD

Executive Director of the Catawba Cultural Preservation Project

Jason Hurlbert, Ph.D.

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

Joanna Jackson, Ph.D.

Assistant Professor, Management & Marketing

Joshua Kirven, Ph.D.

Associate Professor, Social Work

Willis Lewis, Ph.D.

Professor & Interim Chair, Accounting, Finance & Economics

Tenisha Powell, Ph.D.

Professor, Early Childhood Education Program Director (NC A&T McNair Alumna)

Molly Quetel

McNair Scholar - Chemistry Major

Karen Stock, Ph.D.

Professor, Fine Arts

Janet Wojcik, Ph.D.

Professor and Exercise Science Program Director

Cheryl Fortner, Ph.D.

(ex officio)

Director, McNair Scholars Program and Professor, Psychology

Leigh Poole, Ph.D.

(ex officio)

Dean of University College, Director of the International Center and Assistant Professor PDSO/RO

The following students completed the 2022 Winthrop McNair Summer Research Experience with the exceptional support of their faculty mentors. Each Scholar presented their findings at the Winthrop McNair Research Symposium in conjunction with SURE and at the annual meeting of the Southeastern Association of Equal Educational Opportunity Program Personnel in Atlanta.

Evelyn Barrales Mentor: Adrienne Edwards, Ph.D.
Cultural Influences on Gender Identity Development among Mexican American Women in Multigenerational Households

Spencer (Best) Bermudez Mentor: Monique Constance-Huggins, Ph.D.
What Are the Barriers to Mental Health Usage by Low-Income Individuals: The Perspective of Service Providers

Sierra Burns Mentor: Merry Sleight, Ph.D.
Child and Adult Trauma, Imposter Syndrome, and Just World Belief

Josie Chestnut Mentor: Kathleen West, Ph.D.
Myths, Misconceptions, and Metaphorical Mountains; What Factors Keep Students from Seeking Mental Health Care?

A'Niyah Choice Mentor: Adrienne Edwards, Ph.D.
A Qualitative Examination of College Students' Perceptions of the Impact of Parenting Styles on Emotional Development

Olive Corby Mentor: Donna Nelson, Ph.D.
Child and Adult Trauma, Imposter Syndrome, and Just World Belief

Samson Demissie Mentor: Brent Woodfill, Ph.D.
How does the Clinton ConNEXTion Action Plan intend to improve the Quality of Life of Southside Rock Hill Residents?

Lucas Dupuy Mentor: Kristen Abernathy, Ph.D.
Dynamics of EBV and the Potential for Vaccinations in the United States

Nastajia Hamilton Mentor: Donna Nelson, Ph.D.
Adverse Childhood Experiences, Post-Traumatic Growth, & Social Support Predict Hypersexuality in College Students

Brooke Jewell Mentor: Jason Hurlbert, Ph.D.
Temperature Optimization, Purification and Future Characterization of CAIN55: the Bacteriophage-derived Protein

Courtney Miller Mentor: Nicholas Grosseohme, Ph.D.
Characterization of the Interplay between Phosphorylation and Dimerization of RitR

Logan Pender Mentor: Leigh Poole, Ph.D.
Comparative Analysis of Higher Education Institutions' Financial Initiatives for Historically Underserved Students in Study Abroad

Molly Quetel Mentor: James Hanna Jr., Ph.D.
Reaction of Hydrazones with Potassium Organotrifluoroborates Through Photoredox Catalysis

Gabrielle Walker Mentor: Victoria Frost., Ph.D.
Investigations of Nucleotide Modifications in Winthrop's Bacteriophage Collection

Eric Walters Mentor: Jason Hurlbert, Ph.D.
Expression and Purification of GeneM:A Novel Virulence Factor of Unknown Function from the Phytopathogen Clavibacter michiganensis Expression and Purification of GeneM:A Novel Virulence Factor of Unknown Function from the Phytopathogen Clavibacter michiganensis

Ebonie White Mentor: Merry Sleight, Ph.D.
Adults' Empathy and Experiences with and Perceptions of Imposter Syndrome and Purification of GeneM:A Novel Virulence Factor of Unknown Function from the Phytopathogen Clavibacter michiganensis

Trey Wineglass Mentor: Joanna Jackson, Ph.D.
Perceptions of the Current Nursing Shortage and Strategies to Increase Staff Retention

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 students during the difficult and rewarding challenge assumed by Winthrop University students when applying for some of the most prestigious scholarships in the nation and the world. Award winners for 2022-23 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.

ONCA and University College want to acknowledge and applaud your hard work and say how much we enjoyed having had opportunities 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. 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

2022 - 2023 ONCA Advisory Board:

Michael Lipscomb, Ph.D.

Honors Program Director and Professor of Political Science
College of Arts & Sciences

Gregory Oakes, Ph.D.

Associate Dean and Professor of Philosophy and Religious Studies
College of Arts & Sciences

Ian Pearson, Ph.D.

Professor of Music
College of Visual and Performing Arts

Leigh Poole, Ph.D.

Interim Dean of University College and Director of the International Center

Award Nominees and Winners, 2022-2023:

Alumni TIES Scholarship

The Alumni TIES offers a scholarship to cover costs of attending their regional seminar held exclusively for alumni of U.S. government-sponsored exchange programs to learn about key regional issues, receive training, collaborate with fellow alumni, and apply for small grants to implement projects in their home communities. Interested applicants apply through a competitive, online application process. The State Department's Office of Alumni Affairs of the Bureau of Educational and Cultural Affairs conducts the final review of applicants.

Winthrop University **WINNER**: Logan Pender

Benjamin A. Gilman International Scholarship:

The U.S. Department of State's Benjamin A. Gilman International Scholarship Program enables students of limited financial means to study or intern abroad, up to \$5,000 per semester, providing them with skills critical to our national security and economic prosperity.

Winthrop University **WINNER:** Nicole Snyder-Picon

Winthrop University **WINNER:** Coleman Yeager

Winthrop University Nominee: Emily Burnham

Winthrop University Nominee: Maryem Faltaous
(pending)

Winthrop University Nominee Sebastian Liafsha:
(pending)

Winthrop University Nominee: Briceidy Tinoco Najera

Winthrop University Nominee: Kaily Paddie
(pending)

Winthrop University Nominee: Mari Pressley
(pending)

Winthrop University Nominee: Elizabeth Tenjhay
(pending)

Winthrop University Nominee: Daniella Williams
(pending)

Winthrop University Nominee: Liliana (Arden) Zayas

FIE Sharif Rahman Scholarship

In memory of our late Chairman and FIE founder Sharif Rahman, the Sharif Rahman Memorial Scholarship program was established in 2003 for FIE students and offers \$3,000 towards the cost of studying abroad through an FIE program.

Winthrop University **WINNER:** Kayley Ross

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: Emily Burnham

Winthrop University Nominee: Maryem Faltaous
(pending)

Winthrop University Nominee: Liliana (Arden) Zayas

Bridging Scholarship

The Association of Teachers of Japanese Bridging Project offers scholarships to American undergraduate students participating in study-abroad programs in Japan. Bridging Scholarship recipients receive a stipend of \$2,500 for semester programs or \$4,000 for academic year programs.

Winthrop University Nominee: Astro Phoenix
(pending)

Winthrop University Nominee: William Boggs
(pending)

Winthrop University Nominee: Daniella Williams
(pending)

Freedom House Freedom in the World Fellowship

Freedom House works to defend and expand freedom globally to help secure a world where all free. The organization selects three to four Junior Fellows after a highly competitive process. Selected Junior Fellows enter a nine-month employment with opportunities to conduct data analysis; contribute to the development and launch of analytical pieces, social media content, infographics, and other support materials; and participate in briefings to key stakeholders, including US congressional and administrative staff on Freedom in the World findings

Winthrop University Nominee: Bautista Vivanco

Freeman Asia Scholarship

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: William Boggs
(pending)

Winthrop University Nominee: Daniella Williams
(pending)

James C. Gaither Junior Fellows Program at Carnegie

This program provides an opportunity for approximately 14 students who desire careers in international affairs to have a substantive working experience in Washington, D.C. Junior Fellows serve as research assistants to scholars working at the Carnegie Endowment for International Peace.

Winthrop University Nominee: Bautista Vivanco

British Marshall Scholarship

The Marshall Scholarships bring intellectually distinguished young Americans to the United Kingdom for academic study. As future leaders with a lasting understanding of British society, Marshall Scholars strengthen the enduring relationship between the British and American peoples, their governments, and their institutions.

Winthrop University Nominee: Stephanie Bohland
Winthrop University Nominee: Sierra Davis

Fulbright UK Partnership Award

A subset of the well-known, well-regarded Fulbright Award, the UK Partnership award provides funding for graduate school at one of a number of different institutions in the United Kingdom. Candidates complete both the application for the Fulbright and the chosen university, making this an especially intense application process.

Winthrop University Nominee: Stephanie Bohland

Humanities in Action Fellowship

The Humanity in Action Fellowship explores issues of democracy, pluralism, human rights, and social justice. Fellows are challenged to understand their host city's unique history of injustice, its present struggles to encompass groups with minoritized cultures and identities, and the future of its democratic values.

Winthrop University Nominee: Shivani Dahya

Phi Kappa Phi Graduate Fellowship

Every year, the Honor Society of Phi Kappa Phi awards 50 Fellowships of \$8,500 each, six of \$20,000 each, and two of \$35,000 to members entering the first year of graduate or professional study. Each Phi Kappa Phi chapter may select one candidate from among its local applicants to compete for the Society-wide awards.

Winthrop University Nominee: Trey Wineglass
(pending)

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