

Winthrop University  
Undergraduate Scholarship  
& Creative Activity 2021

University College and Winthrop University proudly present Undergraduate Scholarship and Creative Activity 2021. This tenth 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're 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 intra- and extramural 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 and strict travel restrictions experienced this year due to the COVID-19 pandemic, Winthrop students shared their projects in an impressive array of venues: publishing papers in refereed journals; virtually presenting and performing scholarship at regional, national, and international 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. In particular, we acknowledge undergraduate Eleanor Fentiman, a visual communication design major who completed the entire design and layout of 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 on campus and for contributing to the development of the next generation of curious, engaged professionals. Lastly, we thank Samantha Kroft, program assistant in the Undergraduate Research Office, for invaluable editorial help.

**Nick Grossoehme, Ph.D.**  
Director of Undergraduate Research

**Jamie Cooper, Ph.D.**  
Vice Provost for Student Success  
Dean of University College

***“Unless someone like you cares a whole awful lot, Nothing is going to get better. It’s not.”***

- Theodore Seuss Geisel

***“Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning.”***

- Albert Einstein

# 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.

## University-Wide Undergraduate Research Advisory Committee:

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Jamie Cooper, Ph.D. – Vice Provost for Student Success and Dean of University College

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Ephraim Sommers, Ph.D. – English

Aimée Sykes – Student Member (Social Work)

Bradley Tripp, Ph.D. – Sociology, Anthropology and Criminology

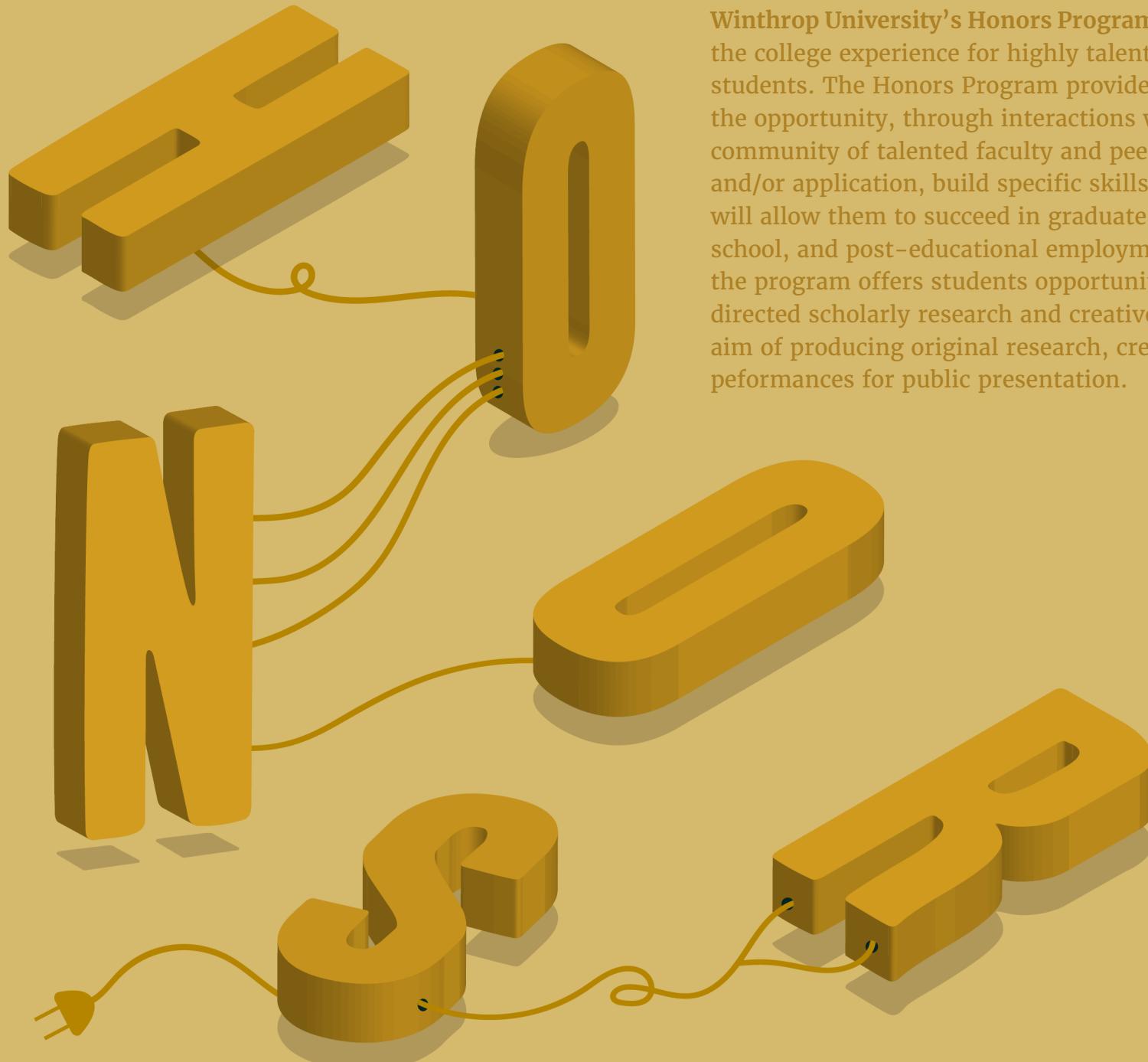
Scott Werts, Ph.D. – Environmental Sciences and Studies

Ginger Williams, Ph.D. – Interdisciplinary Studies

Jessica Yang, Ph.D. – Social Work

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Winthrop University's Honors Program is designed to enrich the college experience for highly talented and motivated students. The Honors Program provides qualified students the opportunity, through interactions with a vibrant scholarly community of talented faculty and peers, to publication, and/or application, 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 with the aim of producing original research, creative artifacts, or performances for public presentation.

# HONORS PROGRAM

Founded in 1960, Winthrop's Honors Program is one of the oldest in the nation. Then 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 became a member of a national organization that was formed as a clearinghouse for information on honors activities, the Inter-University Committee on the Superior Student (ICSS). The ICSS 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 was 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 the Winthrop honors administration 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 together. This program later became the Freshman Honors Program. Seeing the need for a more cohesive honors experience, Anthony J. DiGiorgio led a 1997 initiative that combined the freshmen program with upper-class offerings.

Today, the Honors Program at Winthrop University enrolls approximately 300 students from each of the degree-granting colleges of the university. To graduate with an Honors Program Degree, a student must complete 23 hours of honors courses, which includes an Honors culminating research or performance piece, 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 faculty readers to produce a project that evaluates knowledge, concepts, and methodology; examines major issues; integrates complex information; develops and appropriately defends an argument, and/or appropriately curates an artistic project or an original performance.

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. Your expertise, guidance, and commitment is crucial to the continuing success of the Winthrop Honors Program.

## 2020-2021 Honors Advisory Committee:

**Michael Lipscomb, Ph.D.**  
Chair, Honors Program Director

**Hope Johnson, M.S.**  
Dacus Library

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College of Visual and Performing Arts

**Takita Sumter, Ph.D.**  
Dean of the College of Arts and Sciences, ex officio

**Malayka Klimchak, Ph.D.**  
College of Business Administration

## **Characterization of the Putative Foldase XopAZ from *Xanthomonas cynarae***

**Student:** Alyssa Petty

**Honors Thesis Committee:**  
Jason Hurlbert, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Victoria Frost, Ph.D., &  
Timea Fernandez, Ph.D.

**2019 Summer Undergraduate Research Experience Poster Session, Rock Hill, SC, October 2019**

*Supported by a grant from the South Carolina EPSCoR/ IDEAS Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS) & a grant from the National Science Foundation EPSCoR Program (MADE in SC)*

CAS – Chemistry,  
Physics, & Geology

(CHEM 552 – Hurlbert;  
HONR 451H – Lipscomb)

*Xanthomonas cynarae* is a bacterium that infects and elicits a hypersensitive response in artichokes. This response is due to bacterial avirulence (Avr) proteins interacting with the host cell's resistance proteins. The Avr proteins enter the plant cell cytosol through the Type III Secretion System (T3SS), which uses a modified flagellum to puncture the plant cell wall and deliver proteins into the cytosol. The diameter of the T3SS "needle" is too narrow for folded proteins to be transported, so bacterial Avr proteins are unfolded prior to passing through the system. Once in the plant cytosol, the Avr proteins refold into their active state. Our collaborators have identified a protein from *X. cynarae* called XopAZ that, based upon sequence identity, may be involved in the refolding of Avr proteins as they emerge from the T3SS system. XopAZ shows sequence similarities to multiple peptidyl prolyl isomerases (PPIases) and sensitive to lysis chaperonins. Homology modeling of XopAZ also suggests that it has peptidyl-prolyl isomerase activity and chaperonin activity. In this study, recombinant, hexahistidine-tagged XopAZ was expressed in *Escherichia coli* and purified using Ni<sup>2+</sup> chelating affinity chromatography. Aggregation assays were conducted to determine the chaperonin activity of XopAZ using absorbance monitoring of lysozyme aggregation in addition to monitoring the fluorescent scattering of thermally denatured citrate synthase; however, XopAZ was unable to prevent the aggregation of lysozyme or citrate synthase. Remaining work involves quantitating the peptidyl-prolyl isomerase activity and performing crystallization screening.

## **Effectiveness of Various Probiotic Treatments in the Health of the Gastrointestinal Tract: A Literature Review**

**Student:** Lydia Prout

**Honors Thesis Committee:**  
Jessie Hoffman, Ph.D.,  
Michael Lipscomb, Ph.D.,  
LaShardai Brown, Ph.D., &  
Hope Lima, Ph.D.

CAS – Human Nutrition

(HONR 450H – Hoffman;  
HONR 451H – Lipscomb)

As research in the field of nutrition increases in prevalence and variety, special attention has been given to analyzing the functions of the gut microbiome. This colonization of bacteria within the lower gastrointestinal tract (GI tract) has been proven to be key in processes such as cellular functioning, digestion, metabolism, emotion, and disease. Within the gut, there are various types of bacteria, some deemed "bad" and others "good"; this distribution of good to bad bacteria is what controls certain aspects of bodily function. Regulation of which bacteria are introduced to the GI tract is dependent on food intake, environmental factors, and supplementation of probiotics. A growing argument among those studying the gut microbiome, is the effectiveness or ineffectiveness of probiotic use as a clinical treatment. This paper reviews the current and relevant literature related to the gut flora of the gut microbiome, as well as the effectiveness of probiotic treatments in aiding microbe functioning. More specifically, this paper will address which probiotic strains are effective in managing and improving GI symptoms in individuals with conditions of the lower gastrointestinal tract.

## **Spin, Swing, and Sway on the Spectrum**

**Student:** Samantha Mathews

**Honors Thesis Committee:**  
Kelly Ozust, M.F.A.,  
Michael Lipscomb, Ph.D.,  
Julianne Hane, M.F.A., &  
Jeremy Lopuch, Ph.D.

CVPA – Theatre & Dance

(HONR 450H – Ozust;  
HONR 451H – Lipscomb)

Dance has been used throughout history not only to help people tell stories and express their emotions, but also to keep their bodies physically active and engaged. In today's society people use dance for a multitude of reasons, including using movement as a form of mental therapy. Dance movement therapy and other art therapies seem to work especially well for children, as it gives them new ways to express their emotions and thoughts. For children on the autism spectrum, dance can be used to help these individuals progress in social, emotional, physical, and cognitive/academic areas. Each student has their own strengths and weaknesses, and will therefore need a unique dance movement plan to help them overcome the obstacles they may face. But, students can thrive from a series of similar exercises. Dance can be a wonderful tool for children on the autism spectrum, as long as the instructor has clear intentions and pure motivation for helping each child. This thesis identifies tools and techniques that educators can use as intervention strategies to help their students. This research is specifically for children with autism spectrum disorders, but the tools can be beneficial for all ages and abilities. These techniques are divided into specific goal oriented categories: physical, emotional, social, and cognitive progress. Classroom considerations and behavioral strategies are also incorporated.

## **Structure of salt marsh and maritime forest plant communities: possible impacts of increasing salinity due to rising sea level**

**Student:** Mackenzie Jenkins

**Honors Thesis Committee:**  
Jennifer Schafer, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Kunsiri Grubbs, Ph.D., &  
Cynthia Tant, Ph.D.

*Supported by a grant from the Winthrop University Research Council*

CAS – Biology

(HONR 450H – Schafer;  
HONR 451H – Lipscomb)

Sea level rise caused by global warming can lead to flooding and salt water encroachment in coastal habitats, such as salt marshes and maritime forests, increasing salinity concentrations. The objective of my study was to analyze how plant species presence, percent cover, and height vary with distance from the tidal creek in coastal habitats. I hypothesized that percent cover and height of salt marsh vegetation would increase as distance from the tidal creek increases. I established three 40 m transects in the salt marsh habitat on Horse Island in South Carolina and recorded plant species presence, percent cover of each species, and height of the tallest *Spartina alterniflora* individual in 11 plots per transect. In the maritime forest, I established three plots and recorded plant species presence. I found five species in the salt marsh community and 22 species in the maritime forest community. There was no change in percent cover of salt marsh species from 0 to 24 m, but total percent cover of salt marsh species and percent cover of *Spartina alterniflora* increased as distance from the tidal creek increased from 24 to 40 m. *Juncus roemerianus*, *Salicornia virginica*, and *Borrichia frutescens* occurred only 36 to 40 m from the tidal creek, indicating pronounced zonation within the plant community. The height of *S. alterniflora* was negatively correlated with distance from the tidal creek. As sea level rises and salt concentrations increase inland, the cover and height of species in salt marsh plant communities will likely change.

## **Constructing COVID-19 Risk: Comparative Rhetorical Analysis of Risk Communication for People with Disabilities**

**Student:** Anslee Vickery

**Honors Thesis Committee:**  
Chen Chen, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Casey Cothran, Ph.D., &  
Devon Ralston, Ph.D.

CAS – English

(HONR 451H – Lipscomb;  
ENGL 471 – Chen)

The COVID-19 pandemic has affected the lives of millions of Americans, and communication has been and continues to be established between health experts and the public to explain the risks related to the virus. This project seeks to bring attention to how risk is inadequately constructed for people with disabilities and how their needs are not met by expert risk communication. A critical rhetorical analysis will be conducted on COVID-19 risk communication by the Centers for Disease Control (CDC) and on documentation created by the Disability Rights Education and Defense Fund (DREDF). This rhetorical analysis looks at how the language used constructs risk and motivates action with a particular focus on how people with disabilities are included and addressed in documentation and in resulting policy. The documents will additionally be viewed with a focus on how the language marginalizes and oppresses people with disabilities by pathologizing and emphasizing personal responsibility to implement such practices. This comparative analysis allows for a holistic view of the risks faced by people with disabilities during the COVID-19 pandemic and calls for inclusion of their narratives and experiences in expert construction of risk for people with disabilities in the future.

## **Fostering Resilience: Examining the Relationships Among Adversity, Self-Esteem, Resilience, and Risky Behaviors of College Students**

**Student:** Haley Whitman

**Honors Thesis Committee:**  
Kori Bloomquist, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Donna Nelson, Ph.D., &  
Sarah Hopkins, M.S.W.

*Southeastern Psychological Association Conference, Virtual, March 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CAS – Social Work

(HONR 450H –  
Bloomquist & Nelson;  
HONR 451H – Lipscomb)

Adverse childhood experience (ACEs) are alarmingly common, as indicated by research in recent decades. Common ACEs include physical, emotional, and sexual abuse in childhood as well as exposure to caregiver substance abuse, mental illness, and incarceration. Research indicates that a higher ACE score is linked with a plethora of long-term negative health consequences and risky behaviors throughout the lifespan. Although ACEs are prevalent, some individuals face adversity, yet rebound or even thrive. Individuals who bounce back display resilience, which can buffer against consequences linked to ACEs. Research indicates that self-esteem may be a factor for developing resilience. This quantitative, cross-sectional study examined the potential relationships between past adversity, self-esteem, resilience, and risky behaviors among college students. Online surveys using measures of resilience, self-esteem, adversity, and the prevalence of risky behaviors were completed by students at southeastern United States universities. Results demonstrate connections among adversity, self-esteem, resilience, and risky behaviors. Study findings have implications for future resilience and self-esteem building interventions for young adult health and well-being.

## **Video Games as Artistic Literature**

**Student:** Emily Cromer

**Honors Thesis Committee:**  
Devon Ralston, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Casey Cothran, Ph.D., &  
Leslie Bickford, Ph.D.

CAS – English

(ENGL 494H – Cothran;  
HONR 451H – Lipscomb)

As technology becomes more and more advanced, older concepts are reshaped for modern day tools and formats. Literature, specifically artistic, is one such concept, and traditional forms include poetry, prose, drama, and creative nonfiction, all written word on the page. One medium that is not typically considered literature, but is in the process of becoming more common, is that of video games. In this thesis I argue that videogames are a form of artistic literature, specifically a form of interactive story. While novels and films do provoke the mind's creativity video games adds another level by having users physically interact with the story being told. Literary elements are aspects such as plot, theme, character, tone, action, conflict, dialogue and more. As players move through the game and experience the story, they experience these literary elements on this different level of interactivity that video game provide. Since this argument requires summarizing existing knowledge and then inserting my own, I will be using two methodologies. The first is a review of literature, and the second is a game analysis to show how a game has literary elements. This analysis will include two games in order to exemplify how the elements persist across games. Before either two, however, I will include a definition of terms in order to explain what criteria I'm using to determine what literature is in the context of this argument and how that can be applied to games.

## **Factors that Affect Loneliness for Male Homeless Population in Rural SC**

**Student:** Katherine Harper

**Honors Thesis Committee:**  
Kathleen West, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Richard Chacon, Ph.D., &  
Wendy Sellers, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CAS – Psychology

(HONR 450H – West;  
HONR 451H – Lipscomb)

Homelessness and the growing homeless population is a major concern throughout the United States. In this study, it was predicted that homeless men would have higher rates of loneliness if they had less connections within the community. Additionally, it was hypothesized that these community connections, i.e. religion, family, partners, etc., would create a greater sense of belonging in the men. Participants were 15 men from a suburban South Carolina setting. Participants' ages ranged from 24–65, with an average age of 50.93. Through an in-person survey using two questionnaires, participants' rates of loneliness and their number of connections within the community were assessed. Each participant was interviewed individually, and his responses were written down by the interviewer. A one-way ANOVA was used to examine the effects of community connections on loneliness. Overall, there were no significant findings related to any of the community connections on the amount of loneliness experienced by the men ( $p>0.05$ ). Thus, it can be theorized that the amount of connections to others in the homeless men's community does not necessarily affect their feelings of loneliness. However, when looking specifically at the demographic information, it was found that white men experienced more loneliness than minority men ( $p=0.04$ ) and that men from the area were less lonely than nonlocal men ( $p=0.02$ ). As such, it is possible that the results of this study were limited by sample size and COVID-19's possible effects rather than anything else.

## Nutrient limitation in two freshwater streams in the South Carolina Piedmont

Student: Rachel Rowe

Honors Thesis Committee:  
Cynthia Tant, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Jennifer Schafer, Ph.D., &  
Diana Boyer, Ph.D.

CAS – Biology

(HONR 450H – Tant;  
HONR 451H – Lipscomb)

Understanding nutrient limitation is important for recognizing the requirements of the biofilm communities that form the base of stream food webs. Nutrient limitation experiments are also important in understanding eutrophication and changes in stream ecosystems. This project quantified nutrient limitation in two small, freshwater streams in the Catawba river basin within the Catawba Nation. I predicted that these two streams were colimited by both nitrogen (N) and phosphorus (P) due to the high demand of nutrients in the presence of low ambient nutrient concentrations. Nutrient limitation was assessed using nutrient diffusing substrates. Measurements included metabolism of both autotrophic and heterotrophic biofilm communities and ash-free dry mass (AFDM). Gross primary production (GPP) of autotrophic communities in one of the two streams was significantly higher in the control than either N or P additions. In the same stream, community respiration of heterotrophic communities was significantly higher in the N addition than the control, but not the other nutrient addition treatments. Heterotrophic AFDM for one stream showed a significant response to nutrient amendments; unexpectedly, the N addition had significantly lower AFDM than either controls or P addition. These results suggest that heterotrophs in one stream may be limited by nitrogen, which may be caused by increased light affecting the production and stability of bioavailable dissolved organic matter. In the other nearby stream, however, autotrophic and heterotrophic communities did not appear to be limited by either N or P. This study also found phosphorus inhibition, which may have been caused by too much phosphorus stimulation for these communities, leading to phosphorus toxicity.

## An Interesting Discovery: The Importance of Audience Interaction and Closure in Movies and Video Games

Student: Morgan Smith

Honors Thesis Committee:  
Devon Ralston, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Leslie Bickford, Ph.D., &  
Casey Cothran, Ph.D.

CAS – English

(HONR 450H – Cothran;  
HONR 451H – Lipscomb)

Whenever a literary work such as a movie or a video game is released to the public, there is a certain level of action that the audience must take. In the case of a movie, the viewer must decide first if he or she is going to actually watch the movie. Then there is the amount of attention that the viewer is willing to give to the film. Finally, the viewer decides how much meaning they wish to garner from the film itself. What is the message that the plot is declaring? What symbols are being used? In a video game, the player is often given more freedom of their actions. Do they want to use their overwhelming charisma to get into an enemy stronghold, or would the player prefer to go in with guns blazing? While many literary works present these opportunities for exploration, many narratives rely upon them. More specifically, some works rely on the audience's attention to detail or desire to explore in order to achieve a greater perception of the world in that medium. In a way, this is a unique type of storytelling that requires the audience to find the answers for themselves. This honors thesis examines what Scott McCloud calls "closure", story details that are communicated and perceived without the assistance of dialogue and direct action. I research storytelling reliant upon closure throughout the thesis exploring texts such as video games including Bloodborne, Dark Souls trilogy, and Red Dead Redemption 2 and films like Captain American Trilogy, Iron Man, and other Marvel Cinematic Universe films. Finally, I go into deep detail about the best and worst times to use this method of storytelling, such as creating a dense video game world or a believable cinematic world.

## Using Deficiency Mapping to Locate the Mutagen-sensitivity Gene *mus108* in the *Drosophila melanogaster* Genome

Student: Bethany Foss

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

CAS – Biology

(BIOL 450H – Kohl;  
HONR 451H – Lipscomb)

DNA damage occurs regularly due to a variety of endogenous and exogenous sources. DNA repair corrects this damage, to ensure that DNA is passed faithfully to offspring and reduce an individual's chance of developing cancer. The purpose of this research project was to map *mus108*, a DNA repair gene in *Drosophila melanogaster*. To locate this gene on the X chromosome, we conducted a deletion-mapping experiment by crossing *mus108* mutant flies with flies carrying deletions on the X chromosome. To assess the *mus* phenotype in the deletion-mapping experiment, we used a mutagen sensitivity assay. In this assay, one brood of offspring was treated with water and the second brood was treated with methyl methanesulfonate (MMS), a DNA damaging agent. These crosses were repeated twice for two rounds of data, amounting to 5,439 flies scored. From this data, percent relative survival was calculated for each deletion. We have tentatively narrowed the genomic location of *mus108* to one of these deletions. However, these results should be repeated before additional conclusions are drawn.

## Mary Shelley's *Frankenstein*: A Gothic Myth of Motherhood

Student: Scarlett Black

Honors Thesis Committee:  
Amanda Hiner, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Josephine Koster, Ph.D., &  
Casey Cothran, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – English

(HONR 450H – Cothran;  
HONR 451H – Lipscomb)

Mary Shelley's *Frankenstein* has been repeatedly interpreted as a science fiction work, a Gothic tale of Faustian overreach, and as a feminist critique of male environmental domination; however an even more compelling area of research is how the text relates to the female experience, especially to the fears women have regarding motherhood. Though scholars like Anne K. Mellor and Ellen Moers have explored this interpretation in their seminal works, few have fully addressed how the horror of the Gothic, the female experience, and Mary Shelley's roles as a mother and daughter relate to one another in their discussions. Thus, in this thesis I discuss how Shelley's fears of abandonment and parental failure, the controlling perspective of motherhood in the text, and the literary conventions of the Gothic form work together as a vehicle to articulate transgressive topics and express women's worst fears regarding child rearing and domestic maintenance. A key focus in my analysis is how *Frankenstein* takes on the form of a universal myth of female horror through its Gothic elements. Such a reading, I argue, can revolutionize our understanding of *Frankenstein* and its place in the realm of literature, specifically in how the female experience is explicitly addressed and featured in the text in an open way due to its Gothic form.

## Bioinformatic Analysis and Expression of Bacteriocins B and C from *Xanthomonas perforans*

Student: Sigrid Dorman

Honors Thesis Committee:

Jason Hurlbert, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Cliff Calloway, Ph.D., &  
Scott Werts, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Chemistry,  
Physics, & Geology

(CHEM 552H – Hurlbert;  
HONR 451H – Lipscomb)

Within the last 10 years, a new strain of the phytopathogenic bacterial genus *Xanthomonas*, *Xanthomonas perforans*, was discovered in the lesions of tomato and pepper plants. These lesions render the produce unsellable and result in a loss of profit. Prior to this discovery, *Xanthomonas euvesicatoria* was the primary strain that infected these types of plants and *X. perforans* was not found in any plants. Genomic comparisons of the two species have revealed the presence of three bacteriocin genes in *X. perforans*: bcnA, bcnB, and bcnC. The expression of these three bacteriocin genes enable *X. perforans* to outcompete *X. euvesicatoria* and as a result *X. perforans* has completely replaced *X. euvesicatoria* in the plant lesions. This complete replacement of one species by another is highly abnormal. Although the structures of BcnA, BcnB, and BcnC are currently unknown, homologous proteins of each bacteriocins have been identified as the wall associated protein (WapA) of *Bacillus subtilis*, a genus specific-serine protease, and the zinc metalloprotease of *Grifola frondosa* for BcnA, BcnB, and BcnC respectfully. Due to the bacteriocin BcnA's large size and lack of resources to express it, this project did not attempt to determine the structure of BcnA. The goal of the project was to determine the three-dimensional structure of the two smaller bacteriocins, BcnB and BcnC, and in so doing, determine the function of the proteins. To accomplish these goals, bioinformatic techniques such as homology modeling and recombinant gene expression, protein purification, and crystallization trials were used.

## The Effect of Mortality Salience and Trauma Exposure on Unrealistic Optimism and Death Anxiety

Student: Tatiana Singletary

Honors Thesis Committee:

Donna Nelson, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Kathleen West, Ph.D., &  
Melissa Reeves, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Psychology

(HONR 450H – Bloomquist & Nelson;  
HONR 451H – Lipscomb)

Recent events surrounding the COVID-19 pandemic have increased the salience of mortality concerns across the globe. This heightened attention to life threatening illness and the constant reminders of death brought on by the pandemic, are likely to have implications for the emotional well-being of the general population. According to findings from studies of Terror Management Theory, mortality salience creates defensive strategies enacted to combat threatening feelings and minimize perceptions of personal vulnerability. Attempts to boost self-esteem, bolster one's cultural worldview and perceive one's life in favorable terms are examples of anxiety-buffering strategies. Some evidence suggests clinical populations of individuals suffering from severe Post-traumatic Stress Disorder are less able to enact these defensive strategies because of a break-down in their anxiety-buffering system, brought about by severe trauma which violated their views of a safe and just world. Our study aims to examine the role of mortality salience on death anxiety, self-esteem and unrealistic optimism in a sub-clinical group of participants (not diagnosed with PTSD) who have or have not experienced prior trauma. We expect that those with (compared to without) a history of prior trauma will be more reactive to threats about mortality as a result of their traumatic experiences. They therefore will be more motivated to engage in defensive processes such as bolstering their self-esteem and engaging in unrealistic optimism about their future, in an attempt to shield themselves from heightened anxiety caused by reminders of death.

## Exploring the Perception of Mental Health in the Tech Industry through Data Analysis

Student: Suzanna Thompson

Honors Thesis Committee:

Kristen Abernathy, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Arran Hamm, Ph.D., &  
Zachary Abernathy, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Mathematics

(HONR 450H – Abernathy;  
HONR 451H – Lipscomb)

Mental illness is one of the leading causes of death in The United States. Similarly, mental illness costs millions of dollars in direct and indirect expenses, not to mention the impact mental illness has on productivity. When one's mental illness is not treated effectively, there are negative consequences for the individual and for the general population as well. The stigma around mental illness compounds the problem. This research focuses on the perception of mental health in the workplace, specifically in the tech industry. We have taken 5 years of survey data from Open Source Mental Illness (OSMI) to implement several machine learning algorithms like "K-nearest Neighbors" and "Decision Trees" in order to discover the leading variables in how mental health is perceived. The models in this paper will give predictions for an individual's perception of mental health based on answers to a selection of prompting questions. These predictions note the most important markers and will influence the creation of solutions for resolving the stigma around mental health.

## Terror, Fright, and Mayhem in the Gothic Genre: The Psychological Attraction to Fear

Student: Alexandra Pennington

Honors Thesis Committee:

Evelyne Weeks, M.A.,  
Michael Lipscomb, Ph.D.,  
Kelly Richardson, Ph.D.,  
Leslie Bickford, Ph.D., &  
Josephine Koster, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – English

(HONR 451H – Lipscomb;  
ENGL 494H – Koster)

The establishment of the Gothic as one of the more multifaceted movements in our literary history is a direct result of authors being able to highlight and articulate major social and historical shifts in their works. When it comes to the horrific or morally flawed aspects of life, the Gothic genre is able to confront these issues more easily than in any other genre of literature through the use of its highly imaginative and suspenseful style. This paper will explore fears, anxieties, and attitudes throughout history that influence the frightening elements of the Gothic tradition that originated in the eighteenth century in order to determine why these characteristics remain a relevant component of popular culture today. The purpose of this examination is to bring to light the significant role that the Gothic plays in leaving a lasting impact on its readers by allowing them to confront their worst fears about the world safely through fictional elements in either literature or films. Through a psychological-critical lens, I proceed to argue that Gothic literature is able to remain appealing because its style adapts to the societal period in which it is being written, thereby offering audiences an opportunity for both escapism and catharsis where they are brought closer to understanding complicated societal issues and fears they otherwise would ignore.

## Resilience of Student Organizations During the Global COVID-19 Pandemic

Student: Taylor Sandifer

Honors Thesis Committee:

Jonathan Marx, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Brian Knop, Ph.D.,  
Cheryl Fortner-Wood, Ph.D., &  
(Non-WU)  
Maria Aysa-Lastra, Ph.D.

Ronald E. McNair Scholars  
Program Virtual Symposium,  
Rock Hill, SC, June 2020 &  
Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

Supported by a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education

CAS – Sociology, Criminology,  
& Anthropology

(MCNR 300 – Fortner-Wood;  
HONR 451H – Lipscomb;  
SOCL 516H – Knop)

Student organizations are significant to the college student experience, and have been credited with increasing college satisfaction, cognitive development, and personal growth. This study focuses on patterns of communication to analyze how student organizations and their leaders are adapting to rising levels of fear and uncertainty due to the effects of the COVID-19 global pandemic on campus closures and required physical distancing. Through examination of frequency and quality of communication reports by students, it identifies the characteristics of organizations with high levels of resilience. Two sources of data were used—a survey administered to undergraduate students that assesses frequency, quality, and type of communication between their members during COVID-19 and in-depth interviews conducted with student leaders about how activities and communications were maintained. Results show that students involved in organizations that have a high percentage of female members, currently unemployed members, had challenges before the pandemic, or used a webinar or video calling platform during the pandemic for their organization have more frequent and quality communications, and therefore are more resilient.

## Publications avoiding lawsuits during #MeToo

Student: Savannah Scott

Honors Thesis Committee:

William Schulte, Ph. D.,  
Michael Lipscomb, Ph.D.,  
Guy Reel, Ph.D., &  
Aimee Meader, Ph. D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Mass Communication

(MCOM 441 – Schulte)

The #MeToo movement gained traction in 2017 due to the sexual assault allegations and sexual harassment made against Harvey Weinstein. Publications were reporting these types of allegations as well as other forms of allegations against a wide range of public and private figures. However, publications reporting this and similar allegations had to be careful in their coverage of these issues to avoid defamation lawsuits from the accused. These publications needed to weigh the ethical, legal, and morally correct procedures to use when covering these issues, while also giving survivors a voice. In order to examine the legal issues and ethical approaches publications used, this study surveys multimedia-visual components, FOIA requests, government documents, primary and secondary sources, and interviews. This study catalogs the laws that protect newspapers from defamation lawsuits and explains why survivor stories are important journalists to recount.

## Characterization of FK506-binding protein of XopAZ from *Xanthomonas cynarae*

Student: Nghi Tran

Honors Thesis Committee:

Jason Hurlbert, Ph.D.,  
Michael Lipscomb, Ph.D., &  
Timea Fernandez, Ph.D., &  
Jessica Boulware, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Chemistry,  
Physics, & Geology

(CHEM 351H – Hurlbert;  
HONR 451H – Lipscomb)

*Xanthomonas cynarae* is a species of proteobacteria that causes a bacterial disease in artichokes. By injecting avirulence proteins (Avr protein) into the host cell through the Type III Secretion System (T3SS), *X. cynarae* causes brown spots on artichoke leaves which could lead to financial loss for farmers due to its visual appearance. XopAZ is a protein that is produced in *X. cynarae* that we hypothesize is responsible of refolding of the Avr protein injected by the bacterium inside the plant host cell. We have determined that XopAZ is homologous to the *Escherichia coli* sensitive to lysis protein D (SlyD) (70% amino acid identity) and with the *E. coli* surface layer protein A (SlpA) (50% amino acid identity). Both SlpA and SlyD are known to contain two domains: a chaperone/insert-in-flap domains (IF domain) and a prolyl isomerase domain (PPIase/ FKBP domain). The presence of the IF domain helps to fold the unfolded or misfolded protein correctly; the FKBP domain catalyzes the isomerization of peptide bonds between an amino acid and proline. In a previous study, hexahistidine-tagged XopAZ was expressed in *E. coli* and purified by Nickel (Ni<sup>2+</sup>) Chelate Affinity Chromatography. The IF domain activity of purified XopAZ were measured via lysozyme aggregation assays and citrate synthase aggregation assays. However, the results of both studies showed no IF activity for XopAZ. In this study, we describe the preparation of and results from a FK506 binding assay to determine if XopAZ has an FKBP activity.

## Neurodegenerative Pathways Involved in Age Related and Sensorineural Hearing Loss: A Review

Student: Abigail McGaha

Honors Thesis Committee:

LaShardai Brown, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Daniel Stovall, Ph.D., &  
Courtney Guenther, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Biology

(HONR 450H – Brown;  
HONR 451H – Lipscomb)

Hearing loss is one of the most common diseases associated with aging, both in the United States and across the world. Sensorineural hearing loss (SNHL) occurs due to damage of the inner cochlear organs or cochlear nerve, whereas age related hearing loss (ARHL), also known as presbycusis, is a neurodegenerative result of aging. Several cellular changes occur in both forms including hair cell loss, death of spiral ganglion neurons (SGNs) as well as changes to the lateral wall. Cochlear implants are often used to treat symptoms of both type of hearing loss. However, hearing aids are only effective when a certain percentage of cells are still active. Therefore, newer therapies focus on inhibiting inflammatory pathways and the prevention of degeneration due to the molecular pathways associated with hearing loss. The NFkB pathway and complement pathway play a critical role in age related and neurodegenerative diseases, exacerbating and driving cellular death of auditory cells and thus provide insight into a common disease with no currently known cure. A synthetic reading of current literature suggests the role of these signaling networks in hearing loss and the advancement of inflammation and cellular degeneration, as it relates to ARHL.

## **Impact of COVID-19 on Food Insecurity and Resiliency in College Students**

**Student:** Kiera Alexander

**Honors Thesis Committee:**

Ashley Licata, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Wanda Koszewski, Ph.D., &  
Karin Evans, M.A.

Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC, June 2020 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education

CAS – Human Nutrition

(HONR 450H – Licata;  
HONR 451H – Lipscomb;  
MCNR 300 – Fortner-Wood)

Research has assessed food insecurity and its impact on college students. However, previous research has not determined the impact of a global pandemic on food insecurity levels and resilience in college students. The primary purpose of this study was to assess the relationship between food insecurity and resilience among college students. The COVID-19 outbreak began in the United States before data collection was complete. A secondary objective was to compare the relationships of these factors prior to and during the COVID-19 pandemic. Students attending a post-secondary institution in the southeastern United States completed a cross-sectional online 27-item questionnaire during a 12-month period (Fall 2019 through Fall 2020). The survey included questions about demographic information, food insecurity indicators, and resiliency measures. Of the 420 students that completed the survey, 51% indicated experiencing some form of food insecurity in the past 12 months. Food insecurity indicators demonstrated students were more food secure in Summer 2020 than Fall 2019 ( $p=.023$ ). Average anxiety levels increased from 5.9 in Fall 2019 to 6.99 in Fall 2020 ( $p=.005$ ). Average stress increased from 6.19 in Summer 2020 to 7.06 in Fall 2020 ( $p=.004$ ). There was a positive correlation between anxiety, depression, irritability, and stress and food insecurity indicators ( $p=.000$ ). Food insecurity indicators were high throughout the study. Future studies are needed to assess the causes for the changes in food insecurity in the summer. In addition, food insecurity indicators seem to correlate to resiliency factors and further investigation on this relationship is needed.

## **The Relationship between Social Media, Body Image, and Disordered Eating**

**Student:** Erin Creed

**Honors Thesis Committee:**

Merry Sleigh, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Monique Constance-Huggins, Ph.D., &  
Amy Phillips, M.S.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Psychology

(HONR 450H – Sleigh;  
HONR 451H – Lipscomb)

Previous research indicates a negative relationship between social media and body image. Other research has investigated the relationship between social media and disordered eating. Even more research has studied the relationship between disordered eating and body image. However, not many studies have been completed regarding the relationship between these three aspects. The current study's goal is to investigate the relationship between the three aspects as well as determine if their relationship predicts the body types that the participants find to be preferable for people they view on social media. Participants will be recruited to take an online self-report survey via personal contact, social media, and undergraduate classrooms. We anticipate that we will find that those who do not have a strong desire to belong will be less active on social media and have a better body image than those who have a strong desire to belong. We also anticipate finding that social media has a negative impact on the body image and eating behaviors of the participants. The last finding that we anticipate is that participants will rank thin or average body types as more valuable than bigger body types.

## **Impact of Social Media and Reality TV on College Students**

**Student:** Sarah Delventhal

**Honors Thesis Committee:**

Aimee Meader, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Nathaniel Frederick, Ph.D., &  
Mark Nortz, M.Ed.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Mass Communication

(HONR 450H – Meader;  
HONR 451H – Lipscomb)

This thesis delves into the impact of social media and TV on college-aged students. My research is guided by cultivation theory, which looks into how the media influence people. This study will examine whether Black and Caucasian students are impacted differently by social media and TV. My study will not be comparing which of the two mediums has more of an impact, but whether they are influential and in what ways. To test this, I sent out a survey to Winthrop students concerning media use, whether they feel represented if the media promotes ideal beauty standards and questions about self-esteem. The participants for this study will be Winthrop students, ideally between the ages of 18–22. I chose this sample because college students are most convenient for me to reach, and they represent a huge portion of who is on social media today. This study looks at TV to see if it still impacts college-aged students and the extent. This study additionally aims to investigate the effects of social media on different minorities. This research is essential because it explains how the media define cultural standards and how it impacts self-perceptions.

## **“Diversity and Inclusion in Children’s Literature in Early Childhood Elementary Classrooms”**

**Student:** Virginia Nichols

**Honors Thesis Committee:**

Crystal Glover, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Bettie Parsons Barger, Ph.D., &  
Melanie Sanders, M.S.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

COE – Curriculum & Pedagogy

(HONR 450H – Glover;  
HONR 451H – Lipscomb)

Diversity and inclusion of all types of individuals is a growing topic of interest in the United States among educators. Given the reality of our pluralist society, there is a clear need to broaden people's perspectives on topics related to diversity and inclusion. The question arises, however, how can one best effect this broadening of people's perspectives? Part of the answer is in early childhood and elementary classrooms, the ages where children are most impressionable, and in forms through which children like to learn, such as reading picture and chapter books. This thesis hypothesizes that children's literature can be used to increase knowledge and awareness of diverse people and perspectives, and it synthesizes data from educational sources, educator testimonies, and surveys to support this hypothesis.

## Moving Through the Twentieth Century Literary Spectrum: *Brave New World* and *Catcher in the Rye*'s Rejection of Metanarratives

Student: Beth Warnken

Honors Thesis Committee:

Casey Cothran, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Leslie Bickford, Ph.D., &  
Dustin Hoffman, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS - English

(HONR 450H – Cothran;  
HONR 451H – Lipscomb)

Aldous Huxley's *Brave New World* and J.D. Salinger's *Catcher in the Rye* have had an elusive way of defying categorization since their respective publications in 1932 and 1951. Many scholars have tried to firmly place these novels within a modernist or postmodernist box; however, many discrepancies have arisen over which period either novel may land. I argue that these novels, through their mourning of the loss of innocence and questioning of societal metanarratives, belong to both modernism and postmodernism. These novels' rejection of groupthink and culturally upheld ideologies is represented by plots of an individual pitted against society, such as John versus the Reservation and *Brave New World* and Holden versus prep school. Both novels also contain critiques of American consumerism, through Fordism in *Brave New World* and Holden's attempt to participate in Louis Althusser's concept of production theory to establish an alternate hegemony. Both Huxley and Salinger promote thought provoking art, through the feelies in *Brave New World* and Holden's distaste for Hollywood in *Catcher in the Rye*. These main characters move from mourning their fall from innocence to embracing it throughout the novel. It is these characteristics in the novels that act as a reflection of the movements from the end of modernism to the beginning of postmodernism. By placing novels in both literary periods rather than attempting to isolate them into either period, one can uphold the concept that twentieth century literature can be located on a sort of spectrum that moves from modernism to postmodernism.

## Parental Influence on Psychological Traits

Student: Quanteshia Wilson

Honors Thesis Committee:

Kathleen West, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Merry Sleigh, Ph.D., &  
Jennifer McDaniel, M.S.W.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS - Psychology

(HONR 450H – West;  
HONR 451H – Lipscomb)

Parents play a major role in their child's cognitive, emotional, and behavioral development. link between parental influence on children's psychological traits as college students. Winthrop University students were asked to report on their involvement with their caregivers on an anonymous survey/questionnaire created by researchers. We recruited 43 students (84% female; 58% Caucasian, 35% African American, 17% other). Results show that overall, there is a high level of stress; however, these stress levels may be due more to the ongoing COVID-19 pandemic than leftover from parent/child interaction. Many participants reported feeling loved and being happy with themselves. Interestingly, they also reported high levels of thinking negatively about themselves. The results show that parental influence can impact a child's well-being either positively or negatively depending on how they raise their child. Future studies need to address this topic during a time of less overall stress and also need to better target getting data from the caregivers for comparison.

## Openness to Complementary Alternative Medicine in the United States and Abroad

Student: Kristen Watson

Honors Thesis Committee:

Ginger Williams, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Merry Sleigh, Ph.D., &  
Courtney Guenther, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Interdisciplinary Studies

(IDVS 490H – Williams;  
HONR 451H – Lipscomb)

Reasons for openness to complementary alternative medicine (CAM), compared to conventional medicine, are due to patient–physician trust, personal experiences, and medical efficacy. This research aims to answer how open Americans are to using CAM compared to individuals in other countries, as well as evaluate the factors contributing to those trends. The use of CAM has recently increased among Americans due to the distrust in physicians and the healthcare system, increased immigration and the use of the Internet, as well as shifted perspectives for chronic over acute illnesses, individualism over authority, and spirituality over science. Despite the increased use, many individuals do not disclose CAM use with their primary physician for various reasons suggesting that CAM continues to be a controversial healthcare option. Literature across medical, psychological, and sociological perspectives was surveyed to determine the factors contributing to these trends. Medical science is necessary in understanding the biological nature of the leading ailments that plague people worldwide, as well as the effects of treatment. On the other hand, Psychology analyzes what mental and emotional factors contribute to people choosing the treatment options that they do, while Sociology looks into additional demographic and cultural factors that play a role in the development of chronic ailments and treatment decision-making.

## The Impact of COVID-19 on the Food Industry in the United States

Student: Katherine Watts

Honors Thesis Committee:

Brian Collins, MS,  
Michael Lipscomb, Ph.D.,  
Leslie Van Horn, M.S. &  
Stephanie Nielson, M.S.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Human Nutrition

(HONR 450H – Collins;  
HONR 451H – Lipscomb)

When the COVID-19 pandemic arrived in the United States unexpectedly, federal and state governments were quick to close businesses, factories, schools, and restaurants in a collective effort to slow the spread of the virus. This had an immediate effect on America's food supply chain. As production of many goods came to a halt and Americans rushed to the stores to stock up, many stores experienced shortages and food prices were increased. In addition to restaurants, hospitals and long-term care facilities faced difficulties obtaining the foods, formulas, and supplements they need to care for their patients and residents. Many critically ill patients with COVID require enteral nutrition or supplementation in the hospital, increasing the demand for these products in already-crowded intensive care units. This thesis project explores the difficulties that restaurants and healthcare facilities have faced as a result of the pandemic, including shortages due to increasing demand and prices. Many dietitians have been unable to see patients due to a lack of personal protective equipment and COVID restrictions, and have begun to use new forms of technology to assess their patients. Managers have quickly created contactless ways to serve food to their customers or residents in long-term care and adjusted their typical menus based on what food products are available. This thesis explains how dietary managers and dietitians have changed their decision-making processes to adapt to new challenging circumstances.

## The Effect of Axon Guidance Molecule Semaphorin 3A on Different Aged Chick Retinal Ganglion Cells

Student: Allison Reed

Honors Thesis Committee:

Eric Birgbauer, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Daniel Stovall, Ph.D.,  
Kathryn Kohl, Ph.D., &  
Victoria Frost, Ph.D.

SYNAPSE Conference, High Point University, April 2019;  
INBRE Conference, University of South Carolina, January 2020

Supported by a grant from the South Carolina EPSCoR/ IDEa Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS)

CAS - Biology

(HONR 450H – Birgbauer;  
HONR 451H – Lipscomb)

During embryonic development, axons grow from the retina of the eye to the tectum of the brain which allows for visual information transfer. Axons travel to the tectum via axon pathfinding, which is influenced by axon guidance cues, such as our area of interest: Semaphorin 3A (Sema 3A). Axon guidance molecules interact with retinal ganglion cells (RGCs), which contain growth cones- a crucial feature of the developing visual system. Growth cones are extensions of growing or regenerating axons supported by microfilaments growing to their synaptic target, in this case the brain. Some inhibitory axon guidance molecules are known to cause growth cone collapse and Sema 3A is one of them. When growth cones collapse, they cease growth and then retract, never making it to their target. While Sema 3A's importance is known in the nervous system, a previous study demonstrated that Sema 3A causes growth cone collapse of chick embryo dorsal root ganglion cells (DRGs) but not growth cone collapse in chick retinal ganglion cells (RGCs). We have found significant evidence that Sema 3A does indeed cause growth cone collapse when it comes in contact with embryonic chick retinal ganglion cells, which is inconsistent with the published findings. After further investigation of this experiment, we have found that RGC's have the ability to regenerate from collapse after a 15–20 minute time window, thus giving the illusion to the previous report that Sema 3A does not affect RGC's because of the 60-minute allotted time window they used. We are currently investigating the effect of Sema 3A on different embryonic ages (E5, E6, E7, E8). We have found preliminary data that suggests that Sema 3A causes growth cone collapse of retinal neurites at all ages examined.

## Emotional Resilience of Preservice Teachers

Student: Marissa Atkins

Honors Thesis Committee:

Sarah Marie Catalana Berry, Ph.D.,  
Michael Lipscomb, Ph.D.,  
Bettie Parsons Barger, Ph.D., &  
David Vawter, Ph.D.

COE – Education Core

(HONR 450H – Catalana Berry;  
HONR 451H – Lipscomb)

Emotional resilience is often defined by the ability of an individual to avoid or bounce back from stress when presented with difficult situations. Preservice teachers are exposed to a varying degree of stressors that only compound when they reach in-service teacher status. Emotional resilience is something proven to play a role in teacher retention, wellbeing, and satisfaction. The questions presented are how best to foster emotional resilience in pre-service teachers to increase the wellbeing of individuals, while also increasing teacher retention.

## Does background music have an impact on elementary students' creative thinking skills?

Student: AnnaMarie Wilde

Honors Thesis Committee:

Sarah Marie Catalana Berry, Ph.D.,  
Michael Lipscomb, Ph.D.,  
David Vawter, Ph.D., &  
Bettie Parsons Barger, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

COE – Curriculum & Pedagogy

(HONR 450H – Catalana Berry;  
HONR 451H – Lipscomb)

This study is investigating the potential connection between music and creative thinking in the classroom. Creativity is not just about the arts; it is also a large part of critical thinking and problem solving. According to the standard definition of creativity, creativity is defined as the ability to produce something that is both useful and novel. This study looks at four elementary classrooms where approximately 45 students complete a creative thinking activity, based on portions of the Torrance Test for Creative Thinking (TTCT) (1966). The students will spend ten minutes drawing one picture which will be directly followed by ten additional minutes spent drawing ten different pictures. Two classrooms will be playing calm, non lyrical background music, while the other two classrooms will be playing no music. After the activity is over, the students are going to be given a short survey to see how they feel about music playing or no music playing and if it impacted their ability to creatively think on the activity. The activity will be scored based on the fluency, originality, and elaboration of the drawings, three key components to creativity. The hope for this study is to highlight whether background music is helpful while producing creative thinking in the everyday activities in the general elementary school classroom.

## The Political Evolution of the Arthurian Tradition

Student: Richard Wallace

Honors Thesis Committee:

Michael Lipscomb, Ph.D.,  
Jennifer Disney, Ph.D. &  
Josephine Koster, Ph.D.

CAS – Political Science

(HONR 451H – Lipscomb;  
PLSC 490H – Disney & Lipscomb;  
ENGL 494H – Koster)

The purpose of this paper is to explore the evolution of political ideas within the Arthurian tradition, from Geoffrey of Monmouth's *History of the Kings of Britain*, in the 12th century, to T.H. White's *The Once and Future King* in the twentieth. Given the emphasis on Arthur's rule and the politics of his kingdom in comparison to other legendary hero figures, and given that there is no true singular story from which all other stories about King Arthur are derived, the Arthurian tradition possesses a unique plasticity, making it uniquely reflective of the political ideas of a given work's author. As such, this study draws on sample works from five distinct eras of Arthurian literature, and examines the contents of these sample works for possible connections with distinct political theories. Even if the Arthurian author in question precedes the codification of the philosophical concepts used to interpret a work by several centuries, I will still connect ideas if they resonate with the story in question. I am not concerned with declaring that Geoffrey of Monmouth was inspired by the writings of Thomas Hobbes; only with whether the theoretical lens employed suggested by a thinker helps us better understand a particular rendering of the Arthurian legend and whether the application of these theories to the Arthurian legend helps us sharpen their conceptual vision. By doing so, I am able to conclude that the Arthurian tradition reflects a general growth in the complexity of political ideas in Great Britain throughout the second millennium A.D.

**PREVIOUSLY  
PRESENTED  
OR PERFORMED**



## Testing the Allelic Strength of *Drosophila melanogaster* *mus109* Alleles

Student: Erica Nestore

Faculty Mentor:  
Kathryn Kohl, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a grant from the South Carolina EPSCoR/IDEA Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS)

CAS – Biology

*Drosophila melanogaster*, commonly referred to as fruit flies, possess a group of genes that when mutated can cause sensitivity to DNA damaging agents. These mutagen sensitive (*mus*) genes are likely involved in DNA repair, and one of these genes, *mus109*, was the focus of this study. To perform the experiment, complementation crosses were set up between the three *mus109* alleles: *mus109<sup>ls</sup>*, *mus109<sup>bi</sup>* and *mus109<sup>D2</sup>*. The wild-type DGRP-59 was used as the control. For each cross, twenty vials were scored. Brood one contained ten vials that were mock treated with distilled water, and brood two contained ten vials that were treated with the alkylating agent methyl methanesulfonate (MMS). The relative survival was calculated as the ratio of mutants and non-mutants in brood 2, normalized to brood 1. An ANOVA analysis indicated that there was not a significant difference in survival rate between the various *mus109* allelic combinations. However, ANOVA analysis indicated that the relative survival value for all *mus109* alleles was significantly different from wild-type ( $p < 0.0001$ ).

## Game of inches: America's uphill battle for equitable, accessible youth sports programs

Student: La J'ai Reed

Faculty Mentor:  
William Schulte, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Mass Communications

(MCOM 441 – Schulte)

Physical activity provides youth with access to promote healthy leisure and lifestyles. As youth sports continue to evolve, in reference to skill level, development, and opportunity, the field becomes more susceptible to inefficiency and inequality. The President's Council on Sports, Fitness, and Nutrition, currently faces a crossroad as it must simultaneously promote advanced programming while making those programs available to youth populations across varying demographics. This enterprise journalism explored open records, government documents, and academic works and discovered that youth sports programs are facing a crisis as prices increase and the number of participants decreases. Research shows that representations of communities, mental and physical health advocacy, robust quality of life, and financial management should be prioritized in order to increase effectiveness and maintain interests and participation. This investigation drew upon empirical and statistical data and shows how structural amendments can advance the ideal youth sports experience. To better understand the youth sports crisis, interviews were conducted with youth sports participants, parents, sports program coordinators, sports psychology experts, and a physical education teacher. Respondents were asked a series of questions related to their own ideas and experiences in regard to the youth sports crisis. In relation to the current PCSFN data and other national youth sports survey data, this project shows that with a greater deal of uniform consistency within the structure of youth sports programs, children can have a more ideal experience that helps sustain their quality of life.

## The Effectiveness of Interventions on Overweight or Obese Children and Adolescents

Student: Kaitlin Milam

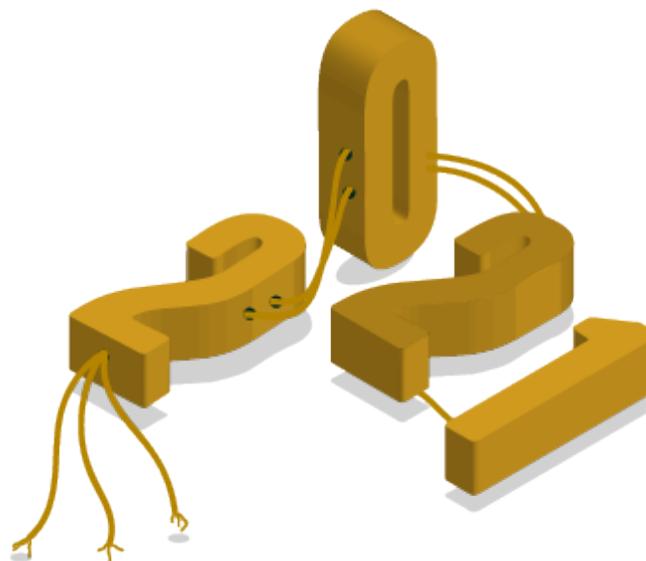
Faculty Mentor:  
Joni Boyd, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Boyd)

The purpose of this review of literature is to determine the most effective intervention style for children and adolescents who are either overweight or obese. Childhood obesity has become more prevalent in recent years. Research shows that around the world 38.2 million children under the age of five are overweight or obese making it a worldwide epidemic. It is evident that interventions are an effective way of helping these children so that later they are not at a higher risk of developing severe health conditions like heart disease and diabetes. This review examines multiple studies that investigated the effectiveness of interventions that occurred in various locations such as inpatient facilities, primary schools, and low-income communities. The studies were either multidisciplinary or focused on improving body mass index (BMI) through exercise and dieting. Many of the multidisciplinary studies focused on improving the children's exercise and nutrition habits, along with their psychological wellbeing. This style of intervention showed the most significant results as it focused on improving the overall quality of life for those involved. These studies suggested the most effective interventions involve the families of the children. It was determined that when the families are involved, they are more supportive of the changes their children are making. Often, they are better equipped to help their children make these changes due to the education from the intervention. The results provided in this review of literature suggest that interventions are a successful treatment for children and adolescents who are overweight or obese.



## Pym's Loss of a Center and His Subsequent Destabilization: A Reflection of Humankind

Student: Scarlett Black

Faculty Mentor:  
Leslie Bickford, Ph.D.

South Atlantic Modern Language Association Conference, Online, November 2020 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – English

(ENGL 300 – Bickford)

Many critics argue over the purpose of Edgar Allan Poe's *The Narrative of Arthur Gordon Pym, of Nantucket* with assertions that range from it being a novel defined by its historical references to sea adventures, to it being a satire piece of travel narratives, to it showing Poe's racist agenda. However, a unique perspective taken up lately on Poe's novel has a more postmodern emphasis, claiming that Pym's journey shows the breakdown of meaning of reality. My argument rests among these but does so through the lens of Jacques Derrida's theory of deconstruction. I claim that Pym's experiences of disaster destroy the stability of his transcendental signified of "being" and thus undermine his definition and privilege of "white civilization." An analysis of Pym through this lens yields the conclusion that Pym's repression that his transcendental signified is inadequate brings him to the point he enters a neurotic state to affirm it. This ultimately reflects the power of the Western logocentric desire within the reader. Thus, through a deconstructive lens another possible purpose of Poe's novel is uncovered.

## The Affect Weightlifting Has on The Recovery Process for Baseball Pitchers: A Literature Review

Student: Matt Levenson

Faculty Mentor:  
Joni Boyd, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Boyd)

The purpose of this review was to better understand the impact the weightlifting has on the recovery for baseball pitchers. Research shows that baseball pitchers deal with soreness after they have participated in any type of throwing. The primary area of soreness involves the throwing arm. With that increase in soreness comes an increased risk of an arm injury, which would be detrimental to a baseball pitcher's career. The studies in this review of literature show that resistance training, but more specifically weight training has positive benefits towards the recovery process that pitcher's involve in. Other methods that help recovery methods that was reviewed included mobility exercises, resistance bands, weighted balls, electric-stem therapy, and stretching from an athletic trainer. Although those methods were all seen as ways to help in the recovery process, the resistance training that is weightlifting is shown to increase blood flow in the body. The results show that increased blood flow helps the body speed up in the recovery process and allows for a better opportunity at preventing any arm injuries. The results found in this review can be used to implement new techniques for baseball pitcher's when they are recovering after they have a throwing session. Additionally, this review of literature can be used by athletic trainers to help implement the best methods for recovery for pitcher's as they look to enhance their careers. The results from this review can be used by coaches to improve the health and safety of their players by giving them the best opportunity to stay on the field while preventing injury.

## Neoliberalism's Impact on Climate Migration and Rapid Urbanization in Bangladesh

Student: ChaKiedrick (Dreek) Morgan

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

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Political Science

(PLSC 490 – Disney & Lipscomb)

The world's current geological era, known as the Anthropocene, poses climate threats that are side effects of economic development. Paradoxically, economic growth is required for the underdeveloped world to be protected from natural disasters. The poor nations of the world bear the biggest burden of global warming due to their lack of economic stability to endure the challenges that climate change brings. As a result, the cascading threats of climate change have led vulnerable communities throughout the world to adapt in the form of migration. The data presented throughout this paper will explain how climate change is an all-encompassing phenomenon that exemplifies two of the world's most pressing crises: climate migration and rapid urbanization. Bangladesh is home to a significant portion of the world's most vulnerable people to climate change. Rising global temperatures existentially threaten communities and people in Bangladesh by heavily impacting the weather pattern. These unfortunate climate-induced realities push Bangladeshi people to gravitate to nearby cities that offer them a higher quality of life. However, these cities are becoming overcrowded and the waves of new people are stretching infrastructure, resources, and services to their limits, causing even more severe strains within the region. This article will explain how neoliberalism causes environmental injustice in Bangladesh as well as other poor nations of the world. Moreover, this article will entail a case study of Bangladesh, and will serve as an evaluation of how neoliberalism as an overarching system impacts climate migration and rapid urbanization within this country.

## The Effect of Political Culture on Voter Personality Preferences for Political Leaders: A South Carolina Case Study

Student: Kalin (McKenzie) Bennett

Faculty Mentors:  
Hye-Sung Kim, Ph.D.,  
Michael Lipscomb, Ph.D., &  
Jennifer Disney, Ph.D.

Ronald E. McNair Scholars Program  
Virtual Symposium, Rock Hill,  
SC, June 2020, & Seventh Annual  
Showcase of Undergraduate Research  
and Creative Endeavors (SOURCE),  
Winthrop University, April 2021

Supported by a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education

CAS – Political Science

(PLSC 490 – Disney & Lipscomb;  
PLSC 350 – Kim)

Is there any personality trait that South Carolina voters expect from their political leaders? In addition, are voters' preferences for certain personality traits of their political leaders influenced by political cultures voters are exposed to? This paper examines the personality traits that South Carolina voters look for in political candidates using the theoretical framework of the traditionalistic political culture. From this framework, the following hypotheses are developed: voters who are exposed to a traditionalistic political culture are (1) more likely to desire political leaders with high levels of extraversion; (2) more likely to desire political leaders with high levels of agreeableness; (3) more likely to desire political leaders with moderate levels of conscientiousness; (4) more likely to desire political leaders with low levels of neuroticism; and (5) more likely to desire political leaders with low levels of openness to experience relative to the voters who are exposed to a moralistic political culture. To test these hypotheses, I collect original survey data and conduct multiple regression analyses. The findings show that (a) voters with a moralistic political culture tend to show preferences for leaders' openness to experience and that (b) voters with an individualistic political culture tend to show preferences for candidates' conscientiousness after controlling for various control variables.

## The Visual Personification of John Watson in Film and Media and the Lack of Understanding of his Character

Student: Sandra Reyes

Faculty Mentor:  
Josephine Koster, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS - English

(ENGL 310 – Koster)

John Watson, a character created by Arthur Conan Doyle, is Sherlock Holmes' best friend, partner in solving crimes, a doctor, and a scholar. Although, Watson is an educated and trained professional; he is also greatly underestimated in film and television adaptations. Why does this happen? Throughout my essay I explore the various reasons as to why John Watson unfortunately does not receive the credit he rightfully deserves. John Watson has, often times, been reduced to a side-kick character and assistant to Sherlock Holmes. Interpretations that reduce Watson to a sidekick and assistant that I explore throughout my essay are Dr. David Q Dawson in *The Great Mouse Detective* and Nigel Bruce's interpretation in *The Hound of Baskervilles*. Additionally, I also explore the interpretations that depict close interpretations of Watson. These interpretations of Watson illustrate a Watson who has combat skills, medical training, and even deductive skills that the great Sherlock Holmes respects. The interpretations I argue that depict a well-rounded, educated, and professional Watson are David Burke's in *The Adventures of Sherlock Holmes* and Martin Freeman in BBC's *Sherlock*. Not only do these interpretations closely illustrate Doyle's Watson on-screen but they bring justice to John Watson and his name.

## Queer Art Exhibitions: Diverse Inclusion or White, Gay Canon

Student: Kai Griffin

Faculty Mentors:  
Brandon Ranallo-Benavidez, Ph.D. &  
Cheryl Fortner-Wood, Ph.D.

College Art Association (CAA)  
109th Annual Conference, Virtual,  
February 2021, National Conference  
on Undergraduate Research, Virtual,  
April 2021, Ronald E. McNair Scholars  
Program Virtual Symposium, Rock  
Hill, SC, June 2020, & Seventh Annual  
Showcase of Undergraduate Research  
and Creative Endeavors (SOURCE),  
Winthrop University, April 2021

Supported by a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education

CVPA – Fine Arts

(MCNR 300 – Fortner-Wood)

Are the queer art exhibitions held at major contemporary and modern art museums in the United States truly diverse in their inclusion of queer identified artists or are they simply perpetuating the hegemony of the white, gay, male? The question warrants research as it illuminates gaps in the western art world's attempts of showing progressive, inclusive, and comprehensive standards, practices, and ideals. An intensive survey of ten major U.S. contemporary and modern art museums, their "queer" art exhibitions, the artists represented within each exhibition, and the cumulative intersectional axes attributed to the artists were examined via archival studies and inductive analysis. Within the contexts of this research, "queer" is related to people who do not fall within the white, cisgender, and heterosexual normatives. The findings prove to be anything but progressive or ideal, as analyses reveal marketability, viability, and profitability greatly influence the curatorial practices of inclusion regarding non-normative, non-binary, queer artists. The white, cisgender, gay, male as the emblematic "queer" artist remains the default tokenized attempt of progressive representation by contemporary and modern art institutions. Along with curatorial practices being challenged, a larger theoretical inquiry into who are the gatekeepers of the art world and what established systems within it need to be deconstructed are merited.

## Athletic Ankle Sprain Rehabilitation and Optimism

Student: Victoria King

Faculty Mentor:  
Joni Boyd, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

COE – Physical Education, Sport,  
& Human Performance

(PESH 381 – Boyd)

Ankle sprains are a prevalent athletic injury. It is an injury that inflicts damage on the fibers of the anterior talofibular ligament, calcaneofibular ligament, and posterior talofibular ligament. The RICE method and reintegration to sport are common treatments for ankle sprain rehabilitation. The phases of rehabilitation have been recommended as reaction to injury, reaction to rehabilitation, and reaction to return to sport. Previous studies have identified the need for psychological integration into rehabilitation, allowing for holistic care. Optimism, the expectation of positive outcomes is a specific psychological trait linked to the phases of rehabilitation. Although optimism is linked to rehabilitation, little research has been conducted. The impact of optimism on athletic ankle sprain rehabilitation is discussed in this review. It is theorized that higher levels of optimism will benefit athletes' recovery from ankle sprain injuries.

## The Relations Between Aggression and Life Satisfaction on Social Media Reactivity

Students: Thomas Fletcher & John Revels

Faculty Mentor:  
Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference, Virtual, March 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Psychology  
(PSYC 302 – Sleigh)

Social media is integrated into most adults' daily lives with millions of posts viewed each day. We examined characteristics of adults that predicted willingness to respond to social media posts varying in emotional content. Participants were 110 adults with a mean age of 38.38 ( $SD = 19.61$ ). The majority of participants were Caucasian (87%) and women (58%). Via an online platform, participants encountered social media posts that varied in emotional content and subject matter. After each post, participants reported their emotional reaction, agreement level, and their likelihood of responding. Participants also responded to scales to assess aggression and life satisfaction. Results revealed support for the idea that participant characteristics predicted adults' willingness to respond to social media posts. People who were happier and less aggressive were more likely to respond to social media posts, while younger, less satisfied, and more aggressive participants seemed to want to avoid responding to social media posts. These findings may reflect the fact that social media is often used as a tool to enhance social relationships. Thus, people who are happy and less confrontational may be more motivated to post in order to use social media as a strategy to connect with others; they are likely to have had more positive responses to their posts in the past. These findings add to our understanding of social media use, suggesting that responsiveness to social media posts is determined by both characteristics of the user and of the posted material.

## Trust in Conventional Doctors and Openness to Complementary Alternative Medicine

Student: Kristen Watson

Faculty Mentors:  
Merry Sleigh, Ph.D. & Ginger Williams, Ph.D.

Southeastern Psychological Association Conference, Virtual, March 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Interdisciplinary Studies  
(PSYC 472 – Sleigh)

We examined openness to CAM methods and trust in conventional medicine in American and non-American adults. We hypothesized that trust in conventional doctors would be higher than in alternative practitioners, that an internal health locus of control (HLOC) would predict increased trust in CAM, and that non-Americans (versus Americans) would trust alternative practitioners more. Participants ( $n = 164$ ) were majority female (70%) and Caucasian (67%); however, they were recruited internationally and included adults from America, Argentina, China, and Ireland. Participants responded online to the: Multidimensional Health Locus of Control, Trust in Physician Scale, and Complementary, Alternative, and Conventional Medicine Attitudes Scale. Additionally, we randomly assigned participants to one of four vignettes that described visiting a conventional or alternative doctor for depression or back pain; we then evaluated participants' perceptions of the experience. As we hypothesized, conventional doctors were viewed as more trustworthy and effective than alternative practitioners. We also found support for our hypothesis that non-Americans, compared to Americans, would trust alternative practitioners more because non-Americans visited alternative practitioners more frequently. Contradicting our expectations, an internal HLOC predicted more trust in conventional doctors. Perhaps this finding reflects the fact that, in an attempt to control their own healthcare, these individuals turned to the healthcare that was most readily available, which would be conventional doctors.

## Photoredox Mediated Alkylation of Imines with Potassium Organotrifluoroborates in the Presence of an Organic Photocatalyst

Students: Jackson Barrett, Evan Thibodeaux, Molly Quetel & Eric Walters

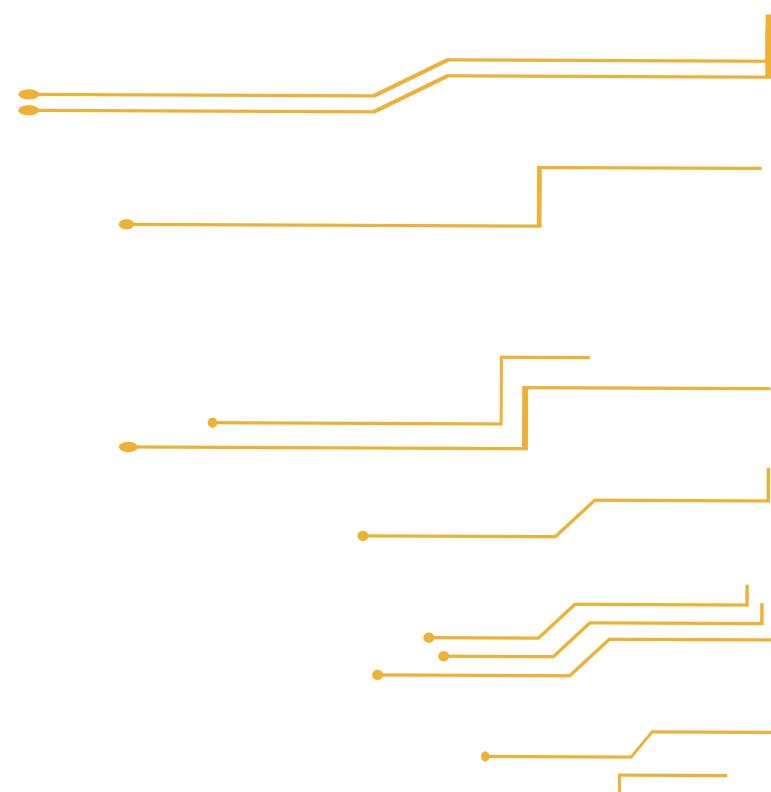
Faculty Mentor:  
James Hanna, Jr., Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Support was provided by the Donors of the American Chemical Society Petroleum Research Fund & a grant from the South Carolina EPSCoR/IDeA Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS)

CAS – Chemistry,  
Physics, & Geology

Our group is investigating the application of an organic photocatalyst, 9-mesityl-10-methyl acridinium tetrafluoroborate (*Mes-Acr-Me*), to the alkylation of aryl imines with potassium organotrifluoroborates. In the past, our group has employed a potassium isopropyltrifluoroborate for model reactions, but we desired to expand our  $BF_3\text{K}$  scope to see the effects of variation in the alkyl group of the organotrifluoroborate. In addition, we wanted to study the substituent electronic effects in the imine, which was done using a series of competition experiments. The protocol appears to be applicable to broad range of substituted aldimines, although extended reaction time was necessary to complete the reaction with highly electron withdrawing substituents (e.g.  $\text{CF}_3$ ). Secondary, and tertiary potassium alkyltrifluoroborates were also shown to be competent reaction partners. Potassium cyclobutyltrifluoroborate gave a low yield compared to other secondary alkyltrifluoroborates, presumably because it required formation of the less stable cyclobutyl radical. To assess substituent effects, competition experiments were carried out, and the data were plotted using several substituent constant scales (including  $\sigma$  values developed for free radical reactions; see for example Dust and Arnold JACS 1983, 105, 1221); the best fit was obtained when  $\sigma^+$  values were used, suggesting that polar effects are more important than radical stabilization effects. The small negative value of  $\rho$  (-0.61) seems to indicate that the t-butyl radical exhibits weakly electrophilic behavior in this reaction.



## Same-Sex and Opposite-Sex Differences in Friendship Quality and Conflict Resolution

Students: Sophie Pringle, Amanda (Mandy) Breakfield, & Aaron Gigliotti

Faculty Mentor:  
Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference, Virtual, March 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Psychology  
(PSYC 302 – Sleigh)

Cross-sex friendships are common during young adulthood. Yet, they vary widely and are vulnerable to misunderstanding, even by the friends themselves. We examined how cross- and same-sex friends responded to different types of relationship conflict. We hypothesized that same-sex friends would respond more negatively to conflict than would cross-sex friends. Young adult participants ( $n = 127$ ) were primarily women (64%) and equally divided between African American (41%) and Caucasian (39%). Participants were randomly prompted to either think of their closest same-sex or opposite sex friend and then to respond to the McGill Friendship Questionnaire. Participants then encountered three conflict scenarios (hurtful remark, social exclusion, betrayed secret) and asked how they would respond if these occurred with the imagined friend. Our hypothesis was not supported. We did not find differences in friendships based solely on the gender match or mismatch of the friendship. Instead we found that men were very sensitive about a female friend making a hurtful comment or socially excluding him. Neither gender was surprised by a male friend being socially exclusive. Despite these findings, how adults reacted to the friendship scenarios depended more on their gender than on the gender of their friend. In general, women were more upset by our conflict scenarios than were men and felt it was important to help their friend see their point of view. Age and race were not predictive of friendship perceptions. These findings add to our understanding of this common experience of young adulthood.

## Perceptions of Marijuana Use Within the Context of Romantic Relationships

Students: Eliza Diamond, Tatiana Singletary, Ta-Taya Campbell, & Ty'Keila Scarborough

Faculty Mentor:  
Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference, Virtual, March 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Psychology  
(PSYC 302 – Sleigh)

Marijuana use can have both positive and negative impacts on romantic relationships. Our study addressed this topic from a different angle, examining outsider's perspectives of relationships with concordant or discordant marijuana use. We hypothesized that a heterosexual romantic relationship would be perceived as healthier when both partners smoked marijuana and least healthy in a discordant one where only the woman smoked marijuana. Participants were primarily women (73%) and equally divided between African American (46%) and Caucasian (42%). Participants were randomly distributed into one of three conditions. All conditions asked participants to imagine a heterosexual romantic relationship. The unique element was whether both partners smoked marijuana, only the man smoked marijuana, or only the woman smoked marijuana. Participants provided their perceptions of the relationship and then responded to scales to assess marijuana attitudes, social anxiety, and marijuana use. Results revealed that adults were generally positive about marijuana. Attitudes about medical marijuana were consistent across the demographic characteristics, eliciting strong support. Men and non-heterosexuals were most positive about recreational marijuana, while anxiety level, age and race were not as predictive. Adults seemed to perceive romantic couples who smoked marijuana to be happy and fun, rarely fighting about the money they spent on marijuana. However, participants also felt the relationship would not last as long.

## Sexual Education Policies and Sexual Risk in Sexual Minority Youth

Student: Victoria Sulak

Faculty Mentors:  
Brandon Ranallo-Benavidez, Ph.D. & Cheryl Fortner-Wood, Ph.D.

Ronald E. McNair Scholars Program  
Virtual Symposium, Rock Hill, SC, June 2020 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education

CAS – Political Science

(MCNR 300 – Fortner-Wood)

Compared to their heterosexual peers, sexual minority youth experience higher rates of sexual risk behaviors. Access to comprehensive sexual education is often linked to reduced rates of risky behaviors, however sexual minority students often feel underrepresented in sexual education. Conducting a content analysis of sexual education policies of all fifty states and the District of Columbia, researchers coded policies as neutral, inclusive, or exclusive of sexual minorities. Additionally, policies were analyzed for heteronormativity and heterosexism. Among policies found, most were neutral. There were more exclusive policies than inclusive policies. Among exclusive policies, all were either heteronormative or heterosexist. No neutral or inclusive policies were heteronormative or heterosexist. Using this data and data from sexual behavior subsection of the Youth Risk Behavior Surveillance Survey, I will begin to examine the relationship between policies and sexual behavior in sexual minority youth with an emphasis on condom use, birth control use, and sexual initiation.

## Don't Look Back

Student: Navyen Nam

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

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CVPA – Fine Arts

My interest lies in the anxiety that humans worry so much about. It's amazing that a dark room can become so many things. It can be a box where monsters are born, it can be an endless void of sorrow, or it can contain ghosts that haunt you. Stress and anxiety trigger your mind to wander. You question why you're scared and your imagination runs wild. When you're in the dark, you're terrified of anything foreign touching you and your mind tells you there's a figure ten feet in front of you. First you hear something, then you smell something, eventually your eyes will wander and you'll be able to feel the air, then your brain has to process those inputs simultaneously. Your survival instincts kick in and your brain needs you to survive. Your brain needs to assess the situation and act accordingly. Your brain asks itself, "Do I need to leave? Is something behind me? What exactly am I looking at?" Your anxiety will take control of your mind and body.

## More Than This

**Student:** Jay Coleman

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

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

My series *More Than This* consists of digital photographs that express my frustration with the toxic masculinity present in the trans community, along with my feelings of self-denial, dysphoria, and isolation. Currently, there is a certain mold that masculine aligning trans people have to fit into in order to be accepted and respected in today's society. Personally, this conception brings along intense feelings of self-hatred and dysphoria, since I do not conform to the mold of the perfect trans masculine person. Why should I restrict how I express myself in public in order to be respected and to make others comfortable? Why is it my responsibility to make them comfortable? What about my own comfort? I'm tired of attempting to fit into a mold created by cisgender individuals. My work challenges this construct by actively disrupting the expectations put on me as a transmasculine person. My self-portraits present a play between femininity and masculinity by including traditionally feminine clothing, along with textures and clothing associated with both men and women. I want to close the gap between the two and help change the narrative of trans masculine people. In addition to this, I incorporate shapes hidden behind the figure as well as invading the space of the figure in order to parallel the feelings of discomfort that I feel. I use circles behind each of the figure's heads to give a sense of divinity and otherworldliness. With these photographs, I ask the viewers to challenge their preconceived notions about gender and expression and reconsider the restrictive, cisnormative expectations put on trans individuals

## Bridge

**Student:** Kalah Maree

**Faculty Mentor:**  
Claudia O'Steen, M.F.A. &  
Anne Fiala, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

(ARTS 491 – Fiala)

*Bridge* is an installation where the viewer is immersed into a hyper-colored separate reality that acts as a transformative safe haven. This bridge is the transition from the real world to surreal dreamscapes. It acts as a self-portrait, showing a young woman as she gazes in the mirror just wishing life was different, hoping to be transported to a world rid of responsibility, hatred, and judgment. The imagination is extremely compelling and can take over the mind and autopilot for a while, this is why elements of these imaginative landscapes or worlds can sometimes creep into reality in the form of daydreams.

## Campus Mental Health Services and Student Needs in COVID-19

**Student:** McCayla Partain

**Faculty Mentor:**  
Wendy Sellers, Ph.D.

*Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC, June 2020, University of California-Las Angeles McNair Conference, Las Angeles, CA, July 2020, & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*Supported by a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education*

CAS – Social Work

(MCNR 300 – Fortner-Wood)

There has been an increased rate of utilization of campus-based mental health services among college students. While this overall trend is noteworthy, disparities exist in terms of quality and quantity of campus-based services. Some of these differences are linked to the overall socioeconomic status of student populations. The outbreak of COVID-19 has compounded these issues. Recent research surrounding the Coronavirus pandemic suggests that the stressors involved, particularly for college students, may elevate and alter their need for mental health services. Additionally, there are disparities in terms of who is most affected by the pandemic, with populations based on race, class, and gender being most at risk. Through random cluster sampling of institutions within the six regional accreditation bodies of the United States, this study explores the ways in which colleges and universities are meeting the mental health needs of students during COVID-19. This paper discusses this secondary data analysis, based on information obtained from institutional websites, kinds of mental health services, access to these services, and provisions and availability during COVID-19. The results highlight the disparities of mental health services, based on sociodemographics of student populations, and how these disparities have worsened during the pandemic. This information will help to inform further development and expansion of mental health services in response to the pandemic, in preparation for future crises in public health, and in attention to diverse and vulnerable students.

## Who Are You

**Student:** Dianna DeVito

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

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

Through self-portrait photographs and video, I am exploring the dissonance between my body and my emotions. Fear, hopelessness, discomfort, and personal trauma are all emotions I am confronting in these photographs, and through my varied body positions and expressions, I am having a conversation with myself and the viewer through intense eye contact or complete avoidance of the camera. The intimate and vulnerable state of my body in these photographs puts the viewer in a state of invasion, having to question if they feel comfortable confronting this space. The video furthers this sensation by seeing my body put in uncomfortable poses for a prolonged period of time, an extension of what these poses are in the photographs, undergoing stress to the point of trembling and flinching.

## The Deeper Roots

Student: Danielle Walker

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

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA – Fine Arts

There is a divide between feminine and masculine roles in African American households. Black men are given male roles and are turned away from anything feminine. Through research, I searched for answers that explain why man wants to act like society's expected standards of a man. Black men act tough and keep their feelings and experiences with racial discrimination on college campuses hidden, as well as their admiration towards their father's for being manly role-models. My drawings display the groups of words that highlight statements made by black men. The words capture the viewer's attention rather than the individual's faces. The words explain that any man can have the same experience that leads to the development of his masculinity, rather than each individual facing something different. Embracing an African American nineties aesthetic, the words will be spray painted in an array of bright colors and patterns. I use ceramic heads to represent African American men who refuse to express their emotions. I want the viewer to understand what is going on in their minds without him having to open his mouth and speak.

## Why Don't You Just Leave?

Student: Anna Heath

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

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA – Fine Arts

My thesis is about my experiences growing up as a LGBT youth in a conservative household and how that has affected my familial relationships, my identity, and my self image. Through a steel skeleton replica of my childhood bedroom wall, the viewer is invited to walk through the white wooden door into the space I spent most of my days in. Inside the "room" are two pieces that represent those childhood experiences. The first piece is Balance, a found object and steel kinetic sculpture, which represents my precarious relationship with my father. Hanging in the middle of the mobile is one of my favorite childhood toys, a Barbie airplane, and hanging on either side of the airplane are concrete cast objects containing bits and pieces of my other Barbies from my childhood. The second piece is Ideal Body, a wearable cardboard sculpture fitted to my body. The suit is meant to represent my ideal figure: strong, imposing, and androgynous. The video displayed on the wall shows a performance of me getting in and out of the suit. These pieces were made as a way for me to process my own feelings about my family and my identity. I have taken toys and objects that were once sentimental to me and destroyed and repurposed them for my art. The experience has been emotional and cathartic. I want the viewer to share this experience with me through the objects I have made. It is important for me to share my experience with others so that if they resonate with those feelings of uncertainty, with loss, or a changing identity, they may not feel so alone.

## Looking

Student: Avery Setzer

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

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA – Fine Arts

My series *Looking* is a working collection of images taken in film to visually express the concept of being watched and viewed as a woman in society. Originally working with the concept of youth vs. adulthood I have narrowed more selectively to the concept of being watched and objectified in the public view. As of late, with the ongoing social killer that is Covid-19, I have been looking back on my ideas of self-expression. I love frilly clothes and cute, feminine colors and yet I instead choose to hide in clothes that are too large and too bulky to ever really suit me. I realize that most of my life I have been hiding myself away so that when I am in the public-eye I can minimize the chances of people seeing me. I want to push that feeling as far away as I can by doing exactly what I hate. My series is one of self-portraits, images of myself in outfits and soft settings I could never previously bring myself to share with other people. I now want people to look. I also want to look at my own images as they do. My hatred for people looking at me stems from my inability to look at myself. I want to be able to see myself from a disconnected point of view, one that is not so heavily biased. *Looking* is a project created to overcome my own personal insecurities and connect with people who have and have not felt this way before.

## The Cleansing

Student: Jade Solch

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

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA – Fine Arts

*The Cleansing* is a collection of mixed media works that transcend through time and reality by connecting alchemy to the 50s as well as the more current. It consists of a range of digital works as well as physical pieces. Within this media are references to the past in conversation with the cyclical human experience and the subjective and universal perception within the abstract mind. To express such ideas, I typically use a collection of found objects, and in this instance, that process is repeated but with video and sound instead of physical pieces. For this exhibition, scraps of old recordings are compiled together to create a new message to the viewer. Where the audience was once meant to be blinded by the bright smiles and bubbly letters of the 1950s, they are now exposed to an awakening of reality, purification of obscurities, actualization. Other elements are hand fabricated, referencing alchemical means of purification. Emulations of laboratory equipment, symbols of balance, and found text are all included to further push this idea that the human experience has been a cyclical marvel throughout the wave of time. It is important to acknowledge the lack of control one has in their experience, to grant themselves peace, understanding, and strength in times of uncertainty. It is inescapable and everyone is involuntarily participating in their own altered point of view. The more one can recognize this concept, the more at ease they can become as the pattern unfolds before them.

## The Calls from Beneath

**Student:** Jonathan Bolton

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

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

This exhibition features objects that blend drawing and sculpture into pieces that fluctuate between recognition and ambiguity. Like a front-cover illustration, the objects weave the images, tones, and themes of unusual fiction into singular all-encompassing experiences. Many of my favorite stories involve characters desperately struggling to describe the most basic characteristics of their horror. Rather than drawing or sculpting such unspecified strangeness from scratch, this body of work uses a unified blend of found objects to invent shapes and forms that prove incredibly difficult to describe. Found objects are unified under a skin of gypsum cement, creating surfaces of undefined gestures and textures. I scan the ambiguous surfaces for echoes and references to the stories I wish to depict, utilizing the chaotic arrangement of the materials to embrace a more intuitive and interpretive process of image-building. The interpretations of surface are used to create drawings and/or original pieces of writing, which are used as guides to identify and excavate the image from the surface using charcoal, graphite, wax pencils – any tools used for mark-making. This body of work permits an alternative way to think about drawing. I am forced to reconsider the illusionary tricks of two-dimensional media and relief sculpture, often rearranging traditional value structures to pull two-dimensional forms forward in space and simultaneously forcing three-dimensional forms to recede in space. The works are filled with these conflicting conversations of spatial relationships, culminating into objects/images that broadcast an ever-present blur between comprehension and obscurity.

## Childhood Obesity

**Student:** Leanna Walton

**Faculty Mentor:**  
Ginger Williams, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

Childhood obesity is one of the most serious public health issues in the 21st century as defined by the World Health Organization. Childhood obesity has life altering effects on children: some of these effects being heart disease, diabetes, and cancer. Many children are now expected to live shorter life spans than their parents and grandparents. There are many sources for this issue to look at such as too much screen time, lack of exercise, unhealthy food consumption and eating habits, and lack of education. There needs to be a method that handles all aspects of childhood obesity and gives individuals and communities ways to prevent and mitigate the issue. What is the right method to prevent childhood obesity? Prevention programs have been shown to be an effective way to minimize and prevent childhood obesity. How can childhood obesity be mitigated through prevention programs involved with the community, schools, and the home? Childhood obesity can be mitigated by bringing the best from each program targeted towards the community, schools, and families/homes together. There are three disciplines that will be used to analyze this issue, which are as follows: education, nutrition, and psychology. These three disciplines can work together to create a whole picture. Each of these disciplines covers a different aspect of prevention programs that is needed, such as life in the home, school, and community.

## I Am More Than You Are Prepared For

**Student:** Ryan Ross

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

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

*I Am More Than You Are Prepared For* is a body of three works about vulnerability and reformation. Throughout my life, I have had relationships, familial, sexual, romantic, and platonic that have left me feeling nostalgic, livid, scared, lost, regretful, and many other feelings. I have hurt and caused hurt. I have lost my identity and found it again. I have struggled coming to terms with my intimacy problems, being non-binary, and my self-worth. This is only the beginning of me figuring out that life is not the stagnant ideal I once thought it to be. We can heal and transform into better or worse versions of ourselves. *I Am More Than You Are Prepared For* is just the beginning of this exploration of healing and bettering myself. I vocalize the feelings of regret, loss, anger, and the realization that I deserve better by honing into the phrase "I am more than you are prepared for" through fiber mediums such as yarn, cloth, quilting and embroidery. This communication is either written directly to or in a silent conversation with them. I did not make this as just a reflection, but rather, a point of forgiveness for all the hurt I have experienced and given. This is me forgiving myself.

## College Students' Perceptions of Classroom Accommodations

**Students:** Jessica Theodorski & Callie Glaser

**Faculty Mentor:**  
Merry Sleigh, Ph.D.

*Southeastern Psychological Association Conference, Virtual, March 2021*

CAS – Psychology

(PSYC 302 – Sleigh)

The number of college students seeking accommodations has significantly increased in recent years. We examined such campus perceptions, hypothesizing that college students would be more favorable about classroom accommodations for physical disabilities versus emotional disabilities. We also hypothesized that entitled students would evaluate accommodations most harshly. Participants ( $n = 99$ ) were college students with a mean age of 21.03 ( $SD = 2.22$ ). Most were Caucasian (72%) and men (55%). Participants were randomly assigned to one of four versions of the survey describing a college student with an accessibility issue (ADHD, generalized anxiety, hearing impairment, or muscular dystrophy) and then asked to rate their perceptions of classroom accommodations. Participants also responded to scales to assess their perceptions of students needing accommodations, academic entitlement, and entitlement. Our first hypothesis was not supported. Instead, we found that students saw the appropriateness of accommodations being very specific to the disability. Men and students higher in entitlement or externalized academic responsibility revealed the most negative attitudes towards students with accommodations, perhaps reflecting a concern, seen in previous research, that students with accommodations may be getting an unfair advantage. Upperclassmen expressed concern for teachers, students with accommodations, and non-accommodated peers. Classroom experiences and maturity may have allowed them to see and empathize with multiple perspectives.

## Celebrity Influence on Black Men's Constructions of Masculinity

**Student:** Savannah Stinson

**Faculty Mentor:**  
Michael Sickels, Ph.D.

Ronald E. McNair Scholars  
Program Virtual Symposium,  
Rock Hill, SC, June 2020 &  
Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

Supported by a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education

CAS – Sociology, Criminology,  
& Anthropology

In March 2020, retired basketball icon Dwyane Wade announced that his daughter Zaya is transgender. Though discussions surrounding Dwyane Wade's parenting erupted on social media, the announcement also raises interesting questions about the impact of celebrity influence on masculinity. The purpose of this study is to analyze constructions of black masculinity and the influence of celebrity. I conducted six semi-structured interviews with black men in college, ages 18–25. I found that (1) black men in college embraced traditional ideas of masculinity despite negative portrayals of black masculinity in the media; (2) black men view masculinity as unfinished, something they must strive to achieve. While this is partly a consequence of the unattainable standards of hegemonic masculinity for black men—the view of masculinity as unfinished may be beneficial, opening black men to changing notions of gender outside of the traditional masculine ideals. Lastly, (3) the conversations surrounding Dwyane Wade and Zaya have opened discussions about how celebrity shapes black men's understanding of gender.

## The Militarization of Domestic Policing in the United States and Mexico

**Student:** Kevin Hicks

**Faculty Mentor:**  
Ginger Williams, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

The continued militarization of domestic police throughout the world has been one of the most pressing human rights concerns since the end of World War II. Some of the consequences of this process include the normalization of over policing, increased instances of police brutality, and the deaths of innocent civilians. The United States and Mexico are both impacted by this problem in unique ways and exploring their different experiences with police militarization can provide useful insight on how to best develop strategies that will halt its negative impacts on civilian life in North America. This paper will attempt to answer the following questions: To what extent has domestic policing become militarized in the U.S., and how does this compare to the extent of the institution's militarization in Mexico? How does this process impact the lives of citizens in both countries, and what steps are being taken to remedy its consequences? Using the disciplines of history, sociology, and political science, I will explore the historical circumstances, legal evolutions, and institutional transformations that made the dramatic militarization of domestic police since the late-1960s in these two countries possible. The combination of these disciplines will provide a comprehensive lens that can analyze the complexities of this problem. I argue that the militarization of the police in the U.S. and Mexico is an intentional process that occurred in response to the growing demand for rights by societal minorities since the mid-20th century in an attempt to control and intimidate increasingly diverse populations.

## Attitudes Towards Climate Change

**Students:** Rowan Buscemi,  
Anne Watts Tuckwiller, &  
A'Viana McCoy

**Faculty Mentor:**  
Monique Constance-Huggins, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Social Work

(SCWK 330 – Constance-Huggins)

The United States lacks environmental policy and protection. There is evidence to support that our global climate is changing, and many do not realize the effects of these changes on individuals and communities. The effects of climate change is most felt on vulnerable populations including racial minorities and those in poverty. The attitudes that people hold towards climate change and policies can impact the actions that they take to reduce its negative effects. This study examined the attitudes of mostly undergraduate social work students at a small liberal arts college, on climate change and policies. The study which used survey questions, found students have varying attitudes towards climate change and that these attitudes varied by demographic factors. This holds implications for social work education and macro practice.

## Physical Activity and Mental Health in College Students

**Student:** Vanessa Fonce

**Faculty Mentor:**  
Janet Wojcik, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

COE – Physical Education,  
Sport, & Human Performance

(PESH 381 – Wojcik)

This research focuses on physical activity and mental health within college students. Over 41% of all college students have a history of anxiety and depression since they were attending college. Therefore, college students struggle academically due to mental health issues and may be unaware how physical activity can play a role to improve mental health. One study focused on the different challenges of non-first generation vs. first generation students. In most cases first-generation students have more stressors than non-first generation students. Research showed that physical activity and mental health are related, and it is possible to improve mental health with increasing physical activity such as going running, taking a group fitness class, or even just walk around campus or in the neighborhood. Another issue that students face are that students may not be aware of the resources that they have available in order to focus on their mental health, some example would be taking mental health breaks and go to a group fitness class, or even take advantage of counseling. A review of the literature confirmed that colleges do not advertise mental health well and listed areas where there is still space for improvement. Overall, colleges can do more to promote physical activity and mental health.

## **Isolating, Purifying, and Characterizing *Mycobacterium* Bacteriophages Collected from Soil on the Winthrop University Campus**

**Students:** Courtney Miller, Jordyn Benson, Kristen Gohs, Brady Harmon, Samantha Koenig, Mason Linker, Ma'Liah Maddox, Olivia Pohl, Bryn Radvanski, Gabrielle Walker, Jakob Miller, Claire Roberts, & Ashley Wood

**Faculty Mentors:** Victoria Frost, Ph.D. & Kristi Westover, Ph.D.

**SEA Symposium, April 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021**

**Supported by the Howard Hughes Medical Institute for the SEA-PHAGES Program**

**CAS – Biology**

(BIOL 270 – Frost & Westover)

This was Winthrop University's sixth year as part of the national HHMI sponsored SEA-PHAGES program. As freshman undergraduate students we isolated, purified, and characterized 4 bacteriophages found in the soil in and around Winthrop University, Rock Hill, South Carolina. COVID-19 limited the number of students in the laboratory at any given time, but working in pairs and eventually teams, we were able to isolate and culture four soil bacteriophages. Bacteriophages are viruses that infect bacterial host cells. They require a bacterial cell to reproduce and are specific to a particular host cell. Each phage was purified and amplified in the bacterial host *Mycobacterium smegmatis mc<sup>2</sup>155*. Following isolation, the phages were characterized following DNA extraction using restriction enzyme digests and gel electrophoresis. Calendula, Grindelwald, Allegro, and Moostard high-titer lysates were archived for future study. Two phages, Allegro and Moostard, were chosen to be sequenced at the University of Pittsburgh. The genome sequences will be returned to Winthrop for annotation. This research not only adds to the increasing knowledge of novel phages being discovered in this area of South Carolina but also allows Winthrop University and its students as members of an internationally renowned research program.

## **Genome Annotation of Bacteriophages Allegro and Moostard**

**Students:** Courtney Miller, Jordyn Benson, Kristen Gohs, Brady Harmon, Samantha Koenig, Mason Linker, Ma'Liah Maddox, Olivia Pohl, Bryn Radvanski, Gabrielle Walker, & Ashley Wood

**Faculty Mentors:** Victoria Frost, Ph.D. & Kristi Westover, Ph.D.

**SEA Symposium, April 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021**

**Supported by the Howard Hughes Medical Institute for the SEA-PHAGES Program**

**CAS – Biology**

(BIOL 271 – Westover)

During the spring semester of the one-year-long HHMI SEA-PHAGES experience, we annotated the sequenced genomes of two novel *Mycobacterium smegmatis* bacteriophages, Allegro and Moostard. Allegro is a member of the *Mycobacterium* Cluster B and a member of the sub-cluster B2. Allegro's genome is 67,439 bp in length and has approximately 92 predicted genes. Moostard is a member of *Mycobacterium* Cluster L and a member of the sub-cluster L3. Its genome is 69,480 bp in length and has approximately 108 predicted genes. Using DNA Master, Phamerator, and Starterator, along with homology comparisons to databases at HHpred and NCBI, the putative open reading frames were assessed for designated location and function. Multiple students called each gene allowing for an independent assessment of the reading frames. The data from all students were merged and assessed. Moostard encoded for integrase proteins which suggest a temperate lifestyle. Allegro did not contain an integrase protein but did encode for a putative immunity suppressor protein. The comparative analysis of phage genomes helps expand our understanding of the genomic diversity of bacteriophages found in this region of South Carolina and successfully introduces a genuine research experience to students in their first year of undergraduate studies at Winthrop University.

## **Uncovering Poverty In The Black Belt by Looking Through History**

**Student:** Ahmad Jones

**Faculty Mentor:**  
Nicholas Moellman, Ph.D.

**Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021**

**CBA – Accounting, Finance, & Economics**

(ECON 348X – Moellman)

The American Dream is perceived as an achievable fantasy for anyone able who is a citizen in this country, but historically in the United States the south has had the highest rates of poverty, specifically in the black belt. The black belt is the region of the southern US with fertile soil and a high population of African Americans. The United States has one of the lowest measures of intergenerational income mobility compared to other developed countries and this is significantly lower in the south compared to the rest of the country. In my paper I look at the history of the United States that helped influence enumerate conditions in this region like slavery and segregation. These early inequalities significantly contributed to factors like family structure and education in the south today, which further exacerbate intergenerational mobility among African Americans.

## **Traumatic Life Experiences and Use of Dark Humor**

**Students:** Taylor Pike & Kenyatta Martin

**Faculty Mentor:**  
Merry Sleigh, Ph.D.

**Southeastern Psychological Association Conference, Virtual, March 2021**

**First Place – Committee for Equality in Professional Opportunities Research Award, awarded March 2021, Southeastern Psychological Association**

**CAS – Psychology**

(PSYC 302 – Sleigh)

We examined how prior exposure to generalized trauma relates to a preference for and use of dark humor. We hypothesized that adults who had experienced increased trauma in their lives would be more receptive to dark humor. Via an online platform, participants viewed 6 dark humor statements and indicated how funny and offensive they found each statement, as well as whether they would be comfortable repeating the statement to a friend or a family member. Participants then responded to the Humor Styles Questionnaire and the Life Events. Our hypothesis was supported. Adults who had experienced more trauma found the dark humor funnier and were more willing to share it with others. Dark humor may be used as a coping mechanism, supported by our finding that those high in trauma used humor for affiliative purposes. Alternatively, perhaps trauma desensitizes people to the darkness in such humor. In support of this possibility, African American adults, a group vulnerable to social injustice, rated the dark humor as less funny. Men seemed to use humor in more goal-oriented ways than did women; however, these two groups did not differ in their self-reported willingness to share our dark humor or how funny they found it to be. This lack of gender difference contradicts earlier research and may reflect a changing societal dynamic. Age, political orientation, religious adherence, and sexual orientation did not predict perceptions of or use of humor, suggesting some commonalities in how adults use humor.

## **From Gut to Gold: How Digestive Microbiota Influence Athletic Performance**

**Student:** Mackenzie Sprott

**Faculty Mentors:**  
Joni Boyd, Ph.D.,  
Jessie Hoffman, Ph.D., &  
Ashley Licata, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*COE – Physical Education, Sport, & Human Performance*

*(PESH 480 – Boyd)*

The gastrointestinal microbiota plays an important role in the maintenance of homeostasis within the body. Known as the “second brain”, the GI tract has factors that influence nutrient uptake, vitamin synthesis, epithelial development, and immunity. Since dietary habits have the most influence on the gut, comparing one’s nutrition to their overall health can form a basis of understanding for using a specific diet and certain probiotics to improve sport athletic performance. Previous studies have observed the effect of polyphenols on gut health, found bidirectional correlations of neurological diseases and poor GI functioning, and shown improvements in athletes after introducing healthier diets and probiotics. It is theorized that a more inclusive diet will boost metabolic function and immunity, increase DNA repair, and enhance carbohydrate and lipid synthesis, which will improve overall performance. This poster reviews multiple articles detailing the importance of exercise training and nutritional health in benefitting the microbial composition of the gastrointestinal tract to enrich athletic ability.

## **Utilization of Injury Prevention Programs in Athletics**

**Student:** Wilesha Moore

**Faculty Mentors:**  
Joni Boyd, Ph.D.,  
Jessie Hoffman, Ph.D., &  
Ashley Licata, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*COE – Physical Education, Sport, & Human Performance*

*(PESH 381 – Boyd)*

This review of literature examines how the use of different injury prevention programs function to reduce the occurrence of sports related injuries. The injury prevention programs explored are FIFA 11+ programs for children, and adult soccer athletes. A WTA functional movement program was implemented with professional soccer athletes. National data retrieval identified the most common injuries sustained in contact sports. Strength training was implemented to reduce shoulder injuries in competitive swimmers. Dynamic stretching was utilized as a means to warm up and to reduce injuries. The final study addressed the relationship that high compliance to an injury prevention program, specifically FIFA 11+ has in decreasing injuries. Adolescents that participated in the FIFA 11+ Kids performed better in the Y balance, triple hop distance and 40- yard speed tests. WTA functional primitive movements reduced musculotendinous and ligamentous injuries. The knee was identified as the most injured area and held the highest incidence of permanent medical impairment in contact sports. The use of strength training in swimmers revealed limitations and unsupportive findings. Findings show that the incorporation of dynamic stretching in warmups increases range of motion, countermovement jump, agility and balance. Men soccer athletes that had a higher compliance to FIFA 11+ had a significant reduction in injuries and time loss from play. Injury prevention programs are valuable in athletics. The benefits of preventing injuries are greater growth in performance during the competitive season, lower incident of injuries as well as fewer absences from competition or practice.

## **Student Mental Health in the Time of Covid-19**

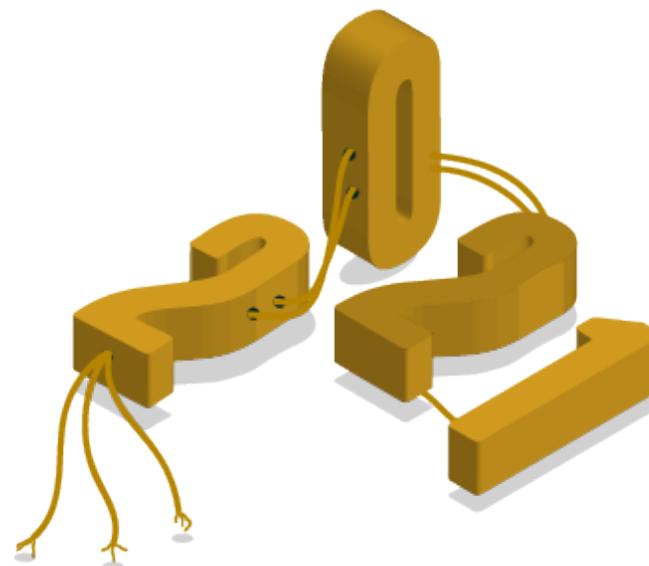
**Students:** Autumn Hennis, Sophie Pringle, Hannah Armstrong, & Brianna Drumgoole

**Faculty Mentor:**  
Sarah Reiland, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CAS – Psychology*

Mental health concerns have increased in the general population in the last year as the world has struggled to lessen the spread of covid-19. College students are not immune to this increase in anxiety and depressive feelings. In fact, rates of depressive and anxiety disorders had already been increasing in young people prior to the pandemic. This study sought to assess mental health and examine the relationship between mental health, perceived stressors, optimism, and perceived support. In our sample of 69 college students, 21 (30.4%) screened positive for moderate to severe depression on the PHQ-9 and 37 (53.6%) screened positive for moderate to severe anxiety using the GAD-7. Higher depression and anxiety scores were related to lower optimism, lower coping self-efficacy, a greater number of perceived stressors related to covid-19, lower mood ratings, and having a family member’s health affected by covid-19. In addition to these relationships, higher depression scores were related to lower perceived support from family members, greater stress related to politics, and greater stress related to social justice issues in the past year. Unique correlates of anxiety scores included financial stress related to covid-19, concerns about one’s family’s financial security during the pandemic, and a greater perception that one’s anxiety has increased due to the pandemic. Unexpectedly, support from friends or people outside one’s family was not related to mental health in this sample. While correlational in nature, these preliminary findings suggest that efforts to increase optimism, coping-self-efficacy, and financial resources are warranted.



## **Impact of concussions on increased anxiety and depression: A Literature Review**

**Student:** LaDeja Bell

**Faculty Mentors:**  
Joni Boyd, Ph.D.,  
Jessie Hoffman, Ph.D., &  
Ashley Licata, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*COE – Physical Education, Sport, & Human Performance*

*(PESH 381 – Boyd)*

The purpose of this review of literature is to investigate the effects of concussions on anxiety and depression. Concussions are defined as a head injury caused by trauma or force that leads to a disruption in mental status and/or signs and symptoms of a known concussion. Several studies investigated the relationship between post-concussion depression symptoms and cognitive and memory abilities. Athletes who suffer from depression before they sustain a concussion are more likely to have increased depression and anxiety symptoms post-concussion. It has been shown that multiple concussions have been proven to increase an athlete's chance of dealing with anxiety and depression. Multiple concussions have also been shown to increase the chances of athletes suffering from long term anxiety and depression in their future. Many researchers used the Beck Depression Inventory Fast Screen test as a way to evaluate the athlete's depression symptoms. Research has shown that females have a higher chance of experiencing long term effects from a concussion than males. Further research is needed to determine the exact cause as to why females have a higher chance of experiencing these long-term effects post-concussion compared to their male counterparts. Imaging could also be used in future research before and after a concussion to compare the brain connectivity patterns, which could help explain the cause of the athlete's anxiety and depression symptoms. This review of literature is important because concussion research is ever changing field, and its relationship with anxiety and depression is important for health care providers to understand.

## **Exploring the Mechanisms Regulating Toroid Formation by Adipose-Derived Stem Cells Cultured on 3D Collagen Hydrogels**

**Student:** Mary Cobb

**Faculty Mentor:**  
Matthew Stern, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*South Carolina EPSCoR/IDeA Collaborative Research Program*

*CAS – Biology*

Adipose-derived mesenchymal stem cells (ADSC) are of therapeutic interest due to their great abundance and ease of accessibility relative to other types of stem cells. We observed that ADSCs migrate and self-organize into a toroid when applied to the top of a 3D Type I collagen hydrogel. ADSCs fail to form toroids when embedded within collagen hydrogels. This raises the question of what specific environmental factors and cellular mechanisms regulate toroid formation. The binding of the ligand CXCL12 to the chemokine receptor CXCR4 initiates chemotactic signals in ADSCs. The goal of this study is to determine if the CXCL12:CXCR4 signaling axis is essential to the migration and self-organization required for ADSCs to achieve toroid formation. We hypothesized that the binding of the ligand CXCL12 to the chemokine receptor CXCR4 is essential for toroid formation by the telomerase immortalized human ADSCs used in our culture model. To test our hypothesis, we compared toroid formation in ADSCs cultured in two concentrations of the selective CXCR4 inhibitor AMD3100 to control conditions. We used phase-contrast microscopy to qualitatively monitor toroid formation and integrated software to measure the geometry of any structures formed 24 hours after plating. We found that there were significant differences in the distribution of the types of geometries formed. Our results suggest a possible role for CXCL12:CXCR4 in toroid formation; however, additional testing is necessary. Future directions include testing different numbers and sources of ADSCs and using selective inhibitors of downstream pathways known to be important for cellular migration and self-organization.

## **Generation of Fluorescent Esophageal Adenocarcinoma Cells for Lineage Tracing Within Composite 3D Culture Models**

**Student:** Madeline Linker

**Faculty Mentor:**  
Matthew Stern, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*Supported by a grant from the South Carolina EPSCoR/IDeA Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS)*

*CAS – Biology*

While relatively rare, the aggressive nature and poor prognosis associated with esophageal carcinoma make it a particularly dangerous form of cancer. One approach to discovering esophageal cancer treatment options includes the development of composite 3D culture models. Fluorescent labeling allows each cell type within a 3D culture model to be distinguished from others, facilitating independent study via lineage tracing. Our goal was to generate fluorescent esophageal cancer cells. Of primary interest was the *Homo sapiens* esophageal adenocarcinoma cell line OE19 that was transfected with a plasmid carrying the mCherry (red) fluorescence marker and neomycin resistance gene. We hypothesized that if geneticin antibiotic (G418) was introduced to transfected OE19 cultures, the percentage of mCherry expressing cells would be enhanced due to G418 selection against cells lacking the plasmid. To test our hypothesis, 400 mg/mL of G418 was applied to multiple OE19 passages during routine cell maintenance. Fluorescence-activated cell sorting (FACS) was then used to sort each cell based on mCherry expression. In addition, OE19 cultures under G418 selection were stained with Hoechst dye (cyan), to visualize nuclei as reference for mCherry appearance during analysis via fluorescent microscopy. The data obtained from FACS analysis indicated that 5-7% of OE19 sample cultures expressed the mCherry label. This was supported by fluorescent microscopy. Low cell viability following cell sorting did not allow for continued culture of sorted cells. Future directions include increasing the selection pressure on OE19 cells by raising the concentration of G418 and using modified FACS procedures to improve post-sorting viability.

## **Knowledge, Practices, and Perceptions of Screening Adults for Childhood Trauma in Primary Care Settings**

**Student:** Aimée Sykes

**Faculty Mentors:**  
Kori Bloomquist, Ph.D. &  
Cheryl Fortner-Wood, Ph.D.

Ronald E. McNair Scholars  
Program Virtual Symposium,  
Rock Hill, SC, June 2020

Supported by a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education

CAS – Social Work

(MCNR 300 – Fortner)

The purpose of this study is to identify the knowledge, practices, and perceptions of screening adult patients for childhood trauma among primary health care professionals in York County, South Carolina. Childhood trauma is related to many poor health outcomes and early mortality in adult survivors. Adult patients who visit primary care agencies are asked to disclose full medical histories, but they are rarely asked about childhood trauma. The failure to ask about childhood trauma is a missed opportunity to understand the overall well-being of a patient. Despite the potential of primary care facilities to implement trauma screening into adult patient visits, routine trauma screening of adult patients remains underutilized in practice. Much research exists on the prevention of childhood trauma, but there are fewer interventions to support adult survivors of such trauma. Integrating screening of adult patients in primary care settings is feasible, but there are significant gaps between trauma screening research and practice. This study used modified, existing quantitative scales to sample professionals in multidisciplinary roles within healthcare settings to identify the knowledge, practices, and perceptions of screening adult patients for childhood trauma. Results of this study demonstrated that health professionals' knowledge of childhood trauma is higher than the likelihood to practice screening for childhood trauma in adult patients. Time was the most common barrier to implementing screening into practice. The results gleaned from this study have the potential to further research and practice related to screening for childhood trauma in primary care settings.

## **Assessing Effects of Decellularization and Culture Conditions on Small-Diameter Vascular Graft Seeding**

**Students:** Carlos Escoto-Diaz &  
Jesse Kooistra

**Faculty Mentor:**  
Matthew Stern, Ph.D.

Ronald E. McNair Scholars  
Program Virtual Symposium, Rock  
Hill, SC, June 2020, The Annual  
Biomedical Research Conference  
for Minority Students (ABRCMS),  
Virtual, November 2021 & Seventh  
Annual Showcase of Undergraduate  
Research and Creative Endeavors  
(SOURCE), Winthrop University,  
April 2021

Supported by a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education & a grant  
from the South Carolina EPSCoR/  
IDeA Stimulus Research Program

CAS – Biology

(BIOL 471 – Stern)

In tissue engineering, detergent-based decellularization of a tissue can be used to create tissue-specific scaffolds. The process "clears the way" for a desired cell type (sto) then be seeded into or onto the scaffold in place of the displaced cells. Tissue engineered grafts represent an attractive alternative to current graft options for vascular surgeries, which can suffer from complications such as thrombosis, graft-rejection, and reduced patency. In our work to contribute to the production of a small-diameter tissue engineered vascular graft, we are working with decellularized porcine interior thoracic artery (PITA) scaffolds. In the work presented here, we tested two hypotheses: 1a higher percentage detergent used in decellularization will lead to greater porosity of the medial layer of PITA scaffolds, and 2extensive rinsing of PITA scaffolds following decellularization will allow endothelial cells to adhere to and grow on the luminal surface. The following results supported our hypotheses: 1Scanning electron microscopy of the PITA scaffolds showed that the ultrastructure of the medial layer appeared more porous with increasing detergent concentration, and 2a resazurin reduction assay demonstrated that extensive rinsing of the scaffolds allowed for greater viability of cells in the presence of PITA scaffolds and directly on PITA scaffolds. Fluorescence microscopy was also used to confirm seeding of endothelial cells onto PITA scaffolds. In the future, we plan to simultaneously seed smooth muscle cells and/or adipose-derived mesenchymal stem cells along with endothelial cells into PITA scaffolds.

## **Predictors of Criminal Behavior: Crime Exposure, Childhood Adversity, Discrimination, Parenting Styles, Socioeconomic Status**

**Students:** Egbe Omoigui,  
Veronica Skubisz, & Chloe Rizer

**Faculty Mentor:**  
Tara Collins, Ph.D.

Ronald E. McNair Scholars Program  
Virtual Symposium, Rock Hill, SC, June  
2020, Black Doctoral Network Conference,  
Virtual, October 2020 & Seventh Annual  
Showcase of Undergraduate Research  
and Creative Endeavors (SOURCE),  
Winthrop University, April 2021

Supported by a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education

CAS – Psychology

(PSYC 302 – Collins;  
MCNR 300 – Fortner-Wood)

This paper discusses the childhood predictors of criminal behavior. In Study 1, we examined the predictors of childhood exposure to crime, household income, and childhood adversity. In Study 2, we examined additional predictors of crime: parenting styles, experiences of discrimination, and socioeconomic status. Both studies utilized an online survey and samples of college students from a southern university. A correlational research design was used to measure the relationship between parenting styles, racial and socioeconomic discrimination, and socioeconomic status. We created a measure of willingness to commit crime by presenting different crime scenarios and measuring participants' willingness to participate in the act. In Study 1, we found that crime exposure was a significant positive predictor of willingness to commit crime. The childhood adversity factors of household substance abuse and psychological abuse were also significant positive predictors. In Study 2, we found that experiences of racial and socioeconomic discrimination were significant positive predictors of willingness to commit crimes. The parenting style subscale care was a marginally significant negative predictor, and the subscale overprotection was not significant. There was no significant difference in willingness between people who made less than \$50, 000 and those who made more than \$50, 000 in both studies. In our conclusion, we will discuss how policies are needed to combat criminal, antisocial, and deviant behavior by providing early interventions that strengthen community sociability. This will address mass incarceration and how Black, Indigenous, and other people of color are disproportionately affected by social constructs in society.

## The international impact of WASH on Poverty

Student: Lucy Herpst

Faculty Mentor:  
Nicholas Moellman, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CBA – Accounting,  
Finance, & Economics

(ECON 348X - Moellman)

The goal of this paper is to examine how water supply, sanitation, and hygiene (WASH) and poverty influence each other. Multiple countries at different developmental levels and gross domestic product (GDP) levels will be compared to see the varying influence on an international level. As aquifers are getting drained, more and more people will be affected by water scarcity. Additionally, 1.7 to 3.1 billion people were affected by water scarcity in 2016. Due to water scarcity some communities have resorted to utilizing fossil water. Fossil water is water that is in an undisturbed aquifer that cannot be replenished. Therefore, in more arid areas usable and accessible water is dwindling as they are forced to use fossil water. Other literature on the subject examines different regions and applies a WASH poverty index. The papers found that there is an inequality of service, and that meeting different sanitation goals improves quality of life. This paper argues that WASH and poverty are correlated and hopes to prove this on an international level rather than looking at a single region.

## Queer Joy :)

Student: Eli McHone

Faculty Mentors:  
Jason Tselentis, M.F.A. &  
Jesse Weser, M.A.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

Throughout this project I established a creative practice that encourages spreading joy and taking care of each other. My research focuses on my personal journey as a queer person, how people across the spectrum of identity can relate to my work, new materials and methods of working, and kissing boys and thinking about it really hard. My thesis is a collection of work that aims to share queer joy through illustration, design, videomaking, collaboration, and physical objects. I hope to share the relationship that I have with queerness and how queer liberation and acceptance can benefit all people.

## Faith and Immigration: How Evangelical Protestantism Shapes the Views of Its Adherents

Student: Thomas Hansen

Faculty Mentors:  
Jennifer Disney Ph.D.,  
Brandon Ranallo-Benavidez, Ph.D., &  
Hye-Sung Kim, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Political Science

(PLSC 490 –  
Disney & Ranallo-Benavidez;  
PLSC 530 – Kim)

In my paper, I investigate the role that the religio-cultural tools of evangelical Protestantism play in shaping attitudes regarding immigration and immigration policy. Using Michael Emerson's Divided by Faith to identify three cultural tools which are typically associated with evangelical Protestantism, accountable freewill individualism, relationism, and antistructuralism, this study analyzes the relationship between these tools and individual's views on immigration policy. I will conduct interviews with students at Winthrop University who self-identify as evangelical Christians and conduct a content analysis of their responses. I hypothesize that in using these three cultural tools to form their beliefs, individuals who identify as evangelical Protestants tend to be against immigration reform that would aid those immigrating to the United States, despite holding the belief that their nation is a nation of immigrants. I also hypothesize that in considering their religion as a cultural group as opposed to an ethnic group, evangelical Protestants use their cultural tools in order to form their beliefs regarding immigration policy, causing them to reject policies that would aid those who have immigrated to the United States. In order to highlight how this phenomenon is unique to evangelical Protestantism, I will make comparisons between the evangelical Protestant approach and that of the Catholic faith. I conclude my work by noting how this culture of faith is integral to contemporary American society, setting the United States apart from the more secular modern societies that are common to Europe.

## ACL injuries in female athletes

Student: Quanjenae Broughton

Faculty Mentor:  
Joni Boyd, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Psychology

(EXSC 465 – Boyd)

Anterior cruciate ligament (ACL) injuries are common in any physical activity. As research grows it is known that ACL injuries are two to six times more likely to affect females than males. Focusing on sport related ACL injuries for females they can be non-contact and contact. In addition, a study based on the effects that neuromuscular and hormonal factors show that the two factors can play a major role in the amount of knee injuries a female athlete may have. The studies in this literature review discuss how the injuries happen, and injury prevention programs that focus on the improvement of neuromuscular training. These studies focused on the hormonal difference in females and males, neuromuscular training programs, and extrinsic factors that connected directly to ACL injuries in female athletes. To show hormonal differences, the studies implemented research about male and female ACL injuries and the theories. The neuromuscular training program included the low body extremities that utilized plyometric exercises. The extrinsic factors included type of sport being played and condition of playing surfaces. The studies showed that these factors can make a difference if not properly understood and made aware of. In addition, the knowledge of the differences and factors can be used to create prevention programs that will help enhance performance for female athletes and reduce ACL injuries. These studies show that if the proper health care professionals and coaches can implement different programs and strategies before and after an ACL injury the risk and re-occurrences of the ACL injury can be reduced.

## The Benefits of HIIT Workouts

Student: Jonathan Olson

Faculty Mentor:  
Joni Boyd, Ph.D

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

COE - Physical Education,  
Sport, & Human Performance  
  
(EXSC 465 – Boyd)

The benefits of exercise are well documented, but the advantages of high intensity interval training (HIIT) workouts may be able to help more people reap these benefits. HIIT workouts train the phosphagen energy system and normally use 30 seconds of exercise followed by 30 seconds of rest. These exercises are performed at 80% - 95% of the maximum heart rate. Studies have shown that HIIT workouts can help boost the levels of activity in physical education classrooms, in the workplace, and within the military. Some of the benefits of participating in HIIT workouts are found both physically and mentally. In schools, students are able to increase cardiovascular and metabolic function. If performed consistently, positive body composition changes will also occur. In studies conducted within the workplace, muscular fitness and cardiorespiratory fitness saw improvements over an 8-week study. Some other benefits included more time asleep and increased work productivity. In the military HIIT style workouts are performed and studies show that they also have many benefits. They show an increase in muscular strength and metabolic conditioning. HIIT workouts in the military often incorporate functional training that works to prepare them for combat task as well as general physical preparedness. Damage to the oxidative system and synthetic inflammation experience a decrease while HIIT workouts are performed. Overall, these studies show that the mental and physical benefits are great in number and the level of satisfaction for students, employees, and active duty military personal who perform HIIT workouts are high.

## Government Agencies Lack of Consistent Support to Puerto Rico Following Hurricane Maria in 2017

Student: Sarah Summerall

Faculty Mentor:  
William Schulte, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Mass Communication  
  
(MCOM 441 – Schulte)

Puerto Rico suffered following Hurricane Maria in Sept. 2017 due to natural consequences of the storm as well as governmental downfalls. The Federal Emergency Management Agency (FEMA) along with the U.S. government were unprepared for the immense damage Maria caused. This study aims to extract the failings of FEMA and the government surrounding the relief efforts following Hurricane Maria. To gather information, several Freedom of Information Act (FOIA) requests were filed, public documents were examined, and other journalistic sources were acquired. Reviewed literature shows that there were many areas in which FEMA and the U.S. government were underprepared to provide Puerto Rico with the relief necessary, as well as many areas where the relief they provided was proclaimed to be greater than the reality. Using these resources, it can be concluded that, although Hurricane Maria quickly became the deadliest natural disaster in the United States since 1906, FEMA and federal funding went elsewhere. Due to these factors, relief efforts following Hurricane Maria were severely impacted.

## Investigating Cytotoxicity and Defense functions of bacteriophage Larva genes in host *Mycobacterium smegmatis*

Students: Dallas Nivens &  
Laela Walker

Faculty Mentor:  
Victoria Frost, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

Supported by a grant from  
the South Carolina EPSCoR/  
IDeA Developmental Research  
Program, an SC INBRE grant  
from the National Institute  
for General Medical Sciences  
(NIH-NIGMS) & a grant from  
the Howard Hughes Medical  
Institute for the SEA-GENES  
Program

CAS – Biology

It is estimated that approximately 75% of gene functions within any given phage cluster remain unknown. Two phage traits that can be measured phenotypically were investigated: cytotoxicity, which causes host cell lysis, and superimmunity, which results in protection of the host from infection by similar phages. Five genes (35, 42, 46, 49, and 59), from a subcluster K5 bacteriophage named Larva, were amplified by the polymerase chain reaction (PCR) and assembled into a cloning plasmid (pExTra) using isothermal assembly. Initially, chemical transformation of *Escherichia coli* with the pExTra + gene insert, enabled amplification of the plasmids. Clonal PCR verified the presence of the inserts that were selected for on Kanamycin plates. Host bacteria *Mycobacterium smegmatis* cells were electroporated with pExTra + insert and the inducer molecule anhydro-tetracycline (aTc) was used to induce expression of the relevant genes. The expression of Larva genes 35, 42, and 59 were non-toxic to the host. However, Larva gene 46 and 49 were toxic, causing the bacteria to lyse. Evidence of this was further revealed in the defense assay where expression of gene 49 caused an absence of bacterial lawn growth. The expression of Larva genes 42 and 59 highlight a defense mechanism associated with these gene products that protects the host from attack by other phage in the same cluster. Further work to elucidate which host-parasite proteins are in contact to cause the phenotypic changes will be investigated using protein-protein interaction (PPIs) assays and hopefully reveal important clues towards understanding phage gene function.

## Determinants of Crime: a Macroanalysis of the Southeastern United States

Student: Joshua Byrd

Faculty Mentor:  
Danko Tarabar, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CBA – Accounting,  
Finance, & Economics  
  
(ECON 306 – Tarabar)

In this paper, I examine potential determinants of crime by analyzing aggregate data from seven states in the southeast of America over time: Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee. The aim of this research is twofold: (1) I analyze the compounding effects of multiple economic variables on the crime rate, and (2) I observe the variance in impact that economic variables have on property crime rates versus violent crime rates. Previous studies show that economic variables do in fact affect crime rates. Specifically, this paper examines the following: which type of crime rates are most strongly influenced by economic variables, the interaction of poverty rates and unemployment rates on criminal activity, and, to a lesser degree, state individuality I theorize that unemployment rates, poverty rates, gross state product (GSP), and tertiary education, contribute to the crime rate. The results of this research indicate that the interaction of poverty and unemployment is significant and positively related to the property crime rate. Additionally, the property crime rate has a stronger negative relationship with economic conditions in comparison with the violent crime rate, where the results are not as conclusive.

## Elucidating the Effect of the Antibiotic Tetracycline on the Regulatory Function of the Guanidine-Sensing *ykkCD* Riboswitch

Student: Thomas Sullivan

Faculty Mentor:  
Timea Fernandez, Ph.D.

Fall 2020 SURE Showcase at Winthrop University, Rock Hill, SC 29733, October 2020 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a grant from the South Carolina EPSCoR/ IDEa Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS) & a grant from the National Science Foundation EPSCoR Program (MADE in SC)

CAS – Chemistry,  
Physics, & Geology

(CHEM 552 & CHEM 551 – Fernandez)

The primary objective for one of several project avenues spearheaded by the Fernandez lab is to develop an assay – ideally one more feasible for small-to-medium sized and/or undergraduate-only scientific research institutions – for evaluating the concomitant binding of tetracycline (tet antibiotic) and guanidine (guanidinium cation at physiologic pH) to the guanidine-sensing bacterial riboswitch *ykkCD*. Thus more generally a guanidine-I riboswitch, this noncoding regulatory RNA segment has been shown to also recognize the translation-inhibiting antibiotic via a high-affinity aptamer domain. Resultant conformational change in the regulator prompts translation-wise upregulation of genes downstream from it, among which – of those known – most encode membrane-bound transporters (e.g., SMR efflux pumps) responsible for expelling such toxins. This phenomenon establishes a major underpinning of the seemingly ever-evolving issue of antibiotic resistance in bacteria, further evincing that, aside from having to “rely on” incomparably slower multigenerational evolution of purely novel tactics, modern bacteria quickly adapt and employ their diverse detoxification machinery to render various traditional therapeutic agents largely ineffective. A binding assay is planned to decipher how proximal or distal one ligand-riboswitch binding region is to/from the other and to investigate relevant thermodynamics & kinetics, through which it should be distinguishable whether or not the influence of tet-*ykkCD* association on guanidine recognition is statistically significant. Soil bacterium *Bacillus subtilis* is the RNA source herein, whereas intestinal bacterium *Escherichia coli* is the replication vehicle/host (vector). Past prescribed assays call for cumbersome procedures, including radioisotope-labeled RNA utilization and tedious gel sequencing. The assay under development therefore seeks to employ more universally accessible methodology, ideally both isothermal titration calorimetry (ITC) and surface plasmon resonance spectroscopy (SPR), for tet-influenced guanidine-regulator binding affinity and efficiency determination.

## Characterizing the Function of Bacteriophage Cain Genes in Host *Mycobacterium smegmatis*

Students: Hunter Cannon, Kathryne Courtney, Carlos Escoto-Diaz, Joel Haley, Mackenzie Jenkins, Allyssa Lewis, Caleb Meyerand, Dallas Nivens, Bryan Patterson, Alexis Ramirez, Jordan Rucker, Hallie Smith, Laela Walker, & Bethany Wise

Faculty Mentors:  
Kathryn Kohl, Ph.D.,  
Kristi Westover, Ph.D. &  
Victoria Frost, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a grant from the South Carolina EPSCoR/ IDEa Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS) & the Howard Hughes Medical Institute for the SEA-GENES Program

CAS – Biology

(BIOL 526 – Kohl & Frost;  
BIOL 527X – Frost & Kohl)

Knowledge of bacteriophages and their use has been around since the beginning of the 20th century, but until a more pronounced understanding of individual genotypic functions are known, their use is limited. This set of research has been performed in cooperation with the Howard Hughes Medical Institute's Science Education Alliance (SEAGENES) program. The goal of SEA-GENES is to generate expression libraries for phage genes, test the effects of these genes on bacterial host phenotypes, and investigate possible targets in the host proteome of these genes. Our phage of interest, Cain, is a cluster K6 temperate bacteriophage with 102 genes of which only 30 have a hypothesized function. Using molecular cloning with *Escherichia coli* and phenotypic assays, we are seeking to determine each individual gene's function. Thus far, each student has been responsible for engineering a plasmid to express their gene in host *Mycobacterium smegmatis* followed by conducting cytotoxic and defense assays to determine if their phage gene modifies the host phenotype. The results of this research will add to the growing knowledge of host-pathogen interaction with potential applications in the therapeutic and biotechnological fields.

## Predicting a viable pH-induced peptide switch to be incorporated with human L-chain ferritin

Student: Brandon Ellison

Faculty Mentor:  
Nicholas Grossoehme, Ph.D.

Ronald E. McNair Scholars  
Program Virtual Symposium,  
Rock Hill, SC, June 2020, Annual  
Biomedical Research Conference  
for Minority Students (ABRCMS),  
Virtual, November 2020 &  
Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

Supported by a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education, a  
grant from the South Carolina  
EPSCoR/IDeA Developmental  
Research Program, an SC INBRE  
grant from the National Institute  
for General Medical Sciences  
(NIH-NIGMS), & a grant from  
the National Science Foundation  
EPSCoR Program (MADE in SC)

CAS - Chemistry,  
Physics & Geology

(MCNR 300 – Fortner-Wood)

Ferritin, a ubiquitous iron-storage protein, is an attractive candidate for use in drug delivery systems (DDS) due to its inherently stable cage complex, its ability to encapsulate small molecules, and its genetic manipulability. Although native ferritin presents as a viable drug delivery vehicle, modifications are needed for it to be a well-suited DDS under physiologically relevant conditions. Research indicates that replacing the E-helix of human light chain ferritin with an alternating “Gala” peptide repeat will trigger a pH-induced cage disassembly at a pH below 6. However, despite using published protocols, previous attempts to purify and characterize this modified ferritin in our lab have resulted in confinement of the chimeric protein to insoluble lysate pellets. Thus, further lab experimentation has been limited. This project aimed to propose alternative peptide sequences *in silico* that could retain pH-switch potential while also enhancing protein solubility. Using Gala as a template, combinations of alanine and leucine residues were substituted in favor of polar amino acids histidine, serine, threonine, asparagine, and glutamine. We used UCSF Chimera to construct the synthetic peptide pdf files, JPred4 to predict secondary structure, and H++ to predict pKa values for comparison with the Gala reference. With the exception of threonine, all of the proposed sequences predicted an  $\alpha$ -helical secondary structure — with an additional probability (>90% of adopting a coiled-coil structural motif — and predicted pKa values with 0.25 units of the Gala reference. Based on these results, five attractive E-helix substitutions were selected to clone, purify, express, and evaluate.

## The Lens of a Photographer

Student: Sophie Harvey

Faculty Mentor:  
Anne Fiala, M.F.A.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA - Fine Arts

(ARTS 491 - Fiala)

As a photographer, I find myself looking at life through a lens only another photographer would understand. I use my eyes like two viewfinders, constantly searching for a unique scene to photograph. Our current world of photography has evolved into one that is rushed and impatient – within minutes you can see your results and have your photographs up on social media for everyone to see. While this is amazing and creates many new opportunities, I also see this as a new challenge in society that we need to slow down and enjoy the journey of our creations, not just the products we create. I take it as a personal challenge to take my time, slow down, and wait for the best picture instead of settling for whatever I could get. This is a big part of my work because I mainly photograph nature and man-made objects juxtaposed within nature, which all depend on the world around them to be captured at the perfect moment. Without the world around me, my photography would be much duller.

## The Relationship Between Personal Trauma and Attitudes Toward Minority Groups

Student: Ashley Underwood

Faculty Mentor:  
Merry Sleigh, Ph.D.

Southeastern Psychological  
Association Conference, Virtual,  
March 2021 & Seventh Annual  
Showcase of Undergraduate  
Research and Creative  
Endeavors (SOURCE), Winthrop  
University, April 2021

CAS - Psychology

(HONR 450H – Sleigh;  
HONR 451H – Lipscomb)

We examined the impact of trauma on individuals' levels of homophobia, transphobia, racism, and sexism. Participants were 118 adults with a mean age of 27.90 ( $SD = 15.04$ ). Eight-four participants identified as women, 28 as men, and the remainder reported other identities. Sixty-five participants identified as heterosexual and the remainder as alternate sexual identities. Seventy percent of participants were Caucasian. Participants responded to scales to assess their daily stress and experiences with trauma events, homophobia, transphobia, hostile sexism, and benevolent sexism. Adults' prior experience with stress and trauma did not predict homophobic, sexist, or racist attitudes. Stress also failed to predict transphobia levels; however, trauma emerged as a distinct construct from stress as increased trauma did predict lower levels of transphobia. One possible explanation is that homophobia, sexism, and racism are widely recognized topics in today's society, with increased social pressure against holding (or admitting) these prejudicial attitudes, an argument supported by the fact that we saw mostly gender and race similarities in these attitudes. However, transphobia is a less commonly experienced construct, and thus, may not elicit a common social response. People with traumatic backgrounds may be particularly sympathetic to transgender individuals, who may be seen as being vulnerable to misunderstanding, rejection, and trauma themselves. In fact, we found a trend for our non-heterosexual adults to have experienced more trauma. These findings add to our understanding of how trauma influences victims' view on the world, and also adds to our limited but growing understanding of perceptions of transgender individuals.

## Asking the Questions That Can't Be Answered

**Student:** Griffin Cordell

**Faculty Mentor:**  
Anne Fiala, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA - Fine Arts

(ARTS 491 - Fiala)

When it comes to my work, I tend to make an effort to think inward, and chase uncertainty. Through my work, I attempt to find answers to ambiguous questions such as: Why are things the way they are? Why does this thing do this? What do I believe in? Who am I? With these questions in mind while starting an artwork, I can guarantee that my artistic process will cultivate an environment where I can explore, play, and learn about ideas that interest me. My process is very intuitive and rarely do I have an end product that is anything like my initial idea. Having my process be fluid and constantly changing is important to me. I want my work to be the embodiment of a discovery I have made.

## Deference to Prestige as an additional predictor of economic conservatism

**Student:** Megan Herbst

**Faculty Mentor:**  
Jeffery Sinn, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CAS - Psychology

The present study attempts to develop a new measure predictive of economic conservatism. Past research has shown that social dominance orientation (i.e., a preference for intergroup hierarchy; SDO) predicts economic conservatism. However, SDO may detect only the more overt or conscious forms of support for hierarchy (or a preference for inequality). We posit a complementary construct, deference to prestige (DTP), to capture a less blatant and more prosocial form of bias. We draw on research distinguishing between status based on dominance (i.e., coercion) vs. prestige (i.e., deference freely given) and research showing individuals receive greater deference when conspicuously displaying luxury items. Further, because DTP might entail benefits (e.g., better access to skilled practice) and costs (e.g., exploitation by the prestigious) we predict individuals will show different levels of DTP. To measure DTP, we ask participants to rate the quality of 16 "guiding principles" (e.g., "I never lose. I either win or learn") randomly assigned to "authors" of either high or low status. We will then use hierarchical regression to determine if, after controlling for SDO, DTP accounts for unique variance in support for economic conservatism (measured both through self-report and with an established measure). We will similarly examine the unique predictive ability of two explicit scaled measures related to DTP, namely wealth as a moral virtue and deference to wealth.

## The Relationship Between Minimum Wage and Employment in Low-Income Areas

**Student:** Bradley Taylor

**Faculty Mentor:**  
Nicholas Moellman, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CBA - Accounting, Finance, & Economics

(ECON 348X - Moellman)

This paper aims to analyze the relationship between the relationship between a minimum wage and low-income areas, specifically employment. One of the main concerns with raising the minimum wage is that it will increase unemployment because small businesses do not have the money to spend on wages. Throughout this paper, I will be looking at specific examples and data collected through the last 30 years to see the relationship between the minimum wage and employment but in the areas that need it the most, that being low-income, more urban areas. The consensus throughout my findings is that yes, raising the minimum wage by a significant amount, such as the proposed \$7.75 increase, will have a quantifiable impact on employment and wages of those working minimum wage jobs in those more urbanized areas. In a rather dated, but scientifically important paper, there was shown to be a 1-2% decrease in employment if the minimum wage increased even 10%. In other areas, and among minorities, the employment effects are less noticeable and actually see a decline in child and household poverty. A majority of modern research has supported this claim that increasing minimum wage, especially in modern, low-income, and areas with significant poverty, has little or no impact on employment but has a noticeable effect on wages and the decrease of poverty.

## Intergenerational Transmission of Education Among Parents and Their Children

**Student:** Kenisha Robinson

**Faculty Mentor:**  
Nicholas Moellman, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CBA - Accounting, Finance, & Economics

(ECON 348X - Moellman)

Differences among the intergenerational transmission of education between parents of differing income levels and their children contributes to rising inequalities in education levels and poverty status. This paper examines the role that intergenerational transmission of education plays on the potential educational attainment and potential poverty status of children in relation to their parents. Access to high quality education has been recognized as a possible method of breaking the cycle of poverty among families. Prior research has examined parental education levels on children in various household settings: such as two parent households, single mothers, and adopted children. The majority of sources find that, while other factors play a role, the education of a parent or guardian does have some effect on children's educational attainment level and potential poverty status. This paper argues that parents of lower educational attainment translates to lower educational attainment for their children, which makes those children much more likely to be in poverty over their lifetime. To combat these issues, a possible solution is to implement ongoing education programs for parents in poverty to help with increasing educational attainment of those parents.

## Racial/Economic Balance in RHSD High Schools

**Student:** Maria Manley

**Faculty Mentor:**  
Stephen Smith, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*Supported by a grant from the National Science Foundation, 2015*

*CAS - Political Science*

*(PLSC 501 - Smith)*

In recent years while the Charlotte-Mecklenburg School District, once the nation's model for successful desegregation efforts, has become increasingly more segregated along racial lines, the nearby Rock Hill School District (RHSD) has sought to maintain racial balance across the three high schools in the district. These high schools are Northwest High, Rock Hill High, and South Pointe High. Northwest and Rock Hill were joined by South Pointe High in 2005. Prior to South Pointe's opening, Rock Hill High was known in contrast to Northwest for its lack of adequate resources, staff, and educational support, as well as its higher concentration of low-income students and students of color. However, the opening of South Pointe High necessitated a complete rezoning of the district, proposed by a citizens' committee, with the goal of producing a previously unseen racial and socioeconomic balance in RHSD's high schools. In this study, we are using state and district data on student demographics over the past 15 years to investigate this balance by calculating the share of students of color between all three schools, as well as the dissimilarity index between black and white students, white and Hispanic students, and Hispanic and black students. Ultimately, we are investigating whether or not the efforts to bring racial balance to the school district in 2005 were successful, and whether rezoning of the RHSD not only proves that racial balance is both attainable and maintainable, but also offers a potential model for demographically and geographically similar districts to follow.

## Evaluation of Nutritional Status and Needs of Collegiate Women's Lacrosse Athletes: A Review of Literature

**Student:** Bianca Tedesco

**Faculty Mentor:**  
Ashley Licata, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CAS - Human Nutrition*

*(NUTR 502 - Licata)*

The purpose of this literature review is to highlight the lack of nutrition knowledge and education opportunities for collegiate women's lacrosse athletes. An adequate intake of energy or calories, protein, and carbohydrates, helps contribute to an athlete's success on and off the field. The studies in this review of literature analyzed nutrient status, energy intake, and perceptions of energy and macronutrient intake of various collegiate level female lacrosse athletes throughout the season or different training phases. The methods used in these studies to collect data include recording dietary intake, measuring physical activity levels using an activity monitor worn by the athletes, and testing body composition. All of these methods showed that collegiate women's lacrosse players eat significantly less than recommended values for both macronutrients and caloric needs as a whole. These athletes do not reach optimal nutrient status to achieve peak athletic performance. This review is significant because it highlights a need for better nutrition education and resources for women's lacrosse players as well as the coaches, athletic trainers, and other athletic department staff they will interact with and learn from throughout their college experience.

## Investigating the Correlation Between Mental Health and Athletic Performance

**Student:** Whitney Carter

**Faculty Mentor:**  
Janet Wojcik, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*COE - Physical Education, Sport, & Human Performance*

*(PESH 381 - Wojcik)*

Many factors can lead to inconsistency within an athlete's performance. One factor that often gets overlooked is mental health. The goal of this project is to examine more in-depth how athlete's can suffer physically from psychological distress. Often times athletes' mental health goes overlooked due to the societal stigma that places athletes' on a higher performance "pedestal" to have these types of issues. This project reviews different articles and investigations that further debunk this theory based off of different methods of research. Most of the data collected was examined through surveys and later applied for further research. Contrary to popular belief, there has been a rise in mental health issues within the student-athlete population. The findings of this project indicate that more often than not, athletes tend to suffer in silence rather than seeking help from outside sources. The purpose of this project is to bring awareness to this growing problem and to provide resources for athletic departments, coaching staff, and others who interact with athletes regularly.

## The Negative Effects of Technology on Younger Generations

**Student:** Marquel Turner

**Faculty Mentor:**  
Ginger Williams, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CAS - Interdisciplinary Studies*

*(IDVS 490 - Williams)*

The topic for my paper is the negative effects that technology has on younger generations. My topic is important because technology has become one of the fastest growing mediums of our generation and an over reliance on it can lead to undesirable outcomes. My research question is to what extent does technology have a negative impact on a younger generation's ability to learn, work and communicate? With the advancements of the devices and software that adolescents use, it is easier for them to lose focus in class and stay on task while at work. The disciplines that I am using for this paper are; information technology (IT), science and technology, and sociology. IT is the study of using technology such as computers, cell phones and other forms of telecommunications to store and retrieve data. This discipline was chosen because it will help explain why modern technology has become a great phenomenon. Science and technology is the study of the interactions between humans and technology. This discipline was chosen because it will explain why young people have grown so attached to their devices. Sociology is the study of society's development and social interactions. This will help explain why people communicate more with the use of technology, rather than face-to-face conversations. The negative effects of technology are technological dependency, social ineptitude and lack of communication and concentration skills, is my thesis. These negative effects are amongst some of the most common ramifications that extended use of technology can have on a person.

## **Science and Social Narratives: A Research Based Art Methodology into Explorations and Explanations of Gender and Bodily Diverse Prepubertal Youth**

**Student:** Kai Griffin

**Faculty Mentors:**  
Anne Fiala M.F.A. &  
Michelle Livek Garner, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CVPA - Fine Arts  
(ARTS 491 - Fiala)*

This research based studio practice explores both the connections and missed connections of scientific standards and societal narratives regarding gender diverse children. Examining the scientific binaries of sex and the cultural spectrum of gender, this practice explores visual representation through micro, edge, and paper. For the purposes of analysis and interpretation, the paper of medical publications were incorporated as the creative medium; sex chromosomes were used representationally as a microscopic pattern; and precision cut edges were applied as both a literal and allegorical end and beginning. Through this studio practice new and creative visual conduits to dialogue were created. I found a new understanding of how scientific standards of care both compliment and compete with social narratives; and, how the greater good of protecting this vulnerable population of youth is both directly and indirectly affected. This practice serves to promote open, accessible, and informative dialogue on an issue of critical attention; and, how research based art methodology merits further investigation in gender and bodily diverse peoples.

## **How a Foreign Kid Became a Photographer**

**Student:** Meshaal Malik

**Faculty Mentor:**  
Anne Fiala, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CVPA - Fine Arts  
(ARTS 491 - Fiala)*

As many people don't know, I am born in Pakistan and raised in Saudi Arabia. A 10-year-old Muslim girl entering a foreign country (The United States of America) is far more complex than an adult can assume. My life was very vague but extraordinary. In school, I was known as the new "Muslim terrorist" kid. For quite a few years, I was lost and reserved. Art was the only way I knew how to express and communicate with my peers. It helped me become the confident, strong woman I am, as of today. After high school, my love for photography expanded and I noticed I had a great skill for capturing moments. It enhanced my skills and allowed me to be creative. The majority of my work is inspired by my culture and the hatred I received when I was young. I felt like I needed to express my frustration through my work because it was a way for me to feel happy and let non-Muslims know that Muslims are not a threat. I wanted to take advantage of my skills to educate my peers, that wearing cultural clothes or praying on a prayer mat is not a bomb threat. We are just embracing our culture and praying to God. I was also fascinated and intrigued by the bright colors of my cultural fashion clothes. Bright colors were another way to express my cheerful feelings. My motivation comes from my background and my faith in God. It allows me to be who I am and manifest my creativity.

## **Perceptions of Pain Experienced by African American & Caucasian Women**

**Student:** Keonna Jordan

**Faculty Mentor:**  
Merry Sleigh, Ph.D.

*UCLA conference, July 2020 & Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC, June 2020*

*Honorable Mention - Committee for Equality in Professional Opportunities Award for Minority Issues, March 2021, Southeastern Psychological Association*

*Supported by a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education*

*CAS - Psychology*

*(MCNR 300 - Fortner-Wood)*

The physical pain of Black adults is routinely underestimated by doctors, medical students, and adults. We examined perceptions of physical and emotional pain experienced by Black and White women at different ages. Adults ( $n = 98$ ) with a mean age of 21.83 ( $SD = 3.30$ ) were randomly assigned to read three stories across the lifespan where the target character was either a White or Black female and experienced either physical or emotional pain. We assessed participants' empathy, sexism, and symbolic racism. Participants believed that Black children and adolescents were tougher at dealing with physical pain than their White counterparts. Black participants and those with lower symbolic racism agreed more, suggesting that the image of the strong Black woman may have a positive origin. However our participants expressed concern about these perceptions in open-ended comments. White children were perceived as better at handling emotional than physical pain, and White adolescents as better at dealing with emotional pain and needing less protection from it than Black adolescents. Perhaps there is recognition that Black adolescents are forming their identity while dealing daily with the emotional stressors of racial inequality, making it harder to deal with additional emotional pain.

## **Carving Rings of Stone**

**Student:** Sky Gilbert

**Faculty Mentor:**  
Anne Fiala, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CVPA - Fine Arts  
(ARTS 491 - Fiala)*

In my latest study of work, I am in the process of using stone to create a mechanism for which melted silver lays overtop of it. In this study of work, I reverse the normalized idea of how silver and stone are laid out in jewelry. Instead of setting a stone in a silver basket, I set silver overtop of stone. The stone has now become the supporting mechanism and the silver the added embellishment. The silver highlights the details carved into the stone and acts as a patina would over carved metal. For this study of work, I intend to make a series of rings and bracelets carved of stone with silver inlays. So far, I am in the preliminary stages of this new study of work. I am trying to discover how to attach the silver to the stone, but I have been successful in carving rings of stone. I am heavily inspired by nature and utilize its colors, shapes, and textures throughout my works. Within this study of work, I will not only grab inspiration from nature but will be using a part of it to create my jewelry: the stone. The stones that have proved to be the strongest and most reliable to carve are the ones I have found while walking or taking a hike. I will not only utilize aspects of nature through carved embellishments within my work but also by what I am using to create my work on.

## Hiding the Uncomfortable With Comfort

Student: Devlin Thayne

Faculty Mentor:  
Anne Fiala, M.F.A. &  
Shaun Cassidy, M.V.A.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA - Fine Arts

(ARTS 491 – Fiala; ARTS  
432 – Cassidy)

I am currently working on building a large snail shell out of cardboard. My concept for the piece is based on the social aspect of homelessness and my own flawed perspective of it. This work began with feeling uncomfortable with the idea of using found cardboard in a piece. I discovered my fear came from the idea of homeless people needing the cardboard for shelter and that I might be taking that from them. I decided to alleviate that fear by building a fully functional shelter, that is water resistant, insulated, and heated. I am covering up something that makes me uncomfortable with something comforting.

## My Artistic Journey as a Fine Arts Major

Student: Rachel Hunnicutt

Faculty Mentor:  
Anne Fiala, M.F.A.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA - Fine Arts

(ARTS 491 – Fiala)

Fine art often focuses on confronting raw, emotional concepts that can't otherwise be put into words. However, my work is saccharine, an escape from the harsh realities of life for myself and the viewer to enjoy. My work sheds light on the quaintness of daily life. I am heavily inspired by children's book illustrations, with their playful imagery and childlike essence. In this presentation, I will discuss my journey as an artist throughout my time at Winthrop University as a Fine Arts Major, showing how my style has grown over the years and acquired the fundamental sentimentality that it possesses today.

## Letters Across a Digital Ocean: Simulating Meaning Through Video Games

Student: Harry Weldie

Faculty Mentor:  
Ginger Williams, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS - Interdisciplinary Studies

(IDVS 490 – Williams)

As academic discussion of video games as a form of expression and art trail behind advancements in the industry and cultural affinity for the medium, basal understanding of the meanings that can be interpreted through video games have gone relatively untouched. In the face of impending climate crisis and looking at the response to the COVID-19 SARS-CoV-2 pandemic, it becomes more paramount than ever to understand how we interact with the digital media and art we consume. The purpose of this paper, then, is to question how video games can simulate meaningful interactions in a digital medium. Alongside research, the question will be answered through the creation of an interactable experience to deepen the understanding of the concepts discussed through both the player and creator's point of view. The primary area of research is that of Human-computer Interaction, or HCI. While often used from a psychological or design standpoint, HCI allows for the most precise dissection of interaction between human feelings and digital experiences. So as to balance this approach, the study of fine arts gives a perspective of video games as interactive digital pieces of art. The historical relevance of video games into the narrative of art history also plays a part in tracing interactive works before video games that exemplify their ideals. Finally, computer science will be integrated into the creation portion of this paper, specifically in the act of simulating certain humanistic characteristics with digital tools. Video games, as an experiential medium, provide unique ways to give meaning through both aesthetic and interactive values. That being said, meaning is defined by player more than that of the creator, keeping in touch with post-modernist interpretations of artwork and the value of authorial intent.

## The Role of Youth Race, Stereotype Acceptance, and Aggression on Perceptions of School Altercations

Student: Ana Lydia Rodriguez

Faculty Mentor:  
Merry Sleigh, Ph.D.

Ronald E. McNair Scholars  
Program Virtual Symposium,  
Rock Hill, SC, June 2020,  
National Association of African  
American Studies conference,  
Fall 2021, & Seventh Annual  
Showcase of Undergraduate  
Research and Creative  
Endeavors (SOURCE), Winthrop  
University, April 2021

Supported by a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education

Pansy E. Jacobs Jackson National  
Student Research Competition  
Award, awarded February 2021,  
National Association of African  
American Studies Conference

CAS – Psychology

(MCNR 300 – Fortner-Wood)

Two decades of research have shown that compared to their Caucasian peers, African American students experience more severe punishments during their K-12 school years. We examined adult perceptions of a school altercation, varying the age and race of the children. We hypothesized that the African American child would be perceived more negatively than the Hispanic child, and the Caucasian child would be perceived more positively than both minority children. Participants ( $n = 114$ ) were randomly assigned to one of three conditions. All three conditions described a fight between two boys and then between two adolescents. The only element that varied between the conditions was whether the accused student was African American, Caucasian, or Hispanic. Participants provided their perceptions of the situation and the students involved. Participants then responded to scales to measure aggression, impulsivity, and stereotyped thinking. Contrary to our hypothesis, our participants viewed the accused Caucasian child and adolescent more negatively than their peers and felt the accused African American child was likely to have been provoked. This change from previous research may reflect a recent societal focus on racial inequality. In fact, our participants, across race and gender, showed very low levels of stereotypical thinking. We also found that adults who reported more anger, hostility, and impulsivity were more frustrated by and less confident about how to interpret the altercation. School staff members with these characteristics may be more vulnerable to making emotional decisions rather than those in the best interest of the students.

## The Relationship between Energy Balance and Performance Measures in Collegiate Female Volleyball Players

Student: Eden Crain

Faculty Mentor:  
Ashley Licata, Ph.D.

South Carolina Academy of Nutrition and Dietetics Annual Meeting, Virtual, April 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS - Human Nutrition

(NUTR 500 - Licata)

The purpose of this study was to determine if there is a relationship between hourly and total energy balance (EB) and performance in collegiate volleyball players. Eleven collegiate female volleyball players participated in this study. At the first visit, athletes were provided informed consent and instructed on completing 24-hour food and activity logs. During the second visit, the food and activity logs were collected and analyzed to determine hourly EB values. Performance was measured with a 10-yard sprint test and a vertical jump test using the Just Jump! Mat. Participants consumed 2799 kcal and expended 2665 kcal, with a distribution of 18% protein, 35% fat, and 47% carbohydrate. Average hourly energy balance was -132 kcal. Higher average EB was associated with greater vertical jump and decreased sprint time ( $p=0.013$  and  $p=0.009$ , respectively). In addition, participants were divided into two groups based on whether average EB was in surplus ( $n=7$ ) or deficit ( $n=4$ ). The surplus group was found to have a higher vertical jump ( $p=0.017$ ) and lower sprint time ( $p=0.016$ ) than the deficit group. This study indicates that an energy intake that supports a positive hourly energy balance is associated with improved performance measures. Future studies should test whether providing calories to those in a calorie deficit prior to performance improves performance outcomes.

## Food Insecurity and Resiliency Among College Students: A Review of Literature

Student: Sarah Kelly Rowe

Faculty Mentor:  
Ashley Licata, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS - Human Nutrition

(NUTR 400 - Licata)

Food insecurity described as inadequate access to food represents one of the most ubiquitous health disparities of our time. Affecting over 37 million people nationwide, this critical determinant of health has been linked with negative health and social outcomes. College students represent the most at-risk population for food insecurity out of any age group. The purpose of this review is to explore the relationship between food insecure students and their rates of depression, stress, poor sleep quality, lowered GPAs, and risky lifestyle behaviors. Research suggests a positive association between mental illness, social isolation, and unsupportive relationships, and food insecurity risks. The COVID-19 pandemic has escalated food insecurity levels in the past year leaving underprivileged Americans grappling with the effects of lost jobs and limited resources. College students ages 18-24 have the highest rates of unemployment as a result of the pandemic and they are also ineligible to receive benefits such as SNAP the Supplemental Nutrition Assistance Program. With the increase in first-generation and minority students assimilating into higher education programs, food insecurity is a public health concern now more than ever. Equal opportunity education must be centered on providing support to students through all aspects of earning their degree which includes adequate access to food. Future research should address the relationships between food insecurity levels and social determinants of health in college students. This would enable the development of potential interventions to help mitigate food insecurity in the college student population.

## Clay Content, Clay Chemistry, and Carbon Sequestration from Piedmont Farmland: Part One of a Long Term Study

Students: Ashley Allen &  
Mikayla Burke

Faculty Mentor:  
Scott Werts, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a grant from the Winthrop University Research Council and the Boland Geology Endowment.

CAS - Interdisciplinary Studies

(GEOL551 - Werts)

Globally, soils hold more than three times the amount of carbon in the atmosphere and four times the amount of carbon stored in all living plants and animals combined, making it the largest carbon reservoir on the surface of the earth. In the past 300 years in North America, much of the topsoil has been lost to erosion due to poor agricultural practices and deforestation, creating the need to improve management of topsoil in farmland. The purpose of this project is to understand the processes that regulate carbon storage in soils in traditional piedmont farmland and how those processes can be used to increase carbon sequestration from the atmosphere and store carbon long term. We sampled several soil transects across a historic farm in Sharon, SC that has not been in crop rotation in several decades. The purpose was to create a baseline study of the existing carbon content and clay relationships on the farm in order to monitor the fluctuations of carbon storage on site long term at this location. The clay chemistry was dominated by kaolinite and montmorillonite. Clay content increased in the samples as expected from the upper elevations to the lower elevations of the farm. However, contrary to the traditional positive correlation between clay content and carbon content, the upper elevations contained higher concentrations of organic carbon than the lower. The likely reason for this is due to longer term amendments and tall grass growth during agricultural activities upslope vs at the lower elevations. Going forward, we hope to sample various plots of the farm that undergo new plantings and soil amendments in order to assess which methods increase carbon storage long term in that location.

## The Truth about Aerobic Training: FITT-VPP for stroke patients

Student: Jeanae Williams

Faculty Mentor:  
Janet Wojcik, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

COE - Physical Education,  
Sport, & Human Performance

(EXSC 511- Wojcik)

It is a life-changing moment to experience someone suffer a stroke. A stroke occurs when an individual's blood supply to the brain is blocked or reduced, preventing brain tissue from receiving oxygen and nutrients. There are three types of strokes: Ischemic Stroke, Hemorrhagic Stroke, and Transient Ischemic Attack. In this research I will be developing an FITT-VPP program that would best accommodate stroke patients. Because strokes have a major impact on the brain it is significant to determine if physical exercise enhances cognition following stroke as well. Key findings of the research determine that aerobic training can boost an individual's exercise ability and walking after stroke and that aerobic exercise rehabilitation reduces energy expenditure of hemiparetic gait in older stroke patients. By discussing the benefits of aerobic training, evaluating the effects of physical activity on stroke patients, and analyzing how neuromuscular exercises can affect one's ability to perform activities of daily living (ADL) sit would sufficiently reinforce the development of the FITT-VPP program.

## Ankle Injuries in Basketball

Student: Seth Jackson

Faculty Mentor:  
Joni Boyd, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

COE - Physical Education,  
Sport, & Human Performance

(EXSC 465 – Boyd)

Ankle injuries in basketball are one of the most common injuries in the sport. This is because of how crowded the court can get as well as the amount of jumping that occurs during basketball. Rebounding, shooting, defending, and some passes all involve jumping, which then risks the stability of the ankle and foot. In a study done on NBA players, there were 796 ankle sprains among 389 players and 2341 unique NBA player-seasons reported in the league from 2013–14 through 2016–17. According to the study, ankle sprains affected around 25% of NBA players during that time span, with some players experiencing the injury more than once. Additional evidence listed three risk factors for ankle injuries: previous injury to the ankle, a shoe containing an air bubble on the heel in the shoe, and not stretching before a game or practice. Additional evidence suggest that athletes participating in indoor and court sports like basketball were more likely to have an ankle injury compared to field sports like football or soccer. This review will provide statistics, risk factors, and prevention strategies for ankle injuries in the sport of basketball.

## Breakaway

Student: Madison Lapham

Faculty Mentor:  
Meg Schriffen, M.F.A.

Junior Choreography Showcase  
and Seventh Annual Showcase  
of Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA - Theatre & Dance

(DANT 301 – Schriffen)

In our society, teens and young adults are heavily influenced by the use of stereotypes and following what we define as being “normal”. Labels are so often used to define who we are and force us to follow along with what society wants us to be. This dance piece was built to inform and inspire individuals to find the courage to disregard the labels and stereotypes given to us. My choreography demonstrates how individuals find the courage to break away from norm. The piece was shaped by the personal stories shared by each of the dancers. Each performer has a label written on their body. The words written upon them symbolize the actual labels and stereotypes given to them throughout their life. The rags used to remove the labels represent their courage and determination to create their own definition of who they are and what they wish to be. We have the power to either follow along with what society wants us to become or break away and create our own definition of who we are.

## Intuitive Eating Habits Improve Overall Health and Wellbeing

Students: Rebecca Knockemus &  
Maya Kennedy

Faculty Mentor:  
Jessie Hoffman, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS - Human Nutrition

(NUTR 400 – Hoffman)

This literature review is an examination of how intuitive eating programs and interventions impact individuals mentally and physically. The growing interest in integrative and functional nutrition to help improve an individual holistically, has pushed researchers to dive deeper into discovering the benefits. Intuitive eating (IE) principles focus on empowerment of individuals to take control of their health without relying on dieting or restrictions. This practice encourages self-awareness of hunger and satiety and helps remove distractions that may prevent the awareness during eating. Research suggests that intuitive-eating programs can reduce eating disorder behaviors, improve negative body image, and improve individual body appreciation. Additionally, there is evidence to suggest that these practices may also improve metabolic health. This area of study is important in that it highlights a non-traditional and self-compassionate approach to food and nutrition that is still evidence-based. Thus, the purpose of the literature review is to examine the effects of intuitive eating interventions on body weight, mental health, and food perspectives.

## Vocal Fry: Relevance in the Training of a Classical Voice

Student: Todd Gillespie

Faculty Mentor:  
Kristen Wunderlich, D.M.A.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA - Music

(MUST 319 – Wunderlich)

Vocal Fry is a naturally occurring register of the human voice that is often shied away from due to its negative connotation and implications in our society. Vocal fry, also known as the pulse register, occurs when the vocal folds are relaxed and allow the air to pulse through with the folds closing completely in between each pulse. This tone can be crackly and viewed as illegitimate by some vocal pedagogues; however, it has benefits that are unknown to many. Fry tones, when used sparingly, can be a beneficial aspect of vocal training. This paper explores the positive uses of vocal fry for vocal therapy, classical vocal training exercises, and the extension of the vocal register for certain settings of music.

## Exploring the Overtone Series through Contemporary Spectral Music

Student: Taylor Jones

Faculty Mentor:  
Justin Isenhour, D.M.A.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CVPA - Music

(MUSR 312 - Koehler)

The overtone series is a musical concept that helps explain how certain pitch frequencies create microtones. Although these pitches are not being physically played by the performer, there are slight tones that are present beneath the harmonic textures of the overtone series. Spectral music began to explore this theoretical concept throughout the mid-20th century. The composer Gérard Grisey (1946–1989) was a pioneer of this genre and is known for his composition *Partiels* (1975). This orchestral work is composed by manipulating the overtone series throughout the orchestra; this all being based upon the E1 note on the trombone that is recurrently stated throughout the piece. The creativity regarding the overtone series that Gérard Grisey exhibited with his spectral works led James M. David (b.1978) to create a solo piece for trombone titled *Partiels 2* (2016). This composition uses electronics to accompany the trombone- this is intended to recreate the composition techniques that Grisey originally presented. *Partiels 2* is not only meant to utilize the overtone series as spectral composers did; this piece is an homage to titling practice used by horror movie directors in the 1980s. Horror films would do significantly well during this time and sequels would be directed that have no direct correlation to the original film. These sequel films typically being low-budget allowed for notoriety to be gained from the title instead of the content. *Partiels 2* attempts to recreate this form of art with the original *Partiels*, by Gérard Grisey, being the initial 'block-buster hit'.

## Discovery Research For New Optical Materials

Student: Kameron Johnson

Faculty Mentor:  
Maria Gelabert, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a grant from the National Science Foundation EPSCoR Program (MADE in SC)

CAS - Chemistry, Physics & Geology

(CHEM 552 - Hurlbert)

This project utilizes the material genome initiative (MGI) approach to aid in the discovery of new optical compounds to be used in scintillators at an accelerated rate. Novel materials for optical applications, such as luminescent scintillators, are desired for the improvement of properties. Using density functional theory (DFT) calculations, new single-crystal scintillating materials can be optimized leading to more efficient scintillation. Two existing compounds in the quaternary system Na-O-Si-Y were chosen and further modified using substitutions into proposed structures that can be investigated. The two original compounds, NaO<sub>4</sub>SiY, and NaO<sub>2</sub>Si<sub>6</sub>Y<sub>9</sub>, were chosen and modified because of their already high density. The target modifications include substituting yttrium for lanthanum, sodium for potassium and yttrium for lanthanum, and lastly yttrium for zirconium and sodium for potassium. The potassium substitution allows the structure to slightly expand to yield more realistic bond distances. This yields a total of 8 structures, with 6 being proposed structures derived from modifications for study. Figure 1 shows the band gap for the NaO<sub>4</sub>SiY. Following the DFT calculations, it was discovered that some stoichiometries form metallic compounds which may not be useful for optical applications. Current work is focused on synthetic investigations of these stoichiometries.

## Students' Attitudes Towards Welfare Programs

Student: Jasmine Smith

Faculty Mentor:  
Monique Constance-Huggins, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS - Social Work

(SCWK 330 - Huggins)

Welfare programs provide an important and necessary safety net for many low-income individuals and families in America. Despite the important role they play in society, many Americans hold negative views about the programs and their participants. The views that Americans include social workers, hold about welfare programs can impact the sustainability of these programs and the extent to which they are promoted to eligible participants. This is a survey research that examined the attitudes of social work students towards welfare programs and recipients. Although social workers are responsible for promoting these programs, the study found variations in students attitudes based on a range of demographic factors. This has implications for social work education and practice.

## Practicing what I Preach

Student: Shannon Ratchford

Faculty Mentors:  
Anne Fiala, M.F.A. &  
Jim Connell, M.F.A.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CVPA - Fine Arts

(ARTS 491- Fiala)

A large part of my creative practice is focused on my future students. What skills will they learn from me? What projects will inspire them? How can I hook these young minds on art? I firmly believe that the most accessible gateway into the world of art is through clay – because the largest deterring factor for young artists is self-comparison. In my own practice I force myself to avoid insecurity-based comparison with other artists knowing that I will one day model that mindset for children in hopes that they grow up to be secure in their abilities. At the age I will get to first meet my students, they have already had drawing experience, and are all at different skill levels – while most of them don't even know what clay is. If I can give them an informed, diverse introduction to the world of ceramics through being as explorative with clay as possible in my own practice – I can give them an incentive and exciting foundation to build upon. Instead of wondering what could have been if I'd had access to better art teachers or resources; I make up for my missed student experiences by adopting a teacher's growth mindset. In "practicing what I preach" I have become more resourceful, confident, intrinsically motivated, and immersed in art. Art education is beautiful and reflective – I include it in my artwork because as much as I can teach my students, they will teach me much more.

## WORKING Title

Student: Tyjah Ezell

Faculty Mentors:  
Claudia O'Steen, M.F.A &  
Stephanie Sutton, M.F.A.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CVPA - Fine Arts

(ARTS 307 - O'Steen)

A life coaching session and an impromptu recording of my nieces serve as the muse for this piece. The work provides a glimpse of my journey of unlearning and working to heal childhood wounds that significantly affect my adult self, with the girls learning and being a physical representation of my inner child. While under immense pressure to find all the answers, this documentation serves as a reminder that oftentimes they exist in childhood.

## In Silico Binding Analysis of a Zone 2 Modified Sphingosine Kinase Inhibitor

Student: Jomar Lewis

Faculty Mentor:  
T. Christian Grattan, Ph.D.

Ronald E. McNair Scholars  
Program Virtual Symposium,  
Rock Hill, SC., June 2020 &  
Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

Supported by a grant from  
the South Carolina EPSCoR/  
IDEA Developmental Research  
Program, an SC INBRE grant  
from the National Institute for  
General Medical Sciences (NIH-  
NIGMS) & a Ronald E. McNair  
Post-Baccalaureate Achievement  
Program grant from the U.S.  
Department of Education

CAS - Chemistry,  
Physics & Geology

(MCNR 300 - Fortner-Wood)

Sphingosine-1-phosphate is a bioactive lipid mediator that has been shown to play a critical role in cell migration, survival, and proliferation. It is phosphorylated from sphingosine, which has the opposite effect on cells. Sphingosine inhibits cell proliferation and causes apoptosis. Sphingosine kinase is a lipid kinase that catalyzes the phosphorylation of sphingosine into sphingosine-1-phosphate. Sphingosine kinase has two isoenzymes, sphingosine kinase 1 and 2. Sphingosine kinase 1 is ubiquitously expressed in most cancer cells where it has been linked to cell proliferation, migration, and survival. Based on this information, sphingosine kinase 1 has become a novel target for anticancer therapy. We analyzed the molecular properties of several zone 2 inhibitors of sphingosine kinase inhibitor 1 using an online molecular property analysis site called "molinspiration". The inhibitors were then modeled using the Marvin's Sketch computer software. The inhibitors were then uploaded into USCF Chimera with sphingosine kinase 1 and the docking analysis was conducted using Autodock Vina. The binding energies of each inhibitor were recorded from the docking analysis. These docking energies evaluated how well each inhibitor was able to bind to the docking site in silico. The optimal binding energy was achieved by replacing the pyrazole ring linker in a known sphingosine kinase 1 inhibitor, SKI-1, with a 2,5-substituted pyridine ring system. This information will be useful when determining the optimized inhibitors for Zone 2 in conjunction with other optimized sites to improve binding and efficacy of a modified sphingosine kinase inhibitor 1.

## E for Equality: A Feminist Reinterpretation of Evey Hammond's Transition from Comic Books to Film

Student: Stephanie Bohland

Faculty Mentor:  
Robert Prickett, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS - English

(ENGL 510 - Prickett)

V for Vendetta, the comic series written by Alan Moore and illustrated by David Lloyd, is a critically acclaimed graphic novel well known for its subversive themes and provocative characters. In 2005 the book was adapted into a film version of the same name, penned by the Wachowsky sisters (then the Wachowsky brothers) and directed by James McTeigue. The fictional London of the dystopian works presents multiple parallels with our current society, a future ravished by a global pandemic, the fall out of massive warfare including a civil war that tore the United States apart, environmental degradation, and a radical fascist regime. These unsettling similarities are made especially poignant by the movie having been set in a then futuristic 2020. I argue that this is a reason to revisit the work and I do so with a feminist viewpoint as I illustrate both problematic and progressive elements of the piece as they relate to the female lead. This critique studies the character of Evey Hammond as a symbol of feminism, and how that role is impacted by comparisons between the two versions of her story. Several key changes between adaptations create two very different women, with the filmmakers' Evey emerging as a stronger, contemporary image of female identity and strength. This comparison stresses how several changes between the movie's Evey and the source material impact her character significantly, creating a stronger, more contemporary image of female identity and strength.

## Low FODMAP Diet in Athletes

Student: Trina Hill

Faculty Mentors:  
Jessie Hoffman, Ph.D. &  
Ashley Licata, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS - Human Nutrition

(NUTR 400 - Hoffman)

Gastrointestinal (GI) distress is a common complaint amongst athletes and exercising individuals, especially those participating in endurance activities. A common culprit of GI distress during exercise is an individual's dietary intake around and during an event. Dietary factors that contribute to GI distress are frequently fibrous and/or fermentable foods, including FODMAPs. FODMAP stands for fermentable, oligosaccharides, disaccharide, monosaccharides, and polyols, and are food components that interact heavily with the gut microbiota which can result in excessive gas production, bloat, and GI distress. The use of a low FODMAP diet has been demonstrated to be efficacious in reducing GI complications in those with irritable bowel syndrome (IBS). Furthermore, research suggests that limiting high FODMAP foods with those participating in intense endurance exercise may provide benefit and reduce gastrointestinal distress. Evidence on the optimal length of duration for the use of the low FODMAP diet in these populations varies, with studies demonstrating benefit with a 24 to 48-hour intervention up to a 3 to 6-day intervention. Understanding the interplay between FODMAP containing foods and GI complications during exercise is important in that it may allow application of periodized low FODMAP diets prior to and during an exercise event. Thus, the purpose of this literature review is to examine the impact of low FODMAP diets on gastrointestinal distress and exercise performance in active individuals and athletes.

## **Latinidad and Portrayals of Second- and Third-Generation Latinx Immigrants in One Day at a Time**

**Student:** Yashuri Del Rosario Rodriguez

**Faculty Mentor:**  
Nathaniel Frederick, Ph.D.

Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC, June 2020 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education

CAS - Mass Communication  
(MCNR 300 - Fortner-Wood)

As the largest minority group in the United States, Latinx people have been underrepresented in the media, particularly entertainment media. Entertainment media has not reflected the multi-dimensional identity of second and third generation Latinx immigrants. As part of the new wave of Latinx-written, produced, and directed shows, Netflix series *One Day at a Time* chronicles the experiences of a Cuban-American family living in Los Angeles. By analyzing this show, this research demonstrates the changing notion of Latinidad, what it means to be Latinx, and how the experience differs within generations of a singular family. This research reinforces the importance of creating diverse stories and the importance of representation in entertainment media. The scope of analysis entails mediated representations of Latinidad and the Latinx experience in the first two seasons of the show which aired in 2017. Narrative analysis was employed to examine the Latinx identity and experience in Netflix's *One Day at a Time*. This study identified three major themes that reinforce the issues and changes that affect the Latinx experience: culture versus change, discussion of immigration, and the makings of a Latinx. This study hopes to contribute to media studies and the manner in which underrepresented minority groups are portrayed – as individuals and their overall experience in entertainment media.

## **I Promise You: Mental Health in the Art of Dance**

**Student:** Gracie Bennett

**Faculty Mentor:**  
Meg Schriffen, M.F.A.

Winthrop University Junior Choreography Showcase. April 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CVPA - Theatre & Dance  
(DANT 301 - Schriffen)

What does it mean to struggle with mental health? In fact, what exactly is mental health? Have you ever known anyone struggle with mental disorders that prohibit them from daily tasks? Maybe you have your own mental struggles you are working through. Take a moment to ask yourselves these questions and develop your own thoughts. As humans, we tend to act on our emotions or "big feelings" in varying ways. We can externally exhibit our emotions, some may bottle them in and there are all sorts of in betweens. What if these thoughts lead to something darker, something that can never be undone, such as ending your own life? What if just a call for help can change this? You might be asking, how do I do this? What if no one will listen to me? No one understands. "I Promise You" is about experiencing mental disorders and the feelings that go along with them. The choreography for this piece is based off of a raw display of emotion and art to tell a story of mental health awareness and suicide prevention. My movement also incorporates humanistic tendencies and speaking to show and portray the reality of this issue. This piece is also about the opportunity and bravery to ask for help in your darkest times. While you are just one, this world needs you in it. You are loved, valued and cherished, and most importantly you are never alone.

## **In silico binding analysis of sphingosine kinase 1 inhibitors for improved oral bioavailability**

**Student:** Kendarius Butler

**Faculty Mentor:**  
T. Christian Grattan, Ph.D

Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC, June 2020 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a grant from the South Carolina EPSCoR/ IDeA Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS) & a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education

CAS - Chemistry, Physics & Geology

(MCNR 300 - Fortner-Wood)

## **Through the Eyes of Our Ancestors: The Power of the Black Female Creative**

**Student:** Jazlyn Wilbur

**Faculty Mentor:**  
Casey Cothran, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS - English

(ENGL 494 - Cothran)

Sphingosine kinase is a naturally occurring enzyme that exists along the sphingomyelin pathway that is responsible for actively converting sphingosine into sphingosine-1-phosphate (S1P). S1P is linked to the proliferation of cancerous cells and tumors development throughout the body. Sphingosine kinase has been shown to exist at high concentrations in cancerous cells because of this anti-apoptotic outcome. Using UCSF Chimera, Marvin Sketch, Molinspiration, and Autodock Vina, data was collected about the binding energies of the proposed sphingosine kinase 1 inhibitor molecules. The properties of these structures were calculated using Molinspiration, and Marvin Sketch was used to build the structures. The LogP value, and molecular weight were the two properties focused on in this project. The lowest recorded LogP was 1.32, and the highest recorded LogP was 5.58. The latter value violates Lipinski's Rule of Five making it a less desirable drug candidate. After docking the inhibitor into the enzyme using Chimera and Autodock Vina, the binding energies of the proposed molecules were reported. It was found that the lowest binding energy was -11.3, while the highest was -9.6. Using this information, it was noticed that there may be a correlation between polarity and binding energy. One interesting compound was identified as a potential sphingosine kinase 1 enzyme inhibitor called amygdalin. A synthetic scheme was developed to prepare this compound and ultimately have it evaluated for inhibitory activity.

The Black woman carries a hauntingly powerful legacy crafted by the soils of Africa, watered by the dew of the Atlantic, and fueled by glowing rays of sun. Yet, many only see her as a caricature living for the pleasure, enjoyment, and entertainment of others. A Black woman cannot express herself because doing so makes her angry and bitter, and her body serves as a stencil for those who want her shape and lips and as a fantasy. This paper analyzes how society uses the media, literature, and art to justify the need to police the bodies and expression (sexual and emotional) of Black women in America. The degradation, colonization, and exploitation of the Black female body during slavery justified inhumane treatment, such as rape, abuse, and more. This paper investigates the root of common stereotypes encapsulating Black womanhood and their detrimental effect on the wellbeing of Black women today. I argue that the re-membering of the Black female body and mind, which has been ripped apart by the white patriarchy, lies in the ancestral voice of the Black female creative. I support this argument by analyzing how authors Toni Morrison, Zora Neale Hurston, and visual artist Renee Cox reimagine the beauty, sexuality, and expression of Black women in their work. Creative works originating from Black women about Black women are essential to the empowerment and development of young Black female minds because it confronts the stereotypes, redefines Black womanhood, and nurtures a sense of self-love and awareness.

## **Visible-Light Mediated Radical Additions of Aldehydes with Organotrifluoroborates**

**Student:** Eric Walters

**Faculty Mentor:**  
James Hanna, Jr., Ph.D.

**Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC, June 2020 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021**

*Support was provided by the Donors of the American Chemical Society Petroleum Research Fund and a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education*

**CAS – Chemistry, Physics and Geology**

(MCNR 300 – Fortner-Wood)

Recently, our laboratory has been exploring the visible-light promoted radical additions to aldehydes with potassium organotrifluoroborate compounds. If our approach is successful, it will serve as a novel approach to aldehyde radical addition and hinder the reversibility of unstable alkoxy radicals. Furthermore, an emphasis has been placed on the use of a photo-regenerated organic catalyst (9-Mesityl-10-methylacridinium tetrafluoroborate). The tandem use of an organic photocatalyst and photocatalytic cycle will allow for a shift away from the use of toxic reagents and molar amounts of substances, respectively. As a result, various functionally substituted aldehydes can be synthesized marginally more sustainably. Further, a series of optimization studies will be conducted to find favorable conditions at which the subsequent reactions will be conducted under. Once the optimal conditions are set, aldehydes and organotrifluoroborates with varying functional substitutions (i.e. aryl-, alkyl-, allyl-, and groups with varying electronic effects) will be tested to obtain yield via an internal standard method of NMR spectroscopy. Each concurrent experiment will uncover interaction between various sterics and electronics within this photocatalytic process. Thus, these interactions and yields will be documented and reaction scheme will be proposed.

## **Empirical analysis of Infrastructures impact on the Economy**

**Student:** Avery Davis

**Faculty Mentor:**  
Danko Tarabar, Ph.D.

**Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021**

**CBA – Accounting, Finance, & Economics**

(ECON 306 – Tarabar)

This paper empirically investigates the relationship between infrastructure and economic well-being across approximately 160 countries observed between 1999 and 2018. Five separate outcome variables are considered: trade volume, patent density, real GDP per capita growth, manufacturing share of GDP, and services share of GDP. Then, in cross-sectional and panel fixed effects multiple regressions, I relate both road and railroad lengths and densities, quality, and amount of goods transported, to the above-named dependent variables. The argument that we put to the econometric test is that increased quantity and quality of infrastructure is associated at a statistically significant level with higher GDP per capita growth, increased patent density, and a higher international Trade volume. The intuition behind this argument is that increased access to transportation decreases the costs of said transportation whether it be information, goods, or services. To account for other predictors of dependent variables, I control for Human capital, continent, government stability, and population in most of my regression models. The implication of a statistically significant and positive correlation between dependent and main independent variables is that countries should devote more resources to infrastructure projects in order to promote economic wealth and the well-being of their citizens.

## **Reflections of Virtual Early Childhood Instruction in the Dominican Republic**

**Student:** Anna Rhyne

**Faculty Mentor:**  
Miranda Sigmon, Ph.D.,  
Crystal Glover, Ph.D.,  
Tenisha Powell, Ph.D.,  
Erin Hamel, Ph.D., &  
Melanie Sanders, M.S.

**Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021**

**COE – Curriculum & Pedagogy**

(READ 370 – Sigmon)

One positive outcome of the COVID pandemic was the opportunity for Early Childhood Education students to plan and implement literacy-based lessons virtually in classrooms at a school in the Dominican Republic. During the Spring 2021 semester, Winthrop students taking early childhood methods coursework worked in small groups to plan and implement virtual literacy-based vocabulary and comprehension lessons for kindergarten through second grade students in the Dominican Republic. Initiated by Winthrop Alumni employed as elementary school teachers in the Dominican Republic, this virtual collaboration involved multi-layered educational opportunities for Winthrop students and faculty as they learned from and with students, teachers, parents, and administrators in a different country. This research focuses on the planning and teaching experiences as well as the instructionally-focused reflections and culturally-based reflections of these experiences.

## **Purification and Characterization of EALN-6 Modified Ferritin Protein for Use as Drug Delivery Biomaterial**

**Student:** Alexandra Perez

**Faculty Mentor:**  
Nicholas Grossoehme, Ph.D.

**Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021**

*Supported by a grant from the National Science Foundation EPSCoR Program (MADE in SC)*

**CAS – Chemistry, Physics & Geology**

(CHEM 551 – Hurlbert)

The development of novel drug delivery systems using biomaterials that are inherently compatible with human tissue is of great interest: ferritin, an iron storage protein responsible for the accumulation of excess intracellular iron, is an attractive candidate. The protein is made of 24 subunits and demonstrates high potential as a drug delivery container for its high pH and thermal stability, ability to be modified/manipulated, and its nanocage structure that includes a hollow interior perfect for the storage of medicinal drugs. Under neutral conditions, native ferritin self-aggregates into a very stable nano-cage structure and only disassembles under harshly acidic conditions (pH 2.0–3.0). Interestingly, reengineering ferritin to include a Glu-Ala-Leu-Ala (EALA) peptide repeat in place of the E-helix seems to enable a pH-induced disassembly around pH 6, rendering ferritin a more attractive drug carrier under physiologically relevant conditions. Unfortunately, experiments in the Grossoehme laboratory using the EALA-modified protein consistently yielded insoluble protein during purification attempts. Bioinformatics were used to explore alternate sequences that retain the structural properties of the EALA-repeat, but contain a larger fraction of hydrophilic amino acids. Clones were created of a series of Ftn proteins that replace the second alanine in EALA with asparagine. The newly EALN-modified protein will be used to develop experimental conditions that ensure EALN-6 ferritin remains soluble at the desired pH range. The aim of this study is to do so using two separate strategies; screening buffer additives to identify experimental conditions that maintain protein solubility over the desired pH range, and genetically adding a solubility tag to the N-terminus of EALN-6 ferritin.

## The effect of Incarceration on Poverty

Student: Jesse Defalco

Faculty Mentor:  
Nicholas Moellman, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CBA – Accounting,  
Finance, & Economics

(Econ 348X – Moellman)

This paper is looking at how incarceration impacts poverty levels for both children and adults. Studies show that incarceration increases poverty rates and makes it harder for adults who have been incarcerated to find a job. Studies also show that incarceration rates also increase poverty among children because they have less parents to take care of them. This also turns into a cycle because when incarcerated adults are freed, they have a harder time finding a job which leads them to commit crimes to make ends meet which lands them back in jail. There are solutions there are incentive programs for companies who hire felons; however not everyone who is incarcerated committed a felony. Areas with higher incarceration rates also have higher poverty rates. Incarceration is keeping people in poverty.

## Perceptions of Marital Infidelity & Its Impact on Children

Student: Neely Pritchett

Faculty Mentor:  
Merry Sleigh, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CAS – Psychology

(PSYC 302 – Sleigh)

We examined infidelity in light of both gender and effects on children. Participants were 96 young adults with a mean age of 20.21 ( $SD = 1.75$ ). The majority were women (76%) and about half were Caucasian (44%). Participants were randomly assigned to one of four different scenarios that described infidelity in a married couple with an 8-year-old child. The scenarios varied in gender of the child and the gender of the cheating parent. Participants were asked to imagine themselves as the child in the scenario and then respond to scales to assess mental health, social support, and well-being. Participants then responded as themselves to scales to assess intentions to cheat on a romantic partner. Our hypothesis was not supported. Participants predicted that the child of the divorced parents in our scenarios would be mentally healthy, experience social support, and have positive well-being. These predicted outcomes did not depend on the gender of the cheating parent or the gender of the child. Instead, we found that perceiver characteristics were more influential in predicting perceptions of child outcomes. Compared to Caucasian adults, African Americans were more negative towards mothers who cheated. This finding was not replicated for fathers, perhaps indicating that mothers play an especially important role in African American families. Participants who had cheated, or were willing to cheat, predicted worse outcomes for the child in our scenarios.

## Consent Attitudes, Aggression, & Gender on Perceptions of Sexual Assault

Students:  
Ana Lydia Rodriguez,  
Christopher Brokaw,  
Stephanie Vasquez Loaeza, &  
Kayla Heyward

Faculty Mentor:  
Merry Sleigh, Ph.D

Southeastern Psychological  
Association Conference, Virtual,  
March 2021 & Seventh Annual  
Showcase of Undergraduate  
Research and Creative  
Endeavors (SOURCE), Winthrop  
University, April 2021

CAS – Psychology

(PSYC 302 – Sleigh)

Perceptions of sexual assault are heavily dependent on commonly held, but often NO, beliefs. For example, most adults believe incautious behavior makes a victim more responsible for assault. We hypothesized that gender, aggression levels, consent attitudes, and empathy levels would be significant predictors of how individuals perceive sexual assault scenarios. Participants were 82 adults with a mean age of 20.46 ( $SD = 2.66$ ). The majority were women (72%) and Caucasian (54%). Participants were randomly assigned to read a scenario where a young adult was sexually assaulted by two offenders. The gender of the victim and the offenders were altered across the four versions to be male/males, male/females, female/males, and female/females. Participants provided their perceptions of the assault, their views of consent, empathy levels, and aggression levels. Results revealed that adults adhered to rape myth beliefs by evaluating accused men more harshly than accused women. Adults who felt negatively about sexual consent were more likely to blame the victim, and aggressive individuals experienced more of this negativity. Women were more sympathetic toward all victims than were men, and also felt more in control over sexual consent. Compared to Caucasians, African American adults appeared to be concerned about NO blame and reported that it is too easy to unfairly accuse someone of sexual assault in our society. These perceptions may reflect African Americans' personal feelings of societal vulnerability. Our findings suggest that perceptions of sexual assault may reflect the perceiver as much as the situation being perceived.

## Examining the Relationship Between Abortion Access and Child Maltreatment

Student: Catalina Harmon

Faculty Mentor:  
Nicholas Moellman, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

CBA – Accounting,  
Finance, & Economics

(ECON 348X – Moellman)

This paper aims to discuss the relationship between abortion availability and child maltreatment among households in poverty. Child maltreatment is typically found among single mother households under the poverty line. Additionally, women who usually chose to have abortions fall below the poverty line. Due to both abortion and child maltreatment happening to families in poverty, within this paper I examine the impacts abortion availability has on child maltreatment within single mother households under poverty. I will do this by collecting national and state data for abortion availability, abortion rates, and child maltreatment. My hypothesis is that I will find a strong negative relationship between access to abortion and child maltreatment.

## A look at propaganda

Student: John Drake

Faculty Mentor:  
Ginger Williams, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

In America today, there is a divide that everyone knows is there, each half has its own reality and its own truths, and this is due to the use of propaganda within media and art. Using the disciplines of mass communication and visual communication to look into the who, how, and why of propaganda within media and art in other countries such as China and Nazi Germany, we will be able to see the who, how and why of propaganda within America. If things continue on the path they are currently on, then at best America may see a peaceful separation, at worst, lives could be lost. The question asked is this, “To what extent has propaganda in media and art divided the US and how can the divisions be healed?” This is a question no one is addressing, with each passing day things only get worse and there is no sight of trying to mend the damage already done. Identifying propaganda with the potential to incite violence and other negative outcomes for America, is what is needed now. Should the continued use of propaganda be allowed to continue within media and art, and how can the damage already done through the practice of propaganda by these means be fixed or reversed? Being able to reverse it could close the divide in America, but fixing and reversing would be the ideal situation, so that this divide doesn’t happen again.

## Reasons Behind Poor Families Having Children

Student: Harrison Kendree

Faculty Mentor:  
Nicholas Moellman, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CBA – Accounting,  
Finance, & Economics

(ECON 348X – Moellman)

Especially in developing countries, overpopulation has become a social and economic problem. This paper will examine the cultural and economic components that drive people in developing countries to reproduce more than what might be financially viable for them, and how this situation might be addressed. Research suggests that, socially, there are two main reasons that impoverished families have large numbers of children. The first is because there is a societal expectation that many children will die in infancy, even though medical advances have greatly decreased the infant mortality rate in recent years. Second, parents view children as potential safeguards against being abandoned in their senior years. Interestingly, in this instance, poverty could be considered the driving factor in having children. The literature also suggests that government-led initiatives, like the one-child policy in China, are able to expedite resource redistribution to lower income families, as well as promote vertical social mobility for only children, due to more resources being reserved for them. This paper will examine the validity of government-initiated policy in a number of developing countries, and also try to mitigate policies that result in an ultimate population decline, like in Japan, which has economic implications of its own.

## Ketogenic Diet vs. Vegetarian Diet: How they Affect Athletic Performance

Student: Keora Rogers

Faculty Mentor:  
Janet Wojcik, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

COE – Physical Education,  
Sport, & Human Performance

(PESH 381 – Wojcik)

For many years, there has been an ongoing trend of participating in different diets within the athletic community. This response is a result of athletes wanting to see if diets will improve their health and to see what other effects the diet might provide. The most popular diets in this new trend are the ketogenic and vegetarian diets. These diets are vastly different in the nutrients they provide as the ketogenic diet is based on low carb, high fat and the vegetarian diet being abstaining from meat, fish, and poultry. According to research both diets have positive and negative effects on the body, but the insistent question is which diet would be most beneficial to athletic performance? Recreational and elite athletes have participated in various diets; however, it is unknown if they are informed if the diet they are participating in is actually helpful in their athletic performance. This presentation will discuss the different attributes the ketogenic and vegetarian diet have on athletic performance and overall which diet would be more useful to athletes.

## Federal, state, and local minimum wages: Implications for Poverty

Student: Alyse Butler

Faculty Mentor:  
Nicholas Moellman, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CBA – Accounting,  
Finance, & Economics

(Econ 348X – Moellman)

An idea to change the minimum wage is unique and gives an essential way on how to solve some stretches of poverty throughout the United States. Although many have argued in the past for the minimum wage to be increased nationally, they have not been incredibly successful because they have not looked into how federal doctrines will affect local counties when discussing a new national wage standard to implement. The minimum wage is necessary to help with the gap of poverty, but it should defer per state because each state has different attributes like population, a difference in the type of jobs provided in different counties, and the cost of living. Diving into finding the correct pricing average of the minimum wage could be thought-out and solved by finding a specific equation. There are already several variables that give valuable hints to finding and leading the state governments and the federal government in the right direction. By states finding and using the average living cost, the strengths and weakness of how many job opportunities are obtainable, and the educational level that is usually around their counties in their state they can execute these variables in a proper equation. When they have taken in all of those variables, they can find a plausible solution to having a reasonable increase in their state minimum wage. Once there is a start to finding how to calculate a reasonable minimum wage, there will be educational additions in the future to help make and reduce the poverty gap that has tormented millions across the United States for decades and it will help encourage middle-class workers as well.

## **Section 8 housing: The substantial effect subsidized housing has on poverty.**

**Student:** Charles Seinsheimer

**Faculty Mentor:**  
Nicholas Moellman, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CBA – Accounting,  
Finance, & Economics

(ECON 348X – Moellman)

Section 8 housing, otherwise known as The Housing Choice Voucher Program, has a strong positive effect on the communities it serves. This paper aims to show quantitative and qualitative research raising the standard of living for those within the program. Literature about section 8 housing notes the shortfalls of the program almost entirely attributing those failures to a lack of complete funding. Often the shortfalls are noted to be remedied by allocating the same amount of funds to families in deeper poverty to reduce the impact for families most affected. Furthermore, this paper will touch on the less tangible benefits related to individuals choosing housing rather than fixed public housing. This is especially important to families moving out of low income areas into areas with less poverty. Finally Section 8 Housing Vouchers have at least a perceived effect on the property of those who live around them. Studying the externalities of a program to weigh all factors associated is important to finding the real benefit of the program in total to the community.

## **Race Predicts Perceptions of Significant Learning Before and After the COVID-19 Pandemic**

**Student:** Gabrielle McGee

**Faculty Mentor:**  
Donna Nelson, Ph.D.

*Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC, June 2020 & 67th Annual Southeastern Psychological Association Virtual Conference., March 17 – 20, 2021*

*Supported by a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education*

CAS – Psychology

(MCNR 300 – Fortner-Wood)

Our study examined college students' reports of significant learning experiences before and after the remote learning period associated with the COVID-19 pandemic. The extent to which race predicted different perceptions of experiences was also examined. Participants were 127 undergraduate students who completed an anonymous online survey. First, they reported the extent to which they had experienced each of Fink's six types of significant learning while in college. Next, they responded to items intended to measure the effect of COVID-19 on each type of learning in Fink's taxonomy. Results revealed that White students reported experiencing higher levels of significant learning in college than Black students. Furthermore, students overall reported a decrease in foundational knowledge and caring about learning and an increase in learning about the self and others as a result of the remote learning period associated with the pandemic. Black students, however, experienced a higher increase in the Human Dimension category (i.e., learning about themselves and others) than their White counterparts.

## **The Impact of COVID-19 on the Communities of the Northern United States**

**Student:** Matthew Latine

**Faculty Mentor:**  
Nicholas Moellman, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CAS – Mathematics

(ECON 348X – Moellman)

This paper aims to take a closer look at the global and local effects of COVID-19 and the impacts that it has had on those of various economic standings while taking a sharper look at those just above or below the poverty line. At the time of this writing COVID-19 has become one of the most talked about issues sweeping the entire world. Many economists have taken note of this and proceed to dig into the effects that this will have on the less fortunate populace. Most of the academic papers that will be focused on in this paper will take a look at the unemployment rate fluctuations among various races and ethnicities, those with various job statuses and availability of work options to avoid infection, illustrating the disparities between these groups and of those who reported, who were hit the hardest. While there are still a plethora of programs that aim to aid these individuals during times of need, it hasn't been enough to properly leave an impact, especially in light of this epidemic. Surveys have shown that while there has been new aid administered to the populace to ease the economic whiplash from the lockdown last year, these aids aren't nearly enough to properly provide to those who are at their worst, only making enough of an impact being shown on those in better economic standings. These findings will help paint a proper picture of the misfortune that COVID-19 has brought upon those in and outside of poverty.

## **Undergraduate Students' Perceptions, Knowledge, Attitudes Toward Human Trafficking**

**Student:** Katrina Gainey

**Faculty Mentor:**  
Anthony Hill, Ph.D.

*Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC, June 2020 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*Supported by a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education*

CAS – Social Work

(MCNR 300 – Fortner-Wood)

Human trafficking is a violation of human rights because the victims are stripped of their dignity, abused, and forced to work. There is a dearth of research on human trafficking because it is an insidious business, and victims are reluctant to come forward. Human trafficking happens on America's college campuses at alarming rates. Human trafficking permeates all segments of society because it can happen in our backyards. With human trafficking happening on college campuses around America, additional research is needed to understand undergraduate students' perceptions, knowledge, and attitudes about the topic. The study's results can inform programs and other interventions to increase understanding of the warning signs, impact, and safeguards to lessen the effects of human trafficking. The researcher distributed a survey electronically using social media and to measure undergraduate students' perceptions, knowledge, and attitudes toward human trafficking. The researcher measured the relationships or correlations between human trafficking and students' perceptions, knowledge, and attitudes. This research will contribute to the body of knowledge because it helps to reveal undergraduate students' perceptions, knowledge, and attitudes on human trafficking, which could serve as the foundation for programs and other interventions that endeavor to decrease the prevalence of human trafficking. Equally important, this research will heighten researchers' understanding of the topic.

## Diversity, Equity, and Inclusion in the Classroom: Student Experiences at a Small, Liberal Arts University in the South

Student: Veronica Skubisz

Faculty Mentor:  
Jeannie Haubert, Ph.D.

Southern Sociological Society  
Annual Conference, Virtual,  
April 2021 & Seventh Annual  
Showcase of Undergraduate  
Research and Creative  
Endeavors (SOURCE), Winthrop  
University, April 2021

CAS – Sociology, Criminology,  
& Anthropology

Research consistently shows that diversity, equity, and inclusion significantly impact student's experiences in the classroom and their learning outcomes. Our qualitative study aimed to obtain insight from students on their experiences regarding diversity, equity, and inclusion at the university. This study also hoped to provide important information and feedback that can be used to inform the university's faculty workshops. We targeted students who belonged to minority groups in our sample and conducted semi-structured interviews with 30 participants. Due to the COVID-19 pandemic, interviews were conducted via Zoom. We found several common experiences among participants including a lack of inclusive course material, lack of demographic similarities between students and professors, tokenism, the racial binary, being misgendered and/or deadnamed, and an impact from the COVID-19 pandemic. Nearly every participant emphasized the importance of making diversity trainings mandatory for all faculty. Perceptions of whether the university was accommodating towards disabilities was inconclusive, but many students pointed out flaws in the accessibility of campus buildings. In addition, many students provided suggestions and advice for how the university's faculty can improve the classroom space in terms of diversity, equity, and inclusion. Our study was limited by our small sample size and lack of participants with physical disabilities. Future research should focus on broader understandings of disabilities on the college campus as well as examining a larger sample of participants and a wider range of universities.

## The Impact of Physical and Mental Health in Rehabilitation in Athletes

Student: Rodney Oldham

Faculty Mentor:  
Janet Wojcik, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

COE – Physical Education,  
Sport, & Human Performance

(PESH 381 – Wojcik)

Mental health is a topic that is often ignored, especially for those that are athletes. Many athletes spend almost all their time focused on their sports, giving 100% effort to be the best player that they can be, and in a split second it can all be taken away. Injuries make up a large part of any sport and are in most cases uncontrollable. When athletes get injured, there are a lot of emotions that they feel, including sadness, guilt, and anger. So much that some begin to acquire mental health problems, and an athlete's state of mental health can impact how they recover from their injuries in rehabilitation settings. This presentation will discuss the effects of how injuries impact the athletes psychologically, as well as possible solutions that can be used to keep the athletes motivated while rehabilitating including uplifting the athletes, setting goals to strive for, positive self-talk, and mental imagery.

## The Impact of Audience on Romantic Relationship Communication

Students: Marian Perez Doural &  
Kiara Radcliff

Faculty Mentor:  
Merry Sleigh, Ph.D.

Southeastern Psychological  
Association Conference,  
Virtual, March 2021

CAS – Psychology  
(PSYC 302 – Sleigh)

We investigated how the audience for the communication impacted perceptions of romantic relationships. Participants ( $n = 147$ ) had a mean age of 26.95 ( $SD = 14.41$ ). The majority were Caucasian (56%) and women (71%). Participants were randomly assigned to one of four experimental conditions. The versions varied by the gender of the target character (Peter or Stella) in a romantic relationship and by the audience to whom the target character communicates their love for their partner (to the partner or to others). Participants evaluated the quality of the presented relationship. Participants then responded to the Relationship Assessment Scale and the Dating Anxiety and Relationship Anxiety Scales. We found that adults were impressed with relationships where the man directly declared his love for the woman. These partners were seen as emotionally healthy and as good parents. When the woman talked about her love to anyone, the partners were perceived as having better communication and sex, perhaps suggesting the importance of the woman's mood in determining those outcomes. Although communication seemed to be linked to good outcomes, our adults also indicated that the partner who declared their love was the one with the least power and the one most likely to get hurt. In addition, when the woman declared her love to the man, she was also seen as controlling. We did not find many race or gender differences, suggesting some commonality in how young adults view relationships. These findings provide new evidence that the audience of the communication matters.

## Determining the efficacy of using the barbell squat to train the vertical jump

Student: Chase Curtis

Faculty Mentor:  
Joni Boyd, Ph.D.

Seventh Annual Showcase of  
Undergraduate Research and  
Creative Endeavors (SOURCE),  
Winthrop University, April 2021

COE – Physical Education,  
Sport, & Human Performance

(EXSC 465 & EXSC 208 – Boyd)

Vertical jump performance is a standard measure of lower body power. The vertical jump is used to determine an athlete's athletic ability and is a staple of various tryouts and combines for sports such as football and basketball. Because jumping ability is crucial to multiple athletic situations, it is essential to find the training modalities that can best improve this vital skill. This raises the question of what different movements could help facilitate development in the vertical jump. One exercise that has shown efficacy is the barbell squat. Strength coaches see this movement as a staple of any athlete's training regimen because of its usefulness in stimulating growth and strength in muscles of the lower body. While the benefits for strength and hypertrophy are well known, there are still questions about the carryover; this exercise has power-based assessments like the vertical jump. This review will reference the literature that examines the effect that training barbell squats have on vertical jump performance. The accompanying poster will look at three different studies that examine the effectiveness of training the barbell squat on vertical jump performance.

## The Space Quartet

**Student:** Joshua Rose

**Faculty Mentor:**  
Tomoko Deguchi, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Music

The first piece “Big Bang” represents the vast emptiness of what was to be our universe, empty and full of nothing. This is followed by a fun little motive that represents new atoms being created and chaos of everything suddenly expanding. This leads into the slow section where I imagine taking a step back and observe the space dust that was created. Coming out of the slow section is the second A section to this piece, where I focus back on new things being created such as stars, planets, and galaxies. In “Space Wal(k)ts,” I wanted to redefine what a waltz meant to me, and thought about what made a waltz, a waltz. I have always believed that silence is stronger than sound or music. That is the reason of taking out the first beat in the waltz accompaniment. I also imagined a waltz in space and thought of space walks, but with a dark twist at the end. “Space Cadets – Shooting stars” is the third and final movement in this flute quartet set. Again, I wanted to write a march, but not Sousa-like march since I only use flutes. I redefined the march by beginning with a strong piccolo solo and later had the roles reversed with the piccolo playing the reply and the other three players playing the statement. In this way, I kept the piece noticeably a march.

## Creatine Effects on Older Adults

**Student:** Benjamin Ibe

**Faculty Mentor:**  
Janet Wojcik, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

COE – Physical Education,  
Sport & Human Performance

(EXSC 381 – Wojcik)

There are many factors that key into why the human body stops functioning properly as age progresses. Diet and nutrition will affect one's cognitive ability and muscle function as far as how well they will perform exercise and maintain quality of life as age increases. Many older adults tend to accept that their bodies will begin to stop functioning properly and not do the bare minimum to prolong this from happening. In most cases, adults that have minor issues with their health often turn to prescription medication before attempting to resolve the issue with non-pharmacological interventions. There are also numerous misconceptions about dietary supplements such as vitamins, protein, and creatine. Adults must be educated about supplements that will help their bodies function as they get older. Creatine is said to help not only muscle function, but also cognitive ability in older adults. This presentation will consist of the mechanisms of creatine ingestion and how it will benefit older adults who implement the use of it into their regular diet and exercise training programs.

## Haven Amenity ICE Detention Center Design

**Student:** Charlotte Hung

**Faculty Mentor:**  
Sangwon Sohn, NCIDQ

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Design

(INDS 488 – Sohn;  
INDS 459 – Dunlap)

Interior design can create an experience for someone through colors and light by acting as an identifier of the type of space it might be. When choosing a color palette for a project, it can develop an insight into how any space can affect our emotions based on color psychology and ambiance. Esthetix Dentistry medical office and thesis, Haven Amenity ICE Detention Center, are both accompanying individuals who will be experiencing stress and anxiety upon arrival. It is known that many individuals experience high anxiety and stress levels when going to the dentist because of the procedures that take place during their appointment. For the thesis, Haven Amenity, detainees that are brought to ICE Detention Centers are already in a state of the unknown and worry about what their end result might be. To reduce these two factors to create a better experience for these individuals, research was completed to see how color psychology can benefit certain spaces and how the human brain connects with certain colors. Both blue and green hues were known to help decrease stress and anxiety as blue is known to be associated with calmness. Incorporating blue and green hues in the spaces through materials and adding an exceptional amount of windows to enhance daylight in the space lead to the final concept for these two projects.

## College Students' Perceptions of Marijuana Users and Abstainers

**Students:** Madison Merrill,  
Leah Beckwith, Kathryn Cote, &  
Tyasia Nelson-Pringle

**Faculty Mentor:**  
Merry Sleigh, Ph.D.

*Southeastern Psychological Association Conference, Virtual, March 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CAS – Psychology

(PSYC 302 – Sleigh)

The prevalence of marijuana use among college students has been steadily rising. Thus, we examined perceptions of marijuana users on a college campus. Our hypothesis was that casual users and abstainers would be perceived similarly and less negatively than heavy marijuana users. Participants ( $n = 100$ ) college students with a mean age of 19.30 ( $SD = 1.27$ ). The majority were women (72%), and about half were Caucasians (56%). Participants provided information about their marijuana use, academic entitlement, and knowledge of marijuana. Participants were then asked to imagine themselves as either a heavy marijuana user, a casual user, or an abstainer. While imagining themselves in this role, they responded to scales to assess life satisfaction, happiness, and social intelligence. Our hypothesis was not supported. We found that college students perceive their peers who do not use marijuana as having better outcomes and more academic motivation than students who use marijuana at any level. Supporting this perception, college students in our study with heavier marijuana use also had less personal academic responsibility, more academic entitlement, and lower knowledge about marijuana; however, they did not have lower grades. Gender emerged as a more influential variable than race or living conditions, with men reporting more marijuana use than women.

## Gender Equity in Leadership in Sports

**Student:** Taylor Anderson

**Faculty Mentor:**  
Janet Wojcik, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*COE – Physical Education, Sport & Human Performance*

*(PESH 321 – Wojcik)*

In the past there were a lot of women in the exercise and sports psychology field that were being overlooked. Examples include Joan Duda, Deborah Feltz, Diane Gill, Penny McCullagh, Carole Oglesby, Tara Scanlan, Maureen Weiss, and Jean Williams, who are eight trailblazing women who contributed substantially to exercise and sports psychology field. Even though women achieved so many accomplishments they may have received less acknowledgment. Women would only be recognized if their work had a significant impact. As look in the different fields today there are very few women. For example, in strength and conditioning it is male dominated. Tend to see more men than women. This presentation will discuss gender gaps in coaching and leadership positions in sports, and recommended strategies to increase gender equity in these positions.

## Emerge Women's Shelter

**Student:** Dasia Patterson

**Faculty Mentor:**  
Sangwon Sohn, NCIDQ

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CVPA – Design*

*(INDS 488 – Sohn)*

As new facilities are being developed, it begs the question, how are the design of these spaces being executed in a way that promotes one's well-being? Research proves that considering the users and their needs of each space, during the beginning of the design phases creates a more functional, particularly designed space. Integrating architectural and design elements that provide opportunities for control helps in producing an environment that the occupants perceive more safe, resulting in a feeling of relaxation. Furthermore, we as humans, crave a connection to nature as it brings a sense of serenity and joy. Site orientation, window placement, and the utilization of materials are elements that assist in reconnecting those in an interior space with the exterior environment. A medical facility project branded the Birthing Center (pictured) and the current senior thesis project, Emerge Women's Shelter, both exhibit these research applications throughout the design of each space. The success of each end product proves that it is imperative to not only design a beautiful space but to design in a way that best fits the user's necessities.

## The Day the Normans Came

**Student:** Joshua Jacobs

**Faculty Mentor:**  
Gregory Bell, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CAS – History*

*(HIST 590 – Bell)*

The year 1171 CE marks the first moment that King Henry II of England stepped foot on the lands of medieval Ireland; beginning what is historically known as “the English conquest of Ireland.” Though Ireland was not a unified nation at the time; there did, however, exist a system of kingships within the area. Ireland was divided in terms of territorial ownership, but yet all answered to and recognized the authority of the Ard-Ri (High King), which at this time was a man named Dermot Murchada (also referred to as Mac Murogh). The purpose of this paper is to understand what King Henry II was trying to accomplish and to determine whether or not he was successful in this endeavor. This invasion of Ireland, done by Anglo-Normans with papal approval from Pope Adrian IV in hopes of a Roman Christian resurgence in that region, not only failed in the end, but was also a way for the English to leverage royal law in order to take advantage of the local population. It wouldn't be until the middle of the fourteenth century that Ireland would see a decline of the English lordships. Though the lordships were not eradicated, their authority and presence became insignificant over time.

## Beauty & Truth

**Student:** Jewel Edwards

**Faculty Mentor:**  
Anne Fiala, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CVPA – Fine Arts*

*(ARTS 491 – Fiala)*

In my work, I explore themes of black identity and black culture as well as dissecting African American History in America and its impact on today's modern society. This research involves building and researching concepts about critiquing race as a social construct. I address the social issues of colorism within the black community and its relation to privilege. Through different approaches and mediums including video, painting, sculpture, and printmaking, I explore black representation, race relations, and social justice issues.

## **Connections Renewed – Learning to Love Junk Mail**

**Student:** Kristen Kilpatrick

**Faculty Mentor:**  
Anne Fiala, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

Course: (ARTS 491 – Fiala)

Connections Renewed is a project created to reconnect viewers to the real concept that mail brings. Everything is digital in the world today and you can be connected through the internet. Mail is meant to be a way that people can communicate even if there is no other means to do so, but mostly we get ads, coupons, newspapers, and so much more junk mail in our mailboxes. So what if the way we saw these pieces of junk mail was different? Can we still make emotional connections to letters that are from people we have no connections to?

## **Committing to a Journey of Exploration and Discovery**

**Student:** Trenedy Hayden

**Faculty Mentors:**  
Anne Fiala, M.F.A.,  
Shaun Cassidy, M.V.A &  
Stephanie Sutton, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

Course: (ARTS 491 – Fiala)

My artwork is a reflection of my interest, experiences, and the people around me. I have always been a curious person, and that shows in my art. I define curiosity as a genuine interest in wanting to know more. Furthermore, my art focuses on asking questions and committing to a journey of exploration and discovery. My creative habit begins with questioning ideals in our society, the people around me, emotions, and today's politics. Then I explore ways to express the idea or concept through visuals, audio, and materials. I have worked with painting, video, and sculpture individually, and am interested in combining these forms of media through installation. My style of artwork stems from classical forms of painting and my video incorporates a vintage style because I believe in holding onto components of tradition. Our past, history, and elders shape our present and elements carry on. Through incorporating these styles in some of my artwork, I am questioning them and acknowledging the role they play in our society. Narratives and challenges are sometimes continuous through generations.

## **Exploring Sustainability in Design - Seaology and Desert Haven Hotel**

**Student:** Lucy Musselman

**Faculty Mentor:**  
Sangwon Sohn, NCIDQ

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Design

(INDS 488 – Sohn)

Sustainability has become an increasingly popular buzzword in the design field for the past 30 years or so. As the human population steadily grows, so does the need for new buildings for this population to reside, work, and exist in. Additionally, with the awareness of the planet's health in regards to human activity, architects, designers, and engineers are challenged with creating these spaces in ways that leave significantly less of an environmental footprint than the ones before it. Through the use of ethically sourced materials, energy and water-saving technology, and Green Building standards have been put in place, modern buildings such as Seaology and Desert Haven Hotel are not only tackling the concept of sustainability but also creating pivotal examples for future green buildings. Seaology is an Ocean Education and Conservation Center in Myrtle Beach, SC whose mission is to educate the public on the importance of the ocean as well as raise awareness on the growing threats the ocean faces such as climate change. Desert Haven Hotel, pictured, is a boutique hotel in Sedona, AZ offering guests a unique and modern southwestern experience, inspired by the Pueblo style originating from the area as well as the surrounding landscape. Both of these spaces are deeply connected with the natural world and have roots in sustainable design to help preserve the natural aspects inspiring them. By doing so, these spaces work to spread awareness on the importance of sustainability and can encourage the public to be part of the solution.

## **Exploring the Manipulation of Material and Color**

**Student:** Brynn Holland

**Faculty Mentor:**  
Anne Fiala, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

Course: (ARTS 491 – Fiala)

My artistic exploration involves manipulating color and material to create objects with a functional or wearable purpose. I am most interested in how the object connects with a habitation, or the person wearing my art. To fully explore these relationships, I employ color, technical, and material knowledge from metalsmithing, as well as from other studio areas like sculpture, drawing, and ceramics. I gravitate towards brighter colors because of the euphoric emotion it invokes to the viewer or wearer. I question how the use of color can change the wearer's atmosphere; creating a different view of the work that is not focused on the work itself, but the emotion provoked by being worn.

## Comfort in Creation

**Student:** Lauren Baechel

**Faculty Mentors:**  
Anne Fiala, M.F.A. &  
Shaun Cassidy, M.V.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

(ARTS 491 – Fiala)

I strive to make art that allows discovery between both the viewer and myself. My art focuses on the idea of comfort: comfort zones, comforting imagery, and the loss of comfort; discovering how materials can transform concepts into artworks that express the need for comfort that I cannot reach. I am trying to find ways to express the emotions that I cannot talk about while allowing others to find comfort in my discovery. These artworks serve as an extension of my comfort and act as a safety net for my struggles in a healthy way that does not allow negativity to find its way in. Connecting with those around me is a crucial component of the art that I create. As a queer woman who was raised in a devout Catholic household, discovery and comfort have played two very important roles in my growth as an artist and a person. Before discovering art as a form of expression, I felt as if I was completely alone in my lack of comfort. As I created and saw the reactions of the people around me, I was able to understand that through my art I am not alone.

## Making Art About Issues That I Directly Relate To

**Student:** Anna Heath

**Faculty Mentor:**  
Anne Fiala, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

Course: (ARTS 491 – Fiala)

My artwork is motivated by my desire to express and discover myself in relation to my identity, processing my negative emotions, and to make commentary about social issues that concern me. It is important for my art to leave a lasting impact on the viewer because I want them to think more deeply about the social and societal issues that my work addresses. I especially focus on issues relating to gender, identity, LGBT rights, mental health, and interpersonal relationships. These topics are important to me because they directly relate to my own life. By making art about issues that I directly relate to, I am able to work from my own emotions and experiences through art, I can talk about the issues that are important to me with more than just my words.

## Prevention and Rehabilitation of Ankle Injuries in Volleyball Athletes

**Student:** Tia Pridgen

**Faculty Mentor:**  
Janet Wojcik, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

COE – Physical Education,  
Sport & Human Performance

(PESH 381 – Wojcik)

Volleyball is one of the most high risk sports to play for ankle injuries. The game requires lots of momentum to get to the ball and specific technique when approaching different plays. Having an athlete to be put through a program to minimize injury will keep them on the court and help with risk prevention, so that the player is able to continue with the sport. Injury prevention is important for any type of physical activity or exercise an individual is participating in so that they are safe and healthy. Rehabilitation is used as well for improved mobility post-injury in the patient and to potentially achieve better performance in their skill. This presentation will discuss what steps can be taken to prevent and rehabilitate volleyball injuries to help avoid permanent disability and for injured athletes to get back into their pre-injury state.

## Salvation or Control: The Roman Christian Church vs. Heretics

**Student:** Garrett Johnson

**Faculty Mentor:**  
Gregory Bell, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CAS – History

(HIST 590 – Bell)

During the Middle Ages, the Roman Christian Church was at the center of daily life. No matter what title one held, the Church had some sort of rule over you. Members of this Church warned people of the evils that existed and told them how to avoid said evils. The Church was a political powerhouse as well, as the hierarchy of the Church could dictate who could or could not rule in Europe. This power, however, led to Church leaders feeling the need to maintain power. How did the Church assert this power? One way to understand the medieval Roman Christian Church is to look at their treatment of other groups who did not follow traditional Christian customs. When non-traditional Christian groups began to form and attempt to teach Christianity in a different light, the Church saw them as a threat and planned to put an end to these alternative practices and the people who adhered to them. These groups were to be deemed heretical in the eyes of the Church. The heretics were hunted, tortured, and burned at the stake, in order to keep them from gaining any power and in order to “save” the people from their heretical views. In other words, The Church used the idea of heresy to protect the power it had over the lives of European Christians. Leaders in the Roman Christian Church were not concerned with the salvation of their people. Instead, they sought to hunt “heretics,” murdering those who followed different teachings.

## Gender Equity in Leadership in Sports

**Student:** Taylor Anderson

**Faculty Mentor:**  
Janet Wojcik, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

COE – Physical Education,  
Sport & Human Performance

(PESH 381 – Wojcik)

In the past there were a lot of women in the exercise and sports psychology field that were being overlooked. Examples included Joan Duda, Deborah Feltz, Diane Gill, Penny McCullagh, Carole Oglesby, Tara Scanlan, Maureen Weiss, and Jean Williams, who are eight trailblazing women who contributed substantially to the field of exercise and sports psychology. Even though these women achieved many accomplishments they may have received less acknowledgment compared to men. Women would typically only be recognized if their work was felt to have a significant impact. Even though progress has been made, the field is still male dominant such as what is seen in sports psychology and strength and conditioning. This presentation will discuss gender gaps in coaching and leadership positions in sport, and recommended strategies to increase gender equity in these positions.

## The Call for Insurance Coverage Help

**Student:** Hannah Smith

**Faculty Mentor:**  
Janet Wojcik, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

COE – Physical Education,  
Sport & Human Performance

(PESH 381 – Wojcik)

Although often under researched and overlooked, millions of Americans are ineligible to receive healthcare support due to a lack of insurance coverage. With the introduction of the Affordable Care Act (ACA) in 2010, the primary goal was to provide Medicaid coverage to many Americans who were previously uninsured. Despite this, millions of Americans still remain ineligible based on the tightly fixed requirements that determine eligibility. This leaves many low income families, including susceptible children, living in poor health. Drawing from existing survey research, this paper argues for the fixation of the coverage gap that leaves many Americans uninsured and hopeless, as well as for a change in extortionate healthcare costs as insurance coverage is often still not enough to afford good healthcare.

## Process, Material, and Emotion

**Student:** Jason Lindsay

**Faculty Mentors:**  
Anne Fiala, M.F.A. &  
Shaun Cassidy, M.F.A.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CVPA – Fine Arts

(ARTS 491 – Fiala)

When creating an artwork, process is crucial to me. The act of creating is as valuable as the finished piece. I lose myself in whatever I'm working on and fully devote myself to it. To do this, I often seek out intensive, borderline obsessive processes. Through these hands-on, obsessive processes, I engage my whole body. The artwork becomes an extension of myself and we share an intimate bond. Material is a critical part of my sculptural work. Working with traditional mediums, like wood and steel, and experimenting with more unconventional materials, like hair and dirt, allow me to find unique qualities and textures. I find exploring what can be achieved with each material fascinating. A recurring theme in my work is giving physical form to inner feelings and experiences. Some of these works are visualizations of specific emotions, while others are ambiguous forms meant to resonate conflicted feelings. Most of my previous projects in this theme were based on what I was personally experiencing at the time, but this semester I have been exploring the feelings of death and doom hanging over many of us. The year 2020 and the beginnings of 2021 have been tremendously marred by death and turmoil, and by creating works that embody those emotions, I want to allow my viewers to truly feel and honor their grief.

## The Effects of the Southern Strategy and Distrust of the GOP

**Student:** Alexander Bowers

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

CAS – Political Science

(PLSC 490 – Disney &  
Ranallo-Benavidez)

This paper examines the lingering effects of the infamous "Southern Strategy" by the Republican Party and the negative side effects it has caused since its implementation. Denison Kitchel, advisor to late-Senator Goldwater, was the pioneering campaign manager who showed the political benefit for the GOP of fear mongering and racially charged politics in the South. Over the years, top presidential campaign officials including Lee Atwater, Roger Stone, and John Mitchell have deployed this strategy to varying degrees of success. Used to frame racial/ethnic minorities for crime, the Southern Strategy has severely damaged the socio-political climate of the South. Since the formal ending of Jim Crow, the Southern GOP has struggled to recruit candidates of color in the South, with a few notable exceptions. A lack of descriptive diversity among Republican candidates will have a detrimental impact to the party's voter base in the coming decades as the United States' population continues to shift towards a majority of the population coming from racial/ethnic minority backgrounds. For the sake of the GOP's continued viability, changes must be made. This paper examines how distrust and fear of the GOP has been a major contributing factor to the decreasing racial and ethnic diversity of Republican voters in the South. I argue that re-imagined messaging and strategy, away from racialized fear mongering and towards egalitarian opportunities, is the way Republican strategists should capitalize on the shifting voter base of the South.

## Mental and Physical Health in Prison: How Co-occurring Conditions Influence Inmate Misconduct

Student: Dyiamond-Marai Douglas

Faculty Mentors:  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Political Science

(PLSC 490 – Disney & Ranallo-Benavidez)

The American prison population confines over two-million people in national prisons and jails, a 500% increase in 40 years. Though national and state laws have been implemented regarding the prison systems, some laws exacerbated the problem instead of providing a remedy. A large issue concerns how the criminal justice system generally, and the prison/jail confinement system in particular, runs afoul of psychologists' recommendations. While incarcerated, inmates encounter immense mental health challenges, thus, increasing the likelihood of an inmate experiencing solitary confinement as a means of protection or of punishment. Once released from confinement, inmates face barriers as they attempt to re-enter civilian society. Given that so many opportunities, services, and rights are limited, many of the former incarcerated relapse, thereby increasing recidivism rates. This paper highlights why it is crucial to understand how and why imprisonment can exacerbate mental health conditions. Prior research shows the (mis) conduct of inmates correlates with many factors, including their experiences within the carceral system. Poor mental health drives both the misconduct and crimes committed before imprisonment and while behind bars. There is a paucity of research investigating the relationship between concurring conditions and misconduct in prison systems. Nonetheless, there is data demonstrating that inmates dealing with concurrent mental and physical health problems are more likely to engage in misconduct, compared to inmates who are mentally healthy. This paper explores the mental health effects of solitary confinement, contributes to this literature, and supports a prohibition on the practice.

## The Object of the Steal: What Trump Said His Supporters Stood to Lose

Student: Jariel Bido

Faculty Mentors:  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Political Science

(PLSC 490 – Disney & Ranallo-Benavidez)

Donald J. Trump's appeal to right-wing American populist ideals during his campaign and later tenure as the President of the United States garnered him attention, scorn, and sympathizers thanks to his often racist and paranoid criticism of mainstream American politics. After a loss in the 2020 election, Trump's presidential saga rhetorically culminated in a speech that incited an attempted coup at the American capital. This article presents a rhetorical analysis of this speech framed by the perspective of theft, asserting that Trump's topical and rhetorical choices encourage audience action by convincing the audience that it is not simply losing, but being taken advantage of. Content analyses of Trump's Twitter tweets and previous key rally speeches supplant this article by providing topic-specific background on Trump's evolving rhetoric in the last four years. I discuss how this rhetoric of theft and cheating is particularly compatible with populist ideals, explaining how this speech gave a call and a direction to masses of people long encouraged to action.

## Permafrost Based on Changes in Type and Density of Surface Vegetation

Student: Ashley Allen

Faculty Mentor:  
Bryan McFadden, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Interdisciplinary Studies

(ENVS 495 – McFadden)

This project will use satellite datasets in order to highlight alterations to permafrost based on changes in type and density of surface vegetation. Permafrost thaws due to climate change is a lesser studied phenomenon that has effects well beyond the Arctic ecosystems where permafrost exists. Permafrost thaw destabilizes landscapes which results in damage to man-made infrastructure and leads to erosion of landscapes. The bigger concern, and one that has global implications, is that these frozen areas contain a significant amount of stored carbon. As these areas melt, organic matter that has been trapped in the frozen ground begins to release carbon dioxide and other greenhouse gases. This study will utilize satellite data from multiple sources to evaluate vegetation at several points in time. Data from the mid 1980's will be acquired from Landsat 5 with more recent imagery acquired from Landsat 8. Spectral information contained within the data will be utilized to differentiate and quantify vegetation types. Ground truthing classification of the data will be done primarily through use of higher resolution satellite data (Pleiades-1) and ground photos taken during a summer field class in the summer of 2019. The study area is located in and around Churchill, Manitoba, Canada which is made up of three distinct eco-zones: Boreal Forest, Arctic Marine, and Arctic Tundra.

## For the CULTURE

Student: Shadae Tompkins

Faculty Mentor:  
Anne Fiala, M.F.A.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CVPA – Fine Arts

(ARTS 491 – Fiala)

My artistic practice involves creating digital images and photography. I grew up in Columbia, SC where I went to a public school that was filled with people of all races/ethnicities that gave me insight into how other people lived and the culture that they had within their community. Seeing the way that African American culture has impacted the world especially has always fascinated me. I wanted to create work that shows how dynamic and unique black culture is. It has shaped my identity and will forever be my artistic influence.

## The Impact of Mindfulness and Mindful Eating Interventions on Stress and Overall Health

Students: Melanie Needham & Kirsten Dugan

Faculty Mentor:  
Jessie Hoffman, Ph.D.

Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

CAS – Human Nutrition

(NUTR 400 – Hoffman)

Mindfulness is a practice that emphasizes purposefully tuning into the present moment without judgement or attachment. The practice of mindfulness dates back thousands of years with roots in certain groups of religion and spirituality, including Buddhism and Hinduism. More recently, mindfulness practices have become popularized in the Western world and thus research in this area has increased greatly. Mindful eating can be a component of mindfulness and is an approach to eating that focuses on purposeful eating and awareness of senses and the eating process. Numerous research articles have established that mindfulness interventions and mindful eating practices can reduce self-reported stress levels, improve self-esteem, and reduce emotional eating. Research also suggests that the benefits of mindfulness extend beyond mental parameters and can improve metabolic health. These health benefits include regulation of blood glucose and diabetes management, highlighting the usefulness of a self-compassionate model of behavior and dietary change. This poster will review six articles to examine the efficacy of mindfulness and mindful eating interventions, on stress levels and overall health.

## Using Nucleic Acid-Gold Nanoparticle Conjugates in the Fight Against Bacteria that are Resistant to Tetracycline Antibiotics

Student: Allen Livingston

Faculty Mentor:  
Timea Fernandez, Ph.D.

Supported by a grant from the South Carolina EPSCoR/IDeA Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS) & a grant from the National Science Foundation EPSCoR Program (MADE in SC)

CAS – Chemistry,  
Physics & Geology

Antibiotic resistance is major problem in modern medicine. Seventy percent of bacterial strains are resistant to at least one antibiotic, making treatment of bacterial infections ever more expensive and difficult. Currently, we are investigating the therapeutic potency of nucleic acid-gold nanoparticle conjugates as treatments against bacteria that are resistant to the antibiotic tetracycline. We hypothesize that by attaching RNA that binds to tetracycline to silver or gold nanoparticles the resulting conjugates will work as a “Trojan-horse” tetracycline-delivery vehicle that smuggles the antibiotic into the cell without being detected by cellular defense systems. Moreover, we reason that silver or gold ions released by the nanoparticles add to the antimicrobial effects of tetracycline. To demonstrate the viability of this idea, we set out to generate a nuclease resistant variant of the tetracycline binding RNA ykkCD and attach it to gold nanoparticles. During the summer we furthered the progress of this research in three major ways. First, we optimized conditions used for the polymerase chain reaction that generates the DNA template for RNA synthesis. Second, we found the most efficient way to synthesize RNA containing modified nucleotides. Usage of modified nucleotides is necessary to prevent degradation of the tetracycline-binding RNA by cellular nucleases. Third, we optimized a stability assay to verify that the modified RNAs are stable in cellular environments. Fourth, we attached the tetracycline binding RNA to gold nanoparticles. The next steps in the process would be to test the potency of this modified RNA-gold nanoparticle conjugate against a tetracycline-resistant strain of the bacteria E. coli.

## The Impact of Distance Learning on Students with Low-Socioeconomic Backgrounds: An Autoethnography Exploration

Student: Titus Echols

Faculty Mentor:  
Sarah Marie Catalana Berry, Ph.D.

Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC., June 2020 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021

Supported by a Ronald E. McNair Post-Baccalaureate Achievement Program grant from the U.S. Department of Education

COE – Education Core

(MCNR 300 – Fortner-Wood)

As more sophisticated technology for distance learning makes its mark, the role of the teacher is being expanded to include skills and strategies appropriate to teaching students online. Some teachers welcome the opportunity, while others are challenged by distance teaching. In 2020, the advent of the COVID-19 pandemic forced an immediate change to distance teaching at all levels of education. This research examines the effects of distance learning by capturing the perspective of a First-Generation, African American college student who completed his spring 2020 and fall 2021 semesters online. In particular, questions will be asked to determine the positive and/or negative impact of learning for a black, first-generation student with low socioeconomic background. Due to social injustice, financial instability, and lack of experience, educators must understand how the world around a student can affect their academic performance. The data is captured through auto-ethnography, a form of qualitative research that analyzes data from personal experiences through a thematic coding system. The purpose of this research is to provide educators with a more focused lens to see the mind of a student who has to face systemic barriers. This research can assist teachers in helping students to meet Maslow Hierarchy of learning needs, which will increase students' overall academic success.

## Young Adults' Perceptions of Bisexual and Transgender Adoption

**Students:** Sierra Cables & Luciana Scholtens

**Faculty Mentor:**  
Merry Sleigh, Ph.D.

*Southeastern Psychological Association Conference, Virtual, March 2021 & Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*Second Place - Committee for Equality in Professional Opportunities Award for Minority Issues, March 2021, Southeastern Psychological Association*

**CAS – Psychology**  
(PSYC 302 – Sleigh)

Public support for LGBTQ+ rights is at an all-time high; however non-traditional adoptions remain a controversial issue. Previous research examined adopting homosexual parents as a collective group. We focused specifically on bisexual and transgender adoption. We hypothesized that male/female bisexual parents would have higher social approval than a bisexual pair of women, but lower social approval than a male/female straight couple. Participants were 100 adults with a mean age of 19.98 (SD= 1.71). Majority categories were women (70%), African American (45%) and heterosexual (75%). Participants randomly received a vignette that described an adoptive couple comprised of a bisexual woman and male partner, a bisexual woman and female partner, or a straight couple. Participants assessed the couple's qualifications for adopting and the child's likely mental and physical health. We also assessed participants' perceptions of transgender couples adopting and LGBTQ+ rights. We found strong support among young adults for non-traditional parents and perceptions of positive outcomes for non-traditional parents' adopted children. Women and politically liberal young adults were more supportive of non-heterosexual individuals and their adoption rights. These groups may also have perceived that their beliefs were widely endorsed as they predicted less prejudice for children adopted by non-heterosexual parents. These positive feelings may be restricted to very young adults, as age was correlated with more concerns about prejudice and a belief that sexuality is taught by parents. These findings suggest that society may be moving in a direction of more acceptance of non-traditional adoptions.

## The Hills: A Composition for String Orchestra and Harp

**Student:** Madison Bush

**Faculty Mentors:**  
Leonard Mark Lewis, D.M.A.,  
Tomoko Deguchi, Ph.D., &  
Ronald Parks, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

**CVPA – Music**

The Hills, a creative submission, is a composition written for harp and string orchestra. One purpose of this piece is to experiment with richer, fuller sounds from a string orchestra, as well as to combine its timbre and texture with that of a harp. Additionally, this piece was composed as a demonstration of compositional growth based on a period of ten years. The melodic content of this piece is meant to portray the landscape and beauty of rolling hills. The ascending and descending sixteenth note rhythms capture the contour of the landscape, and the dips and peaks of the earth. The moments in the piece in which the music shimmers with tremolo or remains fixed in the upper registers of the strings portrays the fog that settles in, and the summit of the hills that allow one to see the entirety of the landscape from above.

## Causes of the California Homelessness Crisis

**Student:** Logan Lillibridge

**Faculty Mentor:**  
Nicholas Moellman, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*CBA – Accounting,  
Finance, & Economics*  
(ECON 348X – Moellman)

This paper looks to examine the current homelessness crisis in the state of California. Specifically this paper will identify the various policies and government decisions that have led to the state housing nearly half of all homeless people in the United States. The evidence of the situation seems to link the current growing homelessness crisis in California with actions taken by the government. This paper will examine not only the government's actions but also look at how much money is being spent on the crisis and the effect it has had. The argument being made is that while California may spend far more on its homelessness issue it is seeing a much worse return compared to other states which have spent a fraction of the amount and have a much smaller percentage of the homeless population. My argument is based on California state regulations and policies increasing not only the cost of housing but also the general cost of living making low income housing more and more difficult to find and leaving many without the ability to afford a place to live. The state has implemented a variety of programs surrounding mental health and substance abuse with the intent of better treating the respective issues but much of the data surrounding these programs suggests that it has led to an increase in homelessness and extreme poverty.

## The Role of Mental Health and Training in Basketball

**Student:** Shamar Crews

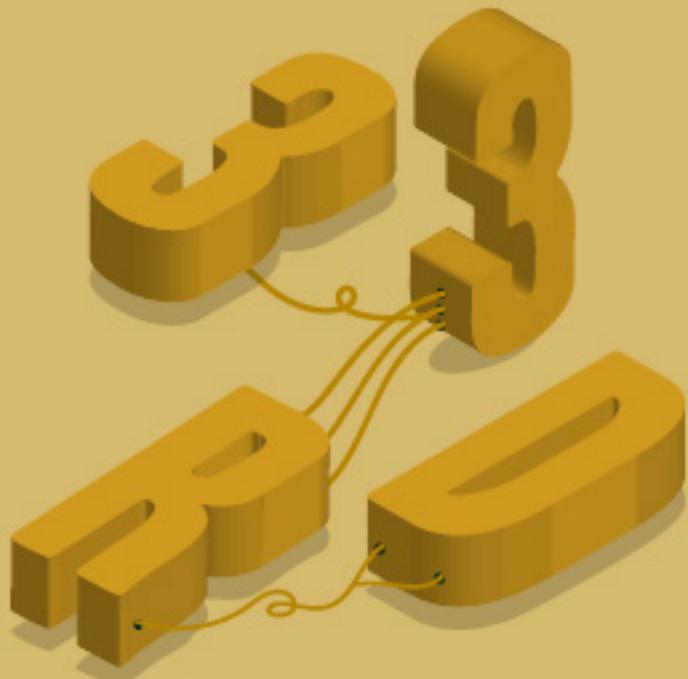
**Faculty Mentor:**  
Janet Wojcik, Ph.D.

*Seventh Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2021*

*COE – Physical Education,  
Sport, & Human Performance*  
(PESH 381 – Wojcik)

Mental health and its effects on sports performance has always been one of the main research areas in sports psychology. While the US has more than 3 million mental health disorder cases per year, almost 35% of elite athletes suffer from a mental health crisis which may come from stress, eating disorders, depression and anxiety. When describing mental health, the anxiety disorder is considered the most common mental illness in the US and it is becoming more common for athletes to reach out and seek help when they feel overwhelmed mentally. With the horrific events of 2020 and the Covid-19 pandemic changing the lives of many, basketball players have been expressing their emotions more frequently and taking time off from playing basketball due to their mental health affecting their performance. This presentation will discuss the role of mental health and training among basketball players.

# 33RD ANNUAL UNDERGRADUATE JURIED EXHIBITION



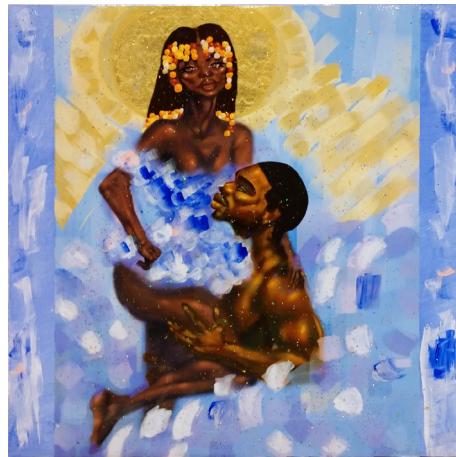
Each spring, current Winthrop University students are eligible to submit their recent work to the Undergraduate Juried Exhibition. It is an opportunity to have their work chosen by a prominent regional juror to exhibit in a professional gallery setting. Open to students in the Department of Fine Arts 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 33rd Annual Undergraduate Juried Exhibition. The selection of this work was made by juror Adam N. Justice, gallery director at UNC Charlotte.

The exhibition was on display February 15 – March 5, 2021 in the Rutledge Gallery.

**Karen Derksen, M.A.**  
Director, Winthrop University Galleries



*Stitched Together* – Abigail Cato



*Sapphire* – Antonio Washington



*Sassy Mammie* – Antonio Washington



*Can I Introduce Myself* – Dianna Devito



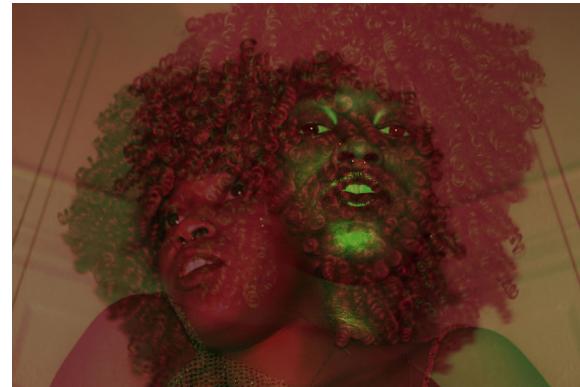
*Clown with a Frown* – Dianna Devito



*Make Me Laugh* – Dianna Devito



*Her Inner Being 1* - Autumn Jackson



*Her Inner Being 2* - Autumn Jackson



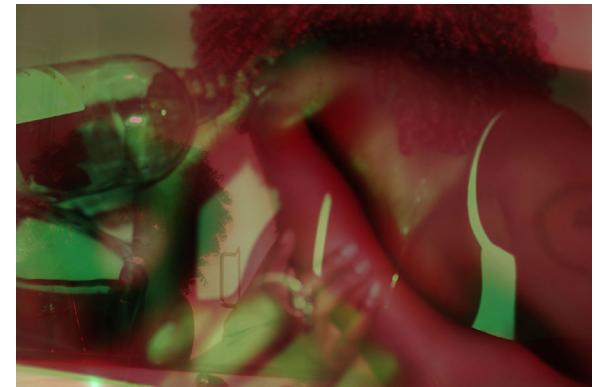
*Her Inner Being 3* - Autumn Jackson



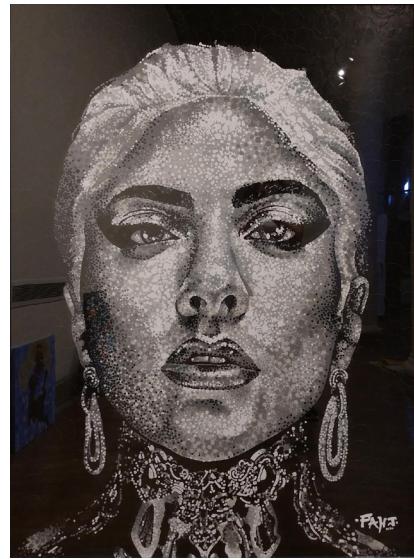
*Her Inner Being 4* - Autumn Jackson



*Her Inner Being 5* - Autumn Jackson



*Her Inner Being 6* - Autumn Jackson



*Germanotta* - Brandon Allen



*Analogous I* - Donya Babcock



*Analogous II* - Donya Babcock



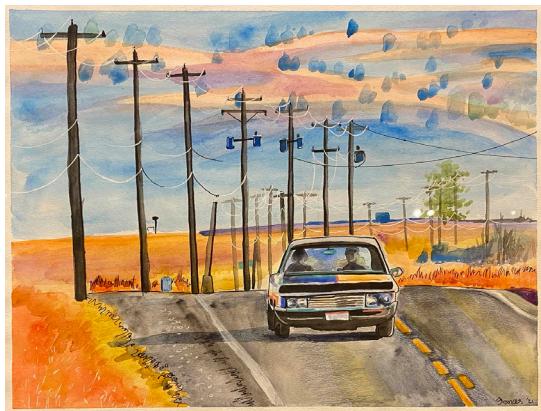
*Heavy Hands* - Emily Shelton



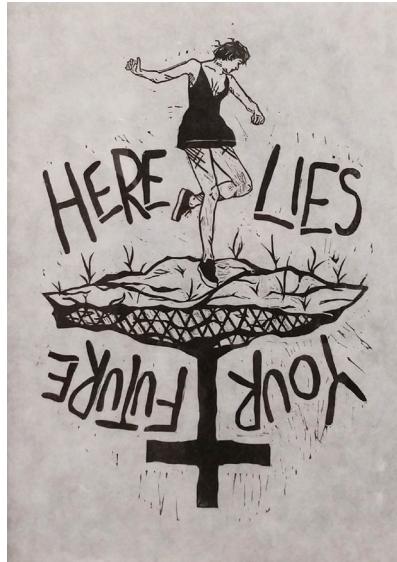
*Nowhere To Go* - Emily Shelton



*Senior Year* - Frances Hardaway



*Supernatural* - Frances Hardaway



*As Above, So Below* - Georgia Howard



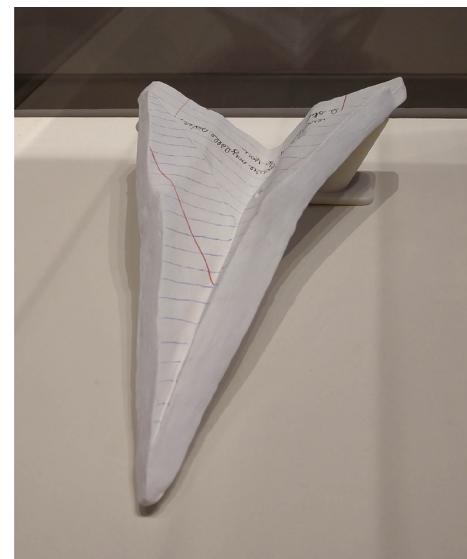
*Ritual* - Griffin Cordell



*Rhoclone Handbag* - Sky Gilbert



*Superman* - Sydney Gambrell



*Turbulence, Tenacity* - Tyjah Ezell



*Sculpture of a Dream Taking Form* -  
Griffin Cordell



*Untitled Put Pale* - Griffin Cordell



*Harlequin and Pierrot* - Jason Lindsay



*Orange Blue Swirl* - Jason Lindsay



*Tumultuous Growth* - Jason Lindsay



*Memory Recall* - Jay Coleman



*What Do You Want* – Jay Coleman



*Teapot* – Jewel Edwards



*Tonya* – Jewel Edwards



*Worry Not, Miserable Marble* –  
Jason Lindsay



*HiBEARnation* – Kim Le



*Kung Flu Face Masks* – Kim Le



*Stars and Stripes* - Kim Le



*Divinity* - Lauren Baechel



*Solid Comfort* - Lauren Baechel



*Untitled* - Lauren Baechel



*Coyote and Fawn* -  
Madeleine Parker



*Pearl Clutch* - Sky Gilbert

# DEPARTMENT OF FINE ARTS B.F.A.

# SENIOR EXHIBITION



## Everything We Meant To Say

Rutledge and Lewandowski Galleries April 5-May 7

Everything We Meant To Say shows the work of 18 BFA students and their skills accumulated during their time at Winthrop. This show not only displays learned skills, but hopes and dreams. It exemplifies artistic honesty between the creator and the art piece, as it is the work these artists feel they have always meant to create. This exhibition is a true show of passion in the physical.

During unprecedeted times, creatives are pushed to grow and authentically create. This is not only a bittersweet farewell, this is a conversation; with each other, with oneself, and with history. This conversation speaks upon how much growth has taken place over this year, not only for this group of artists, but within the world.

The themes revealed through each individual's work is unique and reflective of them as growing artists. However, the title encompasses the honesty and authenticity that these 18 students embody as they reflect on their past 4 years and on their quickly approaching future. These artists look ahead, excited to return to their studios soon and to continue to use the freedom of aesthetics to truly discover and understand themselves as artists and individuals.

Faculty Coordinator: Claudia O'Steen, M.F.A.

Exhibition Statement: Savannah Hawkins & Chloe Ray, Art History



*Untitled* - Anna "Nanners" Heath



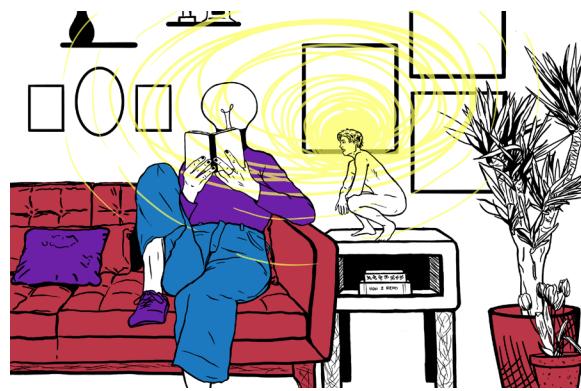
*Untitled* - Avery Setzer



*Untitled* - Dianna DeVito



*Untitled* - Emily Collins



*Untitled* - Georgia Howard



*Untitled* - Gwyneth Manten



*Untitled* – Danielle Walker



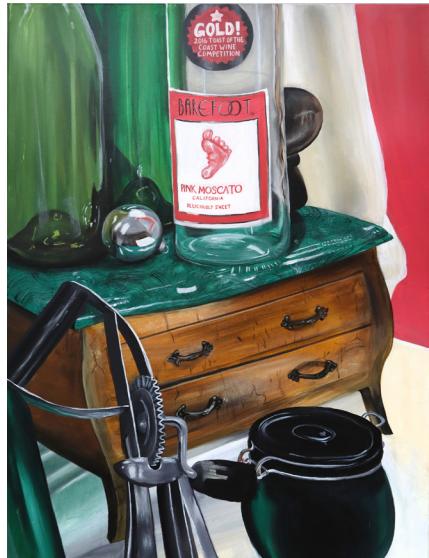
*Untitled* – Frances Hardway



*Untitled* – Lauren Baechel



*Untitled* – Jonathan Bolton



*Untitled* – Kalah Maree



*Untitled* – Madeleine Parker



*Untitled* - Kamryn Knappe



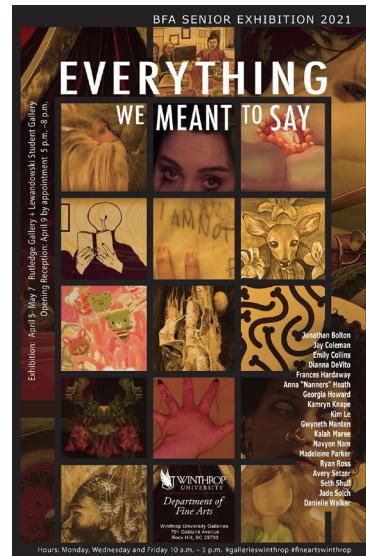
*Untitled* - Kim Le



*Untitled* - Navyen Nam



*Untitled* - Ryan Ross



S2021 Exhibition Poster



*Untitled* - Seth Shull

**FINE ARTS**

**PROFESSIONAL  
PRACTICES**



*On Body* - Sky Gilbert



*MicroEdgePaperE* - Kai Griffin



*The Green Man Cries* - Sophie Harvey



*Solid Comfort 1* - Lauren Baechel



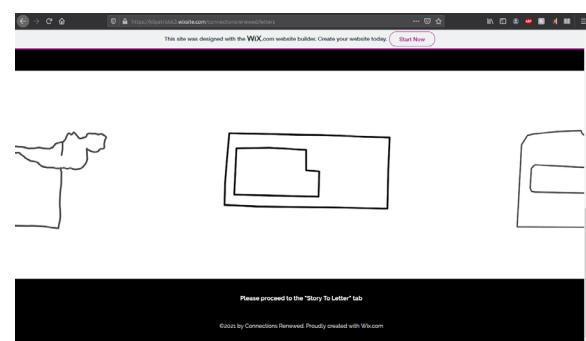
*Untitled* - Griffin Cordell



*Untitled* - Jewel Edwards



Soft Metal Series - Brynn Holland



Connections - Kristen Kilpatrick



I - Jason Lindsay



You Have A Visitor - Rachel Hunnicutt



Trump Accept Me - Meshaal Malik

*Parasitic Pregnancy (Figure One of Three)*, clay, 2" x 1" x 3", October 2020, fertility figure - garden series



Slide 27 - Shannon Ratchford



Shell - Devlin Thayne



Fiala Course QR Code



Use phone camera to  
scan QR code!



# INTERIOR EXHIBITION



Esthetix - Charlotte Hung



Desert Haven Hotel - Lucy Musselman



Lounge - Dasia Patterson

OTHER

ABSTRACTS

## **How Anti-Immigration Sentiment Has Spread to Include Muslim and Central American Refugees During the Trump Administration: An Analysis of National Security and Human Rights**

**Student:** Catalina Harmon

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Disney & Lipscomb)

During the Trump Administration, there have been obvious anti-immigration, anti-Muslim, and anti-Central American sentiments. The anti-immigration sentiment previously did not reach what the public deemed the vulnerable population of refugees. However, falling under a recent spotlight, the Trump administration placed refugees under this anti-immigrant sentiment. Refugees and asylees are no longer seen as a vulnerable population; they are seen with a negative stigma, especially Muslim and Central American refugees. This negative stigma can be traced back to the terrorist attack of 9/11 causing the War on Terror, and more recently with the caravans from Central America. In this paper, I will analyze the human rights and national security conversation revolving around how anti-immigration sentiment has spread to affect Central American and Muslim refugees across the United States. I will do this through both qualitative and quantitative methods. After introducing my paper, I will give a brief background of refugee policy and Trump Administration policy targeting Central American and Muslim refugees. After this, there will be a brief section describing the travel ban and the migrant caravan. I will then go into the analysis of how the Trump administration believes refugees are a national security threat, and how their critics believe that refugees deserve humane treatment and rights. I expect to find an increase in negative opinions directed toward refugees by the general public with the rise of Trump's anti-immigration rhetoric, and I will use human-rights arguments to frame my criticisms of Trump's argument of national security.

## **Black Woman's Activism in the Civil Rights Movement and the LGBTQ Movement**

**Student:** Elexea Elliott

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Disney & Lipscomb)

My paper will explore black women's activist roles within the Civil Rights Movement through an examination of the Christian Church. Black women have been at the forefront of boycotts and exercised leadership roles within the church and organizations such as the National Association for the Advancement of Colored People (NAACP). I will also look at black women and their activism through the Christian Church when it comes to activism for the LGBTQ community. Black women have been advocates, speakers, and allies of the LGBTQ community. I will examine how black women were seen historically and how they participated throughout the Civil Rights Movement. Lastly, I will look into more modern LGBTQ activism that black women have contributed to, exploring the extent to which such activism ties into religion.

## **Solar Energy in South Carolina: Its Potential Use and How to Further Implement It**

**Student:** Grant Houmiel

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Disney & Lipscomb)

In this paper, I explore the question of the supply, demand, potential, and obstacles to the development of solar energy in South Carolina. I have researched how much annual sunlight South Carolina annually receives, as well as how much land in South Carolina is suitable for the development of solar farms, and have determined that there is the potential to have a substantial part of its power grid supplemented by solar energy. After determining that the potential is there, I researched the demand for increased solar energy in South Carolina, and I discovered that the demand for solar energy greatly exceeds the supply, so this is not the reason for so little development of solar energy in South Carolina. I then researched the incentives offered by the major energy company in South Carolina, SCE&G, and determined that they offer almost no incentive to use renewable energy. After a little more research, I discovered that the utility companies in South Carolina had been fighting tooth and nail to prevent solar development in South Carolina. Due to this, I have determined that it will be largely policy change that will aid in the development of solar energy in South Carolina, and that can be seen with the impact that Act 236 has had. South Carolina does have the potential to have 25% of the State's energy being produced by solar energy.

## **Feminine Disciplinary Practices**

**Student:** Sierra Linton

**Faculty Mentor:**  
Gregory Oakes, Ph.D.

CAS – Philosophy & Religion

(PHIL 495 – Oakes)

In this paper, I trace back how Simone de Beauvoir's phenomenological investigation into the reality known as woman led her to proclaim that woman is becoming brought about through incorporating the cultural beliefs and norms of femininity into the lived body. Thereafter, I introduce the ideas of Sandra Lee Bartky, to show how the cultural beliefs and norms of femininity sustain male dominance and have evolved over time. Bartky asserts that in our increasingly visual-oriented society, women are prompted to engage in feminine beautification which serves to prioritize their bodily appearance above their person and reaffirm their subordinate status to men. Despite claims to the contrary, Bartky regards feminine beauty practices, as they stand, as ultimately harmful to the wellbeing of women.

## **Identity Politics: Do They Create a Greater Divide Among Different Groups of Women Fighting for Equality with Men?**

**Student:** Brianna Cessna

**Faculty Mentors:**  
Jennifer Disney, Ph.D. & Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Disney & Lipscomb)

In this paper, using the #MeToo and the #UsToo movements, I attempt to find if the division among the different groups of women using identity politics and intersectionality is causing more struggles in women's fight for equality with men. I believe throughout our history we can see a pattern of minorities being excluded in different areas of life based on the divisions of race, class, and sexuality among the different groups of people. This pattern of exclusion is the major cause of the women's fight for equality with men to be extremely difficult. In the #MeToo movement, we are able to see minorities being excluded, suppressed, and ignored from the white women and celebrities' stories, which gave way for the #UsToo movement. With the #UsToo movement, we are beginning to see a similar effect as the #MeToo movement with other minorities being left out, although it was created in order to have those being left out heard. There are only two ways that I could see change able to come about: (1) if the women and men who are part of the #MeToo and the #UsToo movements were to build a coalition and create bigger numbers within their group; and/or (2) if we changed how society views the gender roles of men and women, especially in the workplace. Once women are seen as true equal beings with men inside the workplace, then I believe it will be an easier transaction to create complete gender equality.

## **A Study of Sociological and Political Theories Ingrained into the United States Justice System**

**Student:** Connor Kelly

**Faculty Mentors:**  
Jennifer Disney, Ph.D. & Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Disney & Lipscomb)

The history of the United States of America is based upon racism and power. Early on in our colonial development, a workforce needed to be established, and with that came along indentured servitude and furthermore slavery, codified in the very founding of our Constitution. These historical ties to servitude have led to many of the problems that the United States is facing today, with polarization and other issues of abuse of power within the government and more specifically within law enforcement agencies. To look into the ties between power and its abuse, it is important to look at the sociological and political theories that have laid the groundwork for the thoughts on these issues at hand, and to see what impact, if any, these different political and sociological theories have had on the criminal justice system, specifically policing. To what extent have these theories led to racial injustices and other disparities within policing? To what extent do these theories help us understand racial injustices and other disparities within policing? This article offers an examination of several important political and sociological theoretical constructs and how they play a role within everyday life for many Americans and their interactions with law enforcement. The goal of this study is to gain not only a qualitative but also a quantitative understanding of the ways in which the implementation of theories can influence police behavior and discretion.

## **Afro-Colombians and Their Position in Colombian Society**

**Student:** Soli Byrd

**Faculty Mentors:**  
Jennifer Disney, Ph.D. & Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490 – Disney & Lipscomb)

With Law 70 being put into place in the early 1990s, the recognition of Afro-Colombians and their contributions began to be more widely seen nationally in Colombia. The national government changed from a policy of colorblindness to one of recognition of multiple ethnic groups. Researchers began to study how race has played a factor in Colombia both in the past and present. This paper will examine Afro-Colombians and their place in Colombian society overall. I will be looking at their position economically, socially, and politically and try to come to a conclusion as to whether or not they are treated as full citizens receiving the benefits and opportunities afforded to other groups in Colombia. I believe that much like African Americans in the United States, Afro-Colombians not only face discrimination but are disadvantaged economically, socially, and politically in comparison to their counterparts.

## **The Usage of African American Vernacular English in the United States**

**Student:** Samantha Hyatt

**Faculty Mentor:**  
Josephine Koster, Ph.D.

CAS – English

(ENGL 507 – Koster)

In this paper, I show the usage of African American Vernacular and the elements that make up the vernacular. While researching this variation of English, I analyze how AAVE speakers experience judgment and discrimination as a result of their speech. To argue the negative experiences that AAVE speakers experience, I analyze the history of AAVE and a few "well known" elements of the vernacular such as the invariant "be", the third person singular inflectional morpheme, multiple negations, and the deletion of [ŋ]. In this paper I use research from Alice Jackson, Taylor Jones, John McWhorter, Walt Wolfram, and Vershawn Ashanti Young. Building off of the research of the authors stated previously, I make the claim that because of the discrimination and negative judgments by speakers of other variations of English, AAVE speakers are more susceptible to falling behind in school. With an educational background in Education, I was able to utilize information that I have learned about how children learn and how AAVE speaking children are more likely to fall behind because of the variation of English they speak.

## Tethered

**Student:** Madeleine Parker

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

CVPA – Fine Arts

*Tethered* is a collection of prints and mixed media drawings in which I use flora and fauna to talk about the emotional similarities between humans and nature when confronted with death. Through this body of work, I explore my interests in using plants and animals as subjects, nature symbolism, and all things macabre. Although morose, death is one of the biggest ties that all living things have to one another. Many people believe that humans are the only living beings capable of understanding grief and the concept of death, but there is actually quite a bit of evidence to prove otherwise. In fact, many groups of animals grieve, even animal species that are not normally recognized as having higher levels of intelligence. There is something really fascinating and remarkable about the idea that we all have these shared feelings for our lost loved ones, and this concept of shared grief is what I discuss in my work. By using animal subjects to show some of the ways that both humans and animals deal with death, I aim to further push this connection between humans and nature. The central visual elements used alongside the animal subjects are flowers, organs, and cloth bindings paired with muted color palettes and organic textures and shapes. This creates work that feels natural as well as visually and conceptually dark. I achieve the textures in my mixed media drawings by building up multiple layers of dry and wet media including gesso, ink, charcoal, and colored pencil and I create an organic aesthetic in my prints by layering different processes together. All of these elements combined are used to further push the idea of a shared connection in both literal and symbolic ways.

## Raising the Bar and Pushing Barriers: Female Coaches in Strength and Conditioning Webinar

**Student:** Sara McGuire

*Faculty Mentor:*  
Joni Boyd, Ph.D.

COE – Psychical Education,  
Sport, & Human Performance

(PESH 408 – Boyd)

The webinar allowed registrants to hear from five female strength and conditioning coaches from collegiate, high school and professional sport programs, as well as three educators within the sport science field. The panel focused on gender barriers within the predominately male strength and conditioning industry. Panelists spoke on the obstacles they have encountered throughout their careers and recommendations they have for those aspiring to coach at any level. Panelists provided their input on how they are advancing within their own positions and how they are continuing to pave the way for other female strength and conditioning coaches behind them. Educators offered insight on the growing demand for female coaches in the strength and conditioning world and provided registrants with resources available to them such as the National Strength and Conditioning Association.

## Does Anybody Know What's Going On?

**Student:** Kamryn (Kam) Knape

*Faculty Mentors:*  
Claudia O'Steen, M.F.A.,  
Anne Fiala, M.F.A., &  
Stacey Davidson, M.F.A.

CVPA – Fine Arts

As an intuitive artist, I start with a piece of paper and a pen and draw continuous, non-directional lines until a form appears, and then I work from there. These works have been created through this process, with my inspiration coming from past works. The painting, titled *Realities Warping as the Planes of Existence Merge*, contains characters I created by merging different body parts of different animals onto each other, creating hybrid creatures. This was inspired by a small accordion book I created in my junior year. I am interested in paranormal and real-life horror stories, which consist of alternate realities, cryptids, and unexplainable things. I draw inspiration from things such as animated movies like *The Croods*, *Coraline*, old Barbie movies, and various Disney Princess movies. I choose bold, solid colors with minimal blending so that each character has a visual impact on the viewer. With these colors, the art demands the viewer's attention. Using metals as a medium, I have created three reliquaries. Reliquaries are meant to hold objects, but I chose to have only one hold something, leaving the other two empty. This is because I would rather the viewer concentrate their attention on the outer design and craftsmanship, rather than what it's holding. The designs on the outside mimic the outlines of the characters from the paintings, and on the inside, the wood panels are painted to continue the fantasy world created on the canvas' and to create a unity between the pieces.

## What If We Were No More Than A Commodity

**Student:** Georgia Howard

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

CVPA – Fine Arts

The project *What If We Were No More Than A Commodity* uses a combination of printmaking and sculpture to explore the idea of a parallel universe where the roles of humans and light sources switch places. Through this work I create screen prints that are printed on paper as well as fabric. The sculptural element is smaller in scale with their own stands for the possibility to be placed anywhere in the gallery. Designs and colors are shared between the prints and fabric to make the work more cohesive.

## Cock Culture

**Student:** Seth Shull

**Faculty Mentors:**  
Claudia O'Steen, M.F.A.,  
Anne Fiala, M.F.A., &  
Shaun Cassidy, M.V.A.

CVPA – Fine Arts

I work within the fields of sculpture and jewelry to create artwork that explores gay culture through my eyes. I make the phallus more decorative to normalize it and move away from the censorship that makes it taboo to be seen. Throughout history, a female nude has been common due to art being made for the straight male gaze therefore, the male nude was scarcely used. Part of the purpose of my art is to expose the male nude in the way the female nude has been to further equalize the perceived view of nudity in art. I also do this to take away the significance that is given to the phallus by making it be seen as more trivial. Lastly, I want to make the phallus less sexually charged and instead make it common so that it is not so controversial in art. Through my sculpture work, I make art that is meant to be placed in the home as common wall art or decorative small sculpture. My jewelry work focuses on incorporating the phallic form into the design and making it seamlessly decorative. By working with sculpture and jewelry I create artwork that explores my perception of gay culture through the symbolism of the phallus.

## What Women Are

**Student:** Emily Collins

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

CVPA – Fine Arts

*What Women Are* uses both sculpture and photography to show contrasting elements of strength and delicacy within femininity while exploring the concept of voyeurism drawn from classical imagery. The sculptures are made up of steel and fabric. I chose to use steel to portray femininity because I am challenging the notion that women and femininity are seen as a weakness. Instead of using only soft and delicate materials, I use a strong and durable material to represent women. The steel is contrasted with the soft and delicate fabrics, showing how delicacy complements strength. For my recent sculpture I draw inspiration from the Knidian Aphrodite and its original placement. This sculpture of Aphrodite was set in a temple with columns encircling the nude figure. While studying this imagery, I compared it to a stage-like setup where this nude woman is put on display solely for the pleasure of looking. This brought me to the decision to use red fabric, such as the fabric used for stage curtains, hanging from the ceiling and meeting with the sculpture. My photography continues these visual and conceptual connections. I draw inspiration from Edgar Degas' paintings titled After the Bath where the viewer is looking in on these women's lives. However, I have these female subjects look directly at the viewer, gaining control. I also use the fabrics from my own sculptures to create a visual connection between the two.

## Candy Color Mind

**Student:** Kim Le

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

CVPA – Fine Arts

My thesis body of work is an investigation of girlhood, materiality, and cultural identity as a young Asian-American woman through colorful craft materials and motifs of my childhood. The early 20's is an integral time in life to figure out who you are, getting in touch with your cultural identity and processing your childhood. I have always been a bright and bubbly person, attracted to bright colors, soft textures, sweet and feminine imagery. I can always return to the motifs of my adolescence like a hand to hold onto as I face adulthood. Comfort items, such as stickers, crayons, Asian snack wrappers, garish costume fabrics and brocade Chinese silks eases my heart when I'm in turmoil, their familiarity grounds me in a time when my identity feels uncertain. Exploring my Asian identity in relation to American society and digging into the vulnerable aspects of myself that I'd rather not acknowledge are daunting tasks; the realizations I make about myself can be very emotionally taxing. Confronting dysphoria and revisiting past insecurities is difficult enough as it is. I want to make work that liberates me but comforts me as well. Deconstructing and investigating familiar childhood comfort items is the physical way for me to process abstract thoughts. I swaddle topics that can be hard to face in happy, bubbly imagery because reckoning with oneself and one's identity is difficult enough already; sometimes it is necessary to tackle these issues with a sense of humor and playfulness rather than with solemnness.

## Pictures From Loved Ones

**Student:** Frances Hardaway

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

CVPA – Fine Arts

My senior thesis focuses on being separated from my loved ones during this time in a pandemic. I've been thinking a lot about what I think love is, and I have decided that love is when someone wants to talk to you just to share something with you. The only contact I have with my family and close friends is through texts or Snapchat since they are distant. I think the perfect representation of love is when someone texts you a picture of something that reminded them of you. For my senior thesis, I am painting the pictures that my friends and family have sent me. The title of each piece is the message they sent along with the image. I have been writing those quotes on the paintings to add a sentimental touch.

## Impact of Spirituality on Sports: A Review of Literature

**Student:** Niageria Bey

**Faculty Mentor:**  
Joni Boyd, Ph.D.

**COE – Physical Education,  
Sport, & Human Performance**  
**(EXSC 480 – Boyd)**

The purpose of the review was to analyze how spirituality could have a positive or negative impact on athletes. Research has shown that athletes go through personal struggles in their daily lives, athletic performance, and mentally. With this information researchers assessed the impact spirituality had on the mind, body, and spirit. According to the Oxford Dictionary, spirituality can be defined as the act of being focused on the mind, body, and soul without regards to external factors. So how can spirituality have a positive or negative effect on athletes' daily lives, mental health, and performance? The studies in this review examined how spirituality can decrease levels of anxiety and depression and increase performance. The methods in the studies were surveys that asked questions on their level of faith, depression, and performance. The methods showed that the surveys made athletes become self-aware on how much spirituality impacts their lives. Participants reported that the stronger they are in faith the better they performed whether they won or lost. The results for the review revealed that athletes with a strong connection to their spirituality are more likely to have a greater shift in focus and preparedness when they face challenging situations. The results found in this review can be used to implement exercises and discussions that would not only exercise the athlete's mind but their faith as well. This review can educate and inform medical professionals on how to actively incorporate spirituality in rehabilitation and when motivating athletes to get back to their sport.

## The Socially Distanced Hug: Greeting Cards with Positivity Messaging

**Student:** Erin Jones

**Faculty Mentors:**  
Jason Tselentis, M.F.A.,  
Elizabeth Dulemba, M.F.A.,  
Cara Peters, Ph.D., &  
Jane Boyd Thomas, Ph.D.

**CVPA – Design**

**(VCOM 486 & VCOM 487 – Tselentis)**

Now, more than ever, it's important to be kinder to ourselves and increase the amount of self-care that we practice. The pandemic has changed the way we live, work, interact with people, and one cannot hold themselves to the same standards of productivity and positivity as before. This brought up the question, "How might I create a line of greeting cards that show the importance of self-care and kindness, while providing a link of closeness between loved ones?" I want my greeting cards to evoke the same feelings that a children's picture book delivers, such as kindness, comfort, and reassurance. My hope is that these cards will provide encouragement and positivity.

## Agree to Disagree: A Game of Meaningless Arguments

**Student:** Natalie Huxtable

**Faculty Mentors:**  
Jason Tselentis, M.F.A.,  
Chad Dresbach, M.F.A.,  
(Non-WU)  
Althea Holenko, B.F.A., &  
(Non-WU)  
John Howard, B.A.

**CVPA – Design**

**(VCOM 486 & VCOM 487 – Tselentis)**

"We can disagree and still be friends" has been repeated consistently on the internet in relation to human rights debates. While the sentiment of the statement is inherently true — you can disagree with people and keep friendships — saying this in the context of human rights is wrong. Instead, using a satirical tone, I will use this statement and create a card game devoted to meaningless debates. Purely for entertainment's sake, the group of players (ages 14 and up) will engage in debates that are inconsequential once the game is over. Through design elements and word play, I plan to create an environment that encourages lighthearted gameplay and cultivates humorous memories. By conducting research on game mechanics and the current market, as well as prototype testing, I will create a fully designed game complete with a set of rules, playing cards, and product packaging professionally made for any game store.

## Gender-Neutral Skincare Packaging

**Student:** Ivy Crumpton

**Faculty Mentors:**  
Jason Tselentis, M.F.A.,  
Mikale Kwiatkowski, M.Arch., &  
Jane Boyd Thomas, Ph.D.

**CVPA – Design**

**(VCOM 486 & VCOM 487 – Tselentis)**

Beginning early in peoples' lives, they are surrounded with products that target their gender. This type of design and marketing is harmful to consumers because it is less inclusive, promotes heteronormativity, leaves space for a gender hierarchy, and alienates consumers by dividing them. The beauty and personal care markets are especially guilty of this with segmented feminine and masculine products like razors, deodorant, hair products, soaps, cosmetics, and skincare products. Though gendered design is evident in skincare product packaging, people do not need different products for their skin depending on their gender. It is more important for people to use the products that are best designed for their skin type. Though the issue of unnecessarily gendering products cannot be quickly solved, it is important that we begin taking steps in the right direction to advocate for change. Through research of existing healthcare and beauty markets, consumer studies, and my own packaging design, I will advocate for the elimination of gendered marketing and promote an inclusive way of packaging products.

## Modifying Acid Ceramidase Inhibitors to Encourage Cancer Cell Apoptosis

Student: Emma Lang

Faculty Mentor:  
T. Christian Grattan, Ph.D.

Supported by a grant from the South Carolina EPSCoR/ IDEA Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS)

CAS - Chemistry,  
Physics, & Geology

In 2020 alone 1.9 million new cases of cancer were diagnosed. This challenging disease has a multitude of treatments that all hope to cure the cancer completely without recurrence. This research focused on the sphingolipid metabolic pathway with a special interest in ceramidase. Ceramidase, if inhibited, encourages cell apoptosis. The final product of this pathway, sphingosine-1-phosphate, encourages cell growth and proliferation. The goal of this research was to inhibit the activity of ceramidase in hopes of increasing the amount of ceramide in the cell which increases apoptosis in cancer cells. There are multiple types of ceramidase that are present in different cells in different parts of the body. Our research focused on the most common and most researched, acid ceramidase. In order to prevent acid ceramidase from binding with ceramide a variety of known inhibitors were evaluated using *in silico* docking studies in Chimera and AutoDock Vina. The inhibitors that were determined successful were also compounds known as thymidylate synthase inhibiting compounds. The goal of the research was to identify the compounds that would have the most success *in silico* and can be later be synthesized and tested *in vitro*. Our results showed that a compound with two iodine ions, and two isobutyl chains performed the best *in silico*. Future research for this topic includes accomplishing the synthesis of these pure derivatives and completing *in vitro* analysis with the target enzyme.

## Targeted Individual: A Short Film About Alienation

Student: Andrew Blackwell

Faculty Mentors:  
Jason Tselentis, M.F.A. &  
Gerry Derksen, M.Des.

CVPA - Design

(VCOM 486 & VCOM 487 - Tselentis)

Disinformation is not a new issue, however it is more prescient during the rise of the disinformation age, where we mostly get our information from social media. While social media has become a nearly essential tool for online communication, recent issues have revealed how the use of social media can lead to the dangerous spread of disinformation, even leading to the formation of movements, such as QAnon which refuses to accept information from outside of their own circles. This leads to harmful alienation, even between family members. Even though social media was a tool created to bring people together, in many cases, the spread of disinformation has led to relationships being torn apart. The big question is; *How does one fall into such an improbable and often disproved way of thinking?* I tell that story in a short film that features fictional characters who are affected by an online disinformation movement, and how social media consumption contributes to its spread.

## Away For a While: Documenting Expats Experiences

Student: Eleanor Fentiman

Faculty Mentors:  
Jason Tselentis, M.F.A.,  
Jeffrey Bellantoni, M.F.A., &  
(Non-WU)  
Annick Martin, B.F.A

CVPA - Design

(VCOM 486 & VCOM 487 - Tselentis)

Moving from one country to another can be a daunting process; while some choose to move, some have no other choice. Expats are people who have moved from their native country to another country and each expat has a unique story to tell. I am making a zine and clothing item that documents and displays the experiences of expats like myself. Titled *Xpats*, the zine serves as a tool and guide for expats and people who are looking to move out of their home country. The clothing item, whether it's a hoodie or socks or something else, will be a symbol of comfort. Hoodies are worn at airports, slept in, slept on; a durable piece of clothing that withstands one's travelling woes and homesickness. Who throws away a good hoodie? A hoodie, to me, holds a lot of memories and memories are often what expats hold onto. To tell this story, I am relying on their experiences and my own in hopes of creating art pieces that are useful, comforting and beautiful.

## Providing Catharsis and Healing through Creative Processes

Student: Thalia Bastidas

Faculty Mentors:  
Jason Tselentis, M.F.A.,  
Jesse Weser, M.A.,  
(Non-WU)  
Tamara LaValla, B.F.A., &  
(Non-WU)  
Althea Holenko, B.F.A.

CVPA - Design

(VCOM 486 & VCOM 487 - Tselentis)

It's time we start normalizing taboo conversations related to mental health, especially for under-represented communities like undocumented immigrants and their families. DREAMers and DACA holders are frequently overlooked or ignored when it comes to mental health, or in some cases, these people will avoid getting the help they need. DACA holders are people who were brought to the United States as children. They are eligible to work, go to college while meeting guidelines and certain restrictions. I pose the question, *How might I use design as a tool to unpack my demons while talking about taboo issues such as mental health within immigrant communities?* Providing awareness about healing through art, design, and creative writing can help make therapy more accessible and provide healing. I explore my own experience as a Dreamer and DACA holder and the "emotional baggage" that I carried, and how specific barriers can prevent young undocumented immigrants from receiving proper mental health support and the lack of accessibility in this demographic. It is necessary to bring awareness and attention to the use of creative processes as affordable methods that provide accommodation to the issue of therapy being accessible to under-represented and disadvantaged communities.

## **Optimal control of an HIV model with gene therapy and latency reversing agents**

**Students:** Andrew Grant & Paul Hazelton

**Faculty Mentors:**  
Zach Abernathy, Ph.D. &  
Kristen Abernathy, Ph.D.

CAS - Mathematics

In this project, we study the dynamics of HIV under gene therapy and latency reversing agents. For constant treatment controls, we establish global stability of the disease-free equilibrium and endemic equilibrium based on the value of the basic reproductive ratio. We then consider time dependent controls and formulate an associated optimal control problem that emphasizes reduction of the latent reservoir. Characterizations for the optimal control profiles are found using Pontryagin's Maximum Principle. We perform numerical simulations of the optimal control model using the fourth-order Runge-Kutta forward-backward sweep method. We conclude with findings that suggest a combination treatment of gene therapy with latency reversing agents provides better remission times than gene therapy alone.

## **Modelling the Effects of Complacency and Educational Countermeasures on the Spread of HIV**

**Students:** Brooklyn Clive & Ryan Lambert

**Faculty Mentors:**  
Zach Abernathy, Ph.D. &  
Kristen Abernathy, Ph.D.

*Supported by a grant from the South Carolina EPSCoR/IDeA Developmental Research Program, an SC INBRE grant from the National Institute for General Medical Sciences (NIH-NIGMS)*

CAS - Mathematics

In this project, we consider a system of five ordinary differential equations which describe the population dynamics of HIV/AIDS when individuals are tested for the virus and then moved onto antiretroviral therapy. We include a Holling Type-II response to model the complacency of the population in response to the number of AIDS cases. We prove global stability of the disease-free equilibrium when the basic reproductive ratio is less than one. We then derive an optimal control problem and solve it theoretically using Pontryagin's Maximum Principle and numerically using the Forward-Backward Sweep Method. We conclude with a discussion on the impact of optimal educational strategies to combat complacency regarding the AIDS/HIV epidemic.

## **21st Century Ideas in CBS' Television Series *Elementary***

**Student:** Taylor Martin

**Faculty Mentor:**  
Josephine Koster, Ph.D.

CAS - English

(ENGL 310 - Koster)

Author Sir Arthur Conan Doyle's character, Sherlock Holmes, has influenced the creation of various adaptations over the years. In the 21st Century, for instance, many Holmes adaptations have been produced. While these film adaptations were created in modern times, many of them do not properly show contemporary ideas that represent society today. Out of all the modern adaptations, the CBS series, *Elementary*, is the best reworking because it properly reflects the most contemporary ideas. Historically, Doyle's original works did not show issues such as drug addiction, mental health, or the presentation of different races and ethnicities in a way that is proper for modern audiences. The purpose of this paper is to show that *Elementary* examines these issues in a way that better reflects the world we live in today. Using various scholarly researched sources, this paper discusses how *Elementary* appeals to contemporary viewers by properly addressing certain issues. As well, this paper looks at examples of Doyle's original works to show how *Elementary* modernized the story of Sherlock Holmes to appeal to 21st Century ideas. The main idea of this essay is that the way that race, gender, and mental health are portrayed in *Elementary* appeal to modern audiences because they are depicted properly. This essay presents researched-based information to show that CBS' adaptation represents modern life better than other versions of Sherlock Holmes.

## **Classic Car Photography**

**Student:** Gwyneth Manten

**Faculty Mentor:**  
Claudia O'Steen, M.F.A. &  
Anne Fiala, M.F.A.

CVPA - Fine Arts

When I take photographs, I show the beauty of my subjects to my viewers. I find beauty in the most mundane things; even if others may find it ugly, I try to bring out its beauty. What captures my attention the most are man-made objects such as cars, architecture, machines, and planes. I enjoy seeing the craftsmanship of these objects and the little details that make them stand out. Rather than photographing the entire building or car, I prefer to focus on the small details. I want to show the headlights of a Bell Air, the brick and glasswork at Julliard, the wings of a B-12 airplane. Such details are often overlooked as we tend to focus on objects as a whole, but the details give cars their spirit, buildings a soul, and machines life. All these details work together to create a whole unit, but they are pieces of art on their own. My work *The Soul of the Classic Car* showcases photographs of details of classic cars. They are organized on an L-shaped wall so that my viewers have to walk around all sides to experience the photos. The photos work together to create the image of a car so that it feels like you are at a car show. The photographs themselves are detailed shots of the cars- headlights, door handles, mirrors, wheels, etc. They will work together to create the full image of a car, making the viewer have to come closer to see the actual details rather than the full illusion of the car.

## Social Work and Criminal Justice Reform

Student: Kayla Thomas

Faculty Mentor:  
Wendy Sellers, Ph.D.

CAS – Social Work

(SCWK 200 – Sellers)

Inequality and injustice in the criminal justice system in America have been prevalent since its origin. Recently, there have been more violent police encounters and police brutality against people of color, specifically African Americans. Some notable instances include Michael Brown, Trayvon Martin, Freddie Gray, Sandra Bland, Tamir Rice, George Floyd, and Breonna Taylor. This injustice is mainly due to overt racism and racial profiling. The “Achieve Equal Opportunity and Justice” policy from the 2021 Blueprint of Federal Social Policy focuses on these racial injustices within the legal system. The policy highlights the criminal justice system’s numerous problems, including discrimination, racial profiling, overcriminalization, and systemic racism. This paper will demonstrate how the “Achieve Equal Opportunity and Justice” policy correlates to social work’s purpose of promoting human and community well-being. Recommendations for advocacy related to this policy will also be addressed. Lastly, the paper will identify and discuss one social work agency/organization that addresses reform and equality in the criminal justice system.

## The King is Coming: Korean Culture Brought to Life Through Story

Student: Joy Heil

Faculty Mentor:  
Jason Tselentis, M.F.A.,  
Elizabeth Dulemba, M.F.A.,  
(Non-WU)  
Brian Lies B.F.A., &  
(Non-WU)  
Yoo Yang Suk

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

My project combines historical Korean culture and modern values to create a timeless tale promoting concepts of respect and humility. My picture book is aimed at children ages 5-8, and includes a story and illustrations that teach and entertain. Through the research of Korean culture and popular children’s books, my finished book will be an historical document and a moral, meshing humor with fact, for children and adults to enjoy.

## Shakespeare's Fat Rogue: Falstaff and Obesity

Student: Allison Reed

Faculty Mentor:  
Matthew Fike, Ph.D.

CAS – English

(ENGL 305 – Fike)

The essay uses biological analysis to determine how John Falstaff's obesity in William Shakespeare's great tetralogy *The Henriad* illuminates his relationship with Prince Hal. Previous criticism from Joshua Fisher, Elena Levy-Navarro, Philip Williams, and others suggests that obesity signifies psychological imbalance within Falstaff and that it ominously prefigures one possible future for Prince Hal. The present study argues that the biological drivers of Falstaff's obesity and resulting death shadow the apparently friendly and fatherly relationship he has with the prodigal prince. For example, obesity can have long-lasting effects on the psyche due to the strain it puts on the body. The infectious personality that Falstaff possesses, combined with obesity's slow destruction of his body and brain, makes him a toxic character whom audiences first fall for, then grow to loathe, and finally pity. In Shakespeare's re-visioning of Jesus's parable, the father figure tempts the son figure onto the broad highway that leads to destruction. Falstaff's obesity not only manifests a repugnant soul that revels in gluttony and other vices but also signifies the antithesis of the glory that awaits Hal as King Henry V.

## Personalized Wedding Invitations

**Student:** Savannah Roper

*Faculty Mentors:*

Jason Tselentis, M.F.A.,  
Casey Cothran, Ph.D.,  
(Non-WU)

Alice Cheong, B.F.A.,  
(Non-WU)

Griffin Glaze, B.F.A., &  
(Non-WU)

Ashley Cook, B.F.A.

CVPA – Design

(VCOM 486 & VCOM 487 – Tselentis)

How might I redesign wedding invitations for couples and their love stories? Wedding invitations have become very generic because of the template-based resources that are available on the internet. Because of this plug-and-chug mechanism, personalities and stories become lost. A wedding is one of the best days of a person's life, and a wedding invitation is the first opportunity to tell a couple's love story. Why use a pre-built template to do so? I will create wedding invitations that are tailored and personalized for engaged couples and their love stories. Each story will determine the overall structure of the form and design in the invitations. With couple's love stories being the foundation of my invitations, these wedding invitations will stand out against competitors because of the intentional approach each invitation will take to be a personalized keepsake for couples and their loved ones once the wedding celebrations are over.

## Bootstrap Percolation in Random Geometric Graphs

**Students:** MeiRose Barnette &  
John Herndon

*Faculty Mentor:*  
Arran Hamm, Ph.D.

*Supported by a grant from  
the South Carolina EPSCoR/  
IDeA Developmental Research  
Program, an SC INBRE grant  
from the National Institute for  
General Medical Sciences (NIH-  
NIGMS).*

CAS – Mathematics

Bootstrap Percolation, sometimes used to model the spread of disease, is a dynamic process on a graph in which a vertex becomes infected if it has too many edges to infected vertices. For bootstrap percolation in a random geometric graph, the size of the initially infected set can determine whether or not the system will percolate. If we choose the initially infected set to be too small, the system will not percolate. Likewise, if we choose our initially infected set to be large enough, then the system will percolate with high probability. We explore just how large our initially infected set should be in order for it to percolate. Furthermore, we explore the local resilience of the graph with respect to bootstrap percolation and with respect to connectivity. We discover that we have a series of "bad configurations" that we want to avoid, or else our system will percolate, and we test how many edges we can remove from our graph in order to avoid these bad configurations. For the local resilience of the connectivity property, we looked into how many edges we could delete from the graph while keeping the graph connected.

## How Have Recent Air Quality Trends In The Sequoia National Park Been Impacting Human and Vegetation Health?

**Student:** Juliet Isaacs

*Faculty Mentor:*  
Marsha Bollinger, Ph.D.

CAS – Interdisciplinary Studies

(ENVS 495 – Bollinger)

This paper investigates the potential impact of excessive ground level ozone concentrations in Sequoia National Park. The ozone concentrations from two monitoring sites within the park as well as the number of exceedance days per year based on EPA standards, both for about the last decade, are presented. In addition, the ozone exposure index for vegetation and the number of visitors per month over the same time period are examined. The data shows that the ozone levels in the Sequoia National Park consistently exceed the EPA standards set for both human and plant health. However, in recent years, the number of exceedance days has been following a decreasing trend, but still remains above the national standards. The number of visitors annually has increased. Unfortunately, peak visitation, most active plant growth, and highest ozone concentrations all occur within the same few months per year. The paper concludes by examining likely causes of high ozone concentrations in the park and suggests some potential solutions for this challenging problem.

## Blow the Whistle: A Conversation on Diversity in Coaching

**Student:** La J'ai Reed

*Faculty Mentor:*  
Joni Boyd, Ph.D.

COE – Physical Education,  
Sport & Human Performance

(PESH 408 – Boyd)

Sports coaching, with professional credentials, is a growing industry in athletics. Beyond promoting optimization of sports skills, sports coaches, at all levels, provide guidance on mental and physical health, quality lifestyle, leadership, and academics. However, as sports levels increase, diversity among coaching staff significantly decreases. While policies including Title IX and the NFL's Rooney Rule have been enacted, there is still a significant amount of progress that needs to be made to ensure absolute, dynamic-changing, and empowering diversity in sport for minorities and women. To better understand how to bolster change, a webinar—hosted virtually, on campus—will be conducted, entitled "Blow the Whistle: A Conversation on Diversity in Coaching – Recognizing Barriers Specific to Black and African American Coaches. Based upon research, this webinar will serve as a sounding board for the initiatives needed to create a more diverse and welcoming coaching environment and inspire future minority and female coaching professionals. The panelist board will feature seven diverse individuals from various sports leadership professions, demographics, backgrounds, and levels, which will serve to diversify the perspectives shared and contribute to the drawing up of a cohesive strategy. This webinar endeavors to note the importance of workplace diversity in leadership and mentorship and share information with those working towards or job searching within athletics on the best practices for being the face of diversity, integrating diversity, or carrying out both simultaneously.

## **Does a Republican President in Office Explain the Public's Confidence in the Police?**

**Students:** Angel Thomas,  
Jessi Lessenberry, &  
Destiny Whichard

**Faculty Mentor:**  
Hye-Sung Kim, Ph.D.  
  
**CAS – Political Science**  
  
(PLSC 350 – Kim)

What is the relationship between a Republican President in office and the public's confidence in the police? In this study, we explore whether the public's confidence in the police is explained by the party in power. Using the public opinion poll data compiled from Gallup over time, we conduct multiple regression analyses to test whether confidence in the police goes up among American citizens during Republican presidential terms compared to Democratic presidential terms. The preliminary zero-order relationship shows that the percentage of confidence in the police is positively correlated with a Republican president in office. In multiple regression analyses, we will examine whether the correlation holds after controlling for potential confounders such as economic growth and presidential approval rating. The results from our analyses will help us understand whether and to what extent the public's confidence in the police force reflects partisan bias.

## **Dark Waters of The Atlantic: Portugal's Quest of Maritime Exploration, Crusade, and Trade**

**Student:** Jared Seganti

**Faculty Mentor:**  
Gregory Bell, Ph.D.

**CAS – History**  
  
(HIST 590 – Bell)

Late Medieval Portugal would find itself in a rather unique position, being situated on the Western-most border of Europe and with a developing commercial and industrial sector based around trade. With Portugal's birth coming in the midst of a crusade to retake Iberia, Portugal would also find itself actively participating in the remaining re-conquest of Iberia, also known as the Reconquista. The crusading fervor did not end with the expulsion of Islam from the peninsula with the victory of Castile over Granada in 1492 CE. The purpose of this paper is to explore what the Portuguese did during the 1400s that was a continuation of wars and economic competition with Islam and even other European trading powers in the Mediterranean such as Italian city states. Being founded during an ongoing conflict between Christendom and Islam, it seems that Portugal would focus its efforts on oceanic travel and exploration in an effort to gain a commercial advantage over both the Italian city states and the Muslims while also hoping to continue the crusade by cutting off the Muslims from the East in a supposed pincer movement with the rest of Western Europe. In doing so, Portugal would launch Europe into the Age of Exploration and Sail when they would begin exploring down the Coast of West Africa in an effort to discover a maritime route to India; thereby expanding their commercial interest over those in Italy and the Muslims by sailing around these middle men.

## **Eleanor Of Aquitaine: The Woman Who Broke Boundaries**

**Student:** Karly Reid

**Faculty Mentor:**  
Gregory Bell, Ph.D.  
  
**CAS – History**  
  
(HIST 590 – Bell)

Eleanor of Aquitaine is one of the most interesting and influential women in medieval history. She was the Queen of England and France as well as the mother to Richard the Lionheart and King John of England, and she participated in the courts, led armies and was a leader during the Second Crusade. Eleanor of Aquitaine has been viewed as a mysterious woman who broke the boundaries that kept women in check during her time period. Did she? In medieval Europe, women rarely had an identity of their own, but instead stood beside their husbands and sons. The purpose of this paper is to understand the role that Eleanor of Aquitaine played as a woman during the Middle Ages. Rather than remain a meek wife or mother, Eleanor of Aquitaine instead chose to break societal norms and be a woman who stood independently in a male dominated society. She held her own power, helped shape Europe, and influenced politics during this time period. Through marriage and relationships with influential men, Eleanor became the most powerful and influential women of the twelfth century.

## **Trans Mutual Aid Project**

**Student:** Tana Hogue

**Faculty Mentors:**  
Jason Tselenitis, M.F.A.,  
Jesse Weser, M.A., &  
Brandon Ranallo-Benavidez, Ph.D.

**CVPA – Design**  
  
(VCOM 486 & VCOM 487 – Tselenitis)

The Trans Mutual Aid Project is an initiative to create a community and support network for Trans and gender non-conforming people in Rock Hill. I aim to create a network that is sustainable, collaborative, and accessible, and most importantly I aim to focus on Trans joy in this project. I created this project with significant guidance and collaboration with the Trans community in Rock Hill, who shared resources, helped with planning, and helped me better understand the needs of the Trans community here in Rock Hill. Together we provide space for people to connect with resources and education, and we organize a free store where Trans people can get gender affirming things like clothes and makeup for free. While this project is mainly a community organizing endeavor, my method of working is informed by community design principles. Community design is a design philosophy that focuses on the importance of including the community you're designing for directly in the decision making process. I use methods for generating ideas and decision making that I've learned at Winthrop in order to create collaborative documents and facilitate meetings where we share ideas and resources. The final project is an exploration of how I can apply my design education in order to achieve my goals in this project.

## **She-Wolf**

**Student:** Cody Chester

**Faculty Mentor:**  
Gregory Bell, Ph.D.

CAS - History

(HIST 590 - Bell)

Margaret of Anjou was queen consort of King Henry VI of England and a leader of the Lancastrians during the infamous Wars of the Roses between the houses of York and Lancaster. Queen Margaret was strong-willed and ambitious, although she led an unsuccessful attempt at obtaining the crown for her son, Prince Edward. Her arranged marriage to Henry VI was intended to create a truce in the Hundred Years' War between her homeland, France, and England. As queen, Margaret proved to be a formidable adversary for those who opposed her. But, just how much of an impact did Queen Margaret, otherwise known as the "She-Wolf" have on the Wars of the Roses? Due to her marriage to the inept and mentally unbalanced King Henry VI, she became a key figure in the King's court, and at times ruled with her husband acting as a figurehead only. Margaret was opposed by Richard, Duke of York, but raised armies and formed alliances. Overall, Queen Margaret was a fierce Queen that did everything in her power to secure her son's place on the throne. Though she failed, Queen Margaret certainly played a key role and had significant impact on the Wars of the Roses.

## **The Diverse Medical Traditions of Medieval Europe**

**Student:** Philip Clapper

**Faculty Mentor:**  
Gregory Bell, Ph.D.

CAS - History

(HIST 590 - Bell)

Medical practices in the medieval world, across both national, temporal, and cultural boundaries, consisted of seemingly eclectic groupings of both practitioners and methods. These ranged from amateur belief in magical practices, left over from previous pagan religions, to herbal remedies by those outside the Church that were often actually effective, but also included Catholic orthodox methods of healing, including prayer and blessings, and Jewish medical traditions as well. The list of those who practiced medicine and other ways of healing was similarly eclectic, and was obviously not limited merely to well-learned, Christian men. Not only did women, one most notable example being that of Hildegard of Bingen, participate in the dispensation of medical knowledge and practice, but the Jewish population also worked alongside secular Christian medical practitioners. As stated, layfolk, or Christians who were not among the Church hierarchy, utilized home and traditional remedies. How did the various medieval medical traditions interact with one another, and how were such a wide range of medical practices effectively coordinated and implemented? Good health was a necessity in medieval Europe, and as such, many medical traditions existed or were forged alongside Church-approved medical practices, and, to a certain extent, were tolerated by the Church.

## **Quality Geriatric Healthcare: Comparing Canada & the United States**

**Student:** Ravyn Cunningham

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.

CAS - Political Science

(PLSC 490 - Disney &  
Ranallo-Benavidez)

This paper examines geriatric health policies in Canada and the United States. Analyzing geriatric health policies illustrates the importance of evaluating health outcomes and their influence on different populations, especially the elderly. Health Policies, according to the World Health Organization (WHO), are decisions, plans, and actions that are taken in order to achieve a specific health care goal within a society. Explicit health policy goals can establish targets to be met on a short- and long-term basis. Geriatric healthcare targets those 65 years of age and older and is a specialization of healthcare with specialized goals. Neighboring North American countries, the United States and Canada, have distinct differences in terms of geriatric healthcare outcomes. Currently, Canada's life expectancy rate is an average of 82 years, whereas the United States' life expectancy rate is an average of 78 years. This paper investigates that distinct difference. Specifically, this paper dissents the geriatric health policies of each country by scrutinizing the hypothesis that Canada has a higher life expectancy rate, in comparison to the United States, because of Canada's universal access to health care without financial barriers.

## **Does gun ownership lead to mass shootings in the U.S.**

**Students:** Jonathan Strauss,  
Brandon Lee, & Benjamin Cordell

**Faculty Mentor:**  
Hye-Sung Kim, Ph.D.

CAS - Political Science

(PLSC 350 - Kim)

What is the relationship between mass shootings and gun ownership? In this study, we explore whether gun ownership measured by the number of guns owned in states is associated with mass shooting incidents in states. Using the aggregate data compiled from various sources such as Crime Research, we conduct multiple regression analyses to examine whether more mass shooting incidents will be observed where there is higher gun ownership after controlling for various compositional differences across states. The preliminary zero-order relationship shows that the percentage of mass shootings positively correlates with gun ownership. In multiple regression analysis, we will further examine whether this correlation holds after controlling for potential confounders such as the prevalence of illegal gun ownership, types of gun laws, and various socio-economic and demographic differences across states. Because our study uses aggregate level data, we are unable to completely rule out the possibility of ecological fallacy. Despite this limitation, however, the results from our study will help us understand what drives the positive correlation between gun ownership and mass shootings.

## **Does social media activity affect how politically active young people are?**

**Students:** Abigail Perito,  
Hunter Hughes, &  
Jackson Browning

**Faculty Mentor:**  
Hye-Sung Kim, Ph.D.  
  
CAS - Political Science  
  
(PLSC 350 - Kim)

In this study, we explore whether political activity levels among young adults are explained by the amount of time they spend on social media. Using the survey data compiled from PEW Research Center, we conduct multiple regression analyses to test whether an increase in social media use leads to an increase in political participation after controlling for various compositional differences, such as gender and party affiliation. The preliminary zero-order relationship shows that the amount of time individuals spend on social media and their political participation and engagement are positively correlated among young people. Through multiple regression analyses, we aim to examine whether this correlation holds even after controlling for potential confounders, such as party affiliation and gender. By analyzing this data, we hope to better understand the influence that social media has on the new generation's connection to political activity.

## **How Georgia Changed from Republican to Democratic during the 2020 Presidential and 2021 US Senate Elections: An Analysis of Interest Groups and Structure of the Georgia Democratic Party and African American Voters**

**Student:** Saadiyah Mills

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.

CAS - Political Science  
  
(PLSC 490 - Disney &  
Ranallo-Benavidez)

Racial discrimination is a controversial social problem in the United States which has been debated over the years by individuals as the fundamental cause of racial injustice in the prison system. The present study contributes to the literature by focusing on mass incarceration, specifically focusing on sentencing disparities in crack/cocaine and opioids from 1980 to the present. Furthermore, I will look at the War on Drugs from the Reagan Period to the present opioid crisis given the history of institutionalized racism. Race and class inequality have impacted drug policies, sentencing disparities, false imprisonment, and criminal justice reforms across this time period. I want to approach the topic by addressing prison reform: how people are looking at it today, how we got here, what does the problem look like, and proposals to make it better. This analysis will examine what criminal justice reforms have looked like throughout the years and what they achieved. I will analyze the problem and look at some examples of contemporary criminal justice reforms. I will showcase what has been successful and what has been limiting. I want to make policy recommendations on what still has to be done and what has not been accomplished in terms of prison reform looking at racial disparities in drug sentencing and false imprisonment.

## **The United States Maternal Mortality Rate and Race**

**Student:** Destiny Whichard

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.  
  
CAS - Political Science  
  
(PLSC 490 - Disney &  
Ranallo-Benavidez)

Pregnancy is one of nature's greatest miracles, but, when things go wrong, the celebration can turn catastrophic quickly. Maternal mortality is a topic many wish to ignore when having a child. Unfortunately, due to rising rates in certain demographics, it is imperative that we look into the problem. There are large disparities amongst women of color versus white women when it comes to the maternal mortality rate in the US. According to the CDC, Black and American Indian/Alaska Native women are two to three times more likely to die from complications during pregnancy than their white counterparts. Many of these deaths are ones that could have been avoided, which then raises the question: "Why are they not being avoided?" This paper seeks to address this disparity experienced by Black and Native women but not white women as to why the chances of them dying is two to three times higher. The miraculous gift of the ability to create and carry life all too often, particularly for mothers of color, turns into thousands of maternal deaths in America. We must address this issue. The shocking truth lies in the fact that although most women have the capability to carry a child, certain groups of women are more likely to die while in the midst of child-bearing process. By analyzing socio-economic factors, racial stereotypes, and cultural norms of these racial groups, this paper provides clarification as to why that is.

## **Social Surveillance State: Evaluating Human Rights Violations in China**

**Student:** Sarah Hicks

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.  
  
CAS - Political Science  
  
(PLSC 490 - Disney &  
Ranallo-Benavidez)

The newly implemented social credit system in China has led to internment camps and systematic discriminatory practices against both ethnic minorities and other vulnerable populations. Some of the worst affected populations of these programs are the ethnic minorities in China, such as the Uyghurs and Tibetans. This research project examines the discriminatory effects of the social credit system on Chinese citizens, specifically analyzing the likely effects on the ethnic Muslim Uyghur population compared to the Han Chinese citizens. As a surveillance state, China's government is notorious for censoring information about any negative aspects of their society by monitoring what every citizen is saying. Therefore, in order to study the effects of the social credit system, I investigate various governmental documents along with outside reports of the treatment of China's minority populations. I hypothesize that these programs only serve the purpose of further inhibiting the minority population of Uyghurs. While many in the international community criticize the social credit system introduced in 2020 for violating myriad human rights, there is so far very little policy action to put an end to the mistreatment of ethnic minorities. Especially alarming to international observers is the government's current practice of moving Uyghurs into concentration camps. In this paper, I argue for a call to action on the international community to put an end to the multiple human rights violations China is creating using the social credit system.

## **International Violence Against Women: Discrimination and Domination**

**Student:** Paris Williams

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.

CAS - Political Science

(PLSC 490 - Disney &  
Ranallo-Benavidez)

International Violence against Women (VAW) is a significant human rights issue around the globe. VAW consists of domestic, physical, sexual abuse, or murder towards women. VAW occurs in all geographical areas but can be more severe in Third World countries that are underdeveloped. This paper will compare two countries, El Salvador and South Africa, to understand the cause of the extreme violence against women and why it has been legitimized as normal, examining the political system, the history, and the political culture of each nation-state. Although gender violence is a significant cause of female morbidity and mortality, it is seldom seen as a public health issue. Female-focused violence signifies the obstacles in the economic and social development sphere. The Covid-19 pandemic has affected people across the world but has impacted women due to the lack of safety. This paper will explore the extent to which the increase of violence that many women have experienced due to the stay-at-home orders and limited access to essential services for protection and resources has been exacerbated by the pandemic. This study will provide data on the dimensions of violence worldwide and the primary prevention of the justice system, policy, and health care assistance for victims in need by including statistics and personal testimonies of women who have experienced violence and faced inequalities.

## **How Georgia Changed from Republican to Democratic during the 2020 Presidential and 2021 US Senate Elections: An Analysis of Interest Groups and Structure of the Georgia Democratic Party and African American Voters.**

**Student:** Malik Frazier

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.

CAS - Political Science

(PLSC 490 - Disney &  
Ranallo-Benavidez)

During the Trump Administration, there were a lot of controversial issues that took place in Washington, DC that alienated a lot of working-class Americans, including African Americans and their issues. During Trump's presidency, many voters organized in their respective states to ensure a Democratic Party victory in November 2020. Policy decisions that Donald Trump implemented while in office motivated many Americans, especially Black Americans, to ensure change in the White House and the United States Senate. Furthermore, the state of Georgia experienced well-documented voter suppression during the 2018 Gubernatorial Election between Democratic Nominee Stacy Abrams and Republican Nominee Brian Kemp which motivated Stacy Abrams to help in the 2020 Presidential and 2021 US Senate Special Election to ensure voter suppression did not happen again in Georgia. During the 2020 United States Presidential Election and the 2021 United States Senate Special Election, Georgia was able to flip Democratic, which in return helped the United States Senate Democrats regain control of the United States Senate. In this paper, I will analyze how interest groups in Georgia helped propel Democratic candidates to win their respective elections for President and Senate. I will be looking at the structure and leadership of the Georgia Democratic Party and how the Democratic Political Party operates in Georgia during elections. Finally, I will examine the role African American Voters played in helping to secure a Democratic victory in Georgia.

## **How Law Schools Can Combat Structural Racism: A Contemporary Analysis of American Judicial Systems and Law School Curriculum**

**Student:** Mailah Bilal

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.

CAS - Political Science

(PLSC 490 - Disney & Ranallo-Benavidez)

Given that law schools are in a unique position to adequately address racism, how can law schools and lawyers today dismantle the structural and institutional racism that has been historically embedded and permitted in our judicial and legal systems? There are several ways that law schools, law students, and lawyers themselves can address this issue. First, I would like to define terms such as "structural racism" and "institutional racism" to provide a foundation of what these terms mean. In this paper, I will conduct a historical analysis of how structural racism is embedded in our legal systems by looking at Supreme Court cases (or cases in general) that deal with discrimination law. Then, I will conduct a comparison of the curriculum between PWI and HBCU law schools, and how they address racism in the classroom. After conducting that analysis, I will propose a policy recommendation on how law schools and the American Bar Association can incorporate anti-discriminatory and anti-racist practices by mandating training and the education of law students regarding cultural biases. The overall project will be significant to the political science discipline since many students of the discipline (including myself) would like to attend law school and become attorneys. It is hard to ignore the overarching theme that is present in our legal systems, and law schools as an institution have a unique ability to combat this issue.

## **Is Policy Enacted by Politicians or Corporate America?**

**Student:** Hailey Forsyth

**Faculty Mentors:**  
Jennifer Disney, Ph.D. &  
Brandon Ranallo-Benavidez, Ph.D.

CAS - Political Science

(PLSC 490 - Disney &  
Ranallo-Benavidez)

Corporate America is the collective group of big business and bigger corporations within the United States. This group of business plays a big role in the United States' economy; however, it may play a bigger role in the national legislative scheme. There might be more overlap within the two than society would perceive it to be. This study will analyze the financial and societal influence that corporate America has on politics, politicians, and the policies created by such. I will examine the past thirty years, look at the biggest corporate lobbyists, and see where their donations lie and the outcome of politics after that. This is in order to see the trend or relationship between economics and politics in America and assess the extent to which a majority of policies made within the United States are within the interest of corporate America, instead of the interest for the betterment of society and the nation entirely. This trend will be analyzed by the highest donors for each campaign and their campaign map down to the laws being enacted and the supporters who continue to influence them. This type of quantitative data will be collected to demonstrate that elected officials, or America in its entirety, is more in the grasp of Corporate America than that of the "free will" democracy we might imagine it to be.

# OFFICE OF NATIONALLY COMPETITIVE AWARDS

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 gathers and disseminates award information and deadlines across the campus community, and serves as a resource for students, faculty, and staff throughout the nationally competitive award nomination and application process. The ONCA Celebration of Applicants is an annual event recognizing the difficult and rewarding challenge taken on by Winthrop University students to apply for some of the most prestigious scholarships in the nation and the world. Win or lose, the process of personal reflection required to complete the application for a nationally competitive award is often transformative in a student's life and can be as important as the outcome. Scholars who applied for these prestigious awards spent countless hours writing and revising personal statements, policy and research proposals, essays, resumes, and answers to "short answer" questions on application forms (which are never short, and always challenging). In the process, I hope each student learned a little more about him - or herself and his or her goals.

Scholars, I'd like to acknowledge and applaud your hard work and say how much I enjoyed getting to know each of you this year. In addition to recognizing the work of each of our ONCA Scholars, I would like to thank each and every member of the Winthrop University community who has given a student an encouraging word, recommended a student for ONCA in person or through the online interim reporting system established by former Dean Gloria Jones, brought an ONCA presentation into the classroom, participated in an award selection or mock interview committee, or served on the ONCA Advisory Board. I would especially like to thank members of Winthrop faculty and administration who have written letters of recommendation for our students this year: this is an arduous undertaking, often resulting in two- to three-page letters full of descriptive detail about our students, their capabilities, and their potential. For all of your time and effort, your students and I thank you.

## AWARD NOMINEES AND WINNERS, 2020 – 2021

**ANSWER Scholarship:** The purpose of the ANSWER Scholarship is to help women raising school-age children in fulfilling their dream of earning a college degree, while creating the desire, expectation, and priority of a college education for their children to follow in their footsteps.

Winthrop University Nominee: Reham Endraws  
(Pending)

**BHW Group Women in STEM Scholarship:** Women who are pursuing an undergraduate or master's degree and are majoring in science, technology, engineering, or mathematics are eligible to apply for this \$3,000 scholarship every year.

Winthrop University Nominee: Jeylinn Lopez

**Central Michigan University REU:** Open to student applicants from across the U.S.A., the Central Michigan University Great Lakes Research Experiences for Undergraduates program, funded by the National Science Foundation and the College of Science and Engineering, supports the training of 8 students for 10 weeks during the summer.

Winthrop University Nominee: Lucas Reed  
(Pending)

**Elie Wiesel Prize in Ethics:** This Essay Contest was established in 1989 by the Elie Wiesel Foundation for Humanity. Thousands of students from hundreds of colleges and universities across the nation have participated in this chance to win \$5,000 with their essays on topics dealing with ethics.

Winthrop University Nominee: Sandra Reyes  
(Pending)

**Ford Foundation Fellowship:** Through its Fellowship Programs, the Ford Foundation seeks to increase the diversity of the nation's college and university faculties by increasing their ethnic and racial diversity to maximize the educational benefits of diversity and to increase the number of professors who can and will use diversity as a resource for enriching the education of all students.

Winthrop University Nominee: Kalin (McKenzie) Bennett  
(Pending)

Winthrop University Alumna Nominee: Anna Barkley  
(Pending)

**Frederick Douglass Global Fellowship:** The Frederick Douglass Global Fellowship honors the legacy of the abolitionist and statesman with a fully funded summer study abroad program. This Fellowship is developed for students of color and selection is in the spirit of Douglass himself with special emphasis on leadership, social justice, agitation for positive change and cross-cultural understanding.

**Winthrop University Nominee:** Trenedy Hayden  
(Pending)

**Fulbright English Teaching Assistantship:** Among the most widely recognized academic honors, Fulbright awards provide support for graduate students and young professionals to teach English abroad. Awards include full grants for an academic-year teaching assistantship in English.

**Winthrop University Nominee:** Soli Byrd

**Fund Education Abroad Scholarship:** (FEA) was established in 2010 to address the need for an independent study-abroad scholarship provider. FEA is expanding access to study abroad by raising awareness of its benefits to the individual and value to the collective, and by granting scholarships of up to \$10,000.

**Winthrop University Nominee:** Logan Pender

**Winthrop University Nominee:** Kalie Todd  
(Pending)

**Hispanic Scholarship Fund:** The HSF Scholarship is designed to assist students of Hispanic heritage in obtaining a university degree. Awards are based on merit; amounts range from \$500 to \$5,000, based on relative need among the Scholars selected.

**Winthrop University Nominee:** Reham Endraws  
(Pending)

**JET: Japan Exchange and Teaching Program:** The JET Program is a competitive employment opportunity that allows young professionals to live and work in cities, towns, and villages throughout Japan. Being a JET is an opportunity to work and to represent the United States as cultural ambassadors to Japan. Most participants serve as Assistant Language Teachers (ALTs) and work in public and private schools throughout Japan; some work as Coordinators for International Relations (CIRs) as interpreters/translators.

**Winthrop University Nominee:** Vlad Markarov  
(Pending)

**Kirkland Fellowship for English Ph.D.'s:** Highly qualified new students in Victorian studies or studies in oral narrative folklore (including cultural studies) at the University of Florida are eligible. Owing to the generous bequest of Mary Neal Kirkland-Johns, the fellowship offers up to four years of support for students seeking a doctorate.

**Winthrop University Alumna Nominee:** Eliza Wilcox  
(Pending)

**Mystic Aquarium REU:** In addition to the focus on cutting-edge marine research, the Mystic Aquarium offers students extensive training in professional development, teamwork and a true view into the world of research.

**Winthrop University Nominee:** Lucas Reed  
(Pending)

**National Science Foundation Graduate Research Fellowship Program:** The purpose of the National Science Foundation's Graduate Research Fellowship Program is to ensure the vitality of the human resource base of science and engineering in the United States and to reinforce its diversity. The program recognizes and supports outstanding graduate students in the relevant science, technology, engineering, and mathematics disciplines who are pursuing research-based master's and doctoral degrees, including engineering and computer and information science, with a \$34,000 renewable fellowship.

**Winthrop University Nominee:** Kalin (McKenzie) Bennett  
(Pending)

**National Society of Leadership and Success:** The NSLS Foundation eliminates funding challenges by providing scholarships and grants to individuals committed to building a better world. The NSLS Foundation awards over \$350,000 each year to NSLS members.

**Winthrop University Nominee:** Kalin (McKenzie) Bennett  
(Pending)

**Payne Fellowship:** The Payne Fellowship, which provides up to \$96,000 in benefits over two years for graduate school, internships, and professional development activities, is a unique pathway to the USAID Foreign Service.

**Winthrop University Nominee:** Kalin (McKenzie) Bennett

**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:** Kalin (McKenzie) Bennett  
(Pending)

**Winthrop University Nominee:** Scarlett Black  
(Pending)

**Winthrop University Nominee:** Olivia Phillips  
(Pending)

**Winthrop University Nominee:** Jessica Ware  
(Pending)

**Winthrop University Nominee:** Kristen Watson  
(Pending)

**Pickering Fellowship:** The Thomas R. Pickering Foreign Affairs Fellowship Program is a program funded by the U.S. Department of State, administered by Howard University, that attracts and prepares outstanding young people for Foreign Service careers in the U.S. Department of State.

Winthrop University Nominee: Kalin (McKenzie) Bennett

**Pi Sigma Alpha Fellowship:** Howard Penniman Scholarships for Graduate Study of \$2,000 are awarded annually to up to 5 members entering graduate school in political science in the upcoming academic year. Nominations must come from the chapter advisors, accompanied by an official application and supporting documents as specified in the program announcement.

Winthrop University Nominee: Kalin (McKenzie) Bennett

**Rangel Graduate Fellowship:** The Rangel Program selects outstanding Rangel Fellows annually in a highly competitive nationwide process and supports them through two years of graduate study, internships, mentoring, and professional development activities. This program encourages the application of members of minority groups historically underrepresented in the Foreign Service, women, and those with financial need.

Winthrop University Finalist: Kalin (McKenzie) Bennett

**Rangel Summer Enrichment Program:** The Charles B. Rangel International Affairs Summer Enrichment Program is a six-week summer program designed to provide undergraduate students with a deeper appreciation of current issues and trends in international affairs, a greater understanding of career opportunities in international affairs, and the enhanced knowledge and skills to pursue such careers.

Winthrop University Nominee: Soli Byrd  
(Pending)

**Sigma Tau Delta Graduate Scholarship:** Sigma Tau Delta offers the \$4,000 Graduate Scholarship in honor of Edwin L. Stockton, Jr., Past-President, who served for 18 years. Members are eligible for this scholarship if they will be enrolled in an English-related graduate program during fall of the next academic year.

Winthrop University Nominee: Adam Caratenuto  
(Pending)

Winthrop University Nominee: Alexandra Pennington  
(Pending)

**Sigma Tau Delta Senior Scholarship:** Student members currently in their senior year of undergraduate study are eligible to apply for this \$4,000 scholarship. Applicants must demonstrate both academic achievement and campus, community, or chapter service; applicants should also explain the relevance of their program of study to fostering the discipline of English, including literature, language, writing, and literacy.

Winthrop University Nominee: Sandra Reyes  
Pending

**Sigma Tau Delta William C. Johnson Distinguished Scholarship:** This \$6,000 scholarship, named in honor of Sigma Tau Delta's Executive Director, recognizes academic excellence and outstanding service to the Society at the local, regional, and/or national level.

Winthrop University Nominee: Alexandra Pennington  
(Pending)

Winthrop University Nominee: Sandra Reyes  
(Pending)

**Spencer T. and Ann W. Olin Fellowship:** The Spencer T. and Ann W. Olin Fellowship for Women in Graduate Study is co-sponsored by the Monticello College Foundation and by Washington University. The fellowship provides full tuition remission and an annual stipend of \$35,000 to female graduate students at Washington University in St. Louis.

Winthrop University Alumna Nominee: Eliza Wilcox  
(Pending)

**The Top of the Rock Peggy Gram Scholarship Fund:** This fund provides scholarships specifically to women involved in Music Education or Vocal Performance Education at the secondary level to assist in the furtherance of their music education. The scholarship is named in honor of Peggy Gram for her over 40 years as director of Top of the Rock Chorus. A scholarship applies to one academic year.

Winthrop University Nominee: Emma Swire-Clark  
(Pending)

**Traub-Dicker Rainbow Scholarship:** The Traub-Dicker Rainbow Scholarship was established by Peggy Traub and Phyllis Dicker to encourage and support lesbian women in their pursuit of higher education. This program provides one-year scholarships of \$1,500 or \$3,000 to those graduating high school or already enrolled in college in any year of study, including graduate school.

Winthrop University Nominee: Kalie Todd  
(Pending)

**USC Wrigley Institute's REU Program in Coastal Ocean Preserves:** This NSF-funded Research Experiences for Undergraduates (REU) program will support eight motivated undergraduate students from diverse backgrounds to conduct independent but guided research that focuses on Coastal Ocean Processes during a 9-week program at the USC Wrigley Marine Science Center on Catalina Island, CA.

Winthrop University Nominee: Lucas Reed  
(Pending)

# 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 and interview guidance, and travel to present research and explore graduate programs. 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. Over 85% of our graduates matriculated into graduate programs by summer 2020. 56% of our 122 prior year graduates have earned at least one master's or doctoral degree. Universities where our alumni are currently completing PhDs include, but are not limited to, Duke, Emory, Georgia Tech, Indiana, West Virginia, and the Universities of Alabama, California San Francisco, Colorado, Florida, Notre Dame, Oregon, and Rochester. As of this our eleventh year, at least 13 Winthrop McNair alumni have earned doctorates (8 Ph.D.s). Each year, the twelve-member Winthrop McNair Advisory Board selects new Scholars through a highly competitive application and interview process. All McNair Scholars complete intensive summer research internships and several have earned awards for their work. For more information about the program, please visit <http://www.winthrop.edu/mcnair>.

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, Executive Support Specialist

Jasmine Goode, Graduate Associate (Winthrop McNair Alumna)

Stephanie Bartlett, Head Writing Coach

Dr. Matt Hayes, Statistics and Methods Coach

Amanda Cavin, Programming Assistant (Winthrop McNair Alumna)

Katrina Gainey, Office Assistant (and current Scholar)

## 2020-2021 Advisory Committee:

**Kiera Alexander**  
Current McNair Scholar

**Jason Hurlbert, Ph.D.**  
Professor, Chemistry, Physics, & Geology

**Adolphus Belk, Ph.D.**  
Professor, Political Science

**Joanna Jackson, Ph.D.**  
Assistant Professor, Management and Marketing

**Jamie Cooper, Ph.D.**  
Dean of University College,  
ex officio

**Willis Lewis, Ph.D.**  
Associate Professor, Accounting, Finance, & Economics

**Cheryl Fortner-Wood, Ph.D.**  
Director, McNair Program and Professor, Psychology,  
ex officio

**Tenisha Powell, Ph.D.**  
Associate Professor, Early Childhood Education Program Director (NC A&T McNair Alumna)

**Victoria Frost, Ph.D.**  
Assistant Professor, Biology

**Karen Stock, Ph.D.**  
Professor, Fine Arts

**Rose Gray, M.A.**  
Director, TRIO Achievers Program

**Janet Wojcik, Ph.D.**  
Professor and Exercise Science Program Director

**Wenonah Hare, D.M.D.**  
Executive Director, Catawba Cultural Preservation Project

**The following McNair Scholars participated in the 2020 Winthrop McNair Summer Research Experience from May 13 – July 3, 2020. They presented their research at the Winthrop McNair Virtual Research Symposium.**

**Kiera Alexander**

Mentor: Dr. Ashley Licata

*Impact of COVID-19 on Food Insecurity and Resiliency in College Students*

**Kalin (McKenzie) Bennett**

Mentor: Dr. Michael Lipscomb

*The Effect of Political Culture on Voter Personality*

*Preferences for Political Leaders: A South Carolina Case Study*

**Kendarius Butler**

Mentor: Dr. T. Christian Grattan

*In silico binding analysis of sphingosine kinase 1 inhibitors for improved oral bioavailability*

**Titus Echols**

Mentor: Dr. Sarah Marie Catalana Berry

*The Impact of Distance Learning on Students with Low-Socioeconomic Backgrounds: An Autoethnography Exploration*

**Brandon Ellison**

Mentor: Dr. Nicholas Grossoehme

*Predicting a viable pH-induced peptide switch to be incorporated with human L-chain ferritin*

**Carlos Escoto-Diaz**

Mentor: Dr. Matthew Stern

*Assessing Effects of Decellularization and Culture Conditions on Small-Diameter Vascular Graft Seeding*

**Katrina Gainey**

Mentor: Dr. Anthony Hill

*Undergraduate Students' Perceptions, Knowledge, Attitudes Toward Human Trafficking*

**Alexis Garrick**

Mentor: Dr. Jason Chung

*Parental Influence on Youth Sport Activity Pattern Before and During Covid-19*

**Kai Griffin**

Mentor: Dr. Brandon Ranallo-Benavidez

*Queer Art Exhibitions: Diverse Inclusion or White, Gay Canon*

**Chelsea Harris**

Mentor: Drs. Giancarlo Anselmo &

Jamie Yarbrough (App State)

*Student Risk Screening Scale at the Middle School Level*

**Keonna Jordan**

Mentor: Dr. Merry Sleigh

*Perceptions of Pain Experienced by African American & Caucasian Women*

**Jomar Lewis**

Mentor: Dr. T. Christian Grattan

*In Silico Binding Analysis of a Zone 2 Modified Sphingosine Kinase Inhibitor*

**Gabrielle McGee**

Mentor: Dr. Donna Nelson

*Race Predicts Perceptions of Significant Learning Before and After the COVID-19 Pandemic*

**Egbe Omoigui**

Mentor: Dr. Tara Collins

*Predictors of Criminal Behavior: Crime Exposure, Childhood Adversity, Discrimination, Parenting Styles, Socioeconomic Status*

**McCayla Partain**

Mentor: Dr. Wendy Sellers

*Campus Mental Health Services and Student Needs in COVID-19*

**Ana Lydia Rodriguez**

Mentor: Dr. Merry Sleigh

*The Role of Youth Race, Stereotype Acceptance, and Aggression on Perceptions of School Altercations*

**Yashuri Del Rosario Rodriguez**

Mentor: Dr. Nathaniel Frederick

*Latinidad and Portrayals of Second- and Third-Generation Latinx Immigrants in One Day at a Time*

**Taylor Sandifer**

Mentor: Dr. Jonathan Marx

*Resilience of Student Organizations During the Global COVID-19 Pandemic*

**Savannah Stinson**

Mentor: Dr. Michael Sickels

*Celebrity Influence on Black Men's Constructions of Masculinity*

**Victoria Sulak**

Mentor: Dr. Brandon Ranallo-Benavidez

*Sexual Education Policies and Sexual Risk in Sexual Minority Youth*

**Aimée Sykes**

Mentor: Dr. Kori Bloomquist

*Knowledge, Practices, and Perceptions of Screening Adults for Childhood Trauma in Primary Care Settings*

**Eric Walters**

Mentor: Dr. Jay Hanna

*Visible-Light Mediated Radical Additions of Aldehydes with Organotrifluoroborates*

# EAGLE STEM SCHOLARS

Winthrop University's Eagle STEM Scholars Program merges the campus's commitment to undergraduate research and promoting the success of students from groups that have been historically underrepresented in the sciences. Biology, chemistry, computer science, environmental science, and math majors receive the academic support and research training needed to pursue graduate studies in either health professions or life sciences. Student support services are modeled after the nationally acclaimed Meyerhoff Scholars Program at the University of Maryland, Baltimore County, and employ the nation's best practices in STEM training and student retention (e.g., an intensive summer bridge experience, rigorous curricula in science and mathematics, academic monitoring, intramural and extramural research experiences, and career guidance). Since its inception, the program has served 174 Winthrop students. Eagle STEM Scholars have successfully competed for top positions in graduate and medical programs, with Eagle STEM alumni at universities such as Alabama, Auburn, Clemson, Duke, Emory, Florida, Georgetown, Georgia, Marshall, Maryland, Nebraska, North Carolina, Notre Dame, Pennsylvania, Pittsburgh, South Carolina, Temple, Virginia Commonwealth, Virginia Tech, UCLA, UCSF, and the Medical University of South Carolina.

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

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

## 2020-2021 Advisory Committee:

**Amanda Cavin**  
Eagle STEM Program Director

**Kathie Snyder, Ph.D.**  
Assistant Professor, Chemistry,  
Physics, & Geology

**Marguerite Doman, Ph.D.**  
Associate Professor, Computer  
Science

**Julian Smith, Ph.D.**  
Professor, Biology

**Victoria Frost, Ph.D.**  
Assistant Professor, Biology

**Takita Sumter, Ph.D.**  
Dean, College of Arts and Sciences

**Cliff Harris, Ph.D.**  
Eagle STEM Program Assistant,  
Director and Associate Professor,  
Chemistry, Physics, & Geology

**Scott Werts, Ph.D.**  
Dalton Endowed Chair of  
Environmental Sciences and Studies,  
and Associate Professor, Chemistry,  
Physics, & Geology

**Pat Owens, Ph.D.**  
Professor, Chemistry, Physics, &  
Geology

**Michael Whitney, Ph.D.**  
Assistant Professor, Computer Science

**Tom Polaski, Ph.D.**  
Professor, Mathematics

# The following Eagle STEM scholars submitted conducted research and submitted abstracts for inclusion in the compilation.

## Kiera Alexander

Mentor: Dr. Ashley Licata

*Impact of COVID-19 on Food Insecurity and Resiliency in College Students*

## Brooklyn Clive and Ryan Lambert

Mentors: Drs. Kristen and Zachary Abernathy

*Modelling the Effects of Complacency and Educational Countermeasures on the Spread of HIV*

## Sigrid Dorman

Mentor: Dr. Jason Hurlbert

*Bioinformatic Analysis and Expression of Bacteriocins B and C from Xanthomonas perforans*

## Kendarius Butler

Mentor: Dr. T. Christian Grattan

*In silico binding analysis of sphingosine kinase 1 inhibitors for improved oral bioavailability*

## Carlos Escoto-Diaz

Mentor: Dr. Matthew Stern

*Assessing Effects of Decellularization and Culture Conditions on Small-Diameter Vascular Graft Seeding*

## Jomar Lewis

Mentor: Dr. T. Christian Grattan

*In Silico Binding Analysis of a Zone 2 Modified Sphingosine Kinase Inhibitor*

## Alyssa Petty

Mentor: Dr. Jason Hurlbert

*Characterization of the Putative Foldase XopAZ from Xanthomonas cynarae*

## Jackson Barrett, Molly Quetel, Evan Thibodeaux, and Eric Walters

Mentor: Dr. Jay Hanna

*Photoredox Mediated Alkylation of Imines with Potassium Organotrifluoroborates in the Presence of an Organic Photocatalyst*

## Jordyn Benson, Ma'Liah Maddox, Courtney Miller, and Gabrielle Walker

Mentors: Dr. Victoria Frost and Dr. Kristi Westover

*Isolating, Purifying, and Characterizing Mycobacterium Bacteriophages Collected from Soil on the Winthrop University Campus*

## Jordyn Benson, Ma'Liah Maddox, Courtney Miller, and Gabrielle Walker

Mentors: Dr. Victoria Frost and Dr. Kristi Westover

*Genome Annotation of Bacteriophages Allegro and Moostard*

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